The 3rd International Conference on Finance and Economics

ICFE 2016

June 15th-17th, 2016

Ho Chi Minh City, Vietnam

PROCEEDINGS OF THE

3RD INTERNATIONAL CONFERENCE ON FINANCE AND ECONOMICS 2016

June 15th - 17th, 2016

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Ton Duc Thang University, Ho Chi Minh City, Vietnam
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Published by: Tomas Bata University in Zlin (Czech Republic)
Zlín, 2016
1st Issue

In cooperation with: Ton Duc Thang University (Vietnam)
The Institute of Chartered Accountants in England and Wales

ISBN: 978-80-7454-599-3
(Tomas Bata University in Zlín)

Preface

Dear Conference Participants!

Welcome to the 3rd International Conference on Finance and Economics (ICFE2016) on June, 15th - 17th, 2016 at Ton Duc Thang University, Ho Chi Minh City, Vietnam. The 3rd International Conference on Finance and Economics is co-organized by:

1. Ton Duc Thang University (Ho Chi Minh City, Vietnam)**,**
2. Tomas Bata University in Zlín (Czech Republic),
3. Institute of Chartered Accountants in England and Wales (ICAEW).

We are also grateful to the support and cooperation of our partners:

1. University of Economics, Prague (Czech Republic),
2. Corvinus University of Budapest (Hungary),
3. European Cooperation Center.

In keeping with the success of the 1st and 2nd International Conferences on Finance and Economics (ICFE2014 and ICFE2015), we present a program of cutting-edge research in the field of Accounting, Finance, Economics and Management, in the form of papers and panel discussions. This year we have four outstanding keynote speakers, all of them with high influence in academia and industry. All papers submitted for the ICFE2016 went through a double peers reviewed process. Acceptance was based on quality and relevance of the research.

All accepted and presented papers are published in the conference proceeding. Authors of accepted papers will have opportunities to publish their extended papers in scientific journals: Prague Economic Papers, University of Economics, Prague, Czech Republic, Journal of Competitiveness, Tomas Bata University in Zlin, Czech Republic and the Review of Applied Economics Journal, Lincoln University, New Zealand.

We express our thanks to all the members of the General Committee Chairs, Program Committee, Organizing Committee, and volunteers who worked very hard to prepare the conference, invite keynote speakers, chairs of the sessions and prepare the conference proceedings. We hope that ICFE2016 will be successful and enjoyable to all participants.
We look forward to seeing all of you next year at the ICFE2017.

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The proceedings will be applied for inclusion in the Thomson Reuters Conference Proceedings Citation Index database.

Message from the Host University

I extend a warm welcome to all of the distinguished speakers and participants of **The Third International Conference on Finance and Economics (ICFE 2016)**. As President of Ton Duc Thang University (TDTU), I am pleased to host the 3rd ICFE. It provides a unique opportunity for university leaders, educators, experts and scholars from all over the world to convene and share novel ideas on crucial issues and trends in the field of Accounting, Finance, Economics, Marketing and Management. I am grateful to all the renowned speakers and delegates for their participation that makes this conference possible.

TDTU has always described itself as a young yet aspiring and dynamically growing higher education institution in vibrant Ho Chi Minh City. It is steadily growing to meet the expanding demand for higher education as well as high-quality human resources in Vietnam. With sixteen faculties and around 30,000 students, the University is now ranked among the largest and fastest developing universities in Vietnam in all aspects.

On behalf of TDTU, the host of ICFE 2016, I would like to express my sincere appreciation to our great partners – Tomas Bata University in Zlín (Czech Republic); Institute of Chartered Accountant in England and Wales; New York University Stern School of Business, Willamette University, Wichita State University, Baylor University (USA); CQ University in Sydney, University of New South Wales, University of New England (Australia); Lincoln University (New Zealand); University of Economics, Prague (Czech Republic), Corvinus University of Budapest (Hungary); Fengchia University, Chinese Culture University (Taiwan); Vietnam Association of Certified Public Accountants, Academy of Finance, National of Economics, University of Economics Ho Chi Minh City (Vietnam); Chiang Mai University, University of Phayao (Thailand); Sultan Idris Education University, Universiti Teknologi MARA Kedah (Malaysia) for their great effort in organizing this Conference, track chairs, reviewers, speakers and authors around the world for their contributions and interest in our event.

I believe all delegates will benefit substantially from the conference through the presentations of expert speakers and exchanges of ideas with one another. I wish you all a wonderful time at the 3rd ICFE.

June 2016

Prof. Vinh Danh Le, Ph.D.
President
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List of Papers

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FUTURE PROSPECTS OF COMPANY VALUATION

Florin Aliu, Adriana Knápková, Hamdu Kedir Mohammed

ABSTRACT

This paper examines the impact of using qualitative and quantitative beta in the overall value of the company. The company analyzed within the case study is private (nonpublic) company. Valuation of the private companies is an important element on price signals that are delivered in the market. Determining intrinsic value of private (nonpublic) companies is essential evidence, not just for mergers and acquisition, but also for banks, suppliers, customers and employees on the current and future outlook of the company. There are a lot of unclear inputs standing on the general theoretical concepts and practical applications that lie within the calculation of non-public companies. The results of the study shed light on a small part of the overall complex issue of the valuation process, where the valuation of the company with qualitative beta shows entirely dissimilar outcomes from the valuation of the company with accounting beta.

Keywords: *Company Value, Discount rate, Beta Coefficient, Discount Cash Flow Method, Free Cash Flow to the Firm*

JEL classification: G32, G33

1 INTRODUCTION

Company valuation is a significant feature in reflecting the underlying settings of the company. In determining the value of the company, different studies applied different approaches. Valuation of the company is an important outcome in reflecting the existing situation of the company as far as it delivers information on future and the current prospect of assets, debt, equity, cash flow and so on. Beta coefficient (that captures systematic risk) is an integral part of the CAPM (Capital Asset Pricing Model) which is the main element in determining the value of the companies listed on the stock market and non-listed companies. A study conducted by Chambers et al. (2013) in a period from 1992 to 2010 for 65 industrial companies in Istanbul Stock Market (ISM), shows that beta coefficient and Total Debt/Market Value were found to have statistically significant and positive effect on stock returns, in real and nominal terms. There are many uncertainties associated with valuation of companies. For Fernandez et al. (2015) these uncertainties are errors associated with company valuation such as discount rate, company risk, future cash flows, residual values and the like. According to Jacksonville M. and Jacksonville B (2015), valuation of private firms has always been imprecise science and used for different purposes, such as capital financing, estate planning, stock incentives plan, economic damage awards, divorce, initial public offerings among others. Fundamentally, company is being valued for its future prospect rather than for its current state (Damodaran 1996). The reason why our research has been conducted on private (nonpublic) companies stands on the fact that all their financial and nonfinancial items are not publicly traded which would enable revaluation from their historical costs. In addition to this problem, indicators used for public companies such as beta coefficient incoming from regression analysis does not give an accurate risk depiction for the private companies, from the basic fact that private companies are not listed on the stock market.

Another issue is the significant difference in the value of company when applying different method. Kaplan and Ruback (1995), performed a study with 51 highly leveraged companies using discount cash flow (DCF) and comparable multiples approach. However, they did not come up with a concrete suggestion as to which of the two methods are more valid.

Companies listed on the stock market have a strong image on necessary inputs for the valuation process, since all factors such as β (beta coefficient), stock prices, P/E ratio (stock prices /earnings per share) are online accessible and daily available. The extra struggle that ascends is with non-listed companies on the stock market. The major problem with non-listed company is to find the appropriate methodology to value the company. Heavily relay only on the financial statements is difficult to capture the intrinsic value of the company. The major limitation of traditional financial statements is they do not project the future and the exact status of the firm. Balance sheet and income statement data are representing sunk data, which are inherently historical. In our study, we built the research questions based on key and most important inputs used for valuing companies. Since historical beta generates sometime worthless outcomes, several companies compute qualitative that better capture risk level of the company Fernandez (2014), which has been used in our model of calculating the value of the company under qualitative beta. In this paper, we strived to find answers to the questions: Does qualitative and quantitative beta provides the relatively representative result on the company value? Another question is the extent of strength in capturing underlying risk between the two beta coefficients. This study differs from previous studies as it strikes on the core concepts of private company's valuation.

2 METHODS

The study used two approaches of finding beta for valuing a company level of risk. The first one is based on accounting beta and the second one is based on qualitative beta. Data concerning financial statements are obtained from Albertina Database (Albertina is a database of Czech companies). Additionally, in our research we have conducted review of all available data on the company and the industry economic perspective to get answer for questions in order to find qualitative beta. Based on the available information we estimated the qualitative beta. The area where the company operates is manufacturing industry of composite materials (plastic industry). Simply one company has been used within the model that operates in plastic cluster in Czech Republic. Extending the number of companies used for calculation within the model would generate replication of the identical outcomes. Financial statements of the company in our case study have been analyzed in a range of four years, from 2010 until 2013. Micro and macro factors and moreover general financial position of the company has been considered when qualitative beta has been obtained. The same methodological steps have been conducted on both approaches (the one with qualitative beta and the one with accounting beta), since the technical process of valuation remains the same. Variables that does not change in both methodologies are risk free rate, risk premium, growth rate, terminal values in terms of FCFF and cost of debt. The only variable that change on yearly basis from two methods is cost of equity. Since cost of equity is represented in the model through CAPM (Capital Asset Pricing Model), and part of CAPM is beta risk.

DCF (Discount cash flow model) is a frontward looking indicator in the valuation of nonpublic and public companies; it detains future cash flows that the company will generate. DCF model incarcerates risk-reward trade-off, captured through discount rate. Discount rate (cost of equity and cost of debt), starts with the internal risk of the company and ends up with the general risk of the economy (systematic and unsystematic risk). This method has basic assumptions to be followed during valuation process. Hence, these assumptions will necessary affect the value of

the company (Steiger, 2008.). Crucial variables within the DCF model are future cash flow predictions and discount rate. In case of companies listed on the stock market, it is easier to outline company value, since the risk is linked by the volatility of company returns with market returns (beta coefficient). Beta coefficient represents the slope of the linear relationship on the regression analysis, through regressing returns of the company with the returns of the stock market.

$$\beta = r\sigma_i / \sigma_m \tag{1}$$

Where β represents the beta coefficient, while σ_i shows standard deviation of particular stocks or portfolio and σ_m tells standard deviation of the stock market, which is referred as standard beta. Beta captures market risk or systematic, while very well diversified portfolios are capable to alleviate only unsystematic risk or diversifiable risk (Elton et al, 2003), not market risk. The beta risk lies within the CAPM (Capital Asset Pricing Model) as part of with two other components such as the risk free rate (RFR) and return on the market (RM).

$$CAPM = R_{FR} + \beta(R_M - R_{FR}) \tag{2}$$

Where R_{FR} represents risk free government bonds, $(R_m - R_{FR})$ shows risk premium, which is telling the difference of government bonds return and market return. Since CAPM, detain within itself all types of investments, such as domestic equities, foreign equities, bonds, property, currencies, derivatives, etc. According to Roll (1997), CAPM will never be a testable theory until we do not know the configuration of the market portfolio. In our research study, we have used FCFF (Free Cash Flow to the Firm) as part of the geometric progression; standard finance theories require discounting FCFF for WACC (Weighted average cost of capital). Using incorrect risk free rate in the valuation process, is a central issue for misleading results in valuation, mostly in valuing companies is used historical risk free rate but is better to use 90 days US treasury bills (Fernandez. P & Bilan A. 2015).

$$WACC = \left[\left(\frac{MV(Debt)}{MV(Equity)+MV(Debt)}\right)\right] \times rd \times (1 - tax.rate) + \left[\left(\frac{MV(Equity}{MV(Equity)+MV(Debt)}\right) \times r\right] \tag{3}$$

Where MV (Equity) represents the market value of equity, MV (Debt) represents the market value of debt, tax rate shows the tax on profit that the company is paying for government, *rd* represents the cost of debt and *r* shows cost of equity. Koeplin et al. (2000) compared the valuation ratios for private and public companies, percentage difference between the two was the discount rate. Their findings resulted that domestic companies are acquired at 20-30% discount relative to public companies when earnings multiples are used, while non-US companies are acquired at 40-50% discount when earnings multiples are used to value the transactions. Modigliani & Miller (1958) investigated the consequences and the effects of advantage on the firm's value. Their intention was that in the nonexistence of taxes, the firm's value is in depended of its debt. E+D=Vu, if T=O; which is fairly significant on the valuation approach while privately held firms have a diverse tax construction than publicly held firms, as well less entrance to the debt markets.

WACC is a crucial element in the geometric progression that captures the value of the firm, because of negative trade off, higher WACC corresponds to the lower value of the company. All these inputs are included within the discounted cash flow model.

$$DCF = \sum_{t=1}^{\infty} \frac{FCFF_t}{(1+WACC)^t} \tag{4}$$

Where: DCF represents the present value of the firm (intrinsic value)

FCFF represents free cash flow of the firm

An identical model with the same steps and procedures has been used in presenting the intrinsic value based on accounting beta and qualitative beta. Investors that invest in the stock markets do not face difficulties of diversifying their portfolio, since they can allocate their portfolio in different financial securities and reduce or eliminate unsystematic risk. While in privately held firms the owner is a sole investor; therefore, it is opposed to systematic (market risk) and unsystematic risk (diversifiable risk). Company valuation based on different accounting approaches such as: equity cash flow, free cash flow, APV (Adjusted Present Value), business's risk-adjusted free cash flow, economic profit, EVA (Economic Value Added) should come up with equivalent outputs (Fernandez 2002). All these synthetic issues are key constituents in valuation models because they shape the valuation methods and the correct value of the company.

3 RESULTS AND DISCUSSION

Company value was generated from DCF model and has been discounted for 5 years' projection and the additional terminal value with Gordon growth model. The final output will stand on the results of both approaches, one based on qualitative beta (obtained from the interview with the company) and the other based on accounting beta (regression of the returns of the company with the returns of the Prague Stock Exchange). The risk free rate is obtained from short term Czech government bonds (Trading Economics, 2015). FCFF had exponential growth in the first five years of the projections with a discount rate of 6.17%, which reflects an arithmetic average of sales growth in the company. After five years, future cash flows had a growth rate lying on the average growth rate of Czech Economy (2.26%) in a range of five years. GDP growth has been used for projections of the terminal values since the company is highly sensitive to economic cycles of the Czech economy. Correlation coefficient (Rij) between sales of the company and GDP growth is (Rij=+0.34) which shows that sales of the company are highly correlated with economic growth.

The following calculation has been used to obtained result from the valuation process: (in mil. CZK)

$$CF = 10552.97$$

$$CF_3 = CF_2 \times g = CF_1 \times g \times g = CF_1 \times g^2$$

$$CF_3 \times g = CF_2 \times g \times g \times g = CF_1 \times g^3$$

*

*

$$CF_i = CF_1 \times (1+g)^{i-1}$$

$$DCF_n = \frac{CF_1}{(r+1)^1} + \frac{CF_1 \times (1+g)^1}{(r+1)^2} + \frac{CF_1 \times (1+g)^2}{(r+1)^3} + \text{.....} + \frac{CF_1 \times (1+g)^{n-1}}{(r+1)^n} =$$

$$= \frac{10552{,}9700}{(1+0.073035)} + \frac{11204{,}088249}{(1+0.073035)^2} + \frac{11895{,}3804}{(1+0.073035)^3} + \frac{12629{,}625}{(1+0.073035)^4} + \frac{13408{,}5548}{(1+0.073035)^5} + \frac{13408{,}554 \times (1.0226)}{(0.073035-0.0226)} =$$

$$= 304212.6735$$

Where g= 6.17%, represents a growth rate in FCFF for five years (terminal values in a range of five years has grown based on average growth rate of company's sales). Permanent growth in FCFF is 2.26%, which associates with Gordon growth model (g=2.26%) after five years, stands on average growth rate of the Czech Economy (Average growth rate of the Czech Economy

has been calculated based on arithmetic average of five years' economic growth). While in the Gordon growth model, key assumption is that discount rate (in our case is WACC) should be higher the permanent growth rate [r>g (0.0767>0.0226)]. Since qualitative beta give different results from accounting beta, based on Annex (2) and Annex (3) it impacts also some of the variables such as WACC (Weighted Average Cost of Capital) and CAPM (Cost of Equity). Overall percentage difference in cost of equity based on two approaches is 4.5%, while in both approaches r>g and also cost of equity is higher the cost of debt. Average WACC from 2010 till 2013 under accounting beta is 0.073035, which has been used as a constant variable in future terminal values. However, under qualitative beta, average WACC stands to 0.074315. In addition, risk is higher under qualitative beta then accounting beta and so far it declines the value of the company.

Tab.1 - Intrinsic Value of the Company. Source: Authors own elaboration

Year	g-growth rate	FCFF in million	DCF in million
2013	1.0617	10552.970000000	9834.6930
2014	1.0617	11204.088249000	9730.8040
2015	1.0617	11895.380493963,3	9628.01307
2016	1.0617	12629.325470440,8	9526.30762
2017	1.0617	13408.554851967	9425.67657
g=0.0226 (Gordon growth model)		(13408.55*1.0226)/(0.0767-0.0226)	256067.179
Overall value of the company			304212.6735

Explanation: g-growth rate, FCF- Free Cash Flow to the Firm, DCF-Present Value of the Company. While the interest rate on lending activities for Czech Republic was 4.6% in 2014 (Trading Economics, 2014)

Standing on the table explanation, the enterprise value (intrinsic value) of the company under accounting beta is 304212.6735 CZK, converting in euro of the current exchange rate (01/03/2016- 27.07 CZK=1 EURO), the intrinsic value of the company is 11,267,136.03 million EURO. However, value of the company under qualitative beta is 29770.4142 CZK, while in euro the value of the company is 11,026,079.33 euro. This does not represent the price of the company since the price is determined by various factors, such as supply and demand forces, information asymmetry, political context of the country and so on. All components within WACC have been adjusted for the Czech Republic.

Tab.2 - Cost of Equity based on the adjustments for the Czech Economy (CAPM-Capital Asset Pricing Model). Source: Authors own elaboration

CAPM-Capital Asset Pricing Model	2010	2011	2012	2013
Cost of Equity = Risk-Free Rate + Beta * (Market Rate of Return - Risk-Free Rate)	0.1256	0.1274	0.1239	0.1225
Risk Premium (RM-RFR) (http://people.stern.nyu.edu/adamodar/)	0.0628	0.0728	0.0708	0.07

Risk Free Rate (RFR) (http://www.tradingeconomics.com/czech-republic/government-bond-yield)	0.0385	0.0385	0.0385	0.0385
Beta*(Market Rate of Return - Risk-Free Rate)	0.0628	0.0546	0.0531	0.0525

Adjusted components are on yearly basis, in order to obtain cost of equity with all necessary changes for Czech Republic. The risk free rate is obtained from short-term government bonds (which are in a range of 3.85%), while the risk premium from the (Damodaran database, 2014) ranging on the level of 7%. Corporate tax in the Czech Republic is 19% as an important factor in determining cost of debt.

Tab.3 - Weighted Average Cost of Capital (WACC). Source: Authors own elaboration

	2010	**2011**	**2012**	**2013**
WACC (cost of capital)=Cost of Equity%(weights of equity)+Cd(%weight of debt)	0.07814	0.0696	0.0677	0.0767
Cost of Equity*(weight of equity)	0.051072494	0.051251039	0.04945894	0.055933305
Cost of debt*(weight of debt)	0.02714	0.0184	0.0183	0.0207
Equity/Total Assets	0.406628134	0.402284454	0.399184345	0.456598411
Debt/Total Assets	0.593371866	0.597715546	0.600815655	0.543401589
1- Tax Rate	0.81	0.81	0.81	0.81
After-tax cost of debt = Pretax cost of debt(1-Tax rate)	0.022	0.0149	0.0148	0.0167

4 CONCLUSION

There are no correct and exact methods which give a clear outlook on the valuation process and value of the company on it. Numerous researchers use different methods in the valuation, but still none of them appears to give the right path toward exact form and clear way on the valuation, since the value of the company deals with future cash flows while the future is uncertain since stands on unmade decisions. Some elements within DCF are based on assumptions, such as growth rate, inflation, future cash flows, etc. which make model unstable and into some extent unreliable. The study compares the results obtained from the qualitative beta with those from accounting beta, while results have shown completely different values of the same company. Beta coefficient is an important factor in capturing the value of the company, it measures how sensitive are the returns of the companies toward returns of the stock market. Accounting beta might be a very meaningful factor only in situations when the stock market is very efficient and reflect all the underlying settings of the economy. Qualitative beta, which is captured through the questioner reflect the risk within and outside the company from manager's perspective such as future perceptions, past experience and intuition. At the end, we can't say which one of the beta coefficients should be used in the valuation process since both

of them have limitations on their use. Since the valuation of companies stands on a certain amount of assumptions, and there are no clear rules and methods that leads you to the right valuation. Changing these assumptions provide enormous influence on the valuation process.

REFERENCES

Adams, M., & Thornton, B. (2009). A Comparison of Alternative Approaches to Equity Valuation of Privately Held Entrepreurial Firms. *Journal of Finance and Accountancy, 1*, 5-16.

Chambers, N., Sezgin, F. H., & Karaaslan, B. (2013). An Analysis of the Effects of Capital Structure and the Beta Coefficient on Stock Returns: A Case Study of the Istanbul Stock Exchange (ISE)-Manufacturing Industry.*International Journal of Business and Social Science*, *4*(7).

Damodaran, A. (2002). Investment valuation, 2. *Aufl., New York*, *817*.

Damodaran online. (2014). Total beta by industry sector [online]. Available at: http://people.stern.nyu.edu/adamodar

Elton, E. J., Gruber, M. J., Brown, S. J., & Goetzmann, W. N. (2009). *Modern portfolio theory and investment analysis*. John Wiley & Sons

Fernandez, P. (2015). CAPM: An absurd model. *Business Valuation Review*,*34*(1), 4-23.

Fernandez, P., & Bilan, A. (2007). 110 common errors in company valuations. *International Journal of Economics & Business Administration*, *2013*, 33-78.

Fernández, P. (2007). Valuing companies by cash flow discounting: ten methods and nine theories. *Managerial Finance*, *33*(11), 853-876.

Kaplan, S. N., & Ruback, R. S. (1995). The valuation of cash flow forecasts: An empirical analysis. *The Journal of Finance*, *50*(4), 1059-1093.

Koeplin, J., Sarin, A., & Shapiro, A. C. (2000). The private company discount. *Journal of Applied Corporate Finance*, *12*(4), 94-101.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, *48*(3), 261-297.

Pereiro, L. E. (2001). The valuation of closely-held companies in Latin America. *Emerging Markets Review*, *2*(4), 330-370.

Roll, R. (1977). A critique of the asset pricing theory's tests Part I: On past and potential testability of the theory. *Journal of financial economics*, *4*(2), 129-176.

Sharpe, W. F. (1963). A simplified model for portfolio analysis. *Management science*, *9*(2), 277-293.

Steiger, F. (2010). The validity of company valuation using Discounted Cash Flow methods. *arXiv preprint arXiv:1003.4881*.

Trading Economics. (2015). Czech Republic Government Bond 10Y. [online]. Available at: http://www.tradingeconomics.com/czech-republic/government-bond-yield

Trading Economics. (2014). Lending interest rate (%) in Czech Republic. [online]. Available at: http://www.tradingeconomics.com/czech-republic/lending-interest-rate-percent-wb-data.html

Van Caillie, D., & Arnould, S. (2001). The follow-up of financial value creation indicators to prevent bankruptcies in Belgian SMEs: an empirical multivariate approach. In *Acts of the 2001 Babson College Conference* (pp. 1-15).

ACKNOWLEDGEMENT

We are very grateful for the support provided by the Internal Grant Agency of Tomas Bata University in Zlin IGA/FaME/2016/018.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FINANCIAL REPORTING QUALITY AND INVESTMENT IN SUSTAINABLE DEVELOPMENT – EVIDENCE FROM VIETNAM

Anh Hoa Tran, Hoang Oanh Le, Hiep Thien Trinh

ABSTRACT

Agency theory explains that the conflict of interest exists in the relationship between the firm's owners and managers as a result of situation where there is separation of the ownership from the control of a corporation. This conflict is especially noticeable in all investment decisions. With respect to investment in sustainable development, the over-investment brings certain individual benefits to managers but it is not expected by owners. To deal with this issue, the significant amount of research suggests that high financial reporting quality would reduce the agency problem due to improved quality of disclosed financial information. The purpose of this paper is therefore to empirically investigate the impacts of financial reporting quality on investment in sustainable development from the agency theory. 800 observations coming from 160 Vietnamese public enterprises were used to conduct generalized method of moments with balanced panel data during the period of 2010 – 2014. Regression result confirmed that higher-quality financial reporting would reduce the issue of information asymmetries, consequently mitigating inefficient investment in sustainable development, given the fact that managers are attracted to opportunistically invest in the projects of sustainable development, known as their own self-interests.

Keywords: *Accounting conservatism; Financial reporting quality, Generalized method of moments, Sustainable development, Vietnamese public enterprises*

JEL Classification: M41, Q01, Q56

1 INTRODUCTION

Due to the recent movement toward to mutual benefits amongst companies and society, managers and investors are increasingly aware of the importance of sustainable development. Following this movement, many companies exert more effort in the area of sustainable development activities (Pyo & Lee, 2013). However, some managers may have incentives to use sustainable development activities strategically and opportunistically (Pyo & Lee, 2013). Agency theory explains that the conflict of interest arisen in a firm when the firm's ownership is separated from its control. In other words, the conflict of interest exists in the relationship between the firm's owners and managers when the managers choose actions to maximize their own self-interests rather than the owners' interest (Jensen & Meckling, 1976). This moral hazard problem is caused by the existence of asymmetry between managers and owners, including information asymmetry, payoff asymmetry and time-horizon asymmetry. This may result in managers choosing investments with negative net present value. It is because, if without strong control from shareholders, corporate resources could be used by opportunistic managers to intensify their own benefits in ways that are unlikely to provide significant returns to shareholders, such as reputational gains, an improved social status or a warm-glow – the positive emotional feeling managers get from the corporations' charity (McDermott, 2012). As

a result of above asymmetry, it may leads to over-investment likely exacerbated with respect to investments in sustainable development. Consequently, owners is likely to undergo wealth effects in terms of agency costs such as principal's cost of monitoring management, the agent's bonding expenditures or residual loss from wastefulness per project. To deal with this issue, some studies show that the transparency in the form of disclosures to shareholders plays the most important role for aligning management interests and shareholder interests that was traditionally explained via agency theory by Hermanson (2000); Healy and Palepu (2001). All of the above discussion inspire us to predict that managers' investments in sustainable development are probably well-controlled by a good financial reporting quality. Thus, we examine whether higher-quality financial reporting can mitigate over-investments in sustainable development, given the fact that managers are attracted to investments in sustainable development, known as their own self-interests. This issue has unexplored although many works proved that financial reporting quality may positively impact investment efficiency in generally, not focusing on a specific type of investment, that is sustainable investment.

Next section briefly discusses prior literature to develop a set of research questions. In the discussion of the research methodology, the sample and construct measurement are detailed. Next, it also summarizes the results of generalized method of moment analysis with balanced panel data before identifying this study's contributions, implications and suggesting some avenues for further research.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

As a result of the growth of industrial production and economic liberalization, many countries become to be wealthier but they also increasingly suffer impacts from social and environmental degradation such as climate changes, depletion of natural resources and unequal economic growth (Shrivastava, 1995). However, for a long time the issues of environment, social and corporation had been separately concerned and the associations between those issues had not been noticeably interested. Indeed, the perception of corporate social responsibility is to enhance the company profit (Friedman, 1970). This perception lasted for a long time. Therefore, managers' obligation at that time was to direct and to monitor business operations in order to maximizing profits regardless of their impacts on environment and society. Nowadays, this perception has changed in the way that corporations are likely to take responsibility for their negative impacts on economy, society and environment (Pyo & Lee, 2013). This new approach has been known under the term of sustainable development.

According to World Commission on Environment and Development (WCED), whether or not a firm's development is sustainable, depending on whether it is able to meet its current demands without hurting the ability of next generations to meet their own needs (Commission, 1987). This idea is based on the social equity in order to make sure that future generations are entitled to access resources similarly to previous generations. If society is unequal, conflict emerges leading to negative effects on economic wealth (Commission, 1987). In addition, economic wealth has never been created by exploiting natural resources and human. Therefore, some years later, the definition of sustainable development proposed by WCED is then developed by Elkington (1994), who suggests the only way to attain sustainable development is equally pursuing social, environmental and economic goals. Most articles have interchangeably used for the terms of sustainable development and corporate social responsibility (Ebner & Baumgartner, 2006). However, they are applied in such different contexts. Corporate social responsibility is normally acknowledged as a firm's voluntary action to approach its current internal and external stakeholders whereas sustainable development is considered as a firm's long-term goal to express to society about its responsibility for current and next generations.

Accordingly, sustainable development is a broad concept with inclusion of corporate social responsibility (Redclift, 2005). Although three dimensions of sustainable development, i.e. social, environmental and economic should be equally concerned in theory, some studies have been conducted on these dimensions in isolation such as social sustainability Verdi (2006) or environmental sustainability (Filbeck & Gorman, 2004). However, resent researches tend to discover combined effects on/of these three dimensions (Midttun, Balkau, & Sonnemann, 2010). Most of studies regarding to sustainability development published are from developed countries. Goyal, Rahman, and Kazmi (2013) point out that a hundred percent of the papers related to the issue published before 2002 came from developed countries and approximately 20 percent of the papers published from 2007-2011 came from developing countries. Most of prior empirical studies related to sustainable development in the field of accounting focus attention on corporate sustainability performance measurement (Fowler & Hope, 2007) or on the association between sustainable development and financial performance.

According to the FASB and the SEC - the world's leading authorities on the valuation of financial reporting, the important characteristics of financial information in the financial report are required including relevance, reliability, transparency and comparability (Jonas & Blanchet, 2000). Even though financial statements are produced in accordance with generally accepted accounting principles, they may perform different levels of quality (Choi & Pae, 2011). Therefore, financial reporting quality can be defined as the relevance and faithfulness of information conveyed through financial reporting about the firm's operation, especially its expected cash flows. Chen, Hope, Li, and Wang (2011) confirm that high-quality financial reporting plays a prominent role in impeding information asymmetry. In addition, many recent studies explore that by counteracting information asymmetry, high financial reporting quality may raising investment efficiency (Verdi (2006); Biddle and Gilles (2006); Chen et al. (2011)). Explaining for this argument, Biddle and Gilles (2006) argue that improved financial reporting may restrain opportunistic managers from engaging in value destroying activities that are not the best shareholder interests such as investment in empire buildings. In term of the relationship between financial reporting quality and investment efficiency, some previous empirical studies discover that financial reporting quality is negatively associated with overinvestment for cash rich firms. However, empirical results for cash constrained firms are inconsistent. Biddle and Gilles (2006) recognize that enhanced financial reporting is positively associated with under-investment for cash constrained firms whereas Verdi (2006) discovers the negative effects on this relation.

In recent years, although sustainable development has been emerging as a phenomenon attracting many academic researchers as a result of social and environmental deterioration caused by the rapid growth of industrial production, they deeply analyze the association between financial reporting quality and investment efficiency in general or investment efficiency in corporate social responsibility activities rather than in sustainability development activities. Additionally, most of empirical studies in this area put mind to explore the impacts of financial reporting quality on investment efficiency in corporate social responsibility rather than vice versa. For instance, He and Loftus (2014) provide evidence to show that by practicing corporate responsibility accounting, these corporations could improve the quality of reported financial information. Likewise, Pyo and Lee (2013) find that firms with the engagement in CSR represented a higher earnings quality. What's more, the non-profit motivated theory suggests that absent strong control from shareholders, managers can opportunistically invest in social activities as a perquisite or to entrench themselves by gaining favor with important stakeholders (Hong, Kubik, & Scheinkman, 2012). Along with the evidences show that high financial reporting quality mitigates opportunistic managers' incentives in engaging in

investments that maximize their own self-interests rather than the shareholders' interests, thanks to counteracting the information asymmetry. We, therefore, expect firms with higher-quality financial reporting will exhibit less over-investment in sustainable development. All above arguments inspire us to develop the following testable hypothesis:

H_1: Higher-quality financial reporting has negative effects on investments in sustainable development.

3 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1 Model specification

To test the hypothesis H_1, investment in sustainable development (SUS) is regressed against financial reporting quality (FRQ). If the coefficient of the independent variable is statistically significant, it implies that financial reporting quality has relative value to explain the behavioral tendency of investment in sustainable development. Moreover, to isolate the effect of SUS and FRQ, firm-specific factors such as firm age, firm size, financial leverage, financial performance, tangibility, cash flow need to be controlled in the regression model.

$$(H_1): SUS_{i,t} = \beta_0 + \beta_1 FRQ_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 GRW_{i,t} + \beta_5 ROA_{i,t} + \beta_6 AGE_{i,t} + \beta_7 CFO_{i,t} + \beta_8 CFO_{i,t-1} + \beta_9 TANG_{i,t} + \varepsilon_{i,t}$$

Where:

$SUS_{i,t}$	=	investment in sustainable development
$FRQ_{i,t}$	=	different proxies of financial reporting quality
$SIZE_{i,t}$	=	logarithm of total assets at the end of the year
$LEV_{i,t}$	=	total long-term liabilities divided by total assets at the end of the same period
$GRW_{i,t}$	=	sales changes scaled by prior sales
$ROA_{i,t}$	=	return on assets in the same period
$AGE_{i,t}$	=	the natural logarithm of the years since the inception of the firm
$CFO_{i,t}$	=	the ratio of net cash flow from operation activities to total assets in the same period
$CFO_{i,t-1}$	=	the ratio of net cash flow from operation activities to total assets in the previous period
$TANG_{i,t}$	=	tangibility is the ratio of changes in property, plant and equipment to total assets

As showed in literature review, there is the potential endogeneity of FRQ and SUS (Galdeano-gómez, 2008), as a result, instrumental variables of the FRQ variable should be identified in GMM model through theories and recent empirical works. Recent studies measuring financial reporting quality summarize eight attributes of earnings, which are accrual quality, persistence, predictability, smoothness, reliability, relevance, timeliness, and conservatism (Biddle & Gilles, 2006; Wang, 2004; Yoon, 2007). Firstly, Barker and Imam (2008) and Salerno (2014) state that current earnings should be a good indicator of future earnings in high-quality financial reports. Zhou (2008) considered more persistent earnings to be of higher quality, and show the interrelationship between persistence, accruals, and quality by stating that low levels of accruals

result in higher persistence of earnings, thereby resulting in higher quality. Thus, this paper includes the measure of predictability (PREDICT) composition as an instrumental variable for the FRQ endogenous variable. Secondly, owing to the uncertainty with external environment, conservatism had served as an important principle for recognition and measurement of accounting information. In the Statement of Concepts No. 2 of the FASB, conservatism is defined as "a prudent reaction to uncertainty to try to ensure that uncertainties and risks inherent in business situations are adequately considered". According to the behavior of accounting conservatism, accumulated reported earnings are minimized which results from slower revenue recognition versus faster expense recognition and lower valuation of firm assets versus higher valuation of firm liabilities (Givoly & Hayn, 2000). Therefore, accounting conservatism restraints over-compensation to opportunistic managers through restricting overstatement of cumulative earnings, leading to be beneficial for minority shareholders, creditors, and the firm as a whole (Watts, 2003; Zhang, 2008). This leads to the fact that conservatism reinforces the quality of information reported to stakeholders. Because of the important impact of accounting conservatism to financial reporting quality, this paper also use accounting conservatism (ACCCON) as an instrument. As procedures in the GMM model, in the first stage, FRQ is regressed against accounting conservatism and predictability to have estimates applied in the general model of investment in sustainable development. We adopt the following model in the first stage:

$$FRQ_{i,t} = \gamma_0 + \gamma_1 ACCCON_{i,t} + \gamma_2 PREDICT_{i,t} + \varepsilon_{i,t}$$

Where:

$FRQ_{i,t}$ = different proxies of financial reporting quality

$ACCCON_{i,t}$ = [(income before extraordinary items - cash flows from operation activities + depreciation expense)/ total assets] is averaged over 3 years

$REDICT_{i,t}$ = the standard deviation of residuals (υ_{it}) from the autoregressive model between $EBIT_t$ and $EBIT_{t-1}$

In term of control variables in the hypothesis H_1, most voluntary disclosure studies control for firm SIZE (see, for example, Lindblom (1994)) based on the assumption of economies of scale with respect to the costs of environmental and social activities. LEV is included as a control variable because highly geared firms may face higher pressure from creditors for information with which to assess potential environmental and social liabilities (Huang & Kung, 2010). GRW, ROA, CFO are commonly used proxies for firms' financial performance. Clarkson, Li, Richardson, and Vasvari (2008) showed that firms with superior upcoming earnings performance or higher cash flow have the propensity of a higher sustainable development disclosure to reveal their ''good news'' to financial markets. We control for firm age (AGE) because older firms have greater incentives to disclose information (Yu, 2010). Moreover, we also control for the investment in firm's tangibility (TANG) based on the argument that newer equipment is expected to employ newer and less polluting technologies. Hence, firms with newer, cleaner technologies are likely to have a superior environmental performance measure (Clarkson et al., 2008).

On the basis of worldwide papers reviewed, Table 1 summarizes the determinants identified in the prior pieces of research as well as the relationship between determinants and the concept of financial reporting quality or sustainable development investment, respectively.

Tab. 1 - Summary of the correlations discovered in the prior studies.
Source: The authors' statistics

	Regression variable: SUS	
	Affirmed sign	Proposed by
FRQ	?	
SUS		
SIZE	+	Lindblom (1994); Clarkson et al. (2008)
LEV	+	Huang and Kung (2010)
	–	He and Loftus (2014)
GRW	+	Clarkson et al. (2008)
ROA	+	Clarkson et al. (2008); He and Loftus (2014)
AGE	+	Yu (2010)
CFO_t	+	Clarkson et al. (2008), He and Loftus (2014)
CFO_{t-1}	+	Clarkson et al. (2008), He and Loftus (2014)
TANG	+	Clarkson et al. (2008)

3.2 Variables measurement

3.2.1 Operationalization of the variable: investment in sustainable development

This paper uses the content analysis, adopted for the measurement of sustainable reporting, to construct a proxy for a firm's investment in sustainable development. The content analysis has been used broadly as a replacement for the measurement of value in dollar of a firm's investment in corporate social responsibility or sustainable development or environment activities, for examples in many works of Holbrook (2010); Smith, Ren, and Dong (2011); McDermott (2012); He and Loftus (2014), because the dollar amount of resources allocated to social and environmental issues is not publicly available. Thus, a disclosure index, which follows earlier research that studies the incidence of disclosed information, was used to gauge the level of sustainable development information in annual reports or sustainable reports or on the website. Each annual report or sustainable report was read from cover to cover to obtain the disclosure score. According to the G4 - Sustainability Reporting Guidelines published by (Initiative, 2014), there are 46 sustainability aspects (as illustrated in Table 2) that can reasonably be expected to be discussed in annual reports, sustainable reports and website. Reported indicators are grouped in three main categories of sustainability - economic, environmental, and social.

Tab. 2 - Categories and aspects in the G4 - Sustainability Reporting Guidelines. Source: Initiative (2014)

Category	**Economic**	**Environmental**
Aspects	Economic Performance Market Presence Indirect Economic Impacts Procurement Practices	▪ Materials ▪ Energy ▪ Water ▪ Biodiversity ▪ Emissions ▪ Effluents and Waste ▪ Products and Services ▪ Compliance ▪ Transport ▪ Overall ▪ Supplier Environmental Assessment ▪ Environmental Grievance Mechanisms

Category	**Social**			
Sub-categories	***Labor Practices and Decent Work***	***Human Rights***	***Society***	***Product Responsibility***
Aspects	Employment Labor/ Management Relations Occupational Health and Safety Training and Education Diversity and Equal Opportunity Equal Remuneration for Women and Men Supplier Assessment for Labor Practices Labor Practices Grievance Mechanisms	Investment Non-discrimination Freedom of Association and Collective Bargaining Child Labor Forced or Compulsory Labor Security Practices Indigenous Rights Assessment Supplier Human Rights Assessment Human Rights Grievance Mechanisms	Local Communities Anti-corruption Public Policy Anti-competitive Behavior Compliance Supplier Assessment for Impacts on Society Grievance Mechanisms for Impacts on Society	Customer Health and Safety Product and Service Labeling Marketing Communications Customer Privacy Compliance

This study uses a method in which all items in each dimension are non-weighted. Criticism has been directed towards weighted scoring approaches because of the subjectivity when setting

the weight preferences (Per & Niklas, 2006). According to Per and Niklas (2006), a non-weighted approach is preferred in that it has fewer measurement errors. After checking the occurrence of disclosure, the authors analyze the quality and the quantity of that information identified. Information considered as quality refers to information which is clearly illustrated and explained while quantitative information is those which presented in monetary terms or numeric terms (as summarized in Table 3). Disclosure score of each aspect (d_i) can potentially range from zero, for that does not report any item of that aspect, and maximum is 4, for that reports all quantitative and qualitative information. The maximum disclosure score for a specific firm that can be achieved is 184 for total quality, which is obtained by multiplying the maximum score for each aspect (4) by the total number of sustainability aspects. The following formula to calculate the disclosure level for a specific firm is employed:

$$\text{Disclosure level for a specific firm} = \sum_{i=1}^{46} d_i$$

Tab. 3 - Disclosure categories with different scores.
Source**:** Smith et al. (2011); McDermott (2012); He and Loftus (2014)

Disclosure categories	Scores
Qualitative disclosures are combined with monetary information or quantified numeric terms other than currency.	4
Qualitative disclosures are descriptive, narrative or identifiable information but neither quantitative information nor monetary information.	3
Quantified numeric terms, other than currency, such as numeric for weight, volume and size are disclosed but Non-qualitative disclosure.	2
Monetary information can be described as a quantitative item in currency terms but Non-qualitative disclosure.	1
Non-disclosure	0

3.2.2 Operationalization of the variable: financial reporting quality

To measure financial reporting quality, three different proxies is used according to some pieces of previous research, by standardizing these three proxies and taking the average of those.

The first measure is obtained following the model proposed by McNichols and Stubben (2008) who consider discretionary revenues as a proxy for earning management.

$$DELAR_{i,t} = \beta_0 + \beta_1 DELREV_{i,t} + \varepsilon_{i,t} \qquad (1)$$

Where $DELAR_{i,t}$ is the annual change in accounts receivable for firm i in the year t, $DELREV_{i,t}$ represents the annual change in sales revenues for firm i in the year t. All terms are scaled by lagged total assets. Discretionary revenues are the standardized residuals from equation (1), which represents the change in accounts receivable that is not explained by sales growth (Juan Pedro Sánchez & Gomariz, 2012). Our first proxy for financial reporting quality will be the absolute value of the standardized residuals multiplied by -1. Thus, higher values indicate higher FRQ.

The second measure for FRQ is based on the model of discretionary accruals developed by Kasznik (1996), based on Jones (1991):

$$TA_{i,t} = \beta_0 + \beta_1 DELREV_{i,t} + \beta_2 PPE_{i,t} + \beta_3 CFO_{i,t} + \varepsilon_{i,t} \qquad (2)$$

Where $TA_{i,t}$ is total discretionary accruals, calculated as the change in non-liquid current assets minus the change in current liabilities plus the change in the short-term bank debt and minus depreciation; $DELREV_{i,t}$ represents the annual change in sales revenues for firm i in the year t; $PPE_{i,t}$ is property, plant and equipment; $CFO_{i,t}$ is the net cash flow from operations. All terms are deflated by lagged total assets. The second proxy for financial reporting quality will be the absolute value of standardized residuals from equation (2) multiplied by -1, so a higher level represents higher quality.

The third proxy is based on the accruals quality model developed by Dechow and Dichev (2002). In this model, current working capital accruals are regressed on cash flow from operations of the previous year, the current year and the subsequent year.

$$WCA_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t} \qquad (3)$$

Where $WCA_{i,t}$ is working capital accruals, calculated as the change in non-liquid current assets, minus the change in current liabilities plus the change in short-term bank debt. $CFO_{i,t-1}$, $CFO_{i,t}$ and $CFO_{i,t+1}$ are the net cash flow from operations, which are expressed by the difference between net income before extraordinary items and total accruals. All variables are deflated by average total assets. As in the previous models, the estimation is carried out by year and industry. The residuals from equation (3) reflect the variation in working capital accruals unexplained by cash flow of the current year and adjacent periods (Juan Pedro Sánchez & Gomariz, 2012). Therefore, the third measure of financial reporting quality will be the absolute value of the standardized residuals multiplied by -1. As a result, a higher value represents higher financial reporting quality.

The model (1); (2) and (3) are tested with three regression approaches: Pooled OLS, FEM (fixed effects model) and REM (random effects model) according to GLS method for panel data processing models to reduce the issue of heteroskedasticity. The result of the Likelihood test and Hausman test imply that this model is better to conduct all estimations with firm-specific fixed effects and year-specific random effects (as illustrated in Table 4). In addition, Durbin Watson ratios within the range of [1.5; 2.5] reveal an acceptable fit to time-series data without the presence of autocorrelation. After regression, our proxies for financial reporting quality in all models will be the absolute value of the standardized residuals multiplied by -1. Finally, the measure of FRQ is calculated as the average of the standardized values of three proxies. A higher value means higher financial reporting quality.

Tab. 4 - The coefficiency of explanatory variables in Equation (1), (2) and (3)
Source: Calculated by the authors in Eviews 7.0

Explained variables	**DELAR**		**TA**		**WCA**	
Independent variables	Cross section	Period	Cross section	Period	Cross section	Period
	Fixed	Random	Fixed	Random	Fixed	Random
CONSTANT	-0.031813**		0.121692***		0.203931***	
DELREV	-0.080515**		0.030158***			
PPE			-0.136649***			
CFO_{t-1}					0.133364***	
CFO_t			-0.988819***		0.098299**	
CFO_{t+1}					0.007154	
Adjusted R^2 (%)	16.84		90.40		83.88	
Durbin Watson	2.410332		1.914250		1.516684	
Hausman test (Chi-square)	2.148325		2.620163		2.951584	

*Note: Significant at: *10, **5 and ***1 percent levels*

3.2.3 Operationalization of the instrumental variables

Accounting conservatism variable:

There are many approaches to measure accounting conservatism. The variable of accounting conservatism (ACCCON) in this study, following Givoly and Hayn (2000), Abdel-meguid, Ahmed, and Duellman (2013) defined an accrual based measure of conservatism as income before extraordinary items less cash flows from operation activities, plus depreciation expense deflated by total assets. Thus, the larger the value of the accrual based measure of conservatism, the more the accounting conservatism there is. The underlying intuition is that conservative accounting results in persistently negative accruals (Givoly & Hayn, 2000). The measure is averaged over a three-year period to mitigate the effects of any temporary large accruals, because accruals have a tendency to reserve within a one-to two-year period (Richardson, Sloan, Solima, & Tuna, 2005).

Predictability variable:

Lipe (1990) and J. Francis, LaFond, Olsson, and Schipper (2004) defined earnings predictability as the ability to predict earnings based on its past value. Therefore, based on the studies of Lipe (1990) and J. Francis et al. (2004), this paper measures earnings predictability (PREDICT) as the standard deviation of residuals (υ_{it}) from the autoregressive model between $EBIT_t$ and $EBIT_{t-1}$. Small values of the residuals (υ_{it}) imply more predictable and higher quality earnings.

$$EBIT_{i,t} = \phi_0 + \phi_1 EBIT_{i,t-1} + \upsilon_{i,t}$$

Where:

$EBIT_{i,t}$ = firm i's earnings before interest and tax in year t

$EBIT_{i,t-1}$ = firm i's earnings before interest and tax in year t-1

3.3 Main study data collection

Financial data is collected from the database http://finance.vietstock.vn/. The sustainable development data is mined through content analysis of annual reports, sustainable reports and company websites. The sample consists of 160 randomly selected firms from 692 public companies listed in Ho Chi Minh and Hanoi Stock Exchange in Vietnam. Based on some previous studies of Daske, Hail, Leuz, and Verdi (2008) and J. R. Francis and Wang (2008), financial service organizations such as banks, insurance firms and other financial institutions are excluded because computing earnings management or financial reporting quality can be problematic for such entities. Therefore, the public companies in this study are selected from many different industries, without financial organizations, including 58 manufacturing firms, 31 real estate and construction firms, 29 trading and service firms, 19 energy and extractive firms, 13 agricultural firms, 6 firms in hospitality industry and 4 firms in health and hospital services. The sample for the whole analysis period from 2010 to 2014 includes 800 firm-year observations. According to Hair, Black, Babin, Anderson, and Tatham (2006)'s rule of 15 to 20 observations for each predictor variable, the size of 800 samples is thus appropriate to make regression with a balanced panel data. More importantly, the data are consistent and reliable enough to satisfy Tauchen (1986)'s requirement in panel data where the sample size is normally larger than 500 in case limited T and N.

4. DATA ANALYSIS AND FINDINGS

4.1 Stationarity test and descriptive statistics

Stationarity test

Before performing regression analysis, PP-Fisher panel unit root test is applied to check the stationarity of variables with the null hypothesis of non-stationary trends. Length of the lags is automatically identified by Schwarz Information Criterion. The results show that all variables are stationary, I(0) (i.e. integrated of order zero) except for the variable of investment in sustainability (SUS), as illustrated in Table 5. Therefore, the SUS variable is recalculated by logarithm of total disclosure score for a specific firm to be a stationary variable before regression analysis.

Descriptive statistics

Table 5 also shows the correlation coefficient among SUS and FRQ, between SUS and control variables. There is a significant positive correlation between SUS and FRQ (0.246982) at the 1% level. However, this relationship is presented simply by a univariate analysis without controlling for other factors. Most of the relationships amongst the two types of SUS, FRQ and other control variables are statistically significant at the 1% and 5% level. Of particular note is that the correlation coefficients are not of high magnitude between any two of the independent variables to cause concern about multicollinearity problems. Once again, the absence of multicollinearity problem is affirmed because of VIF being less than 2.

Furthermore, we implement a test for serial correlation in the idiosyncratic errors of a linear panel-data model discussed by Wooldridge (2010). Under the null of no serial the residuals from the regression of the first-differenced in the Wooldridge test, variables should have an autocorrelation. The results also reveal an existence of autocorrelation in the equation of the second hypothesis (F = 26.977, p-value = 0.0000) while there is no autocorrelation in the equation of the first hypothesis (F = 2.965, p-value = 0.0870). Therefore, we estimate linear regression models with the option bw(1) to robust to both arbitrary heteroskedasticity and arbitrary autocorrelation in the empirical results for hypothesis 2.

Tab. 5 - Unit root test, descriptive statistics, correlation coefficients and multicollinearity problem
Source: Calculated by the authors in Stata 12

	FRQ	SUS	SIZE	LEV	GRW	ROA	AGE	CFO_t	CFO_{t-1}	TANG	ACCCON	PREDICT
FRQ	1											
SUS	0.246982***	1										
SIZE	0.147828***	0.389194***	1									
LEV	0.165248***	0.041342	0.452615***	1								
GRW	-0.072645**	-0.03955	-0.0201	-0.01178	1							
ROA	-0.102999***	0.095807***	-0.15981***	-0.35124***	0.215683***	1						
AGE	0.089311**	0.206966***	0.047655	0.043817	-0.07234	0.047835	1					
CFO_t	-0.046506	0.041754	-0.10393***	-0.13848***	0.069778**	0.206763***	0.041807	1				
CFO_{t-1}	0.049625	0.015451	-0.12185***	-0.16288***	0.079244**	0.351239***	0.03602	0.118632***	1			
TANG	-0.015995	-0.00853*	-0.18219***	-0.0327	0.001434	0.118716**	0.108996***	0.208029***	0.19012***	1		
ACCCON	-0.135487***	-0.22641***	-0.27218***	-0.13752***	-0.07904**	0.18066***	-0.03355	-0.19862***	-0.09867***	0.207483***	1	
PREDICT	-0.035343	0.156066***	0.401123***	0.169585***	-0.0264	0.033211	-0.00692	0.00152	-0.04102	-0.08326**	-0.07112**	1

PP-Fisher Chi-square	800.755 ***	254.258	640.157 ***	634.418 ***	636.641 ***	614.183 ***	2989.28 ***	675.567 ***	595.396 ***	565.516 ***	459.091 ***	476.838 ***
Maximum	-0.016201	5.347108	8.82036	0.830215	6.943511	0.667474	4.127134	1.902682	1.791639	0.864566	1.676727	15.44223
Minimum	-4.135396	1.386294	4.209622	0.022457	-2.0182	-0.51011	1.098612	-0.69587	-2.13602	0.000243	-1.07922	0.000278
Skewness	-3.372727	0.302838	0.85864	-0.00784	5.053826	0.721358	-0.26033	3.268012	0.698178	1.436896	1.286326	11.03855
Kurtosis	21.05821	3.751009	4.119485	2.35163	71.33788	10.17612	2.493902	36.53495	52.77404	5.11223	12.02756	160.5216
VIF	1.16	1.42	1.62	1.60	1.11	1.69	1.10	1.23	1.27	1.22	1.40	1.27

```
.xtivreg2 SUS SIZE LEV GRW ROA AGE CFOt CFOt_1 TANG (FRQ = ACCCON PREDICT), fe endog(F
bw(1) cue
Note: kernel=Bartlett and bw=1 implies zero lags used.Standard
      errors and test statistics are not autocorrelation-
      consistent.

initial:       neg GMM obj function -J =  -2.5328789
rescale:       neg GMM obj function -J =  -2.5328789
Iteration 0:   neg GMM obj function -J =  -2.5328789
Iteration 1:   neg GMM obj function -J =  -2.4458674
Iteration 2:   neg GMM obj function -J =  -2.4458332
Iteration 3:   neg GMM obj function -J =  -2.4458332

FIXED EFFECTS ESTIMATION
------------------------
Number of groups =       160                  Obs per group: min =         5
                                                             avg =       5.0
                                                             max =         5

CUE estimation
--------------

Estimates efficient for arbitrary
autocorrelation Statistics robust to
autocorrelation
  kernel=Bartlett; bandwidth=     1
  time variable (t):   t
  group variable (i):  i

                                                  Number of obs =       800
                                                  F(  9,   631) =     15.00
                                                  Prob > F      =    0.0000
Total (centered) SS     =    36.65793095          Centered R2   =   -0.0685
Total (uncentered) SS   =    36.65793095          Uncentered R2 =   -0.0685
Residual SS             =    39.16748075          Root MSE      =    .2474

------------------------------------------------------------------------------
         SUS |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         FRQ |   -.400012   .1869067    -2.14   0.032    -.7663423   -.0336816
        SIZE |    .7768937   .1272383     6.11   0.000     .5275113    1.026276
         LEV |   -.1635156   .1339937    -1.22   0.222    -.4261384    .0991073
         GRW |   -.0234649   .0255278    -0.92   0.358    -.0734984    .0265686
         ROA |   -.6714239    .261849    -2.56   0.010    -1.184638   -.1582093
         AGE |    .5208191   .0975246     5.34   0.000     .3296744    .7119638
        CFOt |    .0952728    .078863     1.21   0.227    -.0592959    .2498414
      CFOt 1 |    .1845646   .0916536     2.01   0.044     .0049268    .3642023
        TANG |    .1324641   .1780109     0.74   0.457    -.2164309    .4813591
------------------------------------------------------------------------------
Underidentification test (Kleibergen-Paap rk LM statistic):              17.201
                                                  Chi-sq(  2) P-val =    0.0002
------------------------------------------------------------------------------
Weak identification test (Kleibergen-Paap rk Wald F statistic):          8.700
Stock-Yogo weak ID test critical values: 10% maximal LIML size            8.68
                                         15% maximal LIML size            5.33
                                         20% maximal LIML size            4.42
                                         25% maximal LIML size            3.92
Source: Stock-Yogo (2005).  Reproduced by permission.
NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.
------------------------------------------------------------------------------
Sargan statistic  (overidentification test of all instruments):          2.446
                                                  Chi-sq(  1) P-val =    0.1178
-endog- option:
Endogeneity test  of endogenous regressors:                              4.833
                                                  Chi-sq(  1) P-val =    0.0279
Regressors tested:   FRQ
------------------------------------------------------------------------------
Instrumented:         FRQ
Included instruments: SIZE LEV GRW ROA AGE CFOt CFOt_1 TANG
Excluded instruments: ACCCON PREDICT
------------------------------------------------------------------------------
```

Fig. 1 - Empirical results for hypothesis 1

Results are reported in Figure 1. Testing the validity of the instruments is crucial to ascertaining the consistency of the parameter estimates, specifically, when we use a generalized method of moments (GMM) estimator. The GMM estimator amounts to imposing the set orthogonality conditions that the instrumental variables are uncorrelated with the error term. We test this condition by Sargan-Hansen test. The Sargan-Hansen test is a test of overidentifying restrictions. Under the null, the test statistic is distributed as chi-squared in the number of (L-K) overidentifying restrictions. A rejection casts doubt on the validity of the instruments (Hansen, Heaton, & Yaron, 1996). The result of the Sargan test accepts null hypothesis, implying that the instruments are valid instruments i.e., uncorrelated with the error term, and that the excluded instruments are correctly excluded from the estimated equation. In the context of the Figure 1 regression, this implies that instrumental variables affect investment in sustainable development through the explanatory variable of financial reporting quality. Besides Sargan-Hansen test, we use endogeneity tests of FRQ endogenous regressors by using the "endog" option. Under the null hypothesis that the specified endogenous regressors can actually be treated as exogenous, the test statistic is distributed as chi-squared with degrees of freedom equal to the number of regressors tested (Hausman, 1978). The result of endogeneity test rejects the hypothesis H_0 (p-value = 0.0279 < 0.05), means that FRQ endogenous regressor's effects on the estimates are meaningful.

Figure 1 provides evidence that investment in sustainable development is positively related to firm size, firm age and prior year's cash flow and negatively related to financial reporting quality, firm return. Regarding with the relation between financial reporting quality and investment in sustainable development, we find that the estimated coefficient on FRQ is significantly negative (coefficient of -0.400012, p-value of 0.032 < 0.05). This result provides empirical validation that firms that present a low quality financial report are more likely to invest in sustainable development. This means that higher-quality financial reporting reduces inefficient investment in sustainable development. Our result suggests that higher financial reporting quality mitigates investment in sustainable development in firms that are likely to over-invest. This is in line with the Salewski and Zülch (2014) model which proposes that firms with more engrossing engagement in earnings management are likely to attain lower accrual quality and therefore tend to spend more funds in corporate social responsibility to cover up these earning management activities. Therefore, low quality financial reporting firms have higher sustainability scores and that high financial reporting quality leads to an increase in sustainability investment.

With respect to firm size, firm age, significant relationships amongst SIZE, AGE, CFO_{t-1} and SUS are evident (β_2 = 0.7768937, β_6 = 0.5208191, β_8 = 0.1845646 respectively). The null hypotheses of SIZE, AGE, CFO_{t-1} are rejected at the 5 percent level. These outcomes are consistent with the previous studies that larger firms with better financial performance have greater incentives to disclose more information. Moreover, according to the political hypothesis, larger firms with strong financial position attract greater attention from the media, policy makers, and regulators and decorate their public image. They would be, therefore, under greater pressure to perform better on sustainability reporting. However, there is a paradox in relationship with profitability. Significantly negative relationships between profitability and investment in sustainability are affirmed from the return on assets (β_5 = -0.6714239 and sig. = 0.010). This contrasts with our prediction that firms with a better operating performance are likely to have a higher incentive to make more detailed sustainability disclosures because they can afford to spend more on sustainable abatement. However, our outcome reveals that firms with better return via ROA is economically performing or conservatively invest in sustainability to achieve its higher future profitability.

5 IMPLICATIONS AND CONCLUSIONS

As a general discussion, it is felt that overall objective of the study has been met due to its confirmation of the association between financial reporting quality and investment in sustainable development. This study adds to the existing sustainable development literature by providing additional evidence of the role of financial reporting quality on accounting for sustainable development. Our study explores that the financial reporting quality - sustainable development relationship is bi-directional. This is demonstrated by the findings which show that a high financial reporting quality alleviates the investment in sustainable development whereas engagement in sustainable development enhances the financial reporting quality in Vietnamese public enterprises.

Given the widespread concern over sustainable development recently and in light of our first finding, it is important for shareholders, investors and academics, who are interested in ethical business and intend to make their own financial decisions based on a firm's engagement in sustainable development activities, to doubt motivations of these activities for following reasons. Firstly, managers may engage in sustainable development activities for disguising earnings management or discretional accounting changes to obtain expected earnings. Particularly, such activities enable managers to build their firms with a socially responsible business behavior that distracts stakeholders' attention from questionable and fraudulent financial reporting practices. Secondly, sustainable development activities motivate managers to involve for mitigating the consequences of unexpected earnings or high investment in intangible assets. Finally, the engagement in sustainable development activities of managers may be explained by enhancement of their reputation, social status or professional profile that enable them to claim more benefits, rewards and better contracts.

The second finding of this study equips a better understanding of financial reporting practices and behavior and ethical values of managers that could be interests of regulators and investors. Based on the extent to which investment in sustainable development is made, investors may evaluate how faithful and transparent financial reporting is, in the light of the positive effects of the investment on financial reporting quality.

There are several shortcomings in this study which need to be acknowledged. The first limitation is that the sample used to explore the association between financial reporting quality and investment in sustainable development is limited to listed companies. Annual reports of companies that are not listed in Vietnamese stock exchange market are difficult to collect, thus are excluded from this study. Secondly, the data from a single East Asian country, not cross-country examination may be noisy and require caution in terms of generalizing the results. Thirdly, this research relies on disclosed proxy data, but proxy disclosures may not represent all aspects of sustainable development practices. It is possible that some companies may have strong practices in some areas, but received lower scores because the details are not disclosed in their proxies. Further research is needed on the other sustainable development factors not included in this study but contributed into the practices of financial reporting quality. It would be to investigate by qualitative method to what extent should be concentrated to enhance the control sustainable development investment effectiveness.

REFERENCES

Abdel-meguid, A. M., Ahmed, A. S., & Duellman, S. (2013). Auditor independence, corporate governance and aggressive financial reporting: an empirical analysis. *Journal of Management & Governance, 17*(2), 283-307. doi: http://dx.doi.org/10.1007/s10997-011-9176-3

Barker, R., & Imam, S. (2008). Analysts' perceptions of 'earnings quality'. *Accounting and Business Research, 38*(4), 313-329. Retrieved from http://search.proquest.com/docview/198118088?accountid=135225

Biddle, G. C., & Gilles, H. (2006). Accounting Quality and Firm-Level Capital Investment. *The Accounting Review, 81*(5), 963-982. Retrieved from http://search.proquest.com/docview/218552334?accountid=135225

Chen, F., Hope, O.-K., Li, Q., & Wang, X. (2011). Financial Reporting Quality and Investment Efficiency of Private Firms in Emerging Markets. *The Accounting Review, 86*(4), 1255-1288. Retrieved from http://search.proquest.com/docview/880048699?accountid=135225

Choi, T. H., & Pae, J. (2011). Business ethics and financial reporting quality: Evidence from Korea. *Journal of Business Ethics, 103*(3), 403-427.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society, 33*(4), 303-327.

Commission, B. (1987). Our common future: Report of the World Commission on Environment and Development. *UN Documents Gatheringa Body of Global Agreements*.

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2008). Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research, 46*(5), 1085-1142.

Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review, 77*(s-1), 35-59.

Ebner, D., & Baumgartner, R. J. (2006). *The relationship between sustainable development and corporate social responsibility.* Paper presented at the Corporate responsibility research conference.

Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California management review, 36*(2), 90-100.

Filbeck, G., & Gorman, R. F. (2004). The relationship between the environmental and financial performance of public utilities. *Environmental and Resource Economics, 29*(2), 137-157.

Fowler, S. J., & Hope, C. (2007). A critical review of sustainable business indices and their impact. *Journal of Business Ethics, 76*(3), 243-252.

Francis, J., LaFond, R., Olsson, P. M., & Schipper, K. (2004). Costs of Equity and Earnings Attributes. *The Accounting Review, 79*(4), 967-1010. Retrieved from http://search.proquest.com/docview/218535414?accountid=135225

Francis, J. R., & Wang, D. (2008). The joint effect of investor protection and big 4 audits on earnings quality around the world*. *Contemporary Accounting Research, 25*(1), 157-191.

Friedman, M. (1970). A theoretical framework for monetary analysis. *journal of Political Economy, 78*(2), 193-238.

Galdeano-gómez, E. (2008). Does an Endogenous Relationship Exist between Environmental and Economic Performance? A Resource-Based View on the Horticultural Sector. *Environmental and Resource Economics, 40*(1), 73-89. doi:http://dx.doi.org/10.1007/s10640-007-9141-4

Givoly, D., & Hayn, C. (2000). The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics, 29*(3), 287-320.

Goyal, P., Rahman, Z., & Kazmi, A. (2013). Corporate sustainability performance and firm performance research: literature review and future research agenda. *Management Decision, 51*(2), 361-379.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6): Pearson Prentice Hall Upper Saddle River, NJ.

Hansen, L. P., Heaton, J., & Yaron, A. (1996). Finite-sample properties of some alternative GMM estimators. *Journal of Business & Economic Statistics, 14*(3), 262-280.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, 1251-1271.

He, C., & Loftus, J. (2014). Does environmental reporting reflect environmental performance? *Pacific Accounting Review, 26*(1/2), 134-154. Retrieved from http://search.proquest.com/docview/1678629830?accountid=135225

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics, 31*(1), 405-440.

Hermanson, H. M. (2000). An analysis of the demand for reporting on internal control. *Accounting Horizons, 14*(3), 325-341.

Holbrook, M. E. (2010). *Corporate social responsibility and financial performance: An examination of economic benefits and costs as manifested in accounting earnings.* (3502019 Ph.D.), University of Kentucky, Ann Arbor. Retrieved from http://search.proquest.com/docview/964010962?accountid=135225 ProQuest Central database.

Hong, H., Kubik, J. D., & Scheinkman, J. A. (2012). *Financial constraints on corporate goodness*. Retrieved from

Huang, C.-L., & Kung, F.-H. (2010). Drivers of environmental disclosure and stakeholder expectation: Evidence from Taiwan. *Journal of Business Ethics, 96*(3), 435-451.

Initiative, G. R. (2014). G4 Guidelines–Reporting principles and standard disclosures.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Jonas, G. J., & Blanchet, J. (2000). Assessing quality of financial reporting. *Accounting Horizons, 14*(3), 353-363.

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 193-228.

Juan Pedro Sánchez, B., & Gomariz, M. F. C. (2012). Financial reporting quality, debt maturity and investment efficiency. St. Louis: Federal Reserve Bank of St Louis.

Kasznik, R. (1996). On the association between voluntary disclosure and earnings management. *Available at SSRN 15062*.

Lindblom, C. K. (1994). *The implications of organizational legitimacy for corporate social performance and disclosure.* Paper presented at the Critical perspectives on accounting conference, New York.

Lipe, R. (1990). The Relation Between Stock Returns And Accounting Earnings. *The Accounting Review, 65*(1), 49. Retrieved from http://search.proquest.com/docview/218534747?accountid=135225

McDermott, K. E. (2012). *Financial reporting quality and investment in corporate social responsibility.* (3509334 Ph.D.), The University of North Carolina at Chapel Hill, Ann Arbor. Retrieved from http://search.proquest.com/docview/1019281576?accountid=135225 ProQuest Central database.

McNichols, M. F., & Stubben, S. R. (2008). Does Earnings Management Affect Firms' Investment Decisions? *The Accounting Review, 83*(6), 1571-1603. Retrieved from http://search.proquest.com/docview/218577589?accountid=135225

Midttun, A., Balkau, F., & Sonnemann, G. (2010). Managing sustainability performance through the value-chain. *Corporate Governance: The international journal of business in society, 10*(1), 46-58.

Per, F., & Niklas, S. (2006). The valuation relevance of non-financial information. *Management Research News, 29*(9), 580-597. doi:http://dx.doi.org/10.1108/01409170610709014

Pyo, G. P., & Lee, H.-Y. P. (2013). The Association Between Corporate Social Responsibility Activities And Earnings Quality: Evidence From Donations And Voluntary Issuance Of CSR Reports. *Journal of Applied Business Research, 29*(3), 945-962. Retrieved from http://search.proquest.com/docview/1370363952?accountid=135225

Redclift, M. (2005). Sustainable development (1987–2005): an oxymoron comes of age. *Sustainable development, 13*(4), 212-227.

Richardson, S. A., Sloan, R. G., Solima, M. T., & Tuna, I. A. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of Accounting & Economics, 39*(3), 437-485.

Salerno, D. (2014). The Role Of Earnings Quality In Financial Analyst Forecast Accuracy. *Journal of Applied Business Research, 30*(1), 255-n/a. Retrieved from http://search.proquest.com/docview/1500357050?accountid=135225

Salewski, M., & Zülch, H. (2014). The Association between corporate social responsibility (CSR) and earnings quality–evidence from European blue chips.

Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of management review, 20*(4), 936-960.

Smith, M., Ren, Y., & Dong, Y. (2011). The predictive ability of "conservatism" and "governance" variables in corporate financial disclosures. *Asian Review of Accounting, 19*(2), 171-185. doi:http://dx.doi.org/10.1108/13217341111181096

Tauchen, G. (1986). Finite state markov-chain approximations to univariate and vector autoregressions. *Economics letters, 20*(2), 177-181.

Verdi, R. S. (2006). *Financial reporting quality and investment efficiency.* (3246251 Ph.D.), University of Pennsylvania, Ann Arbor. [online] Available at: http://search.proquest.com/docview/305243641?accountid=135225 ProQuest Central database.

Wang, D. (2004). *Founding family ownership and accounting earnings quality.* (3144465 Ph.D.), University of Missouri - Columbia, Ann Arbor. [online] Available at: http://search.proquest.com/docview/305161156?accountid=135225 ProQuest Central database.

Watts, R. (2003). Conservatism in accounting - Part I: Explanations and implications. *Accounting Horizons, 17*, 207-221.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*: MIT press.

Yoon, S. (2007). *Accounting quality and international accounting convergence.* (3291440 Ph.D.), Oklahoma State University, Ann Arbor. [online] Available at: http://search.proquest.com/docview/304774794?accountid=135225 ProQuest Central database.

Yu, T. F. Y. C. K. (2010). *Research on Sustainability Reporting in Hong Kong.* Hong Kong Baptist University Hong Kong.

Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics, 45*, 27-54.

Zhou, J. (2008). *Earnings quality, analysts, institutional investors and stock price synchronicity.* (3313068 Ph.D.), Hong Kong Polytechnic University (Hong Kong), Ann Arbor. [online] Available at: http://search.proquest.com/docview/304809087?accountid=135225 ProQuest Central database.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE EFFECT OF FINANCIAL CRISIS ON ACCOUNTING CONSERVATISM: EVIDENCE FROM VIETNAMESE FIRMS

Anh Huu Nguyen, Duong Thuy Doan

ABSTRACT

Conservatism is still worrying concern in accounting practices. The relationship between this concept under different economy situations has received much attention all over the world. To date, there is no study examining this issue in the context of Vietnam. Therefore, this paper aims to investigate the association of conservatism and financial crisis in Vietnamese listed firms. With multiple regression models, the paper finds out there is no evidence showing Vietnamese listed firms are less conservative in crisis period (2008-2011) than in pre-crisis period (2006-2007). However, in post-crisis (2012-2014), these firms tend to report more conservatively.

Keywords: *Conservatism, financial crisis*

JEL Classification: M41, G32

1 INTRODUCTION

Accounting conservatism is a highly controversial subject in accounting. According to Sterling (1967), conservatism is the most influential principle in accounting practices. There are several studies about factors affecting this concept. Tariq (2011) conducted research about the relationship between conservatism and earnings quality and stock prices in Egypt. In 2010, Hamdan found that the bigger a company is, the more conservative it is because it wants to avoid political costs in Saudi Arabia. The other factors such as bankruptcy, the introduction of IFRS are also tested by Hellman in 2008 and Lee in 2012, respectively. Recently, another external factor named financial crisis is considered to have huge impact on accounting principles, especially conservatism. According to some previous studies, the financial crisis may have a bad effect on this principle because firms which are suffering under the recession tend to report less conservatively in earnings in order to cover their losses (Herrmann, 2008). However, others stated that financial crisis leads to the uncertainty about future of the company, which results in more conservative accounting (Kodres and Pritsker, 1998). Therefore, these arguments still need to be discussed more.

In Vietnam, by 2007, the accession to WTO significantly changes our economy with average growth increasing to 7.6 %. This dramatic opening of Vietnamese economy brought not only export opportunities, but also greater foreign investment. However, at the end of 2007, the housing market collapsed in US created a worldwide financial crisis in 2008 - 2009. Vietnam's economy, especially financial market has been unable to avoid bad effects. Under the pressure of international financial recession, foreign investors and investment funds have dealt with obstacles in mobilizing fund, which make them to be more prudent in investing on Vietnam. Vietnamese listed firms, especially the export firms profit have decreased, even some small-sized firms may have loss. Until 2012, Vietnamese market had sign to recover. Stock prices increased but it was unstable

There are several studies about how the 2007 - 2009 financial crisis generated (Lastra, 2010), and the effects of this crisis on Vietnam's economy (Hung and An, 2011), but there is no research examine the influence of this recession on Vietnam accounting practices. Therefore, it is valuable to investigate the association of financial crisis and the application of accounting conservatism in financial reporting for Vietnam's companies from 2006 to 2014. In other words, this study investigate the difference in the level of conservatism of Vietnamese firms before, within and after the financial crisis.

2. LITERATURE REVIEW

2.1 Review of conservatism under IFRS

Conservatism has a long history in accounting practices. Early academic studies during the 20s to 60s investigated the causes and consequences of conservatism, however there was no official definition of this term. In Statement of Financial Accounting Concepts No 2 (SFAC 2) issued in 1980 by the FASB, conservatism was defined as "a prudent reaction to uncertainty is to try to ensure that uncertainty and risks inherent in business situations are adequately considered". This concept is also accepted by EU Accounting Directives since 1978.

In 1989, this concept was included in The Conceptual Framework of IASC as part of the qualitative characteristics of financial statement. Conservatism is considered in making estimates under uncertainty conditions, such that assets or income are not overstated and liabilities or expenses are not understated. However, in 2006, a huge change in conservatism was conducted in the Discussion Paper of IASB, in which conservatism is viewed as an undesirable characteristic of faithful and reliable financial reporting information. The IASB intend to replace conservatism by neutrality. In September 2010, the IASB issued a revision of the Conceptual Framework, which did not include conservatism and reliability concept. The reason is that the conservatism is incompatible with neutrality and not considered aspects of faithful representation. The conservatism in this period of time will lead to non-conservative financial reporting information in later period. However, this action was highly criticized by the other standard - setters. The IASB replied that even conservatism was no longer in Conceptual Framework, the old concept of it was still implicit in both the Conceptual Framework and individual standards. Hellman (2008) stated that firms in EU which reported under IFRS apply more conservatism than firms not reporting under IFRS even IASB does not favor this anymore. As can be seen that, it is still important to investigate the conservatism concept.

Therefore, in this paper, the accounting conservatism is discussed based on the academic researchers view, not IFRS.

2.2 Conditional and unconditional conservatism

Accounting conservatism can be considered as a method that recognize losses and liabilities when they are likely, but not recognize revenue and assets until they are sure to be achieved (Watts 2003). Based on these definitions, Penman and Zhang in 2002 classified conservatism to two types: conditional conservatism and unconditional conservatism. Unconditional conservatism means that firms can apply conservative accounting treatment before any information about how well the investment has actually performed is available, it leads to lower valuation of net assets (Ryan, 2006). For example, the investment in a brand via advertising or research and development activities is normally charged directly to expenses, not recognized as an asset. If these investments have positive present value, the book value of assets will be understated. So the effect of unconditional conservatism is that profits are understated at the beginning of the project and overstated during the subsequent year. If R&D expenditures are

capitalized and amortized, profits will be the same. Another example of unconditional conservatism is accelerated depreciation. In this case, firms applying unconditional conservatism will report depreciation higher than economic depreciation by altering the timing of the charge, which results in the economic value above the book value of the asset (Ryan, 2006) In short, the choice to use unconditional conservatism of firms is not related to news flow about the assets performance, it bases on the maturity structure of the assets

On the other hand, when it comes to conditional conservatism, it is considered to reflect the speed of good news and bad news in financial statement (Ryan, 2006). It means firms report unrealized losses (bad news) immediately in the accounting statement based on assuming reasonable reliability. But unrealized gain (good news) just can be reported when it shows objective evidence of realization. In other words, a firm is considered as conditional conservatism when it reports bad news faster than good news in financial statement.

Comparing unconditional and conditional conservatism, the first one is independent on news flow, the latter is news dependent. Therefore, financial crisis which refer to information signal is able to influence on conditional conservatism. It also means this study will focus on conditional conservatism concept.

2.3 Conservatism and economic crisis

There are several studies examined conservatism in different economic situations. Some researchers stated that financial crisis have negative impact on conservatism. Johnson (2000) stated that under Asian financial crisis in 1997, managers tend to manipulate accounting statement to cover their losses. Also, Herrmann (2008) showed evidence to prove Asian financial crisis (1997-1998) make Thailand firms to be less conservatism than in the period after the recession (1999-2003). Vichitasarawong in 2010 expanded to four countries: Thailand, Malaysia, Hong Kong, Singapore during the Asian crisis. He concluded that the level of conservatism in the pre-crisis period lower than in the post-crisis period. One of other supporting study is Gul's (2004), which stated that the level of conservatism was higher in the non-crisis period compared to during the Asian crisis. Besides, he said that the lower level of conservatism results in the higher auditing fees. In other words, when firms report less conservatively, there is strong possibility that they can break accounting rules, which requires more audit effort and fees

On the other hand, others argued that financial crisis affects positively to conservatism. According to Watt (2003), under the uncertain conditions as crisis, investors are probably to favor more conservatism because it can reduce the managers manipulate behavior. Conservatism can decrease the risk in overspending money and overstating assets. Besides, firms which reporting conservatively mean that they have reliable and high quality accounting information may attract more outside investors. Therefore, they have more chances to survive than firms being less conservative. Also, Jenkin (2009) supported this statement with his paper in US. The result is that earning are more conservative in economic crisis than in economic expansion.

3 HYPOTHESIS DEVELOPMENT

From these literature reviews, this paper’s hypotheses are established

H1: Vietnamese firms report less conservatively during financial crisis than in the pre-crisis period

H2: Vietnamese firms report less conservatively during financial crisis than in the post-crisis period

3.1 Model design

There are several models applied to measure accounting conservatism, such as: Basu's Asymmetric Timeliness of earning measure in 1997, Ball and Shvakumar's Asymmetric Accruals to Cash Flow (AACF) measure in 2005, Penman and Zhang's Hidden Reserves (HR) in 2002, the Market to Book ratio (MTB) measure,…in which only Basu model and AACF model are used to measure conditional conservatism, the other are used for unconditional conservatism. Therefore, in this study, only Basu and AACF model are discussed.

Basu and AACF models both use dummy variables to test the sensitive of firm toward bad news and good news signal. However, Basu model uses stock returns to realize good and bad news, while the AAFC model consider cash flow from operation to distinguish bad and good news. Therefore, Basu model just can measure conservatism for listed firms and the AAFC can be applied for both listed and non-listed firms. To refer to dependent variable, Basu model uses earning per share, meanwhile the AACF uses accruals. Although the AACF model created after the Basu model, there is just a few accounting studies using AAFC model, which makes it become less reliable.

Therefore, this paper will base on Basu model to build up the model for testing the change in conservatism under financial crisis.

Basu model: $\mathbf{Ni_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 R_{it} + \alpha_3 R_{it} * DR_{it}}$

Where:

Ni_{it} is net income per share of firm i at the end of year t divided by stock price at the beginning of period

DR_{it} is dummy variable, equaling 1 if R_{it} is negative; and equaling 0 if R_{it} is zero or positive

R_{it} is stock market return for firm i of year t

This model is used to investigate relationship between economic income and accounting income. The market stock return is considered as news flow. It is calculated by change in starting price and ending price divided by starting price, in term of percentage. If this ratio is positive or zero, it is representative as good news, leading dummy variable is 0. If this ratio is negative, it is representative as bad news, resulting in dummy variable equal to 1.

To test hypothesis 1, the paper develop the model 1 to run the regression on the pooled sample of pre-crisis and during crisis period. In model 1, another dummy variable named Within is added to compare two period.

$$\mathbf{Ni_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 R_{it} + \alpha_3 R_{it} * DR_{it} + Within * (\alpha_4 + \alpha_5 DR_{it} + \alpha_6 R_{it} + \alpha_7 R_{it} * DR_{it})} \quad \mathbf{(1)}$$

Where:

Ni_{it} is net income per share of firm i at the end of year t divided by stock price at the beginning of period

DR_{it} is dummy variable, equaling 1 if R_{it} is negative; and equaling 0 if R_{it} is zero or positive

R_{it} is stock market return for firm i of year t

Within is dummy variable, equaling 1 if the firm- year observation during crisis time (2008-2011), equaling 0 if it is in pre-crisis time (2006-2007)

In model 1, the speed to recognize bad and good news is seen from the responsiveness of accounting income to changes in market value. NI_{it} as dependent variable reflecting firm earning is calculated by earning per share for firm at the end of year divided by opening stock market price. Stock returns is independent variable. The coefficient of stock returns (α_2) measures the sensitivity of accounting earnings to positive stock returns in the two period. If α_2 is significant positive, it means firm earnings reflect positively to good news, which means firm is less conservative. The coefficient (α_3) measures the sensitivity of accounting income to bad news. If α_3 is high, it means the level of conservatism is high. And if α_3 is positive, it also means earnings is more conservative.

The coefficient of Within* α_6 measures differences in the recognition of good news between two periods. The coefficient of Within* α_7 measures differences in the recognition of bad news between two periods. If this coefficient is negatively significant, it means firms respond negatively to bad news within crisis time compared to pre-crisis period. In other words, firms reports less conservatively during crisis time than pre-crisis time.

To test hypothesis 2, the paper build up model 2 with the dummy variable named Post.

$$\mathbf{Ni_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it}*DR_{it} + Post*(\beta_4 + \beta_5 DR_{it} + \beta_6 R_{it} + \beta_7 R_{it}*DR_{it})} \quad \mathbf{(2)}$$

Where

Ni_{it} is net income per share of firm i at the end of year t divided by stock price at the beginning of period

DR_{it} is dummy variable, equaling 1 if R_{it} is negative; and equaling 0 if R_{it} is zero or positive

R_{it} is stock market return for firm i of year t

Post is dummy variable, equaling 1 if the firm- year observation in post-crisis time (2012-2014), equaling 0 if it is in crisis time (2008-20011)

In model 2, the Post* β_7 measure differences in the recognition of bad news during the crisis and post- crisis time. If Post* β_7 is positively significant, it means that firms in post-crisis period respond positively to bad news, which results in more conservatism compared to during crisis time.

3.2 Data collection

This study investigate the change in the level of conservatism of listed Vietnamese firms during the period of time from 2006 to 2014. The period from 2006 to 2007 is called pre-crisis time; from 2008 to 2011 representing financial crisis, from 2012 to 2014 representing post crisis time. In this paper, firms bankrupted under crisis are excluded. And firms which do not have all required ratio during the whole period are excluded. The sample is selected as follow: in the period from 2006 to 2011 (pre-crisis and within crisis time), 34 firms meet the requirements in which there are 8 firms listed on Hanoi Stock Exchange and 26 firms listed on Ho Chi Minh Stock Exchange. In the period from 2008 to 2014 (within crisis and post crisis time), there are 170 firms in which 102 firms in Hanoi Stock Exchange and 68 firms from Ho Chi Minh Stock Exchange. Therefore, this paper has two samples for two models.

4 RESULTS AND DISCUSSION

4.1 Descriptive statistics

The descriptive statistics of stock returns (R_{it}) and net income (Ni_{it}) in three period are shown in table below. The median value of stock returns in pre-crisis time is 0.153, greater than during the crisis and post-crisis time. It means that this ratio decreased within crisis time. Compared to the period from 2008 to 2011, stock returns from 2012 increased, but the average growth is less than in pre-crisis time. The reason is that although from 2012, Vietnamese firms started to recover from financial crisis, the market in this period is still unstable.

Tab. 1 - Descriptive Statistics results. Source: Author's statistic

R_{it}	**Mean**	**Median**	**Standard deviation**	**NI_{it}**	**Mean**	**Median**	**Standard deviation**
Pre-crisis	0.139	0.153	0.459	Pre-crisis	4.409	0.489	49.958
Within crisis	0.025	0.005	0.789	Within crisis	1.104	0.279	46.655
Post-crisis	0.156	0.095	0.452	Post-crisis	2.354	0.629	7.555

Net income has same trend with stock returns with mean value of 4.409; 1.104; 2.354, respectively. The standard deviation of net income in pre-crisis and within crisis time are much greater than in post-crisis time. It means the accounting income in period of 2006 to 2011 fluctuated significantly.

This paper also tests the assumptions for multiple regression (1) dependent variables are normally distributed, (2) linear relationship between the independent and dependent variables, (3) homoscedasticity. Results are that three of these assumptions are met. Therefore these above models are appropriate to measure the level of conservatism.

To test the normality, with the sample of 34 firms in model 1 (pre-crisis and during crisis time), Shapiro Wilk test is used; with the sample of 170 firms in model 2 (during and post-crisis time), Kolmogorov-Smirnov is used.

Tab. 2 - Normality test results. Source: Author's statistic

Test of Normality	**Shapiro-Wilk**			**Kolmogorov-Smirnov**		
NI_{it}	**Statistic**	**Df**	**Sig.**	**Statistic**	**df**	**Sig.**
	0.971	34	0.571	0.087	170	0.200

The Shapiro-Wilk test with Sig of 0.571 (>0.05) means that the data normally distributed. The same result is found in Kolmogorov-Smirnov test.

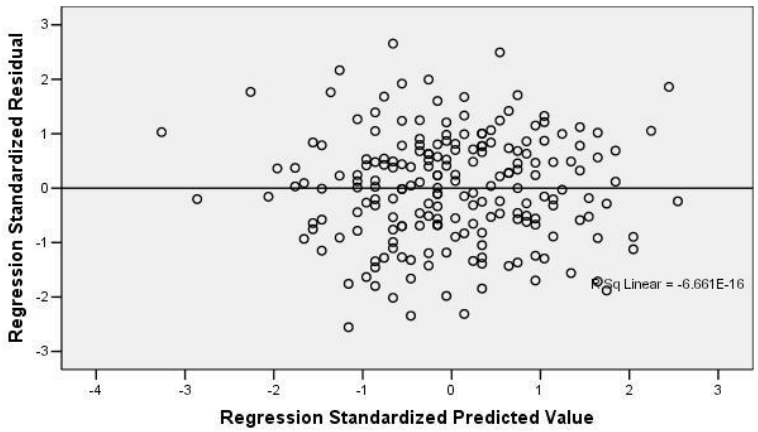

Fig. 1 - Linear relationship between the residuals and the predicted value.

Source: Author's statistic

The figure above shows a linear relationship between the residuals and the predicted value. Thus, the overall regression model is likely to be linear and homoscedastic.

4.2 Regression results

This table presents the result of the first model regression.

Tab. 3 - Model 1 regression results. Source: Author's statistic

$Ni_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 R_{it} + \alpha_3 R_{it}*DR_{it} + Within*(\alpha_4 + \alpha_5 DR_{it} + \alpha_6 R_{it} + \alpha_7 R_{it}*DR_{it})$			
α_0	**α_1**	**α_2**	**α_3**
10.373***	-6.306*	-8.745*	12.513
(0.001)	(0.053)	(0.095)	(0.282)
Within*α_4	**Within*α_5**	**Within*α_6**	**Within*α_7**
-1.379	3.171	3.546	-3.138
(0.736)	(0.621)	(0.236)	(0.621)
Adjust R square: 0.125			

*Statistical significance indicated by ***, **, * for 1%, 5%, 10% level, respectively*

As can be seen, the coefficient α_2 is -8.745 with P-value of 0.095, which means that the accounting earnings response negatively to good news. Firms tend to delay recognition of gain in both pre-crisis and within crisis period. Within* α_6 is 3.546 but the P-value exceeds the significant level of 0.1. Thus, we cannot conclude the difference in response of accounting income to good news between two periods.

The coefficient α_3 shows how the accounting income is sensitive to the bad news as loss, which presents negative results with P-value is insignificant. It means that there is no evidence about reporting conservatism in two period. Also, the Within* α_7 of -3.138 with P-value of 0.621 states that model cannot prove the conservatism changes from 2006 to 2011. In other words,

there is no evidences about Vietnamese listed firms from 2006 to 2007 report more conservatively than in the period of 2008 to 2011. The hypothesis 1 is rejected.

The table below shows the results of hypothesis 2 testing: compared to within period, there is higher level of conservatism in financial statement in post-crisis time.

Results show that the coefficient β_2 is significant negative (-8.671). It means that in both period from 2008 to 2014, firms tend to delay recognition of good news. The coefficient Post* β_6 shows the difference of accounting income sensitivity to good news in two periods, in which the result is 7.868 but p-value is 0.132. It means no sufficient evidence is found to state the change in accounting earnings to good news as gain from 2008 to 2014.

Tab. 4 - Model 2 regression results. Source: Author's statistic

$Ni_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it}*DR_{it} + Post*(\beta_4 + \beta_5 DR_{it} + \beta_6 R_{it} + \beta_7 R_{it}*DR_{it})$			
β_0	β_1	β_2	β_3
23.312***	2.186**	-8.671**	8.647**
(0.001)	(0.012)	(0.032)	(0.014)
Post * β_4	**Post * β_5**	**Post * β_6**	**Post * β_7**
-3.672**	8.012	7.862	1.365**
(0.019)	(0.172)	(0.132)	(0.045)
Adjust R square: 0.348			

Referring to bad news, the coefficient β_3 (8.647) with p-value of 0.014 show the significant positive response of accounting income to loss. In other words, firms during crisis and post-crisis time tend to use conservative accounting. To test the difference of reflection to bad news in both periods, the paper comes up with Post* β_7. This coefficient is positively significant (1.365 with p-value of 0.045), it means the accounting earnings in post-crisis time response more positively to bad news than during crisis time. In other words, relative to firms from 2008 to 2011, firms by 2012 use more conservatism in financial reporting. The hypothesis 2 is supported.

4.3 Discussion

With all of these regression results above, the hypothesis 1 is rejected, there is no evidence showing Vietnamese listed firms is less conservative within crisis time than in pre-crisis time. Besides, with the insignificant negative coefficient α_3 in model 1, there is also no evidence to prove Vietnamese listed firms use conservatism in both two periods. It could result from the Law on Securities adopted in June, 2006 and WTO accession in 2007. The law covers the regulation of listing and trading securities, which encourages Vietnamese firms to be listed. Also, WTO accession is chance to open the market, especially for exported firms. Besides, the international fund and investors are strongly attracted to Vietnamese market. It leads to enormous and rapid growth in all Vietnamese listed firms. To show their good performance to attract investors and to be listed on Stock Exchange, firms in this period might to report less

conservatively. The evidence shows that there were 221 firms listed on both Hanoi Stock Exchange and Ho Chi Minh Stock Exchange in 2006 compared to 41 firms in 2005. Most of listed firms increased by at least 100% compared to their first listed day giving the financial institutes and investors a worrying concern about the real value of listed share (Hung and An, 2011). After this bubble period, from 2008 to 2011, Vietnamese firms suffered financial crisis. The bubble market burst. Many foreign investors pulled out, the stock prices fall free to the bottom. In 2011, Vietnam was the third worst performing market in the world (Hung and An, 2011). There is a strong possibility that in this period to cover up the losses, Vietnamese listed firms tend to manipulate the accounting number, causing less conservative financial reporting. Therefore, in both periods from 2007 to 2011, Vietnamese listed firms have no sign to use conservative.

Referring to model 2, as expected, the hypothesis 2 is supported, Vietnamese listed firms in post-crisis period is more conservative than in crisis time. Due to the Decree 108/2013/ND-CP of Government on sanctioning of administrative violations in securities markets and the Circular 73/2013/TT-BTC of the Ministry of Finance guiding the operations of the market such as the disclosure of information, Vietnamese firms started to change in financial management. With these new regulations, Vietnamese firms were controlled strictly to be listed on Stock Exchange. In 2012, 24 firms pulled out of Hanoi and Ho Chi Minh Stock Exchange because they could not meet the requirement. Listed firms under the strict control had tend to follow regulations, resulting in more conservative reporting. Besides, with the development of audit service, the conservatism level of financial statement is higher. This result is consistent with paper of Herrmann (2008) and Vichitasanwong (2010) about effects of Asian crisis on Thailand, Hong kong, Singapore, Malaysia firms.

5 CONCLUSION

This paper examines the level change in conservatism of Vietnamese listed firms from 2006 to 2014. Results show that in pre-crisis and within crisis time (2006-2011), there is no sufficient evidence of using conservative accounting in Vietnamese listed firms. However, in the post-crisis time, Vietnamese listed firms tend to report more conservatively.

As can be seen, this paper provides some findings about level of conservatism of Vietnamese listed firms from 2006 to 2014. However, there are several limitations of this research that need to be dealt with in the future. Firstly, due to the shortage of previos Vietnamese papers in the related topics such as: the impact of financial market performance or earnings management on the conservatism, etc..., it still lacks of information and evidences to give recommendation to the managers or investors. Secondly, the impact of financial crisis on each industry is different, which was not considered in this paper. These limitations could be addressed in further research. It should be interesting to add some other variables such as ROA, firm size, firm leverage, etc... to present more detailed financial data. The relationship between financial performance or earnings management and the conservatism also need to be exame in the context of Vietnam. The further paper should consider to the fact that firms suffering the most from crisis may report differently compared to firms suffering the least from crisis.

REFERENCES

Ball. R and and L. Shivakumar (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics*, 39(1), 83–128

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24 (1), 3–37

Circular 73/2013/TT-BTC of the Ministry of Finance guiding the operations of the market

Decree 108/2013/ND-CP of Government on sanctioning of administrative violations in securities markets

Gul, F.A., B. Srinidhi, and T. Shieh. (2004). The Asian Financial Crisis, Accounting Conservatism and audit fees: evidence from Hong Kong. [online] Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=315062.

Hamdan, A.M; Abzakh, M.H and Ataibi, M.H (2011). Factors Influencing the level of Accounting Conservatism in the Financial Statement. *International Business Research*, 4(4), 145-155

Hellman, N. (2008). Accounting conservatism under IFRS. *Accounting in Europe* 5 (2): 71-100.

Herrmann, D.R., S. Pornupatham, and T. Vichitsarawong. (2008). The impact of the Asian financial crisis on auditors' conservatism. *Journal of International Accounting Research* 7 (2): 43-63.

Hung Manh Nguyen, An Sy Pham (2011), Impacts of global economic crisis on foreign trade in lower-income economies in the Greater Mekong Sub-region and policy responses: the case of Vietnam and its implications for Lao PDR and Campodia, *Asia-Pacific Research and Training Network on Trade Working paper Series*, No.102

IASB (1989). *Framework for the Preparation and Presentation of Financial Statements*. International Accounting Standards Board

IASB (2006). *Preliminary Views on an improved Conceptual Framework for Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics of Decision-useful Financial Reporting Information*. International Accounting Standards Board

Jenkins, D.S., G.D. Kane, and U. Velury. (2009). Earnings conservatism and value relevance across the business cycle. *Journal of Business Finance & Accounting* 36 (9) & (10): 1041-1058.

Johnson, S., Boone, P., Breach, A., Friedman, E., (2000). Corporate governance in the Asian financial crisis. *Journal of Financial Economics 58*, 141–186

Kodres, L.E., and M. Pritsker. (1998). A rational expectations model of financial contagion. *The Journal of Finance 57 (2): 769-799.*

Lastra, Rosa M, Wood, and Geoffrey (2010). The crisis of 2007–09: Nature, causes, and reactions. *Peer Reviewed Journal*, 13(3), 531-550.

Lee, S.C, J.L. Chen, I.M. Jiang, and C.J. Hsu. (2012). Accounting conservatism and bankruptcy, *Journal of Accounting, Finance & Management Strategy 7 (2): 53-70.*

Penman, S. H., and X.-J. Zhang. (2002). Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review 77: 237–264.*

Ryan, S.G. (2006). Identifying conditional conservatism. *European Accounting Review 15 (4): 511- 525.*

Sterling, R. (1967). Conservatism: The fundamental principle of valuation. *Abacus 3 (2): 109–132*

Tariq H Ismail and Rash M. Elbolok (2011), Do conditional and unconditional conservatism impact earnings quality and stock prices in Egypt, *Research Journal of Finance and Accounting*, 2(12), 7-21

Vichitsarawong, T., L.L. Eng, and G.K. Meek. (2010). The Impact of the Asian Financial Crisis on conservatism and timeliness of earnings: Evidence from Hong Kong, Malaysia, Singapore, and Thailand. *Journal of International Financial Management and Accounting 21 (1): 32-61*.

Watts, R.L. (2003a). Conservatism in Accounting, Part I: Explanations and Implications, *Accounting Horizons, 17 (3): 207-221*.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

MODIFIED JONES MODEL AND ITS RELIABILITY IN DETECTING EARNINGS MANAGEMENT: A CASE OF VIETNAMESE STOCK MARKET

Anh Huu Nguyen, Linh Ha Nguyen

ABSTRACT

In process of preparing financial statements, to some extent, earnings figure may be managed by the use of different accounting methods and estimates. Since then, it has raised a concern about the reliability of provided financial information in stock market if there exists opportunities for "earnings management". Over five decades, a numbers of models have been developed for testing the existence of earnings management and its magnitude. Among such models, the Modified Jones (1995) model is one famous model that has been applied worldwide in this area. To date, there are few studies conducting this issue in the context of Vietnam. Therefore, the reliability of this model should be examined in Vietnamese stock market. Using OLS for regression analysis with 2,934 observations that were collected during five years (2010 - 2014), the findings confirmed that the Modified Jones (1995) model is reliable in Vietnamese stock market, an emerging economy. In conclusion, this research suggested that information users such as investors, shareholders, creditors etc. might apply the Modified Jones (1995) model in detecting earnings management for Vietnamese listed companies and we also can conclude about its globally - prevalent application.

Keywords: *earnings management; Modified Jones model; Vietnamese stock market*

JEL Classification: M41, G32

1 INTRODUCTION

Earnings is one important index for evaluating the financial performance of a company. It provides signals for investors, managers, analysts and other related parties in making their decisions. However, earnings figure may be managed by the use of different accounting methods and estimates. Since then, it has raised a concern about the reliability of provided financial information in stock market if there exists opportunities for "earnings management".

There are numbers of alternative definitions from different angles. Schipper (1989) defined earnings management as "the purposeful intervention in the external financial reporting process with the intent of private gains" while Healy and Whalen (1985) suggested that "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Ronen and Yaari (2007) argued their neutral opinion that not all earnings management is misleading and it is not easy in distinguishing between earnings manipulation that is related to fraud and the efforts of management to keep costs within budgets or to get revenues to meet desired sales targets.

In reality, the fact of many financial scandals such as Enron, Worldcom, Xerox…have forced information users to wonder about the reliance of financial information published on stock

markets. Since then, earnings management (EM) and how to detect it have become one of the most discussed topics in accounting and finance researches.

In Vietnam, the financial market in general and stock market in particular are still at their young stages. According to Global Competitiveness Index (2014-2015), The World Economic Forum (WEF) has placed Vietnam at 90th out of 144 countries in its strength of financial market. In addition, its market capitalization as percentage of GDP in 2014 only accounted for 24.7 %, too low compared to other countries in the region as well as to the world (Table 1). In such situation, bank debt has played essential role for the survival of Vietnamese companies while stock market has still remained young and is growing. Besides, the existence of financial scandals such as Bông Bạch Tuyết, or the huge differences between before-audited and after-audited profit in the financial statements of companies such as Thép Việt Ý, Vinaconex... have drawn attention to accounting information quality, earnings management and how to detect it. Those have become big concerns for investors and other information users.

The Modified Jones (1995) model is one of the most prevalent models in detecting EM but in Vietnam, there are few researchers who have focused on it. There are some papers introducing the model along with many limitations in sample size as well as methodology (Nguyen Thi Uyen Phuong, 2014; Pham Thi Bich Van, 2012). Admittedly, Vietnamese stock market has different attributes, the differences in financial structures of listed companies as well as accounting rules compared with other countries. In an attempt to overcome limitations in previous researches, the goal of this study is to apply the Modified Jones (1995) model for detecting EM and examining whether this model can be a reliable tool for EM testing in Vietnamese context.

Tab.1 - Market capital as percentage of GDP in some countries, 2014.
Source: data.worldbank.org

No	Countries	GDP (at market price, current $ US)	Market Capitalization ($ US)	% / GDP
1	China	10,354,831,729,340	6,004,947,670,000	58 %
2	South Korea	1,410,382,988,616	1,212,759,460,000	86 %
3	Japan	4,601,461,206,885	4,377,994,370,000	95.1 %
4	Malaysia	338,103,822,298	459,004,370,000	135.8 %
5	Singapore	307,859,758,504	752,831,010,000	244.5 %
6	Thailand	404,823,952,118	430,426,610,000	106.3 %
7	UK	2,988,893,283,565	3,182,550,000,000	106.5 %
8	US	17,419,000,000,000	26,330,589,190,000	151.2 %
9	Indonesia	888,538,201,025	422,127,050,000	47.5 %
10	Vietnam	186,204,652,922	46,067,020,000	24.7%

2 THE MODIFIED JONES (1995) MODEL AND LITERATURE REVIEWS

The difference between earnings from income statement and cash earnings is accruals. There are two ways that managers could use to adjust earnings: through real activities (Roychowdhury, 2003), or through accruals (Healy, 1985; Jones, 1991; Dechow et al., 1995). Researchers mainly focused on accruals instead of real activities because EM through accruals

is less costly and has been used more often (Yue, 2004). In EM literature, researchers have suggested three typical methods for detecting EM. The first suggestion is the use of several accruals (total accruals) for EM investigation. Total accruals can be divided into two components: discretionary accruals and non-discretionary accruals. Discretionary accrual has been considered as one of the index for information quality (Francis et al., 2005) and can be used as a proxy for EM. The second method is the use of specific accruals such as bad debts provision for EM investigation (McNichols and Wilson, 1988). The third one examines the distributed earnings, the discontinuity in the distribution of reported earning around zero earnings and last year's earnings could be the evidence of EM (Burgstahler and Dichev, 1997).

Among the above methods, discretionary accruals are widely used in the EM literature and the following models have significant contributions to develop tools for estimating the discretionary and/or non-discretionary components of total accruals: the Healy (1985) model, the DeAngelo model (1986) model, the Jones (1991) model and the Modified (1995) Jones model… Each model has its own disadvantages and advantages but the Modified Jones (1995) model is one of the most powerful.

There was a milestone in 1980s, US footwear industry was supposed to be involved in EM while reported a sudden and dramatic drop in profitability in order to benefit from import relief from the government's policy. Since then, Jenifer Jones (1991) proposed a model attempt to detect EM for the situation. In an attempt to overcome the limitations in Healy (1985), DeAngelo (1986) that used the changes in total accruals as discretionary accruals and supposed that non-discretionary is unchanged, Jones (1991) considered the effects of a firm's economic circumstances on non-discretionary accruals and she was the first to indicate that changes in total assets, gross revenue, and gross property plant and equipment (PPE) are the determinants of non-discretionary accruals. Sales revenue is the proxy for economic events that generate current non-discretionary accruals and gross PPE is the proxy for non-current non-discretionary accruals (related to depreciation expense).

After the introduction of the original Jones (1991) model, it attracted a lot attention from researchers and then, many authors developed modified Jones models, one typical study was the study of Dechow et al. (1995). Following Jones (1991)'s approach, Dechow et al. (1995) slightly modified the origin by using the change in cash-accompanying revenue instead of change in revenue only. The most prevailing Modified Jones (1995) model is presented as the following mathematical equation:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \times \frac{1}{A_{it-1}} + \alpha_2 \times \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_3 \times \frac{PPE_{it}}{A_{it-1}} + \varepsilon \quad (1)$$

Where: TA_{it} : total accruals of firm i at year t

ΔREV_{it} : revenue in year t less revenues in year t-1

ΔREC_{it} : receivables in year t less receivables in year t-1

PPE_{it} : gross property plant and equipment in year t

A_{it-1} : total assets of firm i at year t-1

$\alpha_1, \alpha_2, \alpha_3$: estimated coefficients

ε : residual error

From the Equation 1, (α_1, α_2, α_3) represent the firm-specific parameters (a_1, a_2, a_3) in Equation 2. Non-discretionary accruals (NDA) and discretionary accruals (DA) are then calculated as below:

$$NDA_{it} = a_1 \times \frac{1}{A_{it-1}} + a_2 \times \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + a_3 \times \frac{PPE_{it}}{A_{it-1}} \quad (2)$$

$$DA_{it} = TA_{it} / A_{it-1} - NDA_{it} \quad (3)$$

In their study, Dechow et al. (1995) studied the phenomenon of EM with data from 1950-1991 that retrieved from US stock market. Five alternatives models ranged from simple to sophiticated one were used for detecting EM. The modified Jones that was developed by Dechow et al. (1995) exhibited the most powerful. Since its first introduction, the Modified Jones (1995) model has been applied worldwide.

Young (1999) observed 1987 firm-years from 1993-1996 in UK by five models which included Modified Jones (1995). Charfeddine, Riahi & Omri (2013) studied the Modified Jones (1995) in Tunisia with 133 observations from 2003-2009. Teshima & Shuto (2008) used the Modified Jones (1995) in Japan with 18.163 observations from 1991-2000. Yoon et al. (2006) in Korea with 2.895 observations from 1995-2000 and suggested new modified models for Korea. Chen (2010) used both the Jones (1991) model and the Modified Jones (1995) model in China and concluded that the Modified Jones (1995) model was still best approach other than many alternatives.

The Modified Jones (1995) model has been tested in various contexts, in different countries and it has become a basis for many subsequent researches in the EM area. In Vietnam, there had some papers that introduced the Modified Jones (1995) model along with some limitations in sample sizes or methodology. Some authors just made a brief introduction about the Modified Jones (1995) model without data processing (Nguyen Thi Uyen Phuong, 2014). Pham Thi Bich Van (2012) studied 60 listed companies in HNX Vietnam in 2010 and concluded that the Modified Jones (1995) did not work while detecting EM in Vietnamese stock market.

This study did a test with a larger file data to see if the Modified Jones (1995) can be used in Vietnamese stock market or not. Actually, the use of the Modified Jones (1995) is to estimate the parameters and then calculating discretionary accruals from total accruals and non-discretionary accruals. It means that, after the first regression (Equation 1), the estimated coefficients (α_1, α_2, α_3) will represent the firm-specific parameters (a_1, a_2, a_3) in Equation 2. The discretionary accruals (DA), a proxy for EM, then can be calculated as proposed in Equation 3. The evaluation of DA could be the base for researchers to go further so that it has been highly considered in EM research field.

3 METHODOLOGY, SAMPLE AND DATA ANALYSIS

Due to its popularity, the Modified Jones (1995) model was selected to investigate earnings management in Vietnam. With the sample of 3,195 firm-year observations from 2010-2014 in Vietnamese stock market, some were deleted due to the lack of data. The rest with 2,934 were chosen for analysing that comprised of 1,558 observations from HNX and 1,376 observations from HOSE. At first, some indexes were implemented by using complex calculations in excel. Then, data should be inserted in SPSS package 21. Using regression analysis, the results are presented in section 4. However, in order to make the variables less complicated, the Modified Jones (1995) model in which demonstrated in mathematical equation (1) can be presented as the following linear regression equation:

$$Y = \alpha_1 \times X_2 + \alpha_2 \times X_2 + \alpha_3 \times X_3 + \varepsilon \quad (4)$$

Where: $Y = TA_{it} / A_{it-1}$

$X_1 = 1/A_{it-1}$

$X_2 = (\Delta REV_{it} - \Delta REC_{it}) / A_{it-1}$

$X_3 = PPE_{it} / A_{it-1}$

4 RESULTS

4.1 Descriptive statistics

Table 2 presented the descriptive statistics of independent variables and dependent variable. With the sample data of 2,934 observations from 2010-2014, minimum value of total accruals scaled by to total asset at year t-1 (Y) is –1.7 while max value is 5.7. Three independent variables, the first variable $X_1 = 1/A_{t-1}$ is too small and to be considered equal zero. The change in revenue scaled by to total asset at year t-1 (X_2) has min value of – 3.8 and max value of 6.8. The last variable $X_3 = PPE_t / A_{t-1}$ has min equal zero and max of 6.8.

Tab.2 - Descriptive Statistics. Source: Author's statistic

	N	**Min**	**Max**	**Mean**	**Std.Deviation**
Y	2,934	-1.7	5.7	0.26	.2263
X_1	2,934	.0	.0	.000	.0000
X_2	2,934	-3.8	6.8	.120	.4423
X_3	2,934	.0	6.8	.427	.4109

4.2 Multi regression

Multi regression was implemented for testing the relation between independent and dependent variables in the Modified Jones (1995) model. The presented outcomes are 3 tables: Model summary, Anova and Coefficients.

In table 3, model summary, R-square tells the "goodness fit" of the model. Adjusted R-square for this model is .027, which means that the X_1, X_2, X_3 variables can explain about 2.7 % of the change in Y.

Tab.3 - Model Summary. Source: Author's statistic

Model	R	R square	Adjusted R Square	**Std.Error of the Estimate**	**Change Statistics**				
					R Square Change	F Change	Df1	Df2	Sig. F Change
1	.167	.028	.027	.2232	.028	28.173	3	2930	.000

In Anova test, the "Sig." column should be noticed because it shows the significant level of the Anova. The model exists when it shows statistically significant. In table 4, the result of Anova test showed F = 28.173 (Sig = .000). The significance is 0.000, so that we can reject the null

hypothesis that "The model has no predictive value" and accept the alternative hypothesis that the model in this research exists and it can predict Y by using X_1, X_2, X_3.

Tab.4 - ANOVA. Source: Author's statistic

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.210	3	1.403	28.173	.000
Residual	145.950	2.930	.050		
Total	150.160	2.933			
Dependent Variable: Y Predictors: (Constant) *X1, X2, X3*					

Finally, the most important table is the coefficients table (Table 5). The significance level of .000 indicates that we can reject the null hypothesis that X_1, X_2 and X_3 do not predict Y. All the significance levels are <0.05, so that all are significant. We can reject null hypothesis that independent variables are not associated with the dependent variable.

Tab.5 - Coefficients. Source: Author's statistic

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std.Error	Beta			Tolerance	VIF
1.Constant	.038	.006		6.032	.000		
X_1	1801831984	419450772.1	.078	4.296	.000	.994	1.006
X_2	.049	.009	.096	5.280	.000	.996	1.004
X_3	-.068	.010	-.123	-6.707	.000	.991	1.009
Dependent Variable: Y Predictors: (Constant) *X1, X2, X3*							

All the results from Table 3, 4, 5 are only for confirming the reliability, the existence of the Modified Jones (1995) model and the significance of each variable in the relation between dependent and independent variable.

In fact, the ultimate goal of discretionary accruals - measured models is to calculate non-discretionary accruals. After regressing variables, as mentioned in section 3, we get the estimated coefficients, those parameters then can be used for calculating non-discretionary accruals and discretionary accruals. It means that, after the first regression (Equation 4 or Equation 1), the estimated coefficients (α_1, α_2, α_3) will represent the firm-specific parameters (a_1, a_2 , a_3) in Equation 2. The discretionary accruals (DA), a proxy for EM, then can be calculated as proposed in Equation 3. The evaluation of DA could be the base for researchers to go further because it is only the first step in almost all of EM studies.

5 CONCLUSIONS AND FURURE RESEARCH IMPLICATIONS

The results of the study showed that the Modified Jones (1995) model is reliable in Vietnamese stock market. It can be used to support investors and other parties in their making decision process. Information users such as investors are always under the high pressures when

companies – on behalf of them – will spend their invested money in doing business, they do not know whether companies' managers will act to maximize the value for companies or not so that EM detection model like this could create a tool for enhancing the users' reliance in financial information.

As other stock markets, developing a tool for EM detection in Vietnamese stock market is necessary. Even some previous researches in Vietnam mentioned about the Modified Jones (1995) model but these had limitations in many ways, they only introduced the model or have been tested with restricted data so that their conclusions were not supported. In an attempt to overcome the weakness, the sample of 2.934 firm-year observations from 2010-2014 have proved that the Modified Jones (1995) model is suitable and can be applied in the context of Vietnam, it is not only used in developed countries but also can work well in Vietnam, a developing country with young stock market. Additionally, the results broaden our understanding about earnings management in Vietnam and enrich the EM literature.

Besides some simple models for detecting EM, the Modified Jones (1995) is one sophisticated model so that in this study, the authors only applied and tested the reliability of the model, the next steps in calculating NDA and DA have not yet done. This is the limitation of study and it should be the suggestion for future research. In addition, even the Modified Jones (1995) model has always proved its powerfulness; there still remain some limitations in the models it self (Yoon, 2006). For future studies, besides the Modified Jones (1995) model, many other alternatives (Kothari, 2005; Yoon, 2006) should be applied to enlarge the pervasiveness of earnings management researches in Vietnam.

REFERENCES:

Burgstahler, D., & Dichev I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24(1), 99–126.

Charfeddine L., Riahi R. & Omri A. (2013). The determinants of earnings management in developing countries: A study in the Tusianan context. *The IUP Journal of Corporate Governance*, 12(1).

Chen T. (2010). Analysis on accrual-based models in detecting earnings management. *Lingnan Journal of Banking, Finance and Economics*, 2(1), Art5, 1-10.

DeAngelo L. (1986). Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders. *The Accounting Review*, 61(3), 400-420.

Dechow P.M., Sloan R. & Sweeney A. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225.

DeFond, M., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17, 145–176.

Francis, J. R., Khurana I.K., & Pereira R., (2005). Disclosure incentives and effects on cost of capital around the world. *Accounting Review*, 80, 1125-1162.

Friedlan, J. M. (1994). Accounting choices of issuers of initial public offerings. *Contemporary Accounting Research*, 11(1), 1-31.

Healy P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of accounting and economics*, 7, 85-107.

Jones J.(1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29, 193-228.

Kang, S. & Sivaramakrishnan, K., (1995). Issues in testing earnings management and an instrumental variable approach. *Journal of Accounting Research*, 33(2), 353 – 367

Kothari S P, Leone A J & Wasley C E (2005). Performance matched discretionary accruals. *Journal of Accounting and Economics*, 39(1), 23-49.

McNichols, M., & Wilson, G. P. (1988). Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research*, 26,1-31.

Nguyen Thi Uyen Phuong (2014). *Research on earnings management of listed companies in Vietnamese stock market in their additional stock issuance* (Master thesis). Da Nang University, Vietnam.

Pham Thi Bich Van (2012). Earnings management detecting model for listed companies in HNX, *Banking Journal*, 9, 28-33.

Ronen, J., & Yaari V. (2007). Earnings management: emerging insights in theory, practice, and research, 3: Springer.

Roychowdhury, S. (2003). Management of eamings through the manipulation of real activities that affect cash flow from operations. Working paper. MIT Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons*, 3, 91-102.

Teshima & Shuto (2008). Managerial ownership and earnings management: theory and empirical evidence from Japan. *Journal of International Financial Management & Accounting*, 19(2).

Yoon S.S, Miller G. & Jiraporn P. (2006). Earnings management vehicles for Korean firms. *Journal of International Financial Management and Accounting*, 17(2), 85-109.

Young S. (1999). Systematic measurement error in the estimation of discretionary accruals: an evaluation of alternative modelling procedures. *Journal of Business Finance and Accounting*, 26(7), 833-862.

Yue, H. (2004). *Essays on Earnings Management* (Doctoral dissertation). Tulane University, US.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

COMBINING PROCESS OPTIMIZATION TECHNIQUES AND MATURITY MODELS IN DIGITAL MARKETING: ASSESSMENT OF OPPORTUNITIES

Elina Bakhtieva, Oksana Koval

ABSTRACT

Optimization methodologies effectively decrease costs and improve effectiveness of marketing. Researchers have long attempted to develop frameworks to diagnose the state of marketing operations in companies based on maturity models. Literature provides evidence of about 100 maturity models. However, none of them focuses on Business-to-Business (B2B) digital marketing. The combination of maturity models and optimization methodologies haven't been deeply researched. This article explores possible ways for combining of the two approaches for a more efficient assessment and process improvement of marketing operations in B2B companies. A prototype of the digital marketing maturity model based on combination of existing maturity models descriptors, XEROX Lean Six Sigma, DMAIC, and DuPont Strategic Marketing process is being presented in the study. A combination of two approaches (maturity model and Lean Six Sigma methodology) is expected to provide companies with a roadmap for performance improvement in digital marketing operations. The paper proposes a tool, which can be used by company managers in order to fulfill process optimization and budget allocation in digital marketing.

Keywords: *B2B digital marketing, process optimization, maturity model, digital marketing maturity model, lean six sigma*

JEL Classification: M31

1 INTRODUCTION

Digitalization transforms the concept of marketing. Constant development of digital technologies expands the number of channels, strategies and measuring tools. This on the one hand provides additional opportunities and alternative strategies, on the other hand leads to information overload. According to different surveys, more than 50% of B2B companies use digital marketing without any strategy (Chaffey, 2015; Content marketing institute, 2015). Absence of the strategy makes it difficult to provide measurement and control upon digital channels and campaigns.

The current status of digital marketing requires a framework that could structure the elements of digital marketing. Such a framework could be a maturity model. Maturity models enable practitioners to assess the state of a specific area in development of the organization and develop tools to improve performance in the given domain. More than 100 different maturity models exist in different industries (Mettler, 2010b). Maturity models serve as a diagnostic tool and are used for the purpose of process optimization.

B2B digital marketing is a developing topic and is characterized by lack of systematic research on it. The knowledge available on digital marketing is mostly practice-based with a limited theory research. However, an information overload concerning different channels and metrics might confuse companies. The proposed research aims to develop a B2B digital marketing

framework that provides a structure to the available information and directions for optimization of performance. This framework will combine two approaches – maturity model and Lean Six Sigma method. Moreover, it will consider the experience of XEROX Lean Six Sigma, DMAIC, and DuPont Strategic Marketing process.

The purpose of the current paper is to propose a practical tool for companies that are willing to strengthen digital marketing. The tool will help companies to identify their current position in the development process of digital marketing and to propose the ways for further development. The proposed model could be used by company managers as a diagnostic tool that helps to optimize digital marketing strategy within the organisation. Moreover, it will access the budget allocation.

2 LITERATURE REVIEW

2.1 B2B digital marketing

Digital marketing is a growing market. Several factors facilitate its' development. First, companies shift their activity from traditional to online marketing and re-focus from offline marketing to digital channels (Järvinen, Tollinen, Karjaluoto, & Jayawardhena, 2012). Second, the growing role of smartphones increases the importance of online channels. Nowadays smartphones are used not only in the B2C sector but increasingly in B2B operations. Smartphones are actively used for watching guideline videos, checking emails or to get first information about a product or service (Miller, 2012). Third, the change in the approach to communication with customers from customer-oriented to customer-centric has impacted the nature of communication. Customers take part in conversations, leave feedbacks and opinions, and therefore are involved in brand building. Even greater changes in communication were made in the social media marketing.

B2B digital marketing is a new topic. This trend can be noticed in the statistics of Google Trends, which shows the frequency of a topic appeared in Google search results for a certain period of time. Google Trend shows that a term "B2B digital marketing" did not appear before 2012. This could be explained that until recently the term of digital marketing was limited to a very specific field of digital media, like e-books or music. The modern understanding of digital marketing has more complex structure. An actual definition of digital marketing covers different digital channels, among which are online and mobile marketing, digital videos, etc. (Järvinen, Tollinen, Karjaluoto, & Jayawardhena, 2012; Wymbs, 2011).

B2B digital marketing is characterized by a number of specifics.

The first specific refers to marketing channels. The emergence of e-commerce has boosted the development of new technologies, business models and new channels (Rosenbloom, 2013). Companies are trying to use multi-channel strategy in order to win synergy from the use of both traditional and digital channels. The major challenge to using successful multi-channel strategy is to avoid a conflict of the channels by reaching the same customer (Rosenbloom, 2013). Focus on the most appropriate for the specifics of the business channels could solve this problem.

The second specific refers to the choice of the measurement tools. The number of measuring tools is rapidly increasing from day to day. The market has not adapted yet a set of standard tools. This is reasoned mainly by the differences between industries and companies. A single set of tools will not be able to fit the needs of all companies. Moreover, it is often difficult to distinguish which digital marketing campaign has brought the increase in sales. Due to the ambition to use time effectively, companies often do not have possibility to test different campaigns separately. For this reason many digital campaigns do not let to calculate return on

investments (Galante, Moret, & Said, 2013). An existence of unlimited number of measuring tools could cause confusions. Companies do not know what tools are functioning well and which should be replaced. Moreover, they not always know that tools fit best to their art of the business (Chaffey & Patron, 2012). The most important approach being widespread between marketing experts is to base the metrics on the pre-defined goals (Järvinen et al., 2012). In order to know *how* to measure, companies should clearly understand, *what* to measure and *why*. Marketing experts suggest to use five to six metrics that are closely correlated to the sales, and control them at least twice a year (Galante et al., 2013).

The third specific of digital marketing concerns people capabilities. The requirements to marketing specialists have changed over time. Traditionally marketing specialists had to be good in marketing and possess some industry knowledge. Nowadays these capabilities would be not sufficient. Today marketing specialists have to be experts in many other related areas. They have to be experienced in IT; know how to deal with Big Data; be good in PR and know what storytelling is; they have to be familiar with a web-, mobile and multi-channel design, etc. (Adobe, 2015; Chaffey, 2015b; Jeff Alford, n.d.). For this reason many companies claim about lack of specialists in digital marketing (Day, 2011).

2.2 Digital Marketing Optimization

Marketing optimization can be identified as a set of processes aimed at increasing the ranking of the company website as well as driving more of target clients to the digital sales channels at the minimum cost (John, 2014). One of the main advantages of digital marketing is availability of the tools (websites, mailing lists, social media, smartphone applications etc.) that can be instantly updated to reach customers.

Optimization enables marketers to decide on the most appropriate set of customer actions that maximize the overall marketing campaign goal, taking into consideration predicted customer behavior and expected sales, whilst satisfying business constraints such as product targets, channel mix, fixed budgets and privacy policies (Thomas, 2010).

The flexibility and adaptability of these marketing channels makes them harder to manage than traditional ones, and, as a result creates a need for optimization in their mix and applications. Practitioners in 30% of the surveyed companies in a study conducted by Smart Insights company widely apply optimization to individual channels: 30% for website (desktop experience), 21% for Mobile (mobile site and/or apps), 29% for landing pages, 35% for email marketing, 29% for social media marketing, 28% for content marketing and 31% for paid digital media (Chaffey, 2015a).

Application of optimization techniques helps to decrease the cost and lead time of the processes (Bain, 2013). International companies benefit from optimizing their marketing operations, typically seeing improvements in marketing returns of between 10% and 30% (Thomas, 2010).

Literature suggests two primary approaches to optimization in marketing: professional publications focus more on application of management optimization methodologies (Lean, Balanced Scorecard, Lean Six Sigma etc.) (Fornari & Maszle, 2004; Lean Marketing Lab, 2010; Mele, 2007) and academic literature develops methods of mathematical and statistical optimization in marketing (Besbes, Gur, & Zeevi, 2016; Bucklin & Sismeiro, 2003).

Researchers deeply study the usage of web and data analytics for marketing optimization. Many publications focus on clustering optimization (Kamakura, Wedel, de Rosa, & Mazzon, 2003) and joint optimization techniques to the marketing segmentation process (Jonker, Piersma, &

Van den Poel, 2002), fuzzy optimization and multivariate methods (Chaffey & Patron, 2012) and qualitative assessment (Grönroos, 1984).

At core of optimization is an allocation process which delivers a decision based on strict mathematical analysis aimed at balancing multiple decision variables to meet the objective analysis of three key factors: corporate objectives, possible customer actions, and constraints that limit these activities (Boyd & Massy, 1972). The digital marketing optimization can be described as a linear process (Fig. 1) that involves analysis of business goals and constraints combined with the process optimization techniques in order to increase sales via online channels.

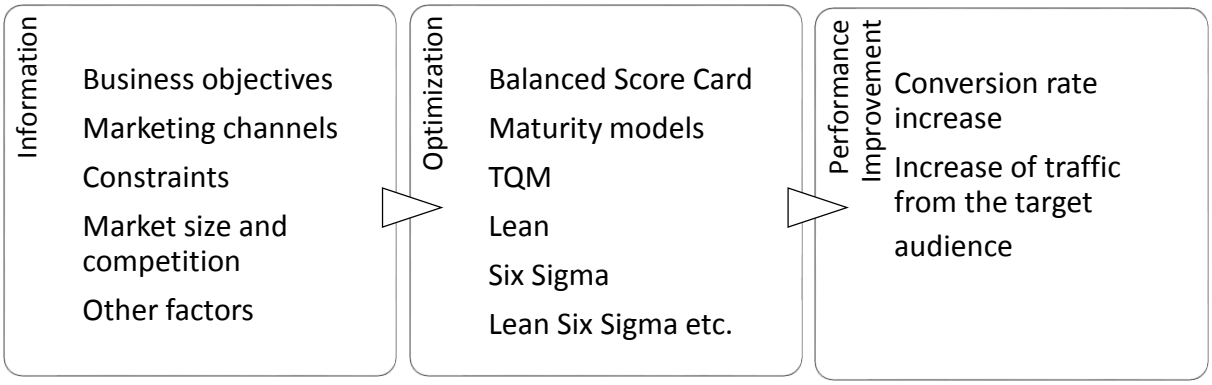

Fig. 1 - Digital Marketing Optimization Process. Source: developed by authors based on (Boyd & Massy, 1972; Fornari & Maszle, 2004; Thomas, 2010)

2.3 Maturity models

Despite the existence of more than 100 different process maturity models, there is no widely approved definition of a maturity model (Mettler, 2010b). Under a maturity could be understood„…the extent to which a specific process is explicitly defined, managed, measured, controlled, and effective" (Mettler, 2010a; Paulk, Curtis, Chrissis, & Weber, 1993, p. 4). Maturity models pursue two main goals – process optimization and benchmarking. The given article will be focused on process optimization.

Researchers distinguish several types of maturity models.

From the point of view of reference the models could be maturity (capability) models and assessment models (Mettler, 2010a). A maturity (capability) model refers to the best and common practices. The goal is set to reach an ideal the highest level of excellence. Maturity (capability) models could be further divided into two groups: 1) models referring to the best practices, and 2) models referring to common practices, an average in branch/industry/country, etc. The latter could be used for benchmarking purposes (Mettler, 2010a). An assessment model refers to a process model that it describes. Certain quality characteristics to control process areas are provided regularly and therewith help to identify the improvement areas. The goal, or the highest level of excellence could not be identified at the beginning; an organization has to set the goals according to the status quo of the processes (Mettler, 2010a).

Based on processing direction maturity models could be top-down and bottom-up. Top-down maturity models are built in a way that in the first place the levels of maturity are defined, and only then the elements of a model that meet the requirements of each level could be determined. Bottom-up models are built in an opposite way: first the elements of the model are identified and only then it should be decided what level of maturity could be reached (Mettler, 2010a).

From the point of view of assessment methods maturity models could be self-assessment, third-party assisted and certified professional-assisted. The difference lies in the deepness and the budget and time required for the analysis. Self-assessment maturity models usually do not require any specific knowledge. They are cost-effective and less time-consuming. However, the scope is very limited: only one or two problem areas could be analyzed. Third-party assisted maturity models allow much deeper analysis. The assessment process is relatively time consuming and could take from several days to several weeks (Mettler, 2010b). As a rule, such models are performed by external consulting companies. Certified professional assisted maturity models are the most costly in terms of time and resources. However, such models provide a very deep and precise analysis. Such analysis requires involvement of a certified professional. As a rule, the process of implementation of this type of maturity models consists of three phases. During the first phase the analysis is provided. The next phase is focused on the implementation of all necessary changes. During the third phase a certification of an entire organization according to certain standards is being performed (Mettler, 2010a).

From the point of view of their focus, three types of maturity models are defined: 1) a process maturity model, which analyses the processes from the point of view of definition, manageability, controllability and effectiveness of the processes; 2) an object maturity model, which analyses a development of a particular object like a software or a report according to the levels of satisfaction pre-defined earlier; 3) a people capability model referring to the competence analysis (Mettler, 2009).

The majority of the existing maturity models are focused only on one dimension, often the process dimension. Only few maturity models focus on multiple dimensions, e.g. people and objects (Cleven, Winter, Wortmann, & Mettler, 2014; van Steenbergen, 2011).

A maturity model as a rule contains of the following elements:

- domain or scope of the assessment (Ofner, Huener, & Otto, 2009);
- levels and/or stages, representing a hierarchical structure (de Bruin et al., 2005). The number of levels usually vary from three to six (Fraser, Moultrie, & Gregory, 2002a);
- level descriptor, providing a short explanation of the level, sometimes in one word, e.g." initial / repeatable / defined / managed / optimising..."(Fraser, Moultrie, & Gregory, 2002b). The model might include a spread overview of levels.
- process areas within each level (Fraser et al., 2002b);
- activities within each process area, including their explanation (Fraser et al., 2002b).
- possible maturation path (Röglinger, Pöppelbuß, & Becker, 2012).

The proposed model for the process optimization in digital marketing could bring several advantages for the companies.

First, companies could optimize a business strategy. The analyses will help to depict week and strong processes in organization. The findings of the analysis could be used as an input for an improvement project. Process optimization is closely connected with budget optimization. Companies could identify by means of the provided analysis the processes requiring additional investments and the processes with the advanced level of development. This will help to relocate, if necessary, the recourses, both human and financial, from the strong developed processes to the week developed. In the end, the proposed model will help to balance the processes in organisation and keep focusing on priorities.

Second, the proposed tool will provide the possibility to track the development process over the time. The analyses provided regularly over a certain period time will identify the processes that could be easily change and those that face some difficulties. This will help to re-arrange the optimization model. Moreover, regular analysis helps to identify the changes in within the organisation and on the market.

3 RESEARCH METHOD DESCRIPTION

The proposed article examines possibilities in-between intersection of maturity models and process optimization techniques applied in the B2B digital marketing area (Fig. 2). The study employs exploratory literature review technique to narrow down the possible directions for design and development of maturity model for B2B digital marketing.

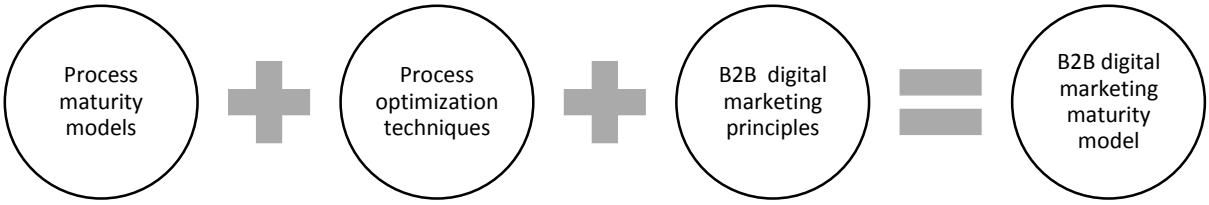

Fig. 2 - Research approach. Source: developed by authors

Exploratory literature review is used to deepen the knowledge developed in initial literature review and helps to clarify terminology, study deeper gaps in the literature review, and develop suggestions for further fieldwork and test of the models (Liston, 2011). The article is based on the articles and books presented in the scientific databases, mainly EBSCO, SCOPUS, and Web of Science.

A simple search for terms relevant to the study (specified in the columns) returns the following number of publication on the topic. Search requests included the phrase words "digital marketing", "digital marketing maturity", "digital marketing "& maturity, "digital marketing optimization" and "digital marketing" & optimization. The search was not limited to types of publications or to specific industries, thus table provides overview of all publications in the databases that contain the terms (Tab. 1).

Tab. 1 – Overview of the literature available on the topic. Source: developed by authors based on http://onlinelibrary.wiley.com/, http://web.b.ebscohost.com, http://apps.webofknowledge.com/, http://www.scopus.com

Terms	Digital Marketing	Digital marketing maturity model	Digital marketing optimization
EBSCO	8054	16	2
SCOPUS	5143	28	121
Web of Science	77	2	0
Wiley Online	321	20	55

Scholars have long studied various aspects of digital marketing and the literature provides a high number of publications on the topic. This provides an extensive background for initial research work. The proposed study focuses on identification of the main pillars and components

for design of the digital marketing maturity model that can be applied to the B2B marketing and combined with the optimization methodologies through analysis of the relevant literature.

4 OPTIMIZATION TECHNIQUES AND MATURITY MODELS IN DIGITAL MARKETING DOMAIN

4.1 Proposed Maturity Digital Marketing Model

The provided literature research helped us to identify the following consistent parts of a proposed digital marketing maturity model:

4.1.1 Domain or scope

The scope of a maturity model depends on the nature of business processes. The processes in B2B sector are different compared to those in B2C sector. This could be explained by the specifics of B2B sector, which is characterized by longer purchase decision time, smaller amount of customers and fewer transactions than in the B2C sector (Gillin & Schwartzman, 2011; Järvinen et al., 2012). Therefore, it is important from the beginning to limit the scope of a maturity model. The digital marketing maturity model proposed in our study will be focused on B2B sector.

4.1.2 Levels

Levels represent the intensively of a process development. As it was mentioned earlier, levels may vary from absolutely absence of a process to the maximum development of a process regarding to the level of the identified areas. We suggest limiting the number of levels to four or five.

4.1.3 Stages

In order to understand what a customer wants and how is being driven to take a purchase decision it is important to map customer experience. Such customer experience divided into four steps according to the goals, is called customer journey.

There are four stages of customer journey, or customer lifecycle. Researchers use different names for the stages, however the most common are awareness, evaluation, purchase, and post-purchase experience (Vázquez et al., 2014) (Fig. 3.). On the first stage, awareness, a customer gathers information about a brand or a product. It is not necessary that a customer should already bear in mind to make a purchase. On the evaluation stage a customer analyses the received information and compares a brand or a product with competitors. On the next stage, purchase, a customer decides to purchase a product or not. The last stage, the post-purchase experience, involves the actions after the purchase and first use of a product. It involves expressing an opinion about a product, writing feedbacks, sharing negative or positive experience, etc. On this step customer decides whether to stay with a company or a brand, or not. If a customer builds loyalty, the next purchase he or she will make directly, avoiding the first two steps of the customer journey. This reflects the main idea of the customer journey: to build communication with a customer in a way to win a customer loyalty and to build a long-lasting *relationship w*ith the company (Edelman, 2010; Vázquez et al., 2014).

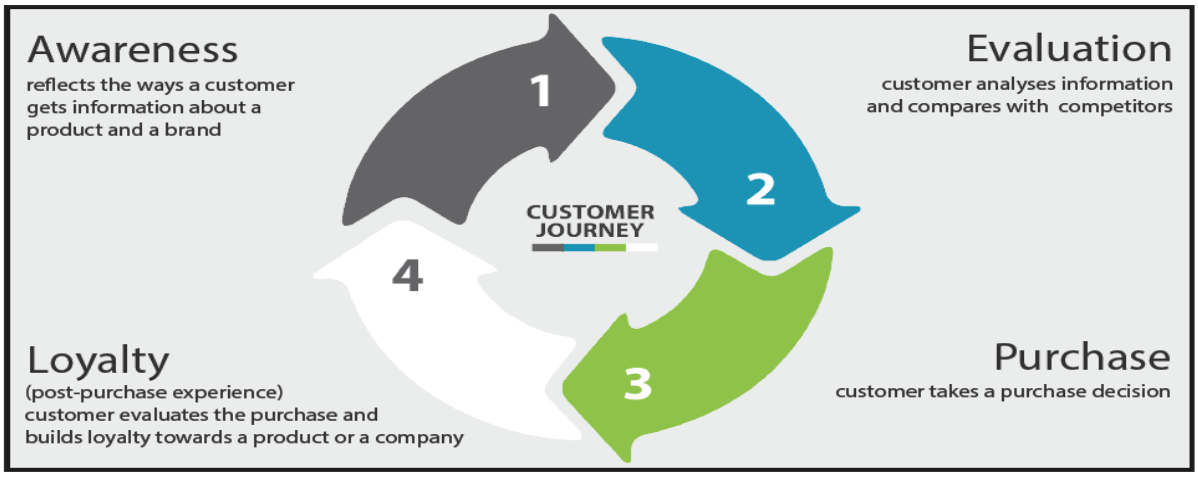

Fig. 3 – A concept of customer journey. Source: developed by authors based on Vázquez et al., 2014

For the reason that every step of the customer journey requires different goal, it is important to consider different stages in a potential digital marketing maturity model. Every step of the digital marketing maturity model should coincide with the steps of the customer journey.

4.1.4 Level and stage descriptor

Level and stage descriptor include the definition of every level and stage depending on the development stage of the processes. They should be specified in several words or a short sentence. The descriptor should provide a user of a digital marketing maturity model with a short explanation of the current status quo of digital marketing in a company.

4.1.5 Process areas

Process area describes the focus of a maturity model. As it was mentioned earlier, researchers distinguish three types of maturity models, classified by the focus: maturity models focused on processes, objects and people. Concerning the digital marketing maturity model the processes could be represented by channels and measuring tools; objects by products/services, and people by people capabilities required for digital marketing.

As we would like to focus on B2B companies belonging to one branch of industry, we will not distinguish the product characteristics in our analysis. Therefore, the future model should not consider product process area. As the result, the future digital marketing maturity model will cover three process areas: channels, tools and people capabilities.

4.1.6 Activities

Activities within each process area explain in detail the level description or provide some scenario of the process development. The difference between the level and the stage descriptor and activity lay in the deepness of the explanation. Activity should expand the explanation provided in the description and show some practical examples. Activities should provide a user of the digital marketing maturity model with full understanding of the status quo of digital marketing.

A framework of the future digital marketing maturity model will have the following structure (Tab. 2).

Tab. 2 – A framework of the future Digital Marketing Maturity Model.
Source: developed by authors

Scope: B2B			
Process areas: Channels, Tools & People			
Level 1/Stage A	Level 2/ Stage B	Level 3/Stage C	Level 4/Stage D
Level descriptor			
Stage descriptor			
Activities 1A	Activities 2B	Activities 3C	Activities 4D
Recommendations			

4.2 Lean Six Sigma in Digital Marketing

Continuous improvement tools including Lean and Six Sigma (LSS) that were initially developed in industrial practice can be successfully adapted in marketing environment through selection of specific tools and their customization to meet process improvement needs of the organization. Companies that adopt Lean Six Sigma usually report higher process improvement and process optimization results comparing to other optimization methodologies (George, 2002; Pulakanam, 2012).

Definitions of LSS methodology differ due to the variations in mix of applied tools as well as different authors' opinions on the primary goal of the methodology. In this study the definition by George (2002) is applied: "Lean Six Sigma is a methodology that maximizes shareholder value by achieving the fastest rate of improvement in customer satisfaction, cost, quality, process speed, and invested capital". However, in some cases, methodology is still viewed as more focused in decrease of defects and quality variation (Taghizadegan, 2006).

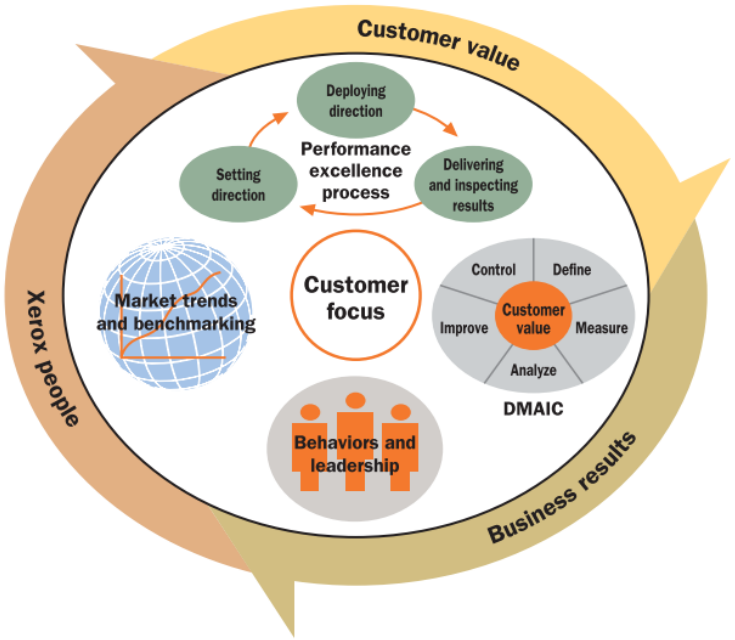

Fig. 4. – XEROX Lean Six Sigma. Source: Fornari & Maszle, 2004

Lean Six Sigma methodology evolved as a combination of approaches that merge decrease of variation in processes with continuous effort to remove excessive work. Utilization of both approaches helps to significantly improve processes and make them more cost-effective. Since marketing operations are perceived as those that are hard to evaluate in terms of cost and effectiveness, LSS can provide a comprehensive set of instruments for visualization and optimization of the processes to drive efficiency and profitability (Guarraia, Carey, Corbett, & Neuhaus, 2008; Schroeder, Linderman, Liedtke, & Choo, 2008).

One of the main tools used in the LSS is Define-Measure-Analyze-Improve-Control (DMAIC) process. In the marketing area Lean Six Sigma has been successfully applied by XEROX Company. XEROX Lean Six Sigma (XLSS) is a comprehensive system that includes DMAIC tool, focus on Voice of the Customer (VOC), people, and business results (Fig. 4). XLSS is closely related to the proposed Digital Marketing Maturity Model as well as DuPont Strategic Marketing Process (Cunningham, Pande, Clampitt, Schwartz, & Clark, 2005), thus, merging the two will serve as a base for design of the roadmap for optimization of the digital marketing results based on the maturity model. As a result, it is expected to have a maturity model with a set of specific B2B channels and descriptors presented in Tab.2., supplemented with objectives and tools for implementation of Lean Six Sigma and process optimization across maturity stages in digital marketing (Tab. 3).

Tab. 3 – A proposed framework for Lean Six Sigma in Digital Marketing Maturity Model. Source: developed by authors based on Cunningham et al., 2005; Fornari & Maszle, 2004; George, 2002; Lean Marketing Lab, 2010; Michael & President, 2003

Stage of maturity	I	II	III	IV
Stage of DMAIC	Define	Measure, Analyze	Implement	Control
Elements of Lean Six Sigma program for each stage	Description of the problem, the goal, the outputs	Characterization of requirements and identification of the key elements of the solution	Development of solutions, design and re-design processes	Stabilization and documentation of established processes, plan further improvements
Decision making phase for marketing strategy	Managerial experience: Years of experience serve as a primary guide to decision-making	Data Enabled: data from marketing research on customer perceptions, attitudes by market segments or scenarios serves as a basis for decision-making	Structured: Development of accepted organizational standards and frameworks for decision-making in marketing area	Model-Enabled: Building of explicit models, where variables and model constructs are specified in detail and then used for making decision on marketing strategy

Possible tools	• Project charter • Variation in the outcome variables (business goals)	• Process map • C&E (Cause & Effect Matrix) • MSA (Measuremet System Analysis) • Initial Capability • FMEA (Failure Modes & Effects Analysis) • Multi-variant analysis	• Design of Experiments (DOE) • Business Process Reengineering (BPR) • Simulation • MSA • 5S • Kaizen • Pilot project, testing of improvemens	• Control plan • Standardized work • SPC (Statistical Process Control) • CHECK Process

4.3 Future research and expected results

In our future research we plan to provide a mix of quantitative and qualitative research. The methodological part will be performed at two stages. At the first stage a modified Delphi study based on literature review will be provided. The interview will address managing directors, marketing managers, CMO and other experts responsible for digital marketing. Based on the results of the Delphi study a list of questions for the following questionnaire will be developed. The questions will be spread among the companies.

After receiving the results of the exert interviews and a survey we will combine them and provide their analysis. In the end we plan to create a tool representing possible scenarios for every stage of digital marketing maturity. The tool will cover the consistent parts of digital marketing, which have been mentioned, earlier, namely channels, measurement tools and people capabilities. The level of development will be presented by different scenarios based on the Likert scale.

An example of such tool is presented in Tab. 4.

Tab. 4 – An example of the proposed digital marketing tool based on combination of existing maturity models descriptors, XEROX Lean Six Sigma, DMAIC, and DuPont Strategic Marketing process. Source: developed by authors

Digital marketing	Level 1	Level 2	…	Level N
Channels	No strategy on channel management is in place	Basic strategy on channel management is in place		Channel strategy accepted company-wise, including certain measurement tools examples

Measurement tools	No formal measurement tools	Basic measurement tools are introduces	…	Measurement tools accepted company-wise, including certain measurement tools examples
People assets	Competence in the specified area is nonexistent	Competence in the specified area is nonexistent, however certain measures are implemented to fill the gap	…	Competence in the specified are is existent and accepted company-wise. It is used on a day-to-day basis

5 DISCUSSION AND CONCLUSIONS

Academic literature provides extensive evidence on maturity models that assess different business areas. Process optimization is another important component of the marketing strategy employed by practitioners to improve sales and conversion rates in digital channels. Regardless of the high number of models and optimization tools available, a specific combination of two approaches in digital marketing domain has not been deeply studied yet.

Business publications provide evidence that marketing professionals employ optimization methodologies to achieve higher results. In particular, Lean Six Sigma has been used by the leading companies (DuPont, Xerox, Dow Chemical etc.) to visualize, structure and improve marketing operations (Cunningham et al., 2005).

The article analyzes literature on the maturity models and optimization in B2B digital marketing area. Through exploratory literature review, the study develops a framework that incorporates both approaches and will provide companies with a diagnostic tool for their marketing operations. The goal of the digital marketing maturity model is to develop a roadmap for assessment and optimization of the digital marketing performance in B2B companies. The digital marketing model is projected to combine XEROX Lean Six Sigma, DMAIC, and DuPont Strategic Marketing process as well as set of maturity descriptors from available models for digital marketing.

The proposed model does not attempt to generalize the findings for all marketing areas and focuses on digital marketing operations only. A more detailed analysis may be needed to assess applicability of the proposed optimization tools at every stage of the maturity. The main advantage of the proposed model is a combination of two important approaches in process optimization. Both methods provide powerful tools for efficiency improvement and when combined, are expected to lead to better results than when applied separately.

The current research is beset with some limitations. The paper is based on the literature review and does not provide any empirical evidence. Therefore the future results could differ from those, described in the paper. Due to absence of any empirical study the results presented in the paper are too general and have to be specified. Moreover, the paper analyses the models against a framework of design and content principles, and thus mainly evaluates assessment process and maturity model criteria. Furthermore, the future empirical research based on expert interview and questionnaire could beset with certain limitations, because the sample would not

represent the whole industry. There could be other research focused on the above mentioned criteria in more detail, or analyzing other criteria.

Future research activities will focus on detailing and testing the proposed framework through fieldwork, interviews and testing of the model. The findings presented in the article will serve as a direction for further data collection and empirical work with marketing professionals to develop the digital marketing maturity model, and, thus contribute to development of online marketing research.

ACKNOWLEDGMENTS

This work was supported by the Internal Grant Agency of Tomas Bata University under the project No. IGA/FaME/2015/023 and IGA/FaME/2016/007 as well as by Visegrad Fund under the grant No. 51500173.

REFERENCES

Adobe. (2015). Four Advantages of a Planned Approach to Digital Maturity.

Bain. (2013). Business Process Reengineering.

Besbes, O., Gur, Y., & Zeevi, A. (2016). Optimization in online content recommendation services: Beyond click-through rates. *Manufacturing and Service Operations Management*, *18*(1), 15–33. http://doi.org/10.1287/msom.2015.0548

Boyd, H. W., & Massy, W. F. (1972). *Marketing Management*. Orlando, FL, USA: Harcourt Brace Jovanovich

Bucklin, R. E., & Sismeiro, C. (2003). A Model of Web Site Browsing Behavior Estimated on Clickstream Data. *Journal of Marketing Research*, *40*(3), 249–267. doi.org/10.1509/jmkr.40.3.249.19241

Chaffey, D. (2015a). Managing Digital Marketing 2015

Chaffey, D. (2015b). The state of digital marketing in 2015

Chaffey, D., & Patron, M. (2012). From web analytics to digital marketing optimization: Increasing the commercial value of digital analytics. *Journal of Direct, Data and Digital Marketing Practice*, *14*(1), 30–45. doi.org/10.1057/dddmp.2012.20

Cleven, A. K., Winter, R., Wortmann, F. & Mettler, T. (2014). Process management in hospitals: an empirically grounded maturity model. *Business Research*, *7*(2), 191–216. doi.org/10.1007/s40685-014-0012-x

Content marketing institute. (2015). B2B content marketing research. Retrieved from http://contentmarketinginstitute.com/wp-content/uploads/2014/10/2015_B2B_Research.pdf

Cunningham, V. M., Pande, P., Clampitt, J. H., Schwartz, G., & Clark, A. C. (2005). Six Sigma and Business Marketing.

Day, G. S. (2011). Closing the Marketing Capabilities Gap. *Journal of Marketing*, *75*(4), 183–195. doi.org/10.1509/jmkg.75.4.183

Edelman, D. C. (2010). Branding in the digital age: You're spending your money in all the wrong places. *Harvard Business Review*, *88*(12), 39–65. doi.org/10.1002/cmr.a

Fornari, A., & Maszle, G. (2004). Lean Six Sigma Leads Xerox. *Six Sigma Forum Magazine*,

3(4), 11–16

Fraser, P., Moultrie, J., & Gregory, M. (2002). The use of maturity models/grids as a tool in assessing product development capability. In *IEEE International Engineering Management Conference* , 1, 244–249. http://doi.org/10.1109/IEMC.2002.1038431

Galante, N., Moret, C., & Said, R. (2013). Building capabilities in digital marketing and sales.

George, M. (2002). *Lean Six Sigma: Combining Six Sigma Quality with Lean Production Speed, 1st*. ed.). McGraw Hill Professional.

Gillin, P., & Schwartzman, E. (2011). *Social Marketing to the Business Customer: Listen to Your B2B Market, Generate Major Account Leads, and Build Client Relationships*. *Journal of Chemical Information and Modeling* (Vol. 53). Hoboken: John Wiley & Sons, Inc.

Grönroos, C. (1984). A Service Quality Model and its Marketing Implications. *European Journal of Marketing*, *18*(4), 36–44. doi.org/http://dx.doi.org/10.1108/EUM0000000004784

Guarraia, P., Carey, G., Corbett, A., & Neuhaus, K. (2008). *Lean Six Sigma for the services industry*.

Järvinen, J., Tollinen, A. ., Karjaluoto, H. ., & Jayawardhena, C. (2012). Digital and Social Media Marketing Usage in B2B Industrial Section. *Marketing Management Journal*, *22*(2), 102–117.

Alford, J.. (n.d.). Q&A: What's your level of digital marketing maturity? Retrieved from http://www.sas.com/en_us/insights/articles/marketing/digital-marketing-maturity.html

John, C. (2014). Marketing Optimization: What is Optimized Marketing? Aha!

Jonker, J.-J., Piersma, N., & Van den Poel, D. (2002). Joint Optimization of Customer Segmentation and Marketing Policy to Maximize Long-Term Profitability. *Econometric Institute Report*, *18*.

Kamakura, W. A., Wedel, M., de Rosa, F., & Mazzon, J. A. (2003). Cross-selling through database marketing: A mixed data factor analyzer for data augmentation and prediction. *International Journal of Research in Marketing*, *20*(1), 45–65. doi.org/10.1016/S0167-8116(02)00121-0

Lean Marketing Lab. (2010). 5 Steps to Lean Six Sigma Marketing success.

Liston, K. (2011). Literature Review Methods: Point of Departure.

Mele, C. (2007). The synergic relationship between TQM and marketing in creating customer value. *Managing Service Quality*, *17*(3), 240–258. doi.org/10.1108/09604520710744281

Mettler, T. (2009). A Design Science Research Perspective on Maturity Models in Information Systems. *Design*, *41*(0), 1–13. doi.org/10.2174/97816080506351100101

Mettler, T. (2010a). Supply Management im Krankenhaus - Konstruktion und Evaluation eines konfigurierbaren Reifegradmodells zur zielgerichteten Gestaltung. *Hochschule für Wirtschafts-, Rechts- und Sozialwissenschaften (HSG)*.

Mettler, T. (2010b). Thinking in Terms of Design Decisions When Developing Maturity Models. *International Journal of Strategic Decision Sciences*, *1*(4), 76–87. doi.org/10.4018/jsds.2010100105

Miller, M. (2012). *B2B Digital Marketing: Using the Web to Market Directly to Businesses*. Que.

Ofner, M. H., Huener, K. M., & Otto, B. (2009). Dealing with complexity: A method to adapt and implement a maturity model for corporate data quality management. *AMCIS 2009 Proceedings*, 491. Retrieved from http://works.bepress.com/boris_otto/6/

Paulk, M. C., Curtis, B., Chrissis, M. B., & Weber, C. V. (1993). Capability maturity model, version 1.1. *IEEE Software*, *10*(4), 18–27. doi.org/10.1109/52.219617

Pulakanam, V. (2012). Costs and savings of Six Sigma programs : an empirical study. *Quality Management Journal*, *19*, 39–54

Röglinger, M., Pöppelbuß, J., & Becker, J. (2012). Maturity models in business process management. *Business Process Management Journal*, *18*(2), 328–346. doi.org/10.1108/14637151211225225

Rosenbloom, B. (2013). *Marketing Channels: A Management View*, 8th Ed. South-Western: Cengage Learning.

Schroeder, R. G., Linderman, K., Liedtke, C., & Choo, A. S. (2008). Six Sigma: Definition and underlying theory. *Journal of Operations Management*, *26*(4), 536–554

Thomas, B. J. W. (2010). Marketing Optimization

van Steenbergen, M. (2011). *Maturity and Effectiveness of Enterprise Architecture*. Utrecht University

Vázquez, S., Muñoz-García, Ó., Campanella, I., Poch, M., Fisas, B., Bel, N., & Andreu, G. (2014). A classification of user-generated content into consumer decision journey stages. *Neural Networks*, *58*, 68–81. doi.org/10.1016/j.neunet.2014.05.026

Webb, M. (2003). Introduction to Six Sigma for Marketing and Sales, *Impact Communications Inc.*, 1-2

Wymbs, C. (2011). Digital Marketing: The Time for a New "Academic Major" Has Arrived. *Journal of Marketing Education*, *33*(1), 93–106. doi.org/10.1177/0273475310392544

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THE INNOVATIVE CAPACITY OF THE MACHINERY FIRMS IN THE ZLIN REGION IN RELATION TO CONCEPT OF INDUSTRY 4.0

Roman Bobák, Eva Juřičková

ABSTRACT

This paper presents results of a complex project pilot study. The proposal of this project is oriented on predictive models of measurement and control used as an indicator of production and logistics performance in the Czech companies, depending on innovative factors defined in the Industry 4.0 concept. The project analysis focused on innovation activities of 36 machinery firms located in Zlin region. Main aim of this article is to present a part of our research, which was realized in period of 2011 – 2013. We used the average number of workers in research and development as a criterion of innovation capacity and other supporting parameters described in the Industry 4.0 concept.

Keywords: *machinery, Zlin region, innovations, Industry 4.0*

JEL Classification: L61, M11, O31

1 INTRODUCTION

As it has been mentioned, the aim of the article is to find out and identify parameters of innovation activity by their mapping in 36 companies located in Zlin region. The study was based on a qualitative research focused on fundamental characteristics of 36 specifically selected companies through the structured interviews. We found out basic information about the company, its economy, research and development and innovation. Other question area that was investigated focused on characteristics of production process and product representatives, supplier-customer relationships. In this article we present just part of our research oriented on development and innovation. This complex project researches models for measurement and management of manufacturing and logistics performance of Czech companies in relations to innovation activities of concept Industry 4.0.

Our paper shows basic data of the research and includes parameters as average annual expenditure on science and research, the forms of financing products and process innovations, the number of cooperating organizations on these innovations, and innovations trends about which companies are interested in future. Conclusion of pilot study summarizes strengths and opportunities that affect innovation capacity of selected machinery firms.

The paper is structured as follows. Section 2 offers the theoretical background and a literature review. Section 3 explains the methodology. The main results are presented in Section 4, and discussed in Section 5, which also highlights the main conclusions of the research and explains the strengths and opportunities.

2 THEORETICAL BACKGROUND

Current manufacturing, logistics and administrative processes of industrial companies must be able to ensure adequate and flexible responses to customer requirements while maintaining the desired efficiency and productivity of all complex business processes (Kohlberg, Zuhlke,

2015). Citation analysis of articles, which are indexed in Web of Science (WOS) and focuses on manufacturing and logistics performance also on innovation factors included in a concept of Industry 4.0, showed about 295 results, of which more than 40 were cited 20 or more times. These articles presented mostly studies focused on measurement and modelling of production and logistics processes performance (Neely 1995; Goetschalcx, 2002; Guide, 2000; Jayaraman, Ross, 2003; Gimenez, 2005; Tracey, 2005; Kiesmüller 2003; Piramuthu, 2005; Gunasekaran, 2009; Golicic, 2013; Bobák, 2014).

Growing trend of innovation in automation and computerization of business processes generates new requirements for planning, management and organization of the value creation process. These requirements are transformed into a competitive product for the customer that ensures accomplishment of long-term corporate strategies and operative objectives (Maier, Korbel, Brem, 2015; Brettel, Friderichsen, et al., 2014; Visich, 2009; Juřičková, 2014; Pivodová, 2014). Because of the aforementioned reasons, the radical change of the system approach, in the field of prediction of future development of complex business processes, is absolutely necessary, especially with emphasis on manufacturing and logistics processes. The project reflects today´s key paradigm—transformation of technocratic approaches to cyber-human attitudes to planning, management and implementation of business processes with a high emphasis to a combination of e-processes, creative potential of employees and available technologies (Bonekamp, Sure, 2015; Das, 2010). There is an obvious requirement to deal with the complex chain 'supplier-manufacturing-customer'. Currently, the concept of Industry 4.0 is a key innovation tool for the above-described issues, and it is implemented just in the phase of development now. In studies of (Binder, 2014; Brynjolfsson, 2000; Hitt, 2000; Ivanov, 2016; Kruchhans, 2013; Hung, 2009 and Lasi, Kemper 2014) is the Industry 4.0 presented as an absolutely basic concept for the future of industrial companies and their global competitiveness through production increase and logistics performance growth. This concept also causes changes in educational system. The knowledge moves from technical-economic skills toward engineering professions with a higher emphasis to sophisticated ICT technologies. It is based on complex information support in form of business intelligence (D´Este 2012; Schuster, K., Gross, K. et al., 2015) and learning factories (proceedings from the 5th conference on Learning Factories CLF2015, Procedia CIRP 32, Elsevier; Hitt , 2000). The fundamental point is the ability to influence human thinking at all types of jobs in highly automated working environments including both manufacturing and administrative processes (Obitko, Jirkovský, 2015; Edwards, 2014; Gupta, 2011; Sydow, 2013; Bishop, 2011; Tuček, Hrabal, 2014). Described essential requirements for new practical solutions and subsequent research activities also were confirmed by a recent study conducted by one of the project team members. Some partial findings already have been published in WoS journal 'Business intelligence as a key information and knowledge tool for strategic business performance management' (Rajnoha, 2016).

3 METHODOLOGY

The research was conducted by structured questionnaire in 36 selected machinery companies in the Zlín region. These criteria of innovation capacity were applied:

- The average number of employees in research and development for the period of 2011 – 2013 (workers in R&D),
- Average annual expenditures on research and development for the period of 2011 - 2013 (expenditures on R&D - in thousands CZK),

- Types of product and process innovations funding expressed by the total number used for the following options:
    - own sources,
    - loans,
    - regional support to R&D,
    - state support to R&D,
    - multinational R&D support,
    - other sources.
- number of partner organizations attending product and process innovation, their localization and areas of cooperation,
- trends in process and product innovation, in which will be companies interested in future,
- breadth of product portfolio representing the product and technology groups that the organization provides according to nomenclature NACE CZ, with characteristics of their own product development, custom design and technological preparation.

Supporting factors, which are supposed to influence the innovation activity of organizations were monitored characteristics:

- size of organization represented by the average number of employees during the period of 2011-2013 (workers) and turnover expressed in average revenues from sales of own products and services for the period 2011 – 2013, expressed in thousands CZK (Turnover),
- belonging to a greater whole (group, holding, ...), cluster or network of enterprises the share of foreign ownership.

Collected data were processed by the statistical program SPSS 23 and textual analysis. Correlation analysis with Pearson´s coefficient was used to confirm the links between quantitative metrics of the innovative capacity and characteristics of firms. Histograms frequency and textual analysis were used to determine the significance of other characteristics of innovation capacity. These results were the basis for determining the strengths and opportunities in the development of innovative processes in the analyzed companies

4 DATA DESCRIPTION AND RESULTS

Achieved quantitative values of innovation activity collected from structured interviews are presented in Tab. 1. Due to the confidential nature of the data Tab. 1 shows only the serial number of the organization.

4.1 Confirming the anticipated relationship

Correlation analysis confirmed the correlation between the average number of workers in total and average number of R & D.

Tab.2 - Correlations average number of workers. Source: own processing

		Average number of workers in total 2013	Average number of workers of R&D 2011-2013
Average number of workers in total 2013	Pearson Correlation	1	,680**
	Sig. (2-tailed)		,000
	N	34	30
Average number of workers of R&D 2011-2013	Pearson Correlation	,680**	1
	Sig. (2-tailed)	,000	
	N	30	31

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis confirmed the correlation between the average number workers of R&D and the average expenditure on R&D.

Tab.3 – Correlations average number workers of R & D and the average expenditure on R & D. Source: own processing

		Average number workers of R & D 2011-2013	Average expenditure on R & D 2011-2013
Average number workers of R & D	Pearson Correlation	1	,799**
	Sig. (2-tailed)		,000
	N	32	30
Average expenditure on R & D 2011-2013	Pearson Correlation	,799**	1
	Sig. (2-tailed)	,000	
	N	30	31

**. Correlation is significant at the 0.01 level (2-tailed).

Tab.1 - Table Achieved characteristics of the innovative capacity of the group of organizations surveyed. Source: own processing

Number of Firm	Workers	Turnover	Workers R&D	% Workers R&D	Spending R&D	% Spending R&D	Source financ-ing	Co-op. R&D	Co-op. Trends	Innov Trends	Branche CZNACE	Own Devel.	Own Constr.	Own Techn.
1	39	35885		0		0	0	0	0	0	1	0	1	1
2	40	31000	0	0	0	0	0	0	0	4	4	4	4	4
3	197	460197	0	0	0	0	0	0	0	0	4	4	4	4
4	266	392357	0	0	0	0	0	0	0	0	1	1	1	1
5	84	85194	10	11,904762	2500	2,934478954	1	4	4	3	5	5	5	5
6	125	288000	1	0,8	80	0,027777778	1	3	2	2	13	0	4	13
7	92	106000	0	0	0	0	1	0	0	0	2	0	1	2
8	404	603134	7	1,7326733	3750	0,62175238	1	3	1	1	1	1	1	1
9	30	18360	2	6,6666667		0	1	1	0	0	4	0	4	4
10	33	50000	3	9,0909091	2500	5	1	2	2	2	5	5	5	5
11	140	94000	2	1,4285714	200	0,212765957	1	2	2	2	6	5	5	6
12	70	63000	4	5,7142857		0	1	3	1	3	8	0	0	8
13	23	48000		0		0	1	0	0	2	1	0	0	1
14	62	75000	2	3,2258065	1200	1,6	1	0	0	1	5	5	5	5
15	290	482000	12	4,137931	10000	2,074688797	2	0	0	3	2	2	2	2
16	167	483000	2	1,1976048	2000	0,414078675	2	3	3	2	5	5	5	5
17	1505	2213730	120	7,9734219	32946	1,488257376	2	4	4	6	19	13	14	15
18	266	421932	3	1,1278195	0	0	2	0	0	2	4	0	0	4
19	129	121000	7	5,426357	4120	3,40495868	2	1	1	1	8	8	8	8
20	318	921605	3	0,943396	30000	3,25519067	2	3	3	6	2	2	2	2
21	419	834606	15	3,579952	21102	2,52837866	2	3	5	6	5	5	5	5
22	723	1880000	9	1,244813	8800	0,46808511	2	4	4	6	7	3	3	7
23	656	1400334	85	12,95732	63000	4,49892668	3	4	4	6	16	10	12	15
24	300	417	2	0,666667	50	11,9904077	3	0	0	5	2	2	2	2
25	1528	2550000	12	0,78534	12988	0,50933333	3	4	4	6	5	5	5	5
26	249	1551492	0	0	0	0	2	0	0	0	7	7	7	7
27	75	100473	1	1,333333	1	0,00099529	2	1	1	2	2	1	2	2
28	151	178000	0	0	0	0	2	1	1	2	5	0	0	5
29	196	1450000	0	0	0	0	2	1	1	1	1	0	1	1
30	122	131167	3	2,459016	300	0,22871606	3	1	1	1	10	1	9	10
31	46	68483	4	8,695652	2000	2,92043281	3	1	1	2	5	1	1	1
32	147	269000	3	2,040816	550	0,20446097	4	1	1	3	3	3	3	3
33	97	148000	0	0	0	0	3	0	0	3	4	0	0	4
34	38	2059	5	13,15789	500	24,2836328	3	1	1	1	1	1	1	1
35	66	76965	2	3,030303	840	1,09140518	5	3	3	1	8	8	8	8
36	45	45479	3	6,666667	300	0,65964511	2	1	1	1	2	1	1	2

Correlation analysis confirmed the relationship between turnover and the average expenditure on R&D.

Tab. 4 - Correlations of turnover and the average expenditure on R&D.

Source: own processing

		Turnover 2013	Average expenditure on R & D 2011-2013
Turnover 2013	Pearson Correlation	1	,608**
	Sig. (2-tailed)		,000
	Sum of Squares and Cross-products	14164579233672,977	158223696812,581
	Covariance	404702263819,228	5274123227,086
	N	36	31
Average expenditure on R & D 2011-2013	Pearson Correlation	,608**	1
	Sig. (2-tailed)	,000	
	Sum of Squares and Cross-products	158223696812,581	5513535845,419
	Covariance	5274123227,086	183784528,181
	N	31	31

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis confirmed the relationship between the Share of foreign ownership and the Average expenditure on R&D.

Tab. 5 – Correlations Share of foreign ownership and Average expenditure on R&D.

Source: own processing

		Share of foreign ownership	Average expenditure on R & D 2011-2013
Share of foreign ownership	Pearson Correlation	1	,531**
	Sig. (2-tailed)		,002
	N	36	31
Average expenditure on R & D 2011-2013	Pearson Correlation	,531**	1
	Sig. (2-tailed)	,002	
	N	31	31

Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis confirmed the relationship between the Jurisdiction of the higher whole and Average number of workers R&D.

Tab. 6 – Correlations jurisdiction of the higher whole and average number of workers R&D. Source: own processing

		Jurisdiction of the higher whole	Average number of workers R& D 2011-2013
Jurisdiction of the higher whole	Pearson Correlation	1	,367*
	Sig. (2-tailed)		,039
	Sum of Squares and Cross-products	7,222	134,188
	Covariance	,206	4,329
	N	36	32
Average number of workers R & D 2011-2013	Pearson Correlation	,367*	1
	Sig. (2-tailed)	,039	
	Sum of Squares and Cross-products	134,188	19413,469
	Covariance	4,329	626,241
	N	32	32

*. Correlation is significant at the 0.05 level (2-tailed).

4.2 Sources of financing R&D

Cluster analysis of different forms of R&D used in financing has shown irregular exploitation of most organizations. Table 7 presents selected forms of financing (maximum of two forms in 78%). As we see in the Table below, companies prefer own resources or a bank loan. External funding is not preferred. Three organizations did not fill form of R&D financing.

Tab. 7 - An overview of source of financing of R&D. Source: own processing

Sources of financing of R&D	**Number**	**%**
Financing own resources	13	40 %
Financing of own resources and state support	7	20 %
Financing oown resources and a loan	6	18 %
Financing own resources, loan and regional support	3	10 %
Financing own resources, loan and other support	2	6 %
Financing own resources, loan, regional, national and transnational support	2	6 %
Total	33	100%

4.3 Cooperation in R&D

Respondents also characterized cooperating external organizations to R&D, companies' headquarters and main trends of cooperation. 22 organizations collaborate with external organizations in R&D, the most of them mentioned the only one cooperating organization. Of the 51 collaborating organizations is only 18% located in the Zlín region, 67% in other regions in the Czech Republic and 15% abroad.

In terms of foreign partners exclusively on cooperation with customers. Listed 36 areas of cooperation with the organizations are responsible anticipated and further characterized the main trends of innovation.

Tab. 8 - R&D collaboration with external organizations. Source: own processing

Presents at least 1 organization	**Presents at least 2 organizations**	**Presents at least 3 organizations**	**Presents at least 4 organizations**
22	13	11	5
61%	36%	31%	14%
Of those only 7 organisations, it tis 32% in the Zlin region	Of those only 1 organisation, it tis 8% in the Zlin region	Of those only 1 organisation, it tis 9% in the Zlin region	Of those only 0 organisation, it tis 0 % in the Zlin region

4.4 Innovation trends

Respondents characterized a maximum of 6 trends on innovations that are interested in the future. The most of small organizations characterized no more than two innovative trends. Three and more innovative trends were noticed by companies belonging to the category of medium and large enterprises.

Tab. 9 - Frequency mentioned innovative trends. Source: own processing

Number of listed innovative trends	**1**	**2**	**3**	**4**	**5**	**6**
Number of organizations	29	20	11	6	5	4
% of total number of organizations	81%	56%	31%	17%	14%	11%

Tab. 10 displays innovative trends mentioned by the companies. The analysis included these trends associated into 10 groups.

Tab.10 - 10 most innovative trends. Source: own processing

Code	**Aggregated innovative trends**	**Frequency**	**% of total**
1	Design and product development, product innovation	11	14,7%
2	Integrate engineering processes, quality and process efficiency, process and organizational innovation	11	14,7 %
3	Materials Engineering and Innovation, 3D prints	10	13,3 %
4	Technological innovations	10	13,3 %
5	Innovation tools, instruments and preparations	7	9,3 %

Code	Aggregated innovative trends	Frequency	% of total
6	Innovation and modernization of machinery	7	9,3 %
7	Digitizing, CAD, CAM programming, artificial intelligence, modular self-learning systems, modeling, simulation	7	9,3 %
8	Automation, automated system control process, robotics	6	8%
9	Energy, reducing the risk of electrical installations, environment	4	5,4 %
10	Savings labor intensity, higher qualifications	2	2,7 %
	Total	**75**	**100 %**

Main results of analysis indicated innovative trends in various terms of innovation typology (material, product, technology, process, organizational), the technological intensity (high - tech industries, medium high - tech industries, medium low- tech sectors). Positive noticed result is a significant focus on trends that are associated with renowned strategy Industry 4.0 (The Ministry of Industry and Trade of the Czech Republic, 2015), i.e. digitization, automation, robotics, artificial intelligence, integration engineering processes, modular building self-learning production systems.

4.5 Scope of product innovation

Range product innovation of representative's products or services is provided by branches the CZ NACE. It is expressed as a proportion of its own development, its own construction and its own technological preparation for product innovation. Respondents characterized their product and services in a field by CZ NACE and they described it in the innovation scale (own development, own construction preparation, owns technological preparation)

Tab. 11 - Range product innovation by branch of product representatives.
Source: own processing

Number of representatives products	Number of firms	Number of branches	Own development	%	Own construction	%	Own technology preparation	%
1	31	25	9	36	14	56	17	68
2	26	19	9	47	14	74	17	89
3	20	15	7	47	9	60	11	73
4	19	14	6	43	8	57	11	79
5	14	11	6	55	8	73	11	100
6	8	6	3	50	5	83	6	100
7	7	5	3	60	4	80	5	100

Number of representatives products	Number of firms	Number of branches	Own development	%	Own construction	%	Own technology preparation	%
8	6	3	1	33	2	67	3	100
9	4	3	2	67	2	67	3	100
10	4	4	2	50	2	50	4	100
11	3	2	1	50	1	50	2	100
12	3	2	1	50	2	100	2	100
13	3	2	1	50	1	50	2	100

5 DISCUSSION AND CONCLUSION

5.1 Working conclusions of the anticipated relations

The results of analysis confirmed the relationship between average number of workers in total in 2013, and the average number of R&D workers for the period 2011-2013. It is graphically displayed in Fig. 1.

Analysis confirmed the relationship between the average number R&D workers in the years 2011 - 2013 and the average expenditure on R&D in the years 2011 - 2013 displayed in histograms. Different size of companies are expressed in number of workers and size of turnover with sales of own products, consequently the number of employees in R&D and expenditures on R&D.

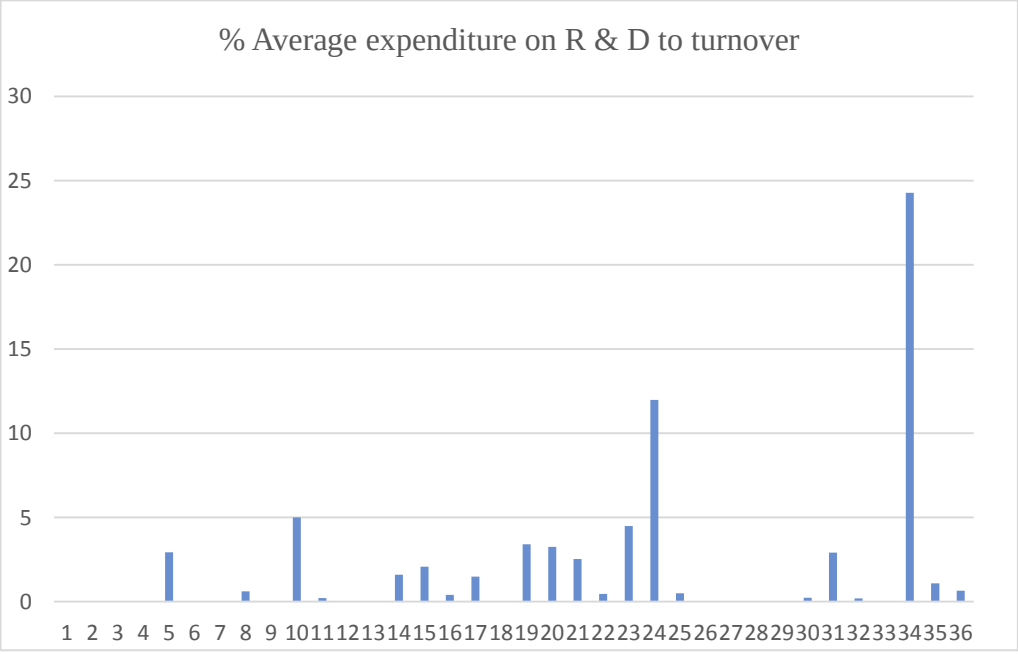

Fig. 1 - % Average expenditure on R&D to turnover. Source: own processing

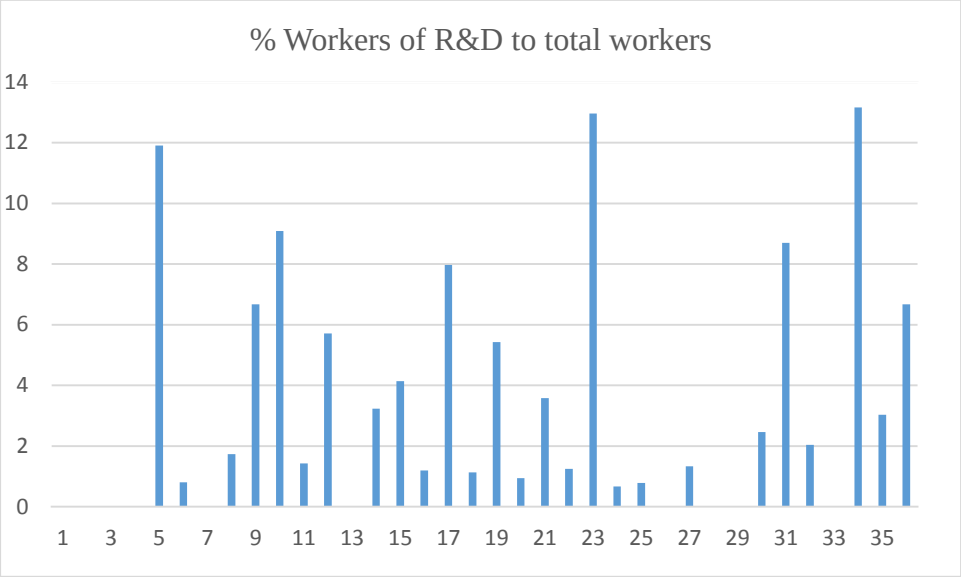

Fig. 2 - %Workers of R&D to total workers. Source: Own processing

Main results of our analysis confirmed positive values in all the selected criteria of innovation capacity in companies, mentioned in Tab. 1 and differentiated in green.

5.2 Summary of strengths and opportunities influencing the innovation capacity of selected machinery firms in the Zlín Region

Strengths

- differentiated structure in the average number of employees with appropriate differentiation by the number of employees in R&D,
- differentiated sales structure with corresponding differentiated share of expenditure on R&D,
- share of companies with foreign participation is a prerequisite for the positive development of R & D expenditure,
- historically built structure engineering companies in the region is reflected by maintaining supplier and innovative linkages between organizations in the higher units (TAJMAC - ZPS, TOS Hulin, PILANA Hulin, SUB Brod, MESIT, LET, Zbrojovka Uherský Brod and Vsetin) has a positive effect on the number of R & D works and average expenditure on R&D,
- positively differentiated range of innovative directions, in which organizations are interested in, an adequate integration into the typology of innovation, high and medium-tech sectors, showing affiliation with the strategy announced by Industry 4.0,
- positive product range of representatives according to the CZ NACE shows the distribution of innovative activities associated with its own construction (50-100%) and own technological preparation (68-100%).

Development opportunities

- still uneven using of different forms of R&D funding, especially external sources,
- low % of external organizations in the Zlín region cooperating in innovation (18%)

- lower proportion of companies' development, product representatives by fields of CZ according to NACE (33-67%).

REFERENCES:

5th Conference on Learning Factories.(2015) Bochum Germany Jul 07 – 08. Book Series Procedia CRP Volume 32 Published Elsevier.

Binder, H.F. (2014) Industrie 4.0 bestimmt die Arbeitswelt der Zukunft. *E & I Ellektrotechnik und Informationstechnik 2014/7*, pp. 230 -236.

Bishop, K., D´ Este, P., Neely, A. (2011).Gaining from interaction with universities: Multiple methods for nurturing absorptive capacity. *Research Policy 2011/1*. pp 30 – 40. doi:10.1016/j.respol.2010.09.009

Bobák, R., Pivodová, P. (2014) Rating of Production and Logistics Performance of Rubber and Plastics Product Manufacturers in the Zlin Region and Plastics Cluster. *Proceeding of the 1.st International Conference on Finance and Economics 2014*, pp. 57-67. Ton Duc Thang Univ; Tomas Bata Univ;Corvinus Univ Budapest

Bonekamp, L., Sure, M.(2015). Consequences of Industry 4.0 on Human Labor and Work Organization . *Journal of Business and Media Psychology, 2015, Issue 1,* pp. 33-40,

Brettel, M., Friederichsen, N., Keller, M., Rosenberg, M. (2014). How Virtualization, Decentralization and Network Building Change the Manufacturing Landscape: An Industry 4.0 Perspective. *International Journal of MAIEME, Vol:8, No:1, 2014,*

Brynjolfsson, E., Hitt, L.M. (2000). Beyond Computation: Information Technology, Organizational Transformation and Business Performance. *Journal of Economic Perspectives, Vol.14, No. 4, 2000,* pp. 23-48, doi: 10.1257/jep.14.4.23

Das, A., Nair, A.(2010). The use of manufacturing technologies – an external influence perspective. *International Journal of Production Research, 48/17, 2010,*pp. 4977 – 5006. doi:10.1080/00207540903055719

D´Este, P., Mahdy, S., Neely, A. Rentocchini, F. (2012)Inventors and entrepreneurs in academia: What types of skills and experience matter? *Technovation 2012/5*, pp. 293 – 303. doi:10.1016/j.techinovation.2011.12.005

Edwards, K., Jensen, P.L. (2014). Design of systems for productivity and wellbeing. *Applied Ergonomics 45/1*, pp 26 – 32, doi:10.1016/j.apergo.2013.03.022

Gimenez, C., Ventura, E. (2005) Logistics – production, logistics – marketing and external integration – The impact on performance. *International Journal of Operations & Production Management 25/1*, pp 20 - 38, doi:10.1108/01443570510572222

Goetschalcx, M., Vidal, C.J., Dogan, K.(2002) Modeling and design of global logistics systems: A review of integrated strategic and tactical models and design algorithm. *European Journal of Operational Research 143/1*, pp. 1-18, doi:10.1016/s0377-2217(02)00142-x

Golicic, S. L., Smith, C.D.(2013) A Meta – Analysis of Environmentally Sustainable Supply Chain Management Practices and Firm Performance. *Journal of Supply Chain Management 49/2.* pp 78 -95. doi:10.1111/jscm.12006

Guide, V.D.R., Jayraman,V., Srivastava, R., Benton, W.C.(2000) Supply chain management for recoverable manufacturing systems. *Interfaces 2000/3*, pp. 125 – 142, doi:10.1287/inte.30.3.125.11656

Gunasekaran, A. (2009) Modeling and analysis of build – to –order supply chain. *European Journal of Operational Research 195/2*, pp. 319 – 334, doi:10.1016/j.ejor.2008.03.026

Gupta, M. (2011) An a Excel –based dice game: an integrative learning activity in operations management. *International Journal of Operations & Production Management* 31/6, pp 608 – 630, doi:10.1108/01443571111131962

Hitt, L. M.(2000) Technological learning, knowledge management, firm growth and performance: an introductory essay. *Journal of Engineering and Technology Management 17/3-4*, pp.231-246, doi:10.1016 /S0923-4748(00)00024-2

Hung K. T., Young, K., R. , Liker, J.K. (2009) Further Motivation for Continuous Improvement in Just – In-Time Logistics. *IEEE Transactions on Engineering Management 2009/4*, pp. 571 -583, doi: 10.1109/tem.2009.2030336

Ivanov, D., Dolgui, A. , Sokolov, B. ,Werner, F., Ivanova, M. (2016) A dynamic model and an algorithm fort short –term supply chain scheduling in the smart factory industry 4.0. *International Journal of Production Research 54/2*, pp. 386 – 402. doi:10.1080/00207543.2014.999958

Jayraman, W., Ross, A. (2003) A simulated annealing methodology to distribution network design and management. *European Journal of Operational Research 144/3*, pp. 629 – 645, doi:10.1016/s0377-22217(02)00153-4

Juřičková, E. (2014) Innovations Dependence on Human Capital in the Worlds Most Innovative Countries . *Proceedings of the 2nd International Conference on Innovation and Entrepreneurship (ICIE 2014)*pp. 120-127. Univ Ulster Business Sch

Kiesmüller, G.P. (2003) A new approach for controlling a hybrid stochastic manufacturing/remanufacturing system with inventories and different lead-times. *European Journal of Operational Research 147/1*, pp. 629 – 645, doi:10.1016/s0377-2217(02)00351-x

Kolberg, D., Zuhlke, D.(2015). Lean Automation enabled by Industry 4.0. In: 15th IFAC Symposium on Information Control Problems in Manufacturing – INCOM 2015, Volume 48, Issue 3, 2015, pp. 1870-1875, IFAC Symposia Series, Pergamon - Elsevier

Kruchhans, B., Meier, H.(2013) Industry 4.0 Fields of Action of the Digital Factory to Optimize Resource Efficiency in Production Processes. *Simulation in Produktion und Logistik*, 2013, pp. 31 – 40. Heinz Nixdorf Inst. , Univ Paderborn

Lasi, H., Kemper, H.G., Hoffman, M. (2014) Industry 4.0. *Business &Information Systems Engineering 4/2014*, pp.239 -242, doi:10.1007/s12599-014-0334-4

Maier, M.A., Korbel, J.J, Brem, A.(2015). Innovation in Supply Chains: Solving the Agency Dilemma in Supply Networks by using Industry 4.0 Technologies. *International Journal of Communication Networks and Distributed Systems 15/2-3.* pp.235-247, doi:10.154/IJCNDS.2015.070976

Neely, A., Gregory, M., Platts, K. (2005)Performance measurement system design – A literature review and research agenda. *International Journal of Operations & Production Management 25/12*, pp 1228-1263, doi: 10.1108/01443570510633639

Obitko, M., Jirkovský, V.(2015). Big Data Semantics in Industry 4.0. In: Industrial Applications of Holonic and Multi-Agent Systems. 2015, pp. 217-229, Springer Verlag

Piramuthu , S. (2005) Knowledge –based Framework for automated dynamic supply chain configuration – Production, manufacturing and logistics. *European Journal of Operational Research 165/1*, pp. 219 – 230, doi: 10.1016/j.ejor.2003.12.023

Pivodová, P., Juřičková, E., Bobák, R. (2014) Design of Process and Organizational Innovation Application Methodology. *Proceedings on 9.th European Conference on Innovation and Entrepreneurship (EICIE 2014)*, pp.347-355. Univ Ulster Business Sch

Rajnoha, R., Štefko, R., Merková, M., Dobrovič, J. (2016) Business Intelligence as a key information and knowledge tool for strategic business performance management. E+M Economies a management 2016, roč. 19, č.1, s. 183 – 203. doi:10.15240/tul/001/2016-1-013

Schuster, K., Gross, K., Vossen, R., Richert, A., Jeschke, S.(2015). *Preparing for Industry 4.0 – Collaborative Virtual Learning Environments in Engineering Education.* In: ICELW, New York, 2015

Sydow, J., Frenkel, S., J. (2013) Labor, Risk and Uncertainty in Global Supply Network – Exploratory Insights. *Journal of Business Logistics 2013/3* , pp. 236-247. doi: 10.1111/j.bl.12022

Tuček, D., Hrabal, M. (2014) The Role of Human Factor in Business Process Managements Project. Proceedings of the 6th European Conference on Intellectual Capital 2014, pp.264-272.

Tracey, M.,Lim, J.S, Vonderembse,M.A. (2005)The impact of supply-chain management capabilities on business performance. *Supply Chain Management an International Journal 10/3-4*, pp. 179-191. doi: 10.1108/13598540510606232

Visich, J.K. (2009) Empirical evidence of RFID impact on supply chain performance. *International Journal of Operations & Production Management 29/11-12*, pp 1290-1315, doi:10.1108/01443570911006009

Acknowledgement

This contribution was supported by internal grant project UTB VaV-IP-RO/2014/03.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FACTORS AFFECTING THE ADOPTION OF MOBILE BANKING IN VIETNAM

Chiachi Tsan, Thai Huy Cuong Vo

ABSTRACT

The aim of the research is to explore the process of adoption of mobile banking in Vietnam through the integrated frameworks of unified theory of acceptance and use of technology model and technology acceptance model on main behavioral intention. A questionnaire was developed and based on the theories. 200 questionnaires were collected in Vietnam in 2016 and the collected data were analyzed via confirm factor analysis to assess the model and then structural equation modeling was employed to test the theoretical model and hypotheses to understand the statistical associations among the constructs. The findings indicated that "User satisfaction" and "Behavioral intention" directly influence mobile banking adoption. Furthermore, "Performance expectancy", "Effort expectancy" and "Perceived ease of use" were found to be the most important antecedents of user intention towards adoption of mobile banking. This research was intended to provide a clearer picture for banking practitioners to better formulate operation strategy to meet the challenges of the new bank 3.0 era.

Keywords: *Mobile banking, Vietnam, TAM, UTAUT*

JEL Classification: M31

1 INTRODUCTION

In order to gain competitive advantages and meet the trend, business from last decades have diverted their focus on innovate information technology an integral part of their operations (Oliveira *et al.*, 2014). In the banking industry, it is also advised to innovate to meet the challenges (King, 2013). Mobile banking is the one of such practice in mobile technology (Shaikh & Karjaluoto, 2015) and one of the most recent innovations in the financial services sector, which has added the element of pure mobility to service consumption (Oliveira *et al.*, 2014) and enable consumers to gain convenient access to value-added and banking services, even in countries with the low incomes (Anderson, 2010;). Mobile banking can perform account balances and transaction history inquiries, funds transfers, and bill payment via mobile devices such as cell phones, smartphones, and PDAs (personal digital assistants) (Laukkanen, 2007). It also improve the way personal financial services are designed and delivered as well as the way consumers interact with the other society constituents (Oliveira *et al.*, 2014). MB has been developing rapidly in the world, providing ever-widening content and services, fostering stronger relationships than earlier ones between financial institutions and clients (Riquelme & Rios, 2010).

Meanwhile, Juniper Research (2013) revealed, more than one billion people are expected to use mobile banking globally by 2017 and has predicted in the next 5 years, the number of mobile banking users worldwide will increase more than 2 times, from 800 million users today to 1.8 billion users in 2019. The reason of this growth is the percentage of smartphone users increasing and method of payment via mobile phones become more popular.

In Vietnam, this trend has also been perceived. In 2015, BanViet joint-stock commercial bank released Viet capital mobile banking application. It was estimated that mobile banking mobile

channels can save up to 43 times more than one physical branch, call center 13 times, and twice ATM online channels (e.g. Internet Banking). With outstanding benefits, mobile banking is becoming a competitive strength of some banks in Vietnam. This is a wise investment in technology, contributing to creation banking system faster, convenient, safely and towards maximum benefits for customers. However, mobile banking services still focuses on relatively simple functions such as offering queries about account information, track the location of ATM or phone recharge. Though it is gradually upgraded, following as transfers between accounts within the same system or another system, paying the bills, other shopping services, including securities connected with channels, providing and supporting financial information, more rooms need further improvement. How to encourage consumers to use the mobile banking service has become a critical issue for bank practitioners.

Therefore, the main objective of this study is to pinpoint key factors that directly affect customers to adopt the mobile banking services. Through the development of a research model that integrate the unified theory of acceptance and usage of technology (UTAUT) (Venkatesh *et al.*, 2003) and technology acceptance model (TAM) (Davis, 1989), factors from TAM model made to observe on user satisfaction and four factors from UTAUT model used to understand clearly about behavioral intention. Nine major hypotheses are assumed for the statistical analysis to depict the relationships among factors to understand the adoption of mobile banking from consumers' perspective.

2 THEORETICAL BACKGROUND AND RESEARCH HYPOTHESE

2.1 UTAUT model

The unified theory of acceptance and use of technology (Venkatesh *et al.*, 2003) was developed through a review and consolidation of the constructs of eight prominent theories that earlier research had employed to explain information systems usage behaviour: TRA, TAM, the motivational model (MM) (Davis *et al.*, 1992), TPB, the PC utilization model (MPCU) (Thompson, Higgins, & Howell, 1991), IDT, the social cognitive theory (SCT), and an integrated model of technology acceptance and planned behavior (TAM-TPB) (Taylor & Todd, 1995). Since its appearance, the UTAUT model has gradually attracted researchers' attention, and has recently been applied to explore user acceptance of mobile technologies (Yu, 2012), and incrementally tested and applied to several technologies for both individual and organizational use, within single and multiple countries (Im *et al.*, 2011).

The UTAUT identifies four key drivers of the adoption of information systems: performance expectancy, effort expectancy, social influence, and facilitating conditions. Venkatesh *et al.* (2003) defined performance expectancy as "the degree to which an individual believes that using the system will help him or her improve the performance of a task or work". Therefore, this variable is similar to concepts such as perceived use (TAM and DTPB), extrinsic motivation (MM), task adjustment (MPCU), relative advantage (IDT), and performance expectancy (SCT). In turn, the effort expectancy is conceived as "the degree of ease associated with the use of the system". It is similar to variables included in the integrated models such as perceived ease of use (TAM), complexity (MPCU), and actual ease of use (IDT). The social influence is defined as "the degree to which an individual perceives that important people believe he or she should use the system". It reflects a normative character in line with variables such as the subjective norm (TPB, DTPB), the social factors (MPCU), and the social image (ICT). Finally, the facilitating conditions factor is defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system". Therefore, this variable captures the concepts of perceived behavioral control (DTPB), facilitating conditions (MPCU), and perceived compatibility (IDT). Thus, the explanatory

variables included in the UTAUT reflect concepts common to previous models, whose similarities have previously been highlighted by several authors (Compeau & Higgins, 1995; Davis *et al.*, 1992).

The UTAUT identifies two direct antecedents to the acceptance of technological innovations: (i) the intention to use the system; and (ii) the facilitating conditions. In this sense, Venkatesh *et al.* (2003) consider that the intention to use is the main indicator of the effective use of an information system. Thus, Ajzen, 1991 said that the UTAUT assumes that this variable captures the motivational factors that influence behavior and is indicative of the efforts that an individual is willing to undertake in order to develop an action. Therefore, the individual's intention is conceptualized as the firm purpose to develop a behavior (e.g., using a technology or information system) in the future. This approach is coherent with the classic theory on consumer behavior (Ajzen, 1991) and with most of the previous models of technological acceptance (Davis, 1989; Davis *et al.*, 1989; Gatignon & Robertson, 1985; Taylor & Todd,1995), which identify intention (e.g., intention to use) as the principal indicator of behavior. Likewise, the UTAUT establishes that the facilitating conditions perceived by the individual are a direct determinant of the use of a technology, as they reflect the environmental factors that limit or incentivize their acceptance (Venkatesh *et al.*, 2003). Additionally, according to the UTAUT, the intention to use an information system is determined by three variables: (i) performance expectancy; (ii) effort expectancy; and (iii) social influence associated with the use of the system.

Furthermore, UTAUT has become a popular theoretical choice within the field of ICT (Williams *et al.*, 2011). Examples of applications of the UTAUT in consumer contexts include the adoption by users of the following information and communication technologies: mobile banking (Zhou, Lu, & Wang, 2010); mobile phone technologies (Park *et al.*, 2007; Wang & Wang, 2010; Zhou, 2011).

2.2 TAM model

TAM model has been broadly used to predict and explain how human behavior in various domains ever since (Wu & Wang, 2005), where a person's performance of specified behavior also is determined by the intention. Based on TRA model, Davis (1989) proposed the Technology Acceptance Model (TAM) to provide the evidence of the interactive relationship between external factors on internal beliefs, attitudes, and intentions. In addition, TAM is an application of TRA in regard to information system (IS) which notes that perceived usefulness and perceived ease of use determine an individual's attitudes towards using the innovation with the intention serving as a mediator to the actual use of the system. TAM model is presently one of the first and the most influential research models to explain users' IT adoption behavior which also has been recognized as a useful model of technology acceptance behaviors in a variety of IT contexts, and is currently widely applied among researchers of information systems in general. The fundamental rationale of the TAM is that IT users act rationally when they decide to use an IT. In the process of users' intention to use new IT, two belief variables – perceived usefulness and perceived ease of use of the system – are the most salient factors in users' intention. Behavioral intention (BI) is defined as "the strength of one's intention to perform a specific behavior" (Chew, 2006). On the other hands, BI also is the most important determinant of one's actual behavior via the factors AT which is described as "an individual's positive or negative feelings (evaluative effect) about performing the target behavior" (Fishbein & Ajzen, 1975). The next two most critical internal beliefs in the technology acceptance model belong to Perceived usefulness (PU) and Perceived ease of use (PEOU), both affect to AT: (i) PU is defined as "the degree to which a person believes that using a particular system would

enhance his or her job performance" (Davis, 1989) (ii) PEOU is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989)

The TAM model excludes economic, demographic factors and external variables; it seemingly has limited use for explaining user's attitudes and behavioral intention toward mobile service (Venkatesh & Davis, 2000). Furthermore, some author applied the theory in the field of mobile banking adoption studies extended or supplement the original TAM by including addition construct, such as relative advantage and personal innovativeness (Chitungo & Munogo, 2013), perceived risk, perceived ease of use , compatibility with life style (Hanafizadeh, Behboudi, *et al*. 2014), and perceived security (Hsu *et al.*, 2011).

2.3 An integrated model

TAM provide solid theoretical support for the relationships between adoption antecedents/ determinants and behavior (Davis, 1989). Although it lacks some theoretical support regarding the sequential relationship between satisfaction, intention and adoption. On the other hand, UTAUT model bring the relationship between intention and adoption to support conceptual framework development (Venkatesh *et al.*, 2012); therefore combining both the concept of research model may complement each other and help to solve their limitations. Thus, it seems reasonable to draw the research model in this study from both TAM and UTAUT research in order to build a complete model by taking mobile banking antecedents, satisfaction, intention and adoption into account.

TAM have found several usage antecedents/determinants beliefs, such as perceive ease of use and perceive usefulness. Based on these finding, we put all these antecedents influence mobile banking adoption. Moreover, in this study, behavioral intention to use mobile banking was preceded by their satisfaction and satisfaction is utilized. It is a significant measure of information system and often regarded as easiest and most useful way to evaluate an information system (Islam, 2014). We utilized UTAUT preceded by two beliefs: perceived ease of use and perceived usefulness for two reasons: prior adoption researches have figured out these two beliefs as the most important determinant of usage (David, 1989; Islam, 2012). In recently year, some research (Sumak, Hericko, and Punik, 2011) proposed that a meta-analysis should confirm on mobile banking adoption. Next, in this study we have to focus more attention on mobile banking adoption determinants rather than demonstrated TAM and UTAUT relationship. Furthermore, Davis (1989) proposed that the sequential relationship of belief-attitude-intention-behavior in TAM enables us to predict the use of new technologies by users; therefore, adoption was incorporated to make us able to better predict in the future use of mobile banking.

Compared with TAM, UTAUT has a benefit of additional rigor and better predictive success and analyses the critical factors related to the prediction of the behavioral intention to use a technology (Venkatesh *et al.*, 2003). UTAUT has not displaced TAM because the latter remains very much a part of the technology adoption theoretical landscape (Chuttur, 2009), though UTAUT is analogous with the TAM measures (Tuttle *et al.*, 2011). For example, The Performance Expectancy variable of the UTAUT represents Perceived Usefulness (TAM), Effort Expectancy variable corresponds to Perceived Ease of Use (TAM). UTAUT model stated that there are include three direct determinant of intention to use (Performance Expectancy, Effort Expectancy and Social Influence) and two determinants of usage behavioral (Behavioral intention and Facilitating conditions). However, in this study, we only use three key construct of behavioral intention to use mobile banking adoption including Performance Expectancy, Effort Expectancy and Social Influence. Facilitating Conditions is the unfamiliar factor with VietNam's customer and would have a little impact on mobile banking segment. Generally, by

reviewing related literature, all factors affecting the process of mobile banking adoption were identified and hypothesized. Fig.1. shows the conceptual model as follows.

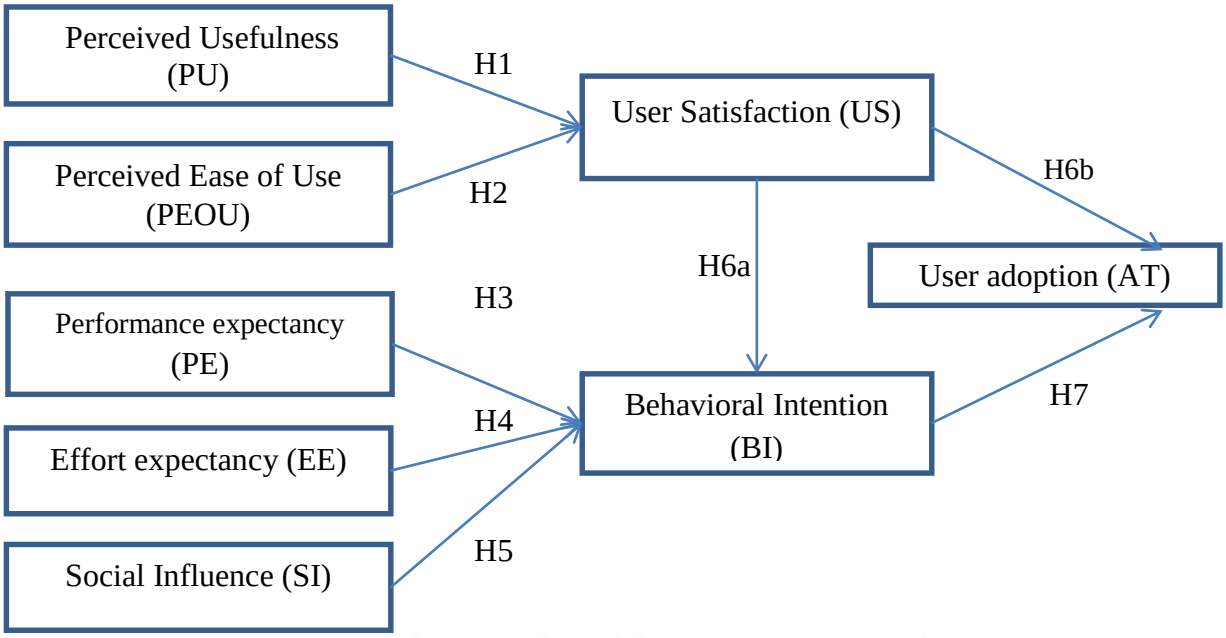

Fig. 1 – The research model. Source: own research

2.4 Research Hypotheses

The relation between perceived usefulness and user satisfaction has been well documented in the literature. Bhattacherjee (2001a, b) proposed that perceived usefulness was a significant determinant of satisfaction. Hayashi *et al*. (2004) also indicated that perceived usefulness was positively correlated with satisfaction in three different on-line training environments with differential degrees of social presence. Rai *et al*. (2002) empirically assessed the Seddon IS success model (Seddon, 1997) and specified user satisfaction as impacted by perceived usefulness. In the e-commerce environment, Devaraj *et al*. (2002) found that perceived usefulness was significant antecedents of consumer satisfaction. Hence, the greater the usefulness of mobile banking has more positive influence on the behavioral intention, the following hypotheses are proposed:

H1: Perceived usefulness affects user satisfaction to adopt mobile banking.

In some research, the perceived ease of use is found to have a positive influence on user satisfaction towards adoption of mobile banking services (Islam, 2011, 2012). The most frequently used system quality related factors for web-based systems are access, ease of use and reliability (Lee, Shin, & Lee, 2009). DeLone & McLean (2003) stated that perceived ease of use has a direct effect on user satisfaction and IS use, which has been confirmed by numerous subsequent studies in different contexts (Freeze *et al.,* 2010; Halawi, McCarthy, & Aronson, 2008; Negash, Ryan, & Igbaria, 2003). The definition of perceive ease of use as an essential factor which help a person believe that adopting a mobile banking systems would give them greater freedom (Davis, 1989), moreover this designation factor is an imminent acceptance driver of new technology-based applications (Venkatesh, 2000). Consequently, perceived ease of use is assumed to have a positive influence on behavioral intention.

H2: Perceived ease of use affects user satisfaction to adopt mobile banking.

Performance expectancy is as an important key factor for a user to adopting the mobile banking (Luo *et al.,* 2010; Riffai *et al.,* 2012). Similiarly, Venkatesh *et al.,* 2003 concluded that

performance expectancy is the necessary factor to which a personal believed that adopting mobile banking enhance the efficiency of their banking activities In addition, this construct also has been the strongest forecaster for behavioral intention. Judging from the current low frequency of consumers' visit to physical bank branches, the value to consumers from mobile banking can be more than those available from Internet based or brick and mortar based services, considering about the perception of improvement by using mobile banking measures such as speed of transactions (Yang, 2009), convenience or ubiquity and immediacy (Zhou *et al.*, 2010), satisfaction, economic benefit and personal image (Roger, 1995; Taylor & Tood, 1995). Thong *et al*. (2006) proposed that on some information and communication technologies papers that expectations have the positive influence of hedonic motivation on the behavioral intention towards mobile banking adoption. Hence, the hypothesis is formulated as follows.

H3: Performance expectancy influences the behavioral intention to adopt mobile banking.

Effort expectancy is a UTAUT construct that is as the degree of ease associated with the use of mobile banking (Venkatesh *et al.*, 2003). This construct reflects based on the perceived ease of use (TAM) of an IS (Kuo & Yen, 2009; Luarn & Lin, 2005; Martins *et al.*, 2014; Miltgen *et al.*, 2013; Wang, Lin, & Luarn, 2006) and demonstrated that has a positive influence on behavioral intention. In the context of mobile banking, some user look forward to have a fewer problems enhancing more accustomed to it quickly and using the mobile banking services (Koeing-Lewis, Palmer & Moll, 2010), because of finding services easily, the banking transaction might be became more willing to adopt it (Lin, 2010). The interesting element of mobile banking can influences user adoption such as user interfaces, content design and functional ability (Kim *et al.*, 2009; Venkatesh., 2003).Thus,

H4: Effort expectancy influences the behavioral intention to adopt mobile banking.

The role of social influence in technology acceptance decisions is complex and subject to wide range of contingent influences. Venkatesk & Davis (2000) suggested that such effects could be attributed to compliance in mandatory contexts that causes social influences to have a direct effect on behavioral intention. Social influences have an impact on individual behavioral via three mechanisms: compliance, internalization, and identification (Venkatesk & Davis, 2000), while the latter two relate to altering an individual to respond to potential social status gains, the compliance mechanism causes an individual to simply alter his or her intention in response to the social pressure, the individual intends to comply with the social influence. Social influence is a direct antecedent of behavioral intention (Venkatesh *et al.,* 2003), it is the notion that individual behavioral is affected by the way peers or family members value the use of mobile banking. The individual might be accepted to adopting a news services technology such as mobile banking by the trend of their friend, their family or experts. As a result, hypothesis 5 is formulated.

H5: Social influence influences the behavioral intention to adopt mobile banking.

Rather than to sell, to supply, or to serve the main objective of every business is to satisfy the needs and meet the satisfaction of its user (Docimini & Palumbo, 2013). Satisfaction is defined as the individual's perception of the extent to which their needs, goals, and desires have been fully met and their overall view of IS (Islam, 2014). It sounds better to note that user satisfaction refers to the extent to which users are pleased with IS and support services (Islam, 2012). Satisfaction has been found to have a significant positive effect on intention towards mobile banking adoption in some studies (Hassanzadeh *et al.*, 2012; Udo, Bagchi, & Kirs, 2011). Enhancing user satisfaction contributes to a higher behavioral intention (Islam, 2013). Satisfaction has been found to have a significant positive effect on user adoption as well (Liaw *et al.*, 2010). Hassanzadeh *et al*. (2012) in their study uncovered the positive effect of

satisfaction on adopting mobile banking services. Therefore, in the context of this study, satisfaction assumed to positively affect both behavioral intention and adoption.

H6a: Satisfaction influences the behavioral intention

H6b: Satisfaction influences user adoption.

Based on UTAUT model, age and gender have a positive influence on behavioral intention due to their moderator effect on performance expectancy, effort expectancy and social influence, while age and gender reflects people's difference in information processing (i.e., cue perception and processing process) that in turn can affect their reliance on habit to guide behavioral intention. The objective of this study is to investigate attitude as a mediator between behavioral intention and user adoption and determine whether the behavioral intention to adopt mobile banking leads to a decision for its adoption. Existence of this relationship has been found in a variety of situations such as in the work place using enterprise resource planning (Calisir, Gumussy, & Bayram, 2009; Wu & Li 2007) and virtual settings using technology includes Internet services (Lee *et al.*, 2007; Schubert, 2002). Thus, in this study, the potential customer attitude towards behavioral intention to adopt mobile banking might be reflected in the most obvious way. The following hypothesis is formulated:

H7: Behavioral intention to adopt mobile banking has effect on user adoption.

3 SAMPLE AND EMPIRICAL STUDY METHOD

The sample in this research was selected from all consumers who have used mobile banking service in Ho Chi Minh City in Viet Nam. 200 questionnaires were collected from the respondents who agree to take part in the survey. The data collection period was from 1 January to 1 February, 2016. The questionnaire items are developed based on the literature and are shown in Table 1.

The data analyses were performed using the IBM SPSS analysis (release 22.0) and IBM SPSS Amos (version 20.0). SPSS software is used to analyze the demographicvariables of the participants, exploratory factor analysis, reliability, mean and standard deviation, while Amos used to examine the main hypothesis in this study by tests of the structure equation modeling.

The model fit is used to examine the indexes chi- square (CMIN), chi-square to degrees of freedom (CMIN/d*f*) with p-value, root mean square error of approximation (RMSEA), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), standardized root mean square residual (SRMR) and the comparative fit index (CFI). Based on CFA, CFI values greater than .95 typically reflect acceptable and good model fit, of a target model relative to the null model (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). The RMSEA is a measure of a model's approximate fit in the population with the values less than 0.05 indicate good fit and values as high as .08 represent acceptable errors of approximation in the population (Browne & Cudeck, 1993; Steiger, 1990). The goodness of fit index (GFI) is a measure of fit between the hypothesized model and the observed covariance matrix. The adjusted goodness of fit index (AGFI) corrects the GFI, which is affected by the number of indicators of each latent variable. The GFI and AGFI range between 0 and 1, with a value of over .9 generally indicating acceptable model fit (Anderson & Gerbing, 1988). . Finally the index should be noted that provided the standardized root mean square residual (SRMR) instead of the SRMR ranges from zero to one, with a value of less than .08 indicating good model fit (Hu & Bentler, 1999).

Tab. 1 - Summary of measurement scale. Source: own research

Construct	Questionnaire item	Reference
Adoption	AT1. I adopt m-banking	Goodhue & Thompson (1995) ; Zhou *et al.*(2010)
	AT2. I adopt m-banking to make transfers	
	AT3. I subscribe financial products exclusive to m-banking	
User Satisfaction	US1. Adopt m-banking is enjoyable	DeLone & McLean (2003) Lee (2010)
	US2. I am pleased enough with adopt m-banking system	
	US3. Adopting m-banking give me self-confidence	
Behavioral intention	BI1. I will recommend others to adopt m-banking	Vankatesh,2012 Kim *et al.*(2009)
	BI2. I intend to adopt m-banking continuously in the future	
	BI3. I have the intention of making a service payments by mobile phone	
	BI4. I have the intention of managing my accounts using my mobile phone	
Perceived ease of use	PEOU1. Adoption m-banking is easy to use.	Wang & Liao (2008)
	PEOU2. Learning to operate m-banking is easy.	DeLone & McLean, 2003
	PEOU3. Interaction with m-banking does not require a lot of mental effort.	Lee *et al.*(2011) ; Kim & Mirusmonov (2010)
Perceive usefulness	PU1. Adopting this m-banking enhances the efficiency of my banking activities	DeLone & McLean, 2003
	PU2. Adopting this m-banking make it enables me to accomplish my banking activities more quickly.	Kim & Mirusmonov (2010)
Performance expectancy	PE1. Adopting m-banking allows me to make my payments quicker.	Zhou *et al.*(2015)
	PE2. Adopting m-banking is very useful in daily life.	Vankatesh (2012)
	PE3. Adopting m-banking increases my chances of achieving things that are important to me in my payments	Herrero (2012)
Effort expectancy	EE1. Learning adopt m-banking is easy for me	Vankatesh (2012)
	EE2. My interaction with m-banking is clear and understandable.	
	EE3. It is easy for me to become skillful at adopting m-banking.	
Social Influence	SI1. People whose opinions I value think that adopting m-baking is useful.	Vankatesh, 2012
	SI2. People who are important to me agree that I should adopt m-banking	
	SI3. People who influence my behavior think that I should adopt m-banking	

4 RESEARCH FINDINGS AND DISCUSSION

4.1 Respondents' profile

Respondents' demographics include using Smartphone, M-banking knowledge, gender, age, education, occupation, income level, types of baking payment and time using mobile phone is described. The result is summarized in the following table.

Tab. 2 - Respondents' profile. Source: own research

Items	Categories	Frequency	Percentage
Gender	Male	120	60.6%
	Female	78	39.4%
Age	18-24	58	29.3%
	25-30	102	51.5%
	31-37	33	16.7%
	Over 38	5	2.5%
Education	High School	1	0.5%
	Bachelor	138	69.7%
	Master	56	28.3%
	PhD	3	1.5%

4.2 Reliability of the measurement scale

Hair *et al.* (2010) recommended all factor loadings should be statistically significant and sandardized regression weight equal 0.50 or higher. Further evidence of the reliability of the scale isregarding composite reliability and average variance extracted scores of the different factors obtained (Hair *et al.*, 2010). CR of all the latent variables is greater than the acceptable limit of 0.70, (Carmines & Zeller, 1988). The AVE for all the factors is greater than 0.5, which is acceptable (Fornell & Larcker, 1981). The CR of 0.70 or higher and AVE of 0.50 or greater are deemed acceptable. The result is shown in Table 3.

Tab. 3 - Confirmatory factor analysis results. Source: own research

Factor	Code	Standardized Regression Weight	Error Variance	Item R-square	Composite Reliability	Average Variance Extracted
Behavioral Intention	BI1	0.966	0.067	0.933	0.884	0.664
	BI2	0.958	0.082	0.918		
	BI3	0.636	0.596	0.404		
	BI4	0.633	0.599	0.401		
Performance expectancy	PE1	0.903	0.185	0.815	0.833	0.631
	PE2	0.587	0.655	0.345		
	PE3	0.856	0.267	0.733		

Social influence	SI1	0.773	0.402	0.598	0.763	0.617
	SI2	0.798	0.363	0.637		
Perceived usefulness	PU1	0.778	0.395	0.605	0.956	0.919
	PU2	1.110	-0.232	1.232		
User satisfaction	US1	0.521	0.729	0.271	0.769	0.536
	US2	0.862	0.257	0.743		
	US3	0.771	0.406	0.594		
Perceived ease of use	PEOU1	0.764	0.416	0.584	0.782	0.545
	PEOU2	0.776	0.398	0.602		
	PEOU3	0.670	0.551	0.449		
Effort expectancy	EE1	0.611	0.627	0.373	0.767	0.547
	EE2	0.741	0.451	0.549		
	EE3	0.810	0.344	0.656		
Adoption	AT1	0.827	0.316	0.684	0.765	0.523

4.3 Structural equation modeling

The result of structural equation model is acquired by AMOS 20 and relevant information is shown in figure 2 and table 4.

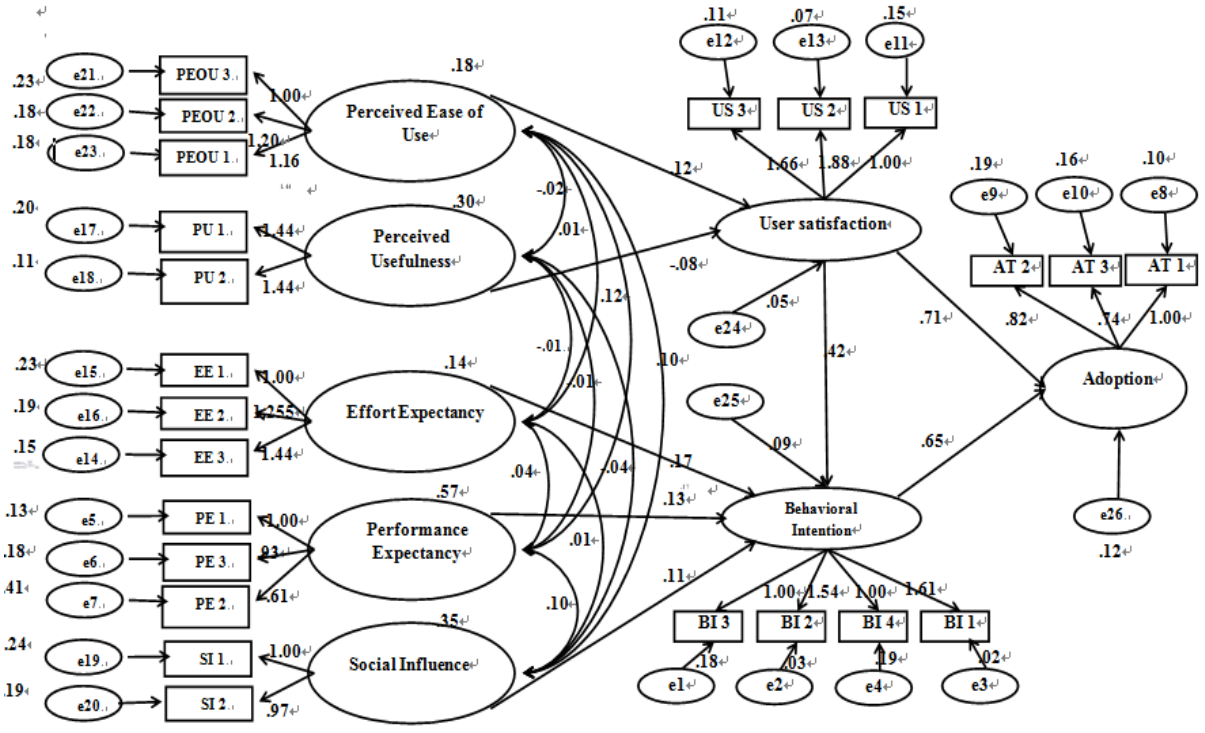

Fig. 2 - The SEM model. Source: own research

Tab. 4 - Model fit index. Source: The Research

CMIN	D*f*	p	CMIN/*df*	GFI	AGFI	RMSEA	SRMR	CFI
220.403	191	.071	1.154	.912	.883	.028	.0564	.985

Kline (2011) suggested values that CMIN/df should less than 5 and have $p \geq 0.05$, RMSEA should be ≤ 0.06, CFI should be > 0.95, SRMR should be ≤ 0.08. All of statistical values of the measurement model are consistent with the criteria, except for chi-square testing. As the $\chi 2$ value is sensitive to a large sample size (n > 200), this test tends to reject the hypothesis (Kline, 2011; MacCallum *et al*., 1996). Due to the large sample size in this study (n = 1,695), it can be concluded that the model has good fit, as supported by various studies such as Delbosc & Currie (2012), Chung *et al*. (2012) and Van Acker & Witlox (2010). The results illustrated as follows CMIN/df = 1.229 < 5, the index show a good fit for sample. Other indicators such as GFI, CFI, RMSEA and SRMR completely satisfying compared to the measurement model.

All hypothesis in this research have been analyzed by table 14, from SEM analysis where illustrate the relationship of the variable. The positive influence of PEOU on US (t-value is 2.336, r = .118 and p = .020), H1 was supported and PU can the sufficient condition for improvement of US (t-value is -2.635, r = -.083 and p = .008), which supported H2. H3 having the good index for supporting (t-value is 3.763, r = .133 and p < .01) and effort expectancy also have the positively effect on behavioral intention with (t-value is 2.362, r = .171 and p = .018) correspondent to supported. The next three hypothesis belong to H5, H6a and H6b with (t-value is 2.415, r = .113 and p = .016), (t-value is 3.474, r = .424 and p < .01) and (t-value is 3.950, r = .708 and p < .01) respectively. Finally, BI is the sufficient condition of perceived improvement of user adoption (t-value is 5.863, r = .652 and p < .01), H7 was supported.

On TAM model, the results also shows the same conclusion by Mohammadi (2015) with the positive influence of perceived usefulness on user satisfaction (t-value is 3.48, r = 0.21 and p < .01), the relationship of perceived ease of use have the impact with user satisfaction through (t-value is 3.12, r = 0.23 and p < .01) which was supported. In term of UTAUT model, the findings of this study also demostrated that PE, EE and SI have a significant influence on behavioral intention to adopt mobile banking. The research model explains 62.301% of adoption of m-banking which also confirm that user satisfaction and behavioral intention support m-baking leads to its adoption.

4.4 Discussion

According to the results in this study that user satisfaction and behavioral intention both have a positively influence on user adoption, it is also demonstrated that perceived ease of use, performance expectancy, effort expectancy and finally social influence those with significant effect user's adoption through user satisfaction and behavioral intention.

Among them, the perceived usefulness has a positively influence on user satisfaction which confirmed the studies carried out by Alsabswy, Cater-Steel, & Soar (2013) and Islam (2011). Capgemini (2013), Goh, Suki, & Fam (2014) and Laukkanen & Cruz (2013) that younger customers, who are more technology savvy, are playing an important place on mobile banking than senior. A higher level of education could lead to a greater understanding and ability regarding self-service technologies and lower perception on complexity of innovations (Laukkanen & Cruz, 2013). The evidence of perceived usefulness in this study shows that has direct significant effect on user satisfaction. Nevertheless, the estimate of perceived usefulness below zero (r = -0.083), this underlines the seriousness of usability of the segment mobile banking adoption in Viet Nam, because, the booming of the mobile banking market in Viet Nam is begin from 2010-2015. In particular, cultural factors, consumer habits and literacy levels

as a barrier to the development of high-tech banking services applications in this country. In addition, the other negative factors for the application of high technology in the development and expansion of products and banking services in Vietnam is the lack of stability of the IT system. In fact, the network congestion, the loss of connection, negatively influence on the continuity and the stability of services. Therefore, banks and financial institutions need to hold their attention more to improving system's usefulness while invested others, as early deployment, to reach as large segment of younger customers would be fertile market for Vietnam banks to speed up forward.

Perceived ease of use is identified as an influential factor in mobile banking usage in this research, which found by Thakur (2014), Hanafizadeh *et al*. (2014), Wessels & Drennan (2010), Luarn & Lin (2005), Venkatesh *et al*. (2003) and Dahholkar & Bagozzi (2002). In contrast, Koenig-Lewis *et al*. (2010) and Pikkarainen *et al*. (2004) demonstrated that PEOU is an insignificant in this relationship, maybe lack of system's easy and comfortable design. Perceived ease of use directly affect user satisfaction (r = .118) which larger than the effect of usefulness (-.083), PEOU does not mediate and facilitates in the relationship between ease of use and user satisfaction. The evidence also found by Zhang (2012), Lee *et al*. (2011), Schierz *et al*. (2010), Revels *et al*. (2010), and Kim & Mirusmonov (2010). The manager of the bank needs to pay more attention to improve mobile banking adoption, further investing on its ease of use will in evoking their customer's attitude. PEOU aimed to effect on young and educated customers which providing user access to directly track transaction online, attracting the overall attention of consumer to the bank's brand and helping them to constantly update their know-how of mobile banking system, and availing other potential advantage for users with persistent usage of mobile banking may encourage some to adopt mobile banking.

5 CONCLUSION

This study investigates the predictors of user satisfaction and behavioral intention to adopt mobile banking, by offering a new perspective that financial institution must consider when providing mobile service in Viet Nam. The conceptual model, integrating the existing constructs of Technology Acceptance Model and Unified Theory of Acceptance and Use of Technology model, then tested through SEM to confirm the main construct to support for the proposed theoretical model. The first contribution of this study is the development of a theoretical model which can be utilized to explain and predict consumer's behavior to adopt mobile banking, particularly within the context of Viet Nam banking industry from the perpsectives of consumers. It is a tool for understanding consumer willingness for adoption of mobile banking via testing perceived usefulness, perceived ease of use, performance expectancy, effort expectancy and social influence.

In addition, this study also builds a new valid measurement to predict and explain consumer acceptance of emerging technologies. Companies can influence the decision to adopt mobile banking by ensuring that the service can offer to the customer through service optimization to enhance the user experience. The finding of this study can assist professionals in developing programs, communicate with, and attracting a sufficient number of customer to justify the costs of implementing an mobile banking system.

Since this study is aimed at the area of Ho Chi Minh City, the result only repsents perspectives in the city. More research is encouraged in the areas of mobile banking adoption in different regions, especially in the rural area where the establishing of physical bank branches might not be very cost effective. Reasons for not adopting the mobile banking service might also be worth exploring.

REFERENCES:

Anderson, J., (2010). M-banking in developing markets: competitive and regulatory implications. *Info* 12 (1), 18–25.

Calisir, F., Gumussoy, C. A., & Bayram, A. (2009). Predicting the behavioral intention to use ERP systems: An extension of the technology acceptance model. *Management Research News*, 32(7), 597–613.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(1), 1111-1132.

Davis, F.D., (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quartely*, 13(3), 319-340.

Docimini, G., & Palumbo, F. (2013). How to build an e-learning product: factors for student/customer satisfaction. *Business Horizons,* 56, 87–96.

Hassanzadeh, A., Kanaani, F., & Elahi, S. (2012). A model for measuring e-learning systems success in universities. *Expert Systems with Applications*, 39, 10959–10966.

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: testing the UTAUT model. *Information & Management*, 48(1), 1-8.

Islam, A. K. M. (2014). Sources of satisfaction and dissatisfaction with a learning management system in post-adoption stage: A critical incident technique approach. *Computers in Human Behavior*, 30, 249–261.

Islam, A. K. M. N. (2011). The determinants of the post-adoption satisfaction of educators with an e-learning system. *Journal of Information Systems Education*, 22(4), 319–332.

Kim, G., Shin, B., & Lee, H. G. (2009). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal*, 19(3), 283–311.

King, B. (2013). *Bank 3.0: Why banking is no longer somewhere you go, but something you do*. Singapore: John Wiley.

Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing*, 28(5), 410–432.

Luarn, P., & Lin, H. H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computers in Human Behavior*, 21, 873–891

Lin, H. F. (2010). An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust. *International Journal of Information Management*, 31(3), 252–260.

McKinney, V., Yoon, K. & Zahedi, F. M. (2002). The measurement of web-customer satisfaction: an expectation-disconfirmation approach. *Information Systems Research*, 13(3), 296-315.

Negash, S., Ryan, T. & Igvaria, M. (2003). Quality and effectiveness in web-based customer support systems. *Information & Management*, 40(8), 757-768.

Ngai, E. W. T., & Gunasekaran, A. (2007). A review for mobile commerce research and applications. *Decision Support Systems*, 43, 3–15.

Oliveira, T., Faria, M., Thomas, M.A. & Popovicˇ, A., (2014). Extending the understanding of mobile banking adoption: when UTAUT meets TTF and ITM. *International Journal of*

Information Management, 34 (5), 689–703.

Riquelme, H.E., Rios, R.E., (2010). The moderating effect of gender in the adoption of mobile banking. *International Journal of Bank Marketing* 28 (5), 328–341.

Schubert, P. (2002). Extended web assessment method (EWAM): Evaluation of electronic commerce from the customer's viewpoint. *International Journal of Electronic Commerce*, 7(2), 51–80.

Shaikh, A.A. & Karjaluoto, H., (2015). Mobile banking adoption: a literature review. *Telematics Inform*. 32 (1), 129–142.

Taylor, S., & Tood, P. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6, 144–177.

Venkatesh, V. & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, *Management Science.* 46(2), 186-204.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

ADVANTAGES AND CHALLENGES FOR VIETNAMESE ACCOUNTANTS AND AUDITORS IN INTERNATIONAL INTEGRATION - IN VIEW OF ACCOUNTING AND AUDITING PROFESSIONAL ETHICS

Duc Minh Doan Le, Giang Cam Thi Thai

ABSTRACT

The year 2015 marked a turning-point in the efforts of international integration of Vietnamese accounting and auditing industry when Vietnam Association of Certified Public Accountants (VACPA) became a member of International Ferderation of Accountants (IFAC), and ASEAN Economic Community (AEC) was officially put into operation. This integration opens up a labor market of accounting and auditing in member countries of ASEAN (Association of Southeast Asian Nations) thanks to the free movement of labor in this field. Therefore, the international integration will bring many advantages as well as challenges for Vietnamese accountants and auditors.

This paper compares professional ethics guidelines for accounting and auditing in Vietnam and ASEAN countries, and find out advantages and challenges for the accounting and auditing industry of Vietnam in terms of professional ethics. The paper applies the method of Archival Research to study professional ethics standards in Vietnam and that of many ASEAN countries with advanced accounting and auditing industries including the Philippines, Malaysia, Singapore and Thailand, and compare with standards of professional ethics issued by IFAC.

The study results show many similarities and some differences between professional ethics of Vietnam and the ASEAN countries. This study also evaluates advantages and challenges of auditing activities in Vietnam. Besides, necessary and reasonable solutions are proposed to improve the accounting and auditing professional ethics for accountants and auditors, accounting and auditing employers, accounting and auditing trade organizations and government agencies in Vietnam. The study is a meaningful contribution towards helping enhance professional ethics for the accounting and auditing industry amid international integration.

Keywords: *Professional ethics, accountant, auditor*

JEL Classification: M4, M41, M42

1 INTRODUCTION

As of November 11th, 2015, VACPA has officially become a member of IFAC, which is a global organization of accountancy profession founded in 1977 in New York and comprising more than 160 member organizations in 120 countries representing millions of auditors and accountants. IFAC aims at developing and strengthening the roles and responsibilities of international accountancy profession, encouraging the professional development of accountants and promoting the development of accounting organizations in the countries and regions.

IFAC issued international standards on professional ethics which were most recently amended in 2013, classifying 5 threats to the objectivity of accountants and auditors, providing the framework to judge situations or factors that may have a threat to compliance with fundamental

ethical principles and protective measures against these threats.

AEC was founded on December 31st, 2015, of which Vietnam is a member. AEC opened the free movement of labor for some professions including accounting and auditing profession. Vietnam accounting and auditing profession has its own opportunities and challenges as Vietnam joins the AEC. Vietnamese auditors and accountants have more advantages while working in the AEC member countries, meanwhile, the auditors and accountants of the AEC member countries can also freely travel to work in Vietnam which create certain competitiveness in the Vietnamsese accounting and auditing labor market. Hence, Vietnamsese auditors and accountants, besides enhancing professional qualifications, are required to improve their professional ethics to actively take part in the AEC.

8 countries in the ASEAN region which are members of IFAC comprise Vietnam, Thailand, Malaysia, the Philippines, Singapore, Brunei, Indonesia, and Campodia. Laos and Myanmar are not a member of IFAC. At present, Laos has no standards of accounting and auditing profession ethics. Of 8 IFAC member countries, except Campodia which build its own standards of professional ethics, the remaining countries promulgate their ethical standards of accounting and auditing profession on the basis of professional ethics issued by IFAC and change to suit the situation of each country.

2 RESEARCH METHODOLOGY

This paper uses the Archival research [4] to investigate standards of professional ethics in Vietnam, the Philippines, Malaysia, Singapore, Thailand and professional ethics issued by IFAC, and contrast similarities and differences of regulations of professional ethics, violation risks of professional ethics and guidelines on the required protective measures.

3 RESEARCH DATA

Research data are regulations of professional ethics promulgated by the IFAC, Vietnam, the Philippines, Malaysia, Singapore, and Thailand.

4 RESULTS AND DISCUSSIONS

4.1 Contrastive results of agencies and organizations issuing auditing and accounting professional ethics in Vietnam and in ASEAN countries

Tab.1 - Agencies and organizations issuing auditing and accounting professional ethics. Source: compared and contrasted by the authors

Country	Agencies and organizations	IFAC member	Subjects of professional ethics
Vietnam	Ministry of Finance	Yes	- Certified accountants and auditors -Professional accountants and auditors in firms
The Philipines	Philipines Institute of Certified Public Accountants	Yes	- Certified accountants and auditors -Professional accountants and auditors in firms
Malaysia	Malaysian Institute of Accountants	Yes	Professional accountants

Singapore	Institute of Singapore Chartered Accountants	Yes	Chartered accountants
Thailand	Ministry of Finance	Yes	Accountants and auditors

4.2 Contrastive results of fundamental ethical principles

The basic principles include:

- Integrity: accountant and auditor must be frank and truthful in his/her working process.

- Objectivity: accountant and auditor must not be dominated in his/her professional judgment.

- Professional competence and due care: accountant and auditor must work carefully in accordance with professional standards and maintain the best qualifications.

- Confidentiality: accountant and auditor must secure his/her client's confidentiality.

- Professional behavior: accountant and auditor must comply wih the regulations in order to not reduce the impact of occupational prestige.

Through the contrast, Vietnam, the Philippines, Malaysia, Singapore, and Thailand have provisions of the basic principles like the provisions by IFAC.

4.3 Contrastive results of threats to the professional ethics compliance

The threats to compliance with accounting and auditing professional ethics consit of risk self-interest threat, self-review threat, advocacy threat, familiarity threat, and intimidation threat.

The results show that the ASEAN countries specified situations leading to threats to compliance with professional ethics.

4.4 Contrast of guidelines of necessary protective measures

For each above-mentioned threat, professional ethics regulations of countries guide measures to minimize risks of non-compliance.

4.5 Contrastive results of provisions to ensure the independence of auditors

Tab.2 - Provisions to ensure the independence of auditors.

Source: compared and contrasted by the authors

Factors	Vietnam	The Philipines	Malaysia	Singapore	Thailand
The limits in personal, commercial, financial relationships and other influencial factors	Yes	Yes	Yes	A number of financial limits	Yes
Limit of services that provided by auditing firms for auditees	Yes	No	Yes	Accounting, tax and financial consulting and investment, restructuring	Yes

Provisions to avoid low charges	No	No	Yes	Yes	Yes
Requirements of auditing rotation	Does not require rotation of company, senior personnel but periodically change report signers - Do not record time schedule of change	- Changing senior personnel/ partner every 5 years - Time to stop the audit is 2 years	Changing senior personnel/ partner every 5 years - Time to stop the audit is 2 years	Changing senior personnel/ partner every 5 years - Time to stop the audit is 2 years	Changing senior personnel/ partner every 5 years - Time to stop the audit is 2 years

The table points out many similarities in ethics guidelines. Except for guidelines of avoiding low charges and requirements of auditing rotation, Vietnam has many differences with that of other countries.

4.6 Advantages and challenges of Vietnamese accounting and auditing professional ethics

4.6.1 Advantages

Above comparisons and contrasts show that most of the ASEAN countries are members of IFAC. ASEAN countries issued regulations of professional ethics, besides specific regulations in each country, on the basis of inheriting most standards of the professional ethics issued by IFAC. Only Laos does not have the specific accounting professional ethics and Combodia built and issues its own professional ethics in accounting and auditing. Myanmar, particularly, issued accounting and auditing professional ethics based on provisions of IFAC. Thus, Vietnamese accountants and auditors have many advantages in complying with professional ethics while working in ASEAN countries, which contribute to expanding the labor market, strengthening mutual learning and exchanges and enhancing the professionalism of accountants and auditors in particular, and quality of accounting and auditing activities in general.

For independent auditing firms, they will have opportunities in expanding their customers in Vietnam market and oversea markets to exchange, learn and improve the quality of their services.

4.6.2 Challenges

The harmony of professional ethics also creates favorable conditions for workers in accounting and auditing sectors of other countries in ASEAN to work in Vietnam, thereby creating a labor competitiveness in accounting and auditing sector in Vietnam in the future. In addition, the road to expand the auditing market in Vietnam is more favorable for the auditing firms and foreign accounting consulting firms. The competition in the auditing and accounting consulting market become a major challenge in the future for Vietnamese auditing firms which are mainly small-sized firms with low revenue. Currently, although there are no official reports assessing the compliance of professional ethics in accounting and auditing, it is said that this compliance is not high in Vietnam. Improving accounting and auditing professional ethics is an important

contribution in improving the quality of audit services, accounting work and transparency of financial information, which requires efforts from the state management in many countries, accountants and auditors, businesses and accounting and auditing education.

5 RECOMMENDATIONS

5.1 For the state and accounting and auditing organizations

For certified auditors, VACPA has been updating annual regulations on professional ethics for all certified auditors and also inspecting compliance with professional ethics while assessing quality of independent auditing firms.

For certified accountants and professional accountants in the accounting organizations, the implementation of learning and updating regulations on professional ethics for accountants and auditors has not been carried out. Thus, it is suggested that auditing and accounting associations should initially hold training classes on professional ethics for these people to participate in experience learning and exchange. Besides, auditing and accounting associations should prescribe the knowledge updating participation as an annual obligation for certified and professional accountants.

For regulations to ensure the auditing independence, Vietnam has regulations similar to other countries in ASEAN. However, for provisions on low charge and auditing turnover requirements in certain time in order to avoid the risks of reducing independence of auditors, other ASEAN countries have specific regulations, whereas Vietnam has no regulations. Therefore, it is recommended that auditing associations should supplement this provision in order to enhance the independence of the audit and improve the audit quality as well as create a harmony in the auditing and accounting professional ethics in ASEAN.

Some of ASEAN countries have established a specialized committee to control accounting and auditing professional ethics, however, currently this committee does not exist in Vietnam. Hence, it is proposed that Vietnam should establish an independent committee to control the issues related to auditing and accounting professional ethics.

5.2 For accountants and auditors

Certified auditors have many advantages since they are annually updated on professional ethics and examined the compliance of professional ethics by certified auditing associations. However, in the face of labor competition as Vietnam integrates AEC region, auditors must both maintain professional ethics and learn the regulations of professional ethics of the ASEAN countries to be able to work in these countries or participate in cross-border auditing.

For professional accountants, they should need to learn to understand the regulations of professional ethics to enhance professional reputation, understand situations that threaten compliance with professional ethics and use protection measures to reduce the risk of non-compliance to the lowest acceptable level.

5.3 For employers of accountants and auditors

Independent auditing firms and accounting service firms should regularly organize workshops on the practical issues of professional ethics in Vietnam so that auditors and assistant auditors can understand and apply well while working, improve the control of internal quality for compliance with professional ethics of every firm member thereby enhance the reputation of certified auditors and accountants as well as the firm.

Organizations using professional accountants should also understand accounting professional ethics to understand the working environment of accountants, create favorable conditions for

their accountants to better work and comply with professional ethics, thereby improving transparency for their financial information and their reputation.

5.4 For the training of accounting and auditing

Accountants need not only good expertise in the field of accounting and auditing but good professional ethics. Currently, however, vocational training schools, colleges and universities providing accounting training have not put attention to traning of accounting and auditing professional ethics in their curricular. Upon graduation, students neither understand professional ethics in order to comply in the course of work nor apply the necessary protective measures in situations which is more likely to violate professional ethics regulations. Therefore, schools are proposed to teach accounting and auditing professional ethics as a special or a general subject. Teaching contents comprise the regulations of Vietnam and IFAC, and real situations, then extending to the professional ethical standards of countries in the region, especially AEC region.

6 CONCLUSION

The paper has pointed out a number of advantages for the accounting and auditing industry of Vietnam during ASEAN Economic Community integration in terms of professional ethics. Those advantages come from similarities between professional ethics standards among Vietnam and ASEAN countries, due to the fact that professional ethics guidelines of all studied countries are based upon or inherit most of IFAC guidelines. Those similarities include regulations regarding fundamental ethical principles, threats to the professional ethics compliance and protective measures to against these threats to minimise violation. Therefore, Vietnamese workforce in accounting and auditing can have many advantages in interacting, learning and working in ASEAN countries or foreign-owned companies. There are similarities in regulations to ensure the independence of auditors, except for some differences (Table 2) in avoiding low charges and auditing rotation. In addition, Vietnam's accounting and auditing industry also faces challenges stemming from those similarities with the world, which lead to competition among labor from different countries and from foreign-owned auditing firms. Another challenge comes from the fact that professional ethics compliance in Vietnam is not very high. With those results, the study comes up with some proposals to Vietnamese authorities and trade organisations, accountants and auditors, accounting and auditing employers, and some suggestions for education in accounting and auditing in order to enhance professional ethics of Vietnamese accountants and auditors in the hope of helping raise the quality of accounting and auditing in Vietnam in international integration.

7 LIMITATION AND FURTHER RESEARCH

The paper focused on comparison and contrast of regulations in accounting and auditing professional ethics standards in Vietnam, ASEAN countries and IFAC to find out similarities and differences. It did not evaluate how actual compliance of professional ethics in ASEAN countries was. In addition, it did not examine all standards of accounting and auditing professional ethics in 10 ASEAN countries, but only some typical contries with a development in accounting and auditing field.

Further research can be carried out with a deep comparison, contrast and evaluation of the factors affecting the professional ethics of all ASEAN countries and to evaluate how actual compliance with professional ethics is.

REFERENCES

Accountancy Profession Act B.E 2547 (2004)

Institute of Singapore Chartered Accountants, *Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities*.

International Ferderation of Accountants (2013). *Handbook of the code of Ethics for Professional Accountans*.

Malaysian Institute of Accountants, *By-laws (on professional ethics, conduct and practice) of the Malaysian Institute of Accountants*.

Malcolm Smith (2003). *Reseach methods in Accounting*.

Philipines Institute of Certified Public Accountants, *Code of Ethics for professional Accountants in the Philippines*.

Viet Nam Financial Minister (2015). *Circular No. 70/2015/TT-BTC*.

World bank group (2014). *Current status of the accounting and auditing profession in Asean countries*, September 2014,

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FAIR VALUE AND FINANCIAL INSTRUMENTS ACCOUNTING NEED TO BE STUDIED AND PROMULGATED IN VIETNAM TO SUIT TO INTERNATIONAL FINANCIAL REPORTING STANDARDS

Ha Thi Ngoc Ha

ABTRACT

The legal framework about accounting standards in Viet Nam is being updated, added and modified for compatibility with international rules and international Financial Reporting Standards. This article is intended to propose opinions, ways to proceed and contents to udpatethe Vietnam Accounting Standards to meet the needs of transparency of financial information with the objective to approach and apply of international rules and accounting standards that Vietnam commits to implement when Accounting Law No. 88/2015/QH13 (referred as Accounting law 2015), was passed by the National Assembly legislature XIII of the Socialist Republic of Vietnam in the 10th session on 20/11/2015 in which add one important content, i.e. regulation on application of fair value accounting principles and financial instruments.

Key words: *fair value accounting principles; financial instruments, accounting standards.*

JEL classification: M48

1 INTRODUCTION

In international economic integration trend, financial statements (FS) of an entity being prepared with high-quality and compatible with International Financial Reporting Standards (IFRS) is the base for an economy and an effective financial system. The accounting scandals that led to the collapse of leading economic corporations, for example, Enron confirmed the importance of reliable financial statement to the global financial stability. Therefore the requirements for capacity-building and institutional development to improve the quality of financial statement is urgently needed. During the past several years, there have been many significant changes in accounting and financial reporting requirements. On international side, the International Accounting Standard Board is in the process of amending and modifying existing standards on the basis of developed market economy requirements, in the direction of harmonize Generally Accepted Accounting Principles in the United States (US GAAP) with International Financial Reporting Standards (IFRS). The European Union (EU) has required companies incorporated in its member states whose securities are listed on an EU-regulated stock exchange to prepare their financial statements in accordance with IFRS. Since 2001 Vietnam has issued 26 Vietnamese Accounting Standards based on International Financial Reporting Standards.

26 VAS have been developed, with additions and modifications, on the basis of International Financial Reporting Standards which consist of 2 categories: International Accounting Standards (IAS) and IFRS (referred as International Financial Reporting Standards). So far, VAS is considered to be inadequate or incomplete, failing to meet the actual requirements in Vietnam, as well as incompatible with IFRS, and main cause is that there is no requirement on

use of fair value. From 2008 till now, the Ministry of Finance has researched, developed accounting guidelines for financial instruments.

Due to the diversity of financial instruments, with 4 fundamental instruments which are Forwards contracts (forwards), Futures contracts (futures), Options to buy or sell (options) and Swaps contracts (swaps) with complex operating mechanism and transactions so the recognition, measurement, presentation and disclosures of financial instruments must respect the fair value principle. However, the accounting guidelines on financial instruments have not been promulgated because the Accounting Law 2003 had no regulations on the application of fair value principle but only historical cost basis.

Accounting Law No. 88/2015/QH13 (referred as Accounting law 2015), was passed by the National Assembly legislature XIII of the Socialist Republic of Vietnam in the 10th session on 20/11/2015 in which add one important content, i.e. regulation on application of fair value accounting principles. The provisions on application of fair value accounting were mentioned in 3 articles: Article 3, 6 and 28 of Accounting Law 2015.

Fair value is such a complex issue that it's stipulated in the highest legal documents on accounting to creates a legal premise, especially poses requirements about awareness and participation of all ministries, sectors and localities throughout the country, in order to create a legal framework for the implement of the provisions related to fair value accounting.

According to Accounting Law 2015, Government will issue Decrees on fair value accounting, and the Ministry of Finance ("MOF") will research and issue the VAS, including accounting standards on Fair Value to guide the implementation of Article 28 of Accounting Law 2015, which is "The Ministry of Finance shall specifically stipulate which assets and liabilities must be measured and recognized at fair value and the accounting methods of recognition and measurement at fair value".

According to Article 6 of Accounting Law 2015, "the accounting standards shall be regulated by the MOF with the reference to the international standards on accounting and suitable to the specific conditions of Vietnam". To guide the implementation of Accounting Law, we must synchronized research the international standards, in order to give directions of what contents should be added and modified, especially those related to fair value and financial instruments.

This article is intended to propose opinions, ways to proceed and contents to udpatethe Vietnam Accounting Standards to meet the needs of transparency of financial information with the objective to approach and apply of international rules and accounting standards that Vietnam commits to implement.

Firstly, accounting standards and guidance on fair value

1. On the international aspect, IFRS 13 – Fair Value Measurement has been researched by International Accounting Standards Board (IASB) of International Federation of Accountants (IFAC) for many years, issued in 2012 and came into effect on 1 January 2013 or earlier depending on each country decision. IFRS require or allow entities recognise and measure of assets, liabilities or equity instruments at fair value. However, because IFRS were issued a long time ago, requirements of fair value measurement and disclosure of fair value information are not consistent. In cases, IFRS do not clearly raise the objectives of measurement and disclosure of fair value. Then, some of IFRSs issued did not provide sufficient guidance on how to measure fair value. Meanwhile, other IFRSs include more guidance but they are not consistent in disclosure of fair value. The inconsistency in requirements on fair value measurement and disclosure in financial statement leads to the inconsistency in applying accounting standards

and decreases comparability of information in financial statement. IFRS 13 was issued to resolve this problems.

2. The significant aspects of IFRS 13 that Vietnam needs to conduct research in order to issue proper and consistent accounting standards include:

2.1. Accounting standards and guidance regarding fair value accounting must meet the following requirements:

- Definition: "Fair value is defined possible price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date"

- The definition of fair value in IFRS 13 emphasizes fair value which is identified based on the market, not the entities. When measuring fair value, entities assumptions used by market participants when conducting valuation of assets or liabilities following market conditions, including the risk assumption. Thus, how the entity intend realise an asset or to settle a liability that is not relevant to the entity's measurement of its fair value.

- When measuring fair value, according to this standard, entities need to definitely consider:

(i) Assets or liabilities of which fair value need to be measured;

(ii) With regard to non – financial assets, the highest and best use of the asset and whether that asset is used separately or in combination with other assets;

(iii) Voluntary transaction market for assets or liabilities; and

(iv) Proper valuation technique for measuring fair value. Valuation technique needs to maximize the use of observable inputs and minimize the use of unobservable inputs. The inputs use must be consistent with sources that market participants use when they value the assets or liabilities.

2.2. In order to satisfy that requirements, the following matters need to be study for incorporation into the fair value accounting standard:

(1) The objectives of this accounting standard need to prescribe 3 matters: (a) Definition of fair value; (b) Setting an new accounting standard in order to provide guidance on measurement of fair value; (c) Requirement for disclosure of fair value in the financial statements.

(2) Scope of application: This accounting standard is applied in case other accounting standards require or allow measurement of fair value or disclosure of fair value in the financial statements. The guidance on fair value measurement set out in this accounting standard apply to both initial recognition and subsequent measurement if other accounting standards require or allow using fair value.

(3) Guidance on relevant considerations in measuring fair value for non – financial assets, liabilities and equity instruments of entities, including:

(3.1) Application for assets or liabilities: The measurement of fair value for recognition and disclosure in the financial statements objective apply to individual assets or liabilities (as financial instruments or non – financial assets) or a group of assets or a group of liabilities. When measuring fair value, entities should consider characteristics of assets or liabilities as market participants do at the measurement date. These characteristics include: the present conditions and location of assets and any restriction on selling/ buying or using the assets, including:

- Market transaction on which fair value measurement is based have to be explicitly prescribed: (i) Measurement of fair value assumes that assets or liabilities are exchanged in an orderly transaction to sell the asset or to transfer the liability between market participants at the measurement date under current market conditions; (ii) Measurement of fair value assumes that the sale of asset or transfer of liabilities are conducted in that assets or liabilities' principal market main market, or the most advantageous market if principal market does not exist.

- Exchanging price: Fair value is a price would be received when selling assets or the amount paid to transfer a liability in an orderly transaction on the principal market (the most advantageous market) at the measurement date under current market conditions regardless whether the price is observable or estimated using another method.

(3.2) Application for non – financial assets: Measurement of fair value for non – financial assets needs to consider the possibility of one of market participants might obtain economic benefit from using that asset with the highest and best use or selling that asset to another market participant who is capable of doing so. Using non – financial assets with the highest and best highest use provides a basis for valuation which helps to measure fair value of that assets, so there is a need to provide definition in the guidance for valuation of non – financial asset.

(3.3) Application for liabilities and equity instruments of entities:

- The basic principles: The fair value measurement assumes that a financial or non – financial liability or an equity instrument of entities (i.e. proportion of equity instruments issued in business combination) is transferred to another market participants at the measurement date. Transferring entities' liabilities or equity instruments assumes that: (i) The liabilities has been not paid yet and the market participants who would receive that liabilities (for example the entity issues bond) assume an obligation for repayment. The liabilities would not be repaid to creditors or extinguished at the measurement date; (ii) The entity's equity instruments would remain outstanding and the market participants who would receive that equity instruments have a right and obligation associated with that instruments. This equity instruments would not be cancelled or otherwise extinguished at the measurement date.

- Base on fundamental principles: There is a need for fair value measurement guidance for: (i) Liabilities and equity instruments which are held by other parties as assets; (ii) Liabilities and equity instruments which are not held by other parties as assets and (iii) financial assets and financial liabilities on the basis of the entity's net exposure to either market risks or credit risk .

(4) Requirement on valuation techniques: Entities have to use valuation technique that are appropriate in the circumstances and for which sufficient data is available to measure fair value. Applicable valuation techniques aim to estimate the price when selling an asset or transferring a liability in an orderly transaction between market participants at the measurement date under current market conditions. The accounting standard specifically prescribes three valuation techniques which are widely used: the market approach, the cost approach and the income approach. Entities have to use valuation techniques consistent with one or more of those mentioned above in order to measure fair value.

(5) Requirements on inputs for valuation techniques:

(5.1) General principles: Valuation techniques for measurement fair value have to maximize the use of relevant observable inputs and to minimize the use of unobservable inputs.

The market with observable input for some assets and liabilities includes exchange market, matched price market, brokered market and principal-to-principal market.

(5.2) Fair Value Hierarchy: In order to strengthen the consistence and comparability of fair value measurement and relevant disclosure, the accounting standard needs to set a fair value hierarchy including three levels for inputs which are used for valuation techniques when measuring fair value. The fair value hierarchy requires the highest priority for quoted price (unadjusted) in an active market for identical assets or liabilities (the level 1 input) and the lowest priority for unobservable input sources (level 3 input). The three levels of input are:

(i) level 1 inputs: level 1 inputs are defined as quoted price (unadjusted) in an active market for identical assets or liabilities that the entity can access at the measurement date.

(ii) level 2 inputss: level 2 inputs are input other than Level 1 that are observable for the asset or liability, either directly or indirectly.

(iii) 3rd level inputs: are unobservable inputs for the asset/ liability.

Unobservable sources are used in fair value measurement in case observable inputs are not available hence it only applies for situations in which there is little market activity for the asset/ liability at the measurement date. However, the objective of fair value measurement remain the same, i.e.an exit price at the measurement date from the aspects of of a market participant that holds the asset or owes the liability. Therefore, unobservable inputs must reflect the assumptions that market participants would use when pricing the assets or liability, including assumptions about risk.

(6) Requirement on disclosure in financial statement: The information need to be properly presented and disclosed in accordance with the requirements of IFRS 13, i.e. disclosing all the information to enable financial statement users to evaluate: the valuation techniques and the inputs which are used to measure fair value of assets/ liabilities; The effect of fair value measurement on the entities' profit and loss in the accounting period if the fair value measurement was performed using significant unobservable inputs (the level 3 inputs); Fair value Hierarchy (level 1, level 2, level 3) for fair value measurement; The amount of any transfers between level 1 and level 2 of the fair value hierarchy, the reasons for those transfers and the entity's policies for determining when transfers between levels are deemed to have occured; For the fair value measurement techniques which is classified in 3rd level, the entity must describe (i) valuation process used by the entity (including how the entity decides its valuation policies and procedures and analyze the movements in fair value measurement techniques period to period) and (ii) the sensitivity of fair value measurement to changes in unobservable inputs if a change in those inputs to a different amount might result in a significantly lower or higher fair value.

Secondly, VAS related to financial instruments.

1. Vietnam's guidelines on financial instruments

In Vietnam, many financial instruments are quite unfamiliar to the investing public and in fact demand for economic transactions related financial instruments has arisen, but until now there is no specific guideline about financing structures, accounting standards and Accounting guidelines to serve as the legal basis for the implementation by entities. In 2009, the Ministry of Finance promulgated Circular No. 210/2009/TT-BTC (Circular 210) dated November 6th, 2009 on guiding the application of International Accounting Standards on financial statements presentation and disclosures of financial instruments.

Circular 210 applies to all entities in all domains and of all economic sectors in Vietnam that conduct transactions related to financial instruments with 3 major contents: (i) Regulations about terminology related to financial instruments; (ii) Presentation of financial instruments in

financial statements; (iii) Disclosures of financial instruments to enable users of financial statements to evaluate the significance of financial instruments to the financial position and performance of a business enterprise. Circular 210 has many drawbacks as it only regulates disclosure and presentation of financial instruments, lacking regulations on the recognition of financial instruments; The international accounting standards that Circular 210 guiding the application was invalid. In fact, disclosures and presentation of financial instruments depends on the entity's consideration and judgement, especially for information associated with nature and extent of risks arising from financial instruments as well as the entity's risk management. Circular 210 is not compulsory as article 129 of Circular 200/2014/TT-BTC of the Ministry of Finance promulgated regulations on corporate accounting dated 22/12/2014 encourages but does not enforce entity to implement.

While the Government Decree on the derivatives market was promulgated on 5/5/2015, the technical plans in preparation for the operation of the market is being actively implemented, thereby posing urgent requirements to have accounting standards and guidelines on accounting of financial instruments on the basis of current international financial reporting standards on financial instruments.

2. International financial reporting standards (IFRS) on financial instruments

Set out the principles for classification, recognition, measurement and requirements for disclosure of financial instruments, especially derivatives used for business purpose or hedging. Therefore, all the countries must be prudent in studying as well as promulgating standards associated with financial instruments so as to guarantee the safety in use; particularly, derivatives is considered as leverage or management tool, preventing investors from popular risks.

So far, IFRSs on financial instruments have included: IAS 39 – Financial Instruments: Recognition and Measurement, IAS 32 – Financial Instruments: Presentation, IFRS 7 - Financial Instruments: Disclosures, IFRS 9 – Financial Instruments, IFRS 13 – Fair Value Measurement. IFRSs on financial instruments have been implemented and amended in the last few years. Since 2006, the International Accounting Standard Board (IASB – the independent standard setting body of the IFRS Foundation) and the Financial Accounting Standards Board (FASB – the private, non-profit organization whose primary purpose is to establish and improve general accepted accounting principles (GAAP) within the United States in the public's interest) have worked together to verify the differences between IFRS and US GAAP. IASB and FASB had committed to study and establish new IFRSs worldwide with better quality. IFRS 13 – Fair Value Measurement and IFRS 9 – Financial Instruments (effective on 01/01/2015 or earlier, depending on countries) was issued due to the results of the cooperation between IASB and FASB.

The main objective of IFRS 9 (replacement of IAS 39 and IAS 32) is to simplify accounting on financial instruments, in harmony with IFRS and US GAAP, as IAS 39 and IAS 32 are considered too complicated.

IFRSs tightly regulate requirements relating to recognition, measurement, disclosure and presentation of financial instruments and these have close correlation in all IFRSs. Thus, it is hard to identify which requirement is appropriate or limited. Therefore, Vietnam should apply all the latest standards associated with financial instruments, especially for derivatives used in hedging and for commercial purpose. It is necessary for Vietnam to apply all IFRSs on financial instruments in order to set out legal basis as well as supplying true and fair information for users of financial statements, orienting the updates of issued accounting standards.

3. The contents in accounting standards on financial instruments:

(1) The aim of accounting standards on financial instruments is to regulate and guide the principles of recognition, identification, disclosures and presentation of financial instruments.

(2) Regulations on the terms and examples to unite the understanding:

Financial instruments regulated in accounting standards includes 02 main types of financial instruments i.e. non-derivative (such as cash and loans receivable, shares of other entities ...) and derivative financial instruments (including the type futures contracts, forward contracts, option contracts, swap contracts, warrants), of which:

- Financial instrument: is a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity such as common stock, irredeemable preference shares, warrant transaction and options to buy or sell shares.

- Derivative financial instrument is a financial instrument or a contract that concurrently satisfies the following three conditions:

+ Having its value changed upon a change in interest rate, financial instrument price, good price, exchange rate, price index or interest rate, credit ranking or index, or other indexes provided that, in case these other indexes are non-financial variable numbers, such numbers are not associated with contractual parties (also referred to as underlying variables);

+ Not requiring initial net investment or requiring initial net investment lower than that required by contracts of other types with similar response to the change of market factors; and,

+ Being settled at a certain future date.

(3) For derivative financial instruments guidance must depend on the use of derivative financial instruments in 2 situations: derivative financial instruments for trading and derivative financial instruments for hedging.

Economic transactions relating to financial instruments have arisen more and more, with a cautious views, development strategy of the stock market during the period from 2011 to 2020 launched the directions of derivative securities development from simple to complex.

The organization of the derivative market must be linked to restructure market and to promulgate synchronously a legal framework about rule and organization, financial mechanism, accounting standards of capital markets, including with derivative securities.

As a result, accounting standards on financial instruments need to be researched urgently in order to apply synchronously, effectively and consistently with international rules and conditions of Vietnam.

Thirdly, the study of international financial reporting standards to prepare, newly issue other accounting standards in Vietnam such as:

- Accounting standards for Exploration and evaluation of mineral resources (IFRS 06): Guidelines for recognition, identification, presentation and disclosures of the expenses to implement of activities such as research, finding and exploitation of oil, gas and other mineral resources;

- Accounting standards on Government grants and assistance (IAS 20): Guidelines for recognition, presentation and disclosures of financial grants and incentives assistance of Government for the enterprises.

- Accounting standards on Impairment of assets (IAS 36): Guidelines for the measurement, recognition, presentation and disclosures of impaired assets.

- Accounting standards on Agriculture (IAS 41): Guidelines for the recognition, valuation, presentation and disclosures of agricultural activities, including biological assets (living animals and plants) and agricultural products (products harvested from the entity's biological assets) at the time of harvest.

The accounting standards on the financial reporting in hyperinflationary economy; the accounting standards on the employee benefits, the accounting standards on the long-term assets held for sale and discontinued operations; the accounting standards on Government grants and assistance.

International Financial Reporting Standards are still in process of complement, modification, and shaping based on the market economy development, especially for the private enterprise. Because the market economy in Vietnam is still in transition, the state-owned enterprise (SOE) has an important position in the economy, the relationship between the accounting standards, tax regime and financial mechanisms are tightly linked. It requires the reconstruction and promulgate accounting standards which does not result in conflict with the legal provisions in financial policy, for each stage of economic development. Therefore, the research to promulgate accounting standards, which need to be based on international accounting standards suitable with the legal system; qualifications and experience of Vietnam accounting within a reasonable schedule.

In short-term, it's urgent to research and promulgate accounting standards on Long-term assets held to sale and Discontinued operations based on IFRS 05, in order to response practical needs. Accounting standards guide the recognition, classification, valuation, presentation and disclosures about the long-term assets held to sale and discontinued operations, being suitable to IFRS 5 and specific condition of Vietnam. According to this accounting standards, the corporate financial statements must be presented and include disclosure of assets, liabilities, revenue, expenses and income statement into 2 types: continuing operation and discontinued operation, in general and detailed.

Balance sheet must present Non-current assets held-for-sale (or disposal groups) of Discontinued Operations in separate line as Non-current assets held-for-sale (disclosed in Current Assets section), if its carrying amount will be recovered principally through a sale transaction rather than through continuing use.

Non-current assets held-for-sale are not subject to depreciation and are measured at the lower of carrying amount and fair value less costs to sell, rather than its historical cost.

For instance, a discontinued operation is a component of an entity that either has been disposed of or is classified as held for sale.

Accordingly, the corporate financial statement and its notes must present the financial position and income statement of the continuing and discontinued operations, in the result, financial statement users can see clearly the impact of the discontinued operations to the entity.

Therefore, the issuance of accounting standard is essential, especially, in the context of Vietnam with State owned enterprises being equitized, restructured, decreasing state owned capital, and transfer, sale or terminate of ineffective business activities or those that are outside the main business areas of the group, state corporations.

CONCLUSION AND DISCUSSION

As a present trend, when cross-border transactions is growing strongly, all countries are seeking to harmonize the national accounting standards with international financial reporting standards as "the global financial language". International financial reporting standards ensure the comparability, consistency and transparency will play a key role helping Vietnam businesses take advantage of access to international capital, while promoting the development of the stock market. While many countries in the region applied international financial reporting standards or develop the national accounting standards in accordance with international financial reporting standards, Vietnam is still using national accounting standards with significant differences compared to international accounting standards. It is difficult and incur cost for businesses to accessing international capital markets, particularly in the context of more and more foreign investors to invest in Vietnam. So Vietnam accountancy sector need to maintain and expand cooperation with other countries and international organizations to develop Vietnam accounting profession accordance with common practices to achieve the recognition in the region and internationally.

REFERENCES

Corporate Accounting System *(Circular No. 200/TT-BTC dated 22 December 2014 and Decision No. 15/2006-QD/BTC of Ministry of Finance; 26 standards of Vietnamese Accounting Standards, for 5 period, from 2001 to 2005)*

US Generally Accepted Accounting Principles *(US GAAP)*

International Financial Reporting Standards *(IFRS)*

International Accounting Standards *(IAS)*

Accounting Law as amended and supplemented No. 88/2015/QH13 and Accounting Law 2003

Circular No. 210/2009/TT-BTC dated 06 November 2009, *guide application of International Accounting Standards about presentation and disclosure of financial instruments.*

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

HE FACTORS IMPACT IN APPLYING DERIVATIVE FINANCIAL INSTRUMENTS ACCOUNTING IN VIETNAM BUSINESSES

Ha Xuan Thach, Nguyen Thi Hong Hanh

ABTRACT

Research refers to problems about accounting for derivative financial instruments for businesses in Vietnam by modeling study factors impact in applying the derivative financial instruments. The results showed that each independent variable has its own impact with different intensity on the dependent variable, including factors for regulatory, human - accountants, human - managers, market, are positively impact; also factors for training, retraining and technology to impact negatively in applying the derivatives financial instrument accounting. From the results of the study, author has drawn implications and identified two key factors, which are regulatory and human - accountants.

Keywords*: Accounting for derivative financial instruments; Derivative financial instruments accounting; Factors research in applying accounting.*

JEL classification: D53; G30; M41

1 INTRODUCTION

In order to prevent risks and uncertainties threatening business operations, the businesses look to derivative contracts for hedging and enhancing enterprise value (Fatemi A, C. Luft, 2002), so that accounting for derivative financial instruments is an integral part of derivatives trading activities.

To ensure the quality and enhance the reliability of accounting information directly related to the derivatives financial instrument applied in businesses, relevant regulations have to be issued promptly, closely and synchronously. Conversely, the absence of accounting regulations does not only guarantee the quality of accounting information but also causes difficulties for those involved as practitioners, legislators, users, and so on.

To make sure that derivative market activities run smoothly, businesses are advised to review the rules on derivative financial instruments accounting. The absence of accounting regulations about derivative financial instruments can be problematic for businesses when joining derivative transactions as well as accounting.

With the above analysis, the researchers want to find out the difficult factors as well as determine the intensity impact of these factors on derivative financial instruments in Vietnam.

2 BACKGROUND AND STUDY MODELS

2.1 Background of derivative financial instruments in Vietnam

Number and value of transactions on derivative financial instruments in the market Vietnam is still quite modest, about $150 million (2013), compared to other markets like Singapore 54 billion (10/2012). The reason is that Vietnam enterprises are not aware of the importance of

using derivative financial instruments to hedge the volatility of commodity prices and create a channel of modern speculation (Schofield , 2007).

Vietnam is in the process of regional economic integration and the world, opening up opportunities as well as challenges for enterprises. The use of derivatives for hedging risks in business activities of the enterprise is inevitable. Through discussions, consulted experts in the field, applying the derivative financial instruments into practice in of the current market economy in VN is very difficult because of the followings:

(i) Financial, currencies, commodities markets in Vietnam have not developed sychronously. Performance of financial market and businesses remain stagnant. Slow growth economy is due to the folllowings: level of development of financial markets is unbalanced and unharmonious; banks still play a dominant role in providing credit to the economy; shortage of secure financial resources; channels providing medium and long-term finance as the stock market are not really effective; institutional framework, legal, information systems, management systems, and billing systems are unsynchronized and incomplete; compliance and implementation of international regulations and standards are not comprehensive and sufficient. In addition, a number of potential risks in financial markets related to the transparency of financial institutions; the liquidity of the money markets and capital markets; conducting transactions in the capital markets of the actors; risk of interaction between the region and parts of the financial markets as well as in ourselves of financial conglomerates. For commodity markets, commodity exchanges INFO COMEX was licensed on 05.12.2014 and officially operated on 05.15.2014, but no deals were made. Additionally, system test, monitoring, and inspections based on risk facing challenges such as the development of financial conglomerates; the development of capital markets, especially in the bond market which will involve all organizations and management agencies, and requires coordination and cooperation in operating national financial markets.

(ii) The legal system is not complete. No legislation has been enacted to regulate the implementation of derivative transactions on the option (option) or swap (swap) ceiling prices (CAPS), the floor price (FLOORS), according to the ring (COLLAR); or stock options, etc,

(iii) The qualifications, knowledge, awareness, understanding of derivative instruments of managers as well as the executors, and risk prevention issues are still low;

(iv) Lack of systems to provide information on derivative financial instruments: Derivative financial instruments are fairly complicated products, requiring businesses to have forecast information system, measurement tools, and risk warning;

(v) Process of data entry transactions, accounting, tracking, and control is limited.

Thus, the problems for enterprises using derivative financial instruments in Vietnam today can be identified and divided into five main groups of factors, including market factors, regulatory factors, human factors, system of information and communications, and factors of derivative financial instrument accounting.

2.2 Research Models

2.2.1 Using derivative financial instruments in Vietnam

Realizing the usefulness of the derivative financial instruments, many countries in the world have applied them. Nevertheless, the usage of these instruments in Vietnam is very limited, the number of enterprises using these tools are relatively modest. By studying the documents at the

table, information exchanges, direct discussions with experts who have worked on derivative financial instruments, a number of main reasons can be pointed out as follows:

- Enterprises have not understood the nature of the derivative financial instruments as well as related professional tools;
- The issue of "culture of responsibility" of the business. Managers are fear of personal liability attributed if the business' performance in derivative market is not effective, and even causes losses (Nguyen Quang Minh, 2007);
- There are not many training courses for leaders of business units, as well as counseling workshop, introducing the utility of the derivatives financial instrument (Tran Thi Hong Hanh and Tran Thu Giang, 2007);
- Capital market, commodities market, financial and monetary markets have not really developed;
- The legal system is not complete (Do Thi Kim Hao, 2007), unclear regulations, unsystematic, unsynchronized and unreasonable;
- The understanding level of the accounting practitioners is limited;
- Awareness, knowledge, and expertise of multiple managers on derivative transactions and risk prevention issues are still low;
- No organization or department or agency has studied the forecast of price changes in the market to help businesses identify effective strategies to prevent and mitigate risks;
- Lack of infrastructure, information on derivative financial instruments, networked information system for derivatives transactions, software systems support the calculation of prices, and tracking market information (Bui Thi Kim Ngan, 2007);
- Lack of internal control regulations (Do Thi Kim Hao, 2007)

In short, there are so many difficulties from objective to subjective leading to problems in using derivative financial instruments. The absence of a legal system directly related to derivatives financial instrument, prices information system in the market, and the level of application of modern technology in exploitation, analysis, and processing of information, awareness of the administrator, expertise and qualifications of accounting practices is the cause hindering the development of the derivatives market and increasing the difficulties in management as well as accounting.

2.2.2 The factors for derivative financial instruments accounting in Vietnam

Accountancy is considered as an information system. In addition to the recording of transactions and data in the past, the accounting also reflects the economic reality of the unit (Davis et al, 1982). Therefore, accounting does not only function as an system providing information on the economic and financial situation, and as an important tool to serve management, operation and economic decisions of enterprises in particular, but also the management of the State macro in general. Therefore, accounting information is required to improve in both quality and quantity.

With the characteristics of financial accounting in Vietnam, accounting for fully implementing and fulfilling an economic transactions incurred must go through (i) Classification; (ii) Initial recognition; (iii) Stop or remove the record; (iv) measurement (at the time of recording and at the end of the fiscal year); (v) Presentation; (vi) Disclosure; (vii) Treatment. Derivatives financial instruments accounting under financial accounting, therefore, comply with the above provisions.

An economic operation incurred must be consistent between accounting firms, and normative for all economic sectors to participate in the market. However, derivative operations are considered complicated operations, the performance of today's businesses are not yet a guarantee for the usefulness of accounting information, as stipulated documents are evaluated as not sufficient, specific, and transparent. Hence, the organization of accounting work directly related to the derivative operations in Vietnam faces many difficulties.

Thus, in the tendency of globalization and liberalization, Vietnam has and will integrate into the world economy and finance, the potential for risk in business operations is now unavoidable. To create long-term stability and sustainability, the parties are encouraged to participate in the derivatives market, through a review of the current difficulties, to apply international accounting standards and derivative financial instruments in accounting system to suit the conditions in Vietnam.

2.3 ResearchModels

2.3.1 Theoretical Foundations

According to Davis et al (1982), there are many different views about the nature of accounting, such as informative nature, economic nature, political nature and social nature. The views do not exclude from one to another, but complement and support each other to develop the study of accounting to a deeper, more extensive level.

2.3.1.1 Market factor

The concept of the social nature of accounting (Davis et al 1982), accounting must contribute benefits to society and maintain the sustainable development of society. The theory of social benefits derived from the failure of the market since the barriers prevented enterprises from entering the market for information asymmetry.

Signaling Theory was formed in 1973, from the economics of the market conditions with asymmetrical information (Spence, 1973, Tirole 1988). In the field of accounting, information asymmetry leads to two problems: (i) Accounting information is not fully presented in the financial statements by businesses, or possibly information publicized by businesses does not guarantee the quality for the information users. This status may be due to the incompetent administrators to implement financial statements with qualified information; (ii) Motives behind administrators' decisions in the information disclosure. Both of these problems do not only cause obstacles for the people to use accounting information in the financial statements of economic decision-making, but also lead to the underdevelopment of the market. In a market economy, the monetary and capital markets and commodity markets with mutual supports and additions, the underdeveloped market will spread its effects on the remaining markets

The view of Davis et al (1982) is that accounting is a special commodity, relating to the public interest. If a product is unable to meet quality requirements, and operated in an inefficient market, will it be circulated well. This shows a relationship between the goods - accounting and market factor.

In short, to serve social interests, if the reporting unit is aware usefulness of accounting information and able to provide more information with more reliability and more transparency, the market will operate more efficiently. In contrast, the false accounting information does not only affect market participants, making the market less efficient operation, but also influence the stability of the entire economy, from which leads to inefficiency in the work of derivative financial instrument accounting.

2.3.1.2 Regulatory factor

However, the accounting information is easy made false due to the information maker's subjective bias, or the motives or purposes of the managers in the disclosure of information causes the information asymmetry.

In Vietnam, the state is held to elaborate and promulgate regulations relating to accounting to meet the needs for all economic sectors, the business sector, and the general interest of society. But it is very difficult to control if the business ensures compliance with all accounting rules and regulations or not and how the level of compliance is, although business has been independently audited.

According to Davis et al (1982), accounting is to record events in the past, to reflect economic realities, and to be a language of businesses. Accounting must therefore fully reflect the accounting data and this data must comply with the enacted rules and regulations.

Information asymmetry stems from a regulation but (i) the level of knowledge, understanding, different expertise will leads to different accounting results; or maybe (ii) comes from various interests, through the behavior of managers and accounting practices, and the result will be also different. The observation of these objects are not easy, it is required to clarify the following issues: legal factors have relationship with accounting practices as well as the associated objects such as control or internal audit. This shows the relationship between the accounting and regulatory factors.

2.3.1.3 The human factor – Managers

With the economic nature of accounting (Davis et al, 1982), accounting is a special commodity related social benefits, thus accounting must be controlled through regulations rather than giving administrators the freedom to choose accounting policies or exercise the financial statements freely.

According to resource-based view theory (Wernerfelt, 1984), it's advised to focuse on analyzing the resources: (i) tangible resources as financial resources are the source of the owners' capital and financing; (ii) Intangible resources can be knowledge and skills of managers and employees. This theory is the basis for businesses to make decisions to create business effective business performance. elationship between managers and shareholders shows that managers tend to avoid risks, put efforts within certain ranges so long as to create added value for the business, which may push administrators to choose the safe strategies, and may lead to that managers will seek to have impact on the accounting system in order to achieve their objectives or financial situation of the unit in difficult financial situation.

An issue that needs clarification of the relationship between benefits and costs (social nature of accounting, Davis et al, 1982). Benefits are gained from the use of derivative and cost must be spent on making them. Either managers only want to inform what they have rather than spend more on the accounting work. As a result, there will be no involvement and cooperation between managers and accountants, or they will not be willing to participate in derivative instruments for hedging, or they will tend not to want to learn about this activity, or if they do, the participation will be at very low level, which can not guarantee the safety assurance, or they will not fully aware of the usefulness of this tool. Therefore, managers factor needs studying in the current research model.

2.3.1.4 The human factor - accountants

To ensure the benefits of shareholders in particular and of society in general, Vietnam Accounting Law 2015, coming into effect from 2017, stipulates that: (i) Accounting tasks: Collecting, processing information management, accounting data by audience and content of accounting work, according to accounting standards and accounting regulations; Providing information, accounting data as prescribed by law; (ii) Accounting requirements: Fully reflect economic operations, timely financial, accounting data input into accounting documents, accounting books and financial statements; Providing honest information, objective, nature of the content and value of economic and finance transactions; (iii) the standards and responsibilities for accountants: Accountants are required to have professional qualifications and skills in accounting, to be ethical, and responsible for compliance with the provisions of the law on accounting.

From these rules, it can be seen that accountants are under high pressure from the regulations for the profession, ensuring a balance between interest groups, and understanding the complexity of derivative financial instrument data. In addition, they must and meet all the regulations and comply with the principles and the regulations on accounting transactions and derivative financial instruments.

2.3.1.5 Training and retraining factor

Economic perspective views accounting as a commodity. Goods must be circulated, valuable and quality-assured in line with its value. In accounting perspective, commodities show that the accounting information affects markets through the nature of supply and demand. Accounting information is provided through financial statement, and its users demands accounting information to be qualified. On the other hand, closer to accounting law and governed by the principles, accountants shall comply with regulations but is dependent on human subjectivity (Stamp, 1981). Subjectivity here is that the accountants who may not properly understand the nature of the business, or not properly understand the provisions and principles will lead to misleading practice on business due to the practitioner's subjectivity. To help the owner achieve the economic benefits when using accounting information and sources of information, and ensure the quality of the information, the training and regular retraining for accountants in business is necessarily provided. The tendency to rely on the principles and regulations for the accounting of economic operations in units (sometimes complicated) requires practitioners and report makers to regularly update, upgrad and enhance expertise, to perform as well as to do the management consultancy.

2.3.1.6 Technology - communication factor

With globalization stage 3.0, the progress of science and technology, the major changes and the boom of information technology - computers, internet systems, and processing software facilitate market participants access to the internet quickly and capture market information, or enable accounting information of a unit to be faster. In addition, the accounting information is considered to have major impacts on the allocation of resources in the economy. Through that, accounting information has influences on market prices (Gonedes & Dopuch, 1974). Accounting information systems encourages accountants to know how to handle the information, how to adjust the frequency, speed, redundancy and other forms of information transmitted.

Conclusion: Through theoretical research and discussions with experts, authors synthesize, analyze, and build a number of difficult factors accounting for derivative financial instruments in Vietnam namely: (i) market factor; (ii) regulatory factor; (iii) the human factor - managers; (iv) The human factor - accountants; (v) training and retraining factor; (vi) technology - communications factor and setting up indicators of these factors.

2.3.2 Research Model

As stated above, considering factors in applying accounting for derivative financial instruments, the authors present a model of the proposed study as follows:

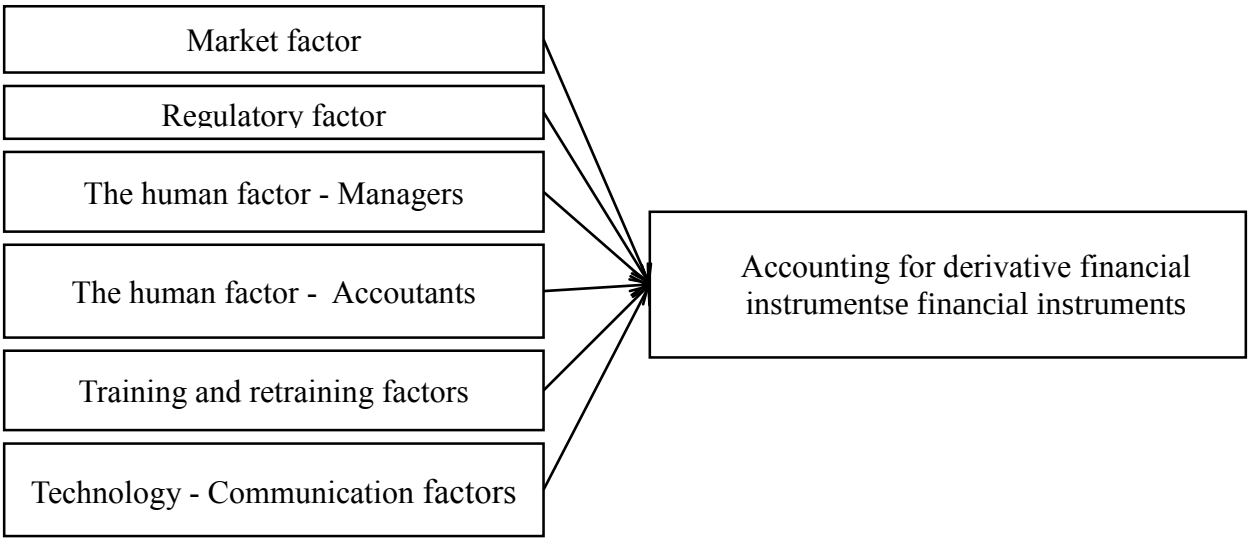

Fig 1 - The proposed research model factors to apply accounting for derivatives financial instruments. Source: Author compiled

3 METHODOLOGY STUDY

3.1 Test investigation

Based on the scale which has been formed consisting of 32 indicators measuring 6 concepts and 5 Likert scale distance is used, the researchers conducted experiments with 10 observations. Purpose of the first test is to check the compatibility of the items asked. The result after the test investigation, the questionnaire is completely qualified for use in large scale surveys to conduct formal research.

3.2 Subjects sampling

In the present conditions of Vietnam's economy, businesses involved in using derivative financial instruments is very limited and find it difficult to access these instruments. Thus, overall the survey of real businesses use derivatives to participate is difficult to determine. Therefore, the authors selected sampling method selectively only now have been using derivatives financial instrument.

In this study, the authors selected only enterprises using derivatives including financial and nonfinancial (this object is very difficult to access) businesses, while respondents must have knowledge of derivative financial instruments. Hence, the authors chose sampling subjects selectively through questionnaires sent directly, or through the mail, or over the phone to accounting practices at the enterprise.

3.3 Sample size

To make the data analysis results reliable enough, it's necessary to collect at least 5 observations of 1 observed variable (Nguyen Dinh Tho, 2012). Within the scope of this study, the authors propose a model with 32 variables, the corresponding observation will be n = 160. After a preliminary data analysis (Cronbach Alpha) the model remained 22 variations. So the minimum sample size is 22 * 5 = 110. But in Vietnam there were not many units using derivatives, the author collected only 97 enterprises (financial and non-financial), with real conditions: (i) the overall number of small units, (ii) it's difficult to access to the object observed (who represents companies to complete the questionnaire), (iii) through the process data analysis, observed variables which were disqualified were eliminated, the model remained only 22 variables, so the defined sample is 110 at minimum, but in fact after the questionnaire (500 observations) delivered, the collected are 115 observations, after cleaning, there were 97 observations preliminary remaining, interim eligible to proceed to the analysis.

3.4 Data processing method

- Cleaning the data: the results after the survey and data cleaning was 97 valid questionnaire observations, meeting the requirements of the relative sample size needed for research.
- Data encryption: data is encrypted and entered into a data processing software SPSS 16.0.

4 RESULT

4.1 Analysis using Cronbach Alpha coefficients

To ensure the reliability of the items asked in the questionnaire, the researcher used Cronbach Alpha. Results analyzed using Cronbach Alpha coefficients repeatedly underwent the variable elimination (eliminate one by one variable) to achieve the final satisfactory result, (also 22 observed variables) qualified for the next analysis step.

4.2 Exploratory Factor Analysis – EFA

Exploratory factor analysis was performed in following order: (i) analyzing all indicators of the impact factors and the factors that were affected individually; (ii) eliminating indicators which did not guarantee the technical requirements (indicator has two load coefficients with difference not greater than 0.2, the indicator stood alone for a factor). The results are as follows:

Tab.1 - Results of Exploratory Factor Analysis – EFA. Source: Compiled from the analysis results - SPSS 16.0. Source: Author compiled

Factors		**Sign**	**factor loading**
Factors affecting with KMO = 0,624 and Cumulative (%) = 70,152%			
HUMAN FACTOR - ACCOUNTANTS **FAC1-1**	Accountants are not knowledgeable of the regulations on derivatives financial instrument accounting	C19	0,817
	Junior accountants are hardly able to handle difficult situations well, related to derivatives financial instrument.	C20	0,752
	The ability to understand derivatives financial instrument accounting applied to the reality is still limited.	C21	0,733
	The ability to apply derivatives financial instrument accounting into reality is limited.	C22	0,850
TRAINING - RETRAINING AND TECHNOLOGY - COMMUNICATION FACTORS **FAC2-1**	Consulting services related to the accounting of derivatives financial instrument are regularly participated by enterprises	C24	0,796
	Businesses regularly have planning and implementation of training and retraining derivatives accounting for their staff and managers	C27	0,612
	The growth rate of the information technology respond promptly to the accounting system of the enterprise	C28	0,845
	Accounting software ensures provide internal controls at the unit regularly monitor the operation of accounting information systems on derivatives financial instrument	C31	0,679
REGULATORY FACTOR **FAC3-1**	Ability to perform the accounting regulations on derivative financial instrumentss is low	C12	0,854
	Ability to update the accounting provisions of derivative financial instrument is not in time.	C13	0,684
	The presentation of methods and principles in derivative financial instruments accounting is not specific.	C14	0,898
MARKET FACTOR **FAC4-1**	Participation in the capital market - the stock market is difficult for businesses.	C10	0,901
	Commodity market is lack of measurement standards in prices and in quality.	C11	0,893
HUMAN FACTOR - MANAGERS **FAC5-1**	Accounting systems at enterprises lack the participation and cooperation of managers	C16	0,763
	Managers are not aware of the importance of accounting information on derivatives financial instruments	C18	0,878
Affected Factors with KMO = 0,619 and Cumulative (%) = 60,174%			

ACCOUNTING FOR DERIVATIVE FINANCIAL INSTRUMENTS FAC1-2	Enterprises often have difficulty in measurement after initial recognition	C5	0,806
	Businesses often have difficulties in presenting derivative financial instruments	C6	0,906
	Businesses often have difficulty in announcing derivative financial instruments	C7	0,615
	Businesses often have trouble with keeping derivative financial instruments in business accounts.	C8	0,748

The end result shows a perfectly fit data to perform factor analysis (KMO coefficients > 0.5; total variance extracted > 0.5, and the load factor of the indicator elements > 0.5). There are five factors that are separated from the six initial impact factors, and a factor that is affected by the indicators showing the affected factors. The researcher has named the factors based on the content of the indicator in the factors.

4.3 Analysis correlation and regression

Tab. 2 - Results of regression analysis. Source: The output results from SPSS 16.0. Source: Author compiled

Model	Not standardized coefficients		Standardized coefficients	t	Pvalue
	Beta	Standard error	Beta		
1 (Constant)	-4,818E-16	0,059		0,000	1,000
HUMAN FACTOR - ACCOUNTANTS - FAC1-1	0,121	0,059	0,121	2,041	0,044
TRAINING - TRAINING AND TECHNOLOGY – COMMUNICATION FACTORS - FAC2-1	-0,023	0,059	-0,023	-0,381	0,704
REGULATORY FACTOR FAC3-1	0,815	0,059	0,815	13,766	0,000
MARKET FACTOR - FAC4-1	0,004	0,059	0,004	0,062	0,951
HUMAN FACTOR – MANAGERS FAC5-1	0,042	0,059	0,042	0,717	0,475

Dependent variable: The factors in the application accounting for derivative financial instruments

The data used in the correlation regression analysis researchers selected was standardized. To determine the causal relationship between the variables in the model, the first step was that the author analyzed the relationship between the variables to find out if there was a multicollinearity phenomenon or not.

The results showed that the correlation coefficient = 0, therefore, it's able to conclude that there's absolutely no signs of multicollinearity between the independent variables, and data perfectly suited for regression analysis.

The regression coefficients showed that each independent variable had different intensity impact on the dependent variable, namely (arranged in descending order of magnitude of the impact): FAC3-1 regulatory factor, human factor - accountants FAC1-1, the human factor - managers FAC5-1, FAC4-1 market factor, which create positive impact; also factors of training, retraining and technological FAC1-1 negative impact causing difficulties in applying derivatives accounting at enterprises.

Results of regression coefficient with R^2 = 66.4%, indicate that the model is capable of explaining 66.4% of the variation of the dependent variable (difficulties in the application of derivative accounting in the business) by the independent variables included in the study model (regulatory factor; human factor - accountants; human factor - managers; market factor; training and retraining factors; and technological –communication – accounting software factors).

4.4 The results of data analysis and discussion

Research model has been tested with survey data reaching 66.4% level of explanation (corrected R^2 = 0.664), the variables in the model are statistically significant. However, that one independent variable existed showed a negative impact on the dependent variables that are training, retraining, and technological - communication - accounting software factors.

- Factors of training, retraining and technology, communications, accounting software had negative impact on the dependent variable (with the average value of 2.3). This means that businesses have no policy, or plans, or the training program for the staff to improve professional training and create additional human resources to serve legacy accounting work. Enterprises do not or can not meet the demand for accounting work, accounting software in the unit is not installed to respond in time to receive and transmit information related to derivatives financial instrument accounting. Therefore, these factors cause the difficulties in accounting work for enterprises.

- Regulatory factor (with average value 4.3) has the highest influence and positive impact on the dependent variable. This means that the absence of or shortage of regulations is a factor making accounting work difficult for firms.

- Human factor - accountants (with the average value of 3.7) shows positive impact on the dependent variable, which means that most accountants in the unit do not meet the professional tasks and requirements, as well as expertise, awareness, understanding of derivative financial instruments. This is the main factor causing difficulties in applying derivative financial instruments.

- Human factor - managers (with average value 4.3) has positive impact with lower intensity on the dependent variable. This also shows administrators factor is a difficult factor when applying derivative accountin. The reason is that the managers may choose safety measures to avoid risks, which can lead to the managers' intentional impact on accounting systems, or managers will tend not to provide information on derivative financial instruments, or provide incomplete information to serve possibly their private purposes.

- Market factor (with the average value of 4.3) has positive influence on the dependent variable, with low intensity. It is understood that the capital market, capital market and commodity market have been formed and operated in Vietnam. But to make the markets work

effectively, there must be participants - managers are the ones who give final decisions in all activities of the firm.

As stated above, accounting is considered to be a commodity to serve social interests, if managers are aware of the usefulness of accounting information, they may provide more information, which are more reliable, or transparent, the market participants will make business decisions more timely, and the market will run more efficiently.

In summary, through the analysis steps, the research model has identified the influencing factors including as follows: measurement after initial recognition, presentation, disclosure, treament accounting for derivative financial instrument, and the factors causing impacts including: (i) regulatory factor having the most significant and positive impact are the low ability to implement accounting rules, the possibility of not timely updates, less detailed presentation of methods, materials and accounting rules; (ii) The human factor – accountants with positive impacts including the followings: accountants are not knowledgeable in accounting regulations, lack of experience inin handling difficult situations well, and has limited ability to understand and apply to apply in practice; (iii) the human factor – managers with the positive impact consist of the followings: accounting system lacks the participation and cooperation of managers, who are not aware of the importance of accounting information; (iv) Market factor with positive impact: businesses' ability to enter the market is low; and (v) training and retraining factors; technology, communication, accouting software with negative impact: consulting services related to the accounting for derivative financial instruments are frequently involved, planned and implemented training and retraining are regular for staff and managers, growth of information technology meets timely requirements of the system of business accounting, accounting software ensures providing internal controls to monitor regular operations of the unit's information systems.

5 Conclusions and implications

Result of the testing model with reasonable explanatory coefficient (R^2 = 66.4%) reflects that the research model is quite consistent with the data and supported by the data. But a restriction still remains in the study result is its low reliability because of the small sample (due to objective conditions).

The objective of the study is to find out the factors in applying accounting for derivative financial instruments in Vietnam. Therefore, the results of the research must come up with policies and implications for accounting work, and simultaneously to be the basis for the author's further studies on applying international accounting standards for derivative financial instrument in Vietnam accounting system.

To minimize the difficulties for businesses in accounting, in the current confition that the state has not issued accounting standards directly related to derivative financial instruments, according to research findings (from regression) and from the analysis above, the researcher proposed the following policies:

Based on the results of data analysis we can see there are five influencing factors requires timely policy stimulus to reduce the difficulties for accounting work. Details of the stimulus as follows:

(1). Regulatory factor needs to be strengthened. Due to the accounting information is easyily bias in favour of the provider, the Ministry of Finance should soon issue regulations relating to derivative financial instruments in general and accounting for derivative financial instruments in particular fully and timely to promulgate or to apply international accounting standards. Also,

specific provisions need to be understandable and consistent with the accounting standards related.

(2). Human factor needs to be improved - Managers. Because accounting is a special commodity that related to social benefits, it should soon issue regulations directly related to the accounting of derivative financial instruments, strengthen the propaganda system to help managers see the importance of derivative financial instruments, as well as for the accounting work of derivative financial instruments at enterprises.

(3). Market factor needs to be strengthened. In order to contribute to the benefits of society, sustain and develop a sustainable economy, eliminate barriers making it difficult for businesses to enter the market and reduce information asymmetry, the financial statement must be transparent and credible. For this, the state must soon issue regulations and accounting standards promulgated appropriately and timely, at the same time, promoting economic components to participate in the market.

(4). Human factor - accountants, needs to be strengthened. To ensure social benefits accountants must be aware of the tasks, responsibilities and requirements of the Accounting Law provisions. Therefore, accountants must upgrade the level of expertise and skills in accounting. They are required to be ethical, responsible for compliance with the provisions of the law on accounting. Thus it helps to minimize the difficulties in accounting for the particular unit, and enhance the reputation of the professional community and accounting associations.

(5). Factors of training, retraining and information technology, communications, accounting software: To minimize the difficulties in accounting work in the unit, businesses need to actively do planning, provide training programs, and specialized knowledge to the staff involved. Also, they need to actively organize internal training or invite experts, or send staff to school, or do research and create favorable conditions for these people to participate in the market in order to achieve the highest efficiency for the accounting at the unit. The participants may be the administrators, the existing accountants, internal auditors, external auditor and a inheriting team to ensure that the accounting system runs smoothly and efficiently. In addition, businesses are adivised to have innovation, accelerate the application of information technology, use of modern information networks by enhancing the system fitted to machinery and equipment accounting, networking systems, etc., to ensure that all the unit is operating in a smooth, seamless, and efficient. Accounting software system must be upgraded to ensure that accounting works promptly and fully. The computer must be equipped to receive and transmit information speedily and efficiently.

The research results have helped authors draw implications and identify two key factors, such as regulatory factor and human factor - accountants. The implementation of policies specific to these two factors depends on many factors.

Paper has successfully built up a research model and identified factors through the theoretical system with related studies in the past. Data models are fully supported with high relevance.

However, due to objective conditions in Vietnam, the number of participating enterprises using derivatives are relatively low, businesses accessing these instruments face many difficulties, while the respondents must be the ones understanding of derivatives, thereby the number of samples collected are relatively small (97 observations), the grouping of financial enterprises and non-financial has not been done. This can make the factors not highly reliable. At the same time, the research results can be the basis for further research direction that is the construction of accounting standards or the using international accounting standards for financial derivative instruments in Vietnam's accounting system.

Tab. 3 - Appendix: Questionnaire survey. Source: Author compiled

Dependent Variable	**Indicators**
ACCOUNTING FOR DERIVATIVE FINANCIAL INSTRUMENTS	**Businesses often have difficulty in measurement after initial recognition**
	Businesses often have difficultity in presenting derivative financial instruments
	Businesses often have difficulty in announcing derivative financial instruments
	Businesses often have difficulty in classifying derivative financial instruments
	Businesses often have difficulty in initial recognition derivative financial instruments
	Businesses often have difficulty stopping recorded derivative financial instruments
	Businesses often have trouble with keeping derivative financial instruments in business accounts
	Businesses often have difficulty in measuring the initial recognition
Independent Variable	**Indicators**
MARKET FACTOR	**Participation in the capital market - the stock market is difficult for businesses**
	Commodity market is lack of measurement standards in prices and in quality.
	Levels of access to the currency market is difficult for businesses
REGULATORY FACTOR	**Ability to perform the accounting regulations on derivative financial instrumentss is low**

	Ability to update the accounting provisions of derivative financial instrument is not in time.
	The presentation of methods and principles in derivative financial instruments accounting is not specific.
	Businesses do not understand the tax laws relating to derivative financial instruments
HUMAN FACTOR – MANAGERS	**Accounting systems at enterprises lack the participation and cooperation of managers**
	Managers are not aware of the importance of accounting information on derivatives financial instruments
	The degree of knowledge of the accounting policies of the managers is not high
HUMAN FACTOR – ACCOUNTANTS	**Accountants are not knowledgeable of the regulations on derivatives financial instrument accounting**
	Junior accountants are hardly able to handle difficult situations well, related to derivatives financial instrument.
	The ability to understand derivatives financial instrument accounting applied to the reality is still limited.
	The ability to apply derivatives financial instrument accounting into reality is limited.
TRAINING - RETRAINING FACTOR	**Consulting services related to the accounting of derivatives financial instrument are regularly participated by enterprises**
	Businesses regularly have planning and implementation of training and retraining derivatives accounting for their staff and managers
	The conference program about accounting policies are held regularly at the businesses
	Businesses always have a policy of human resource training for routine accounting work

	Businesses permanently improve accounting expertise for accountants
TECHNOLOGY - COMMUNICATION FACTORS	**The growth rate of the internet, technology, communication respond promptly to the accounting system of the businesses**
	Market information derivative financial instruments increasingly popular
	Derivative financial instruments accounting have not been introduced and widely promoted
	Accounting software ensures provide internal controls at the unit regularly monitor the operation of accounting information systems on derivatives financial instrument
	Accounting software ensures compliance with accounting standards and regulations

REFERENCES

Bui Thi Kim Ngan. (2007). The solution developed derivatives market in Vietnam. *Scientific seminar*, 174-182

Davis et al (1982). The images that have shaped accounting theory. *Accounting, Organizations and Society*, 7(4), 307-18.

Do Thi Kim Hao (2007). The solution developed derivatives market in Vietnam. *Scientific seminar*, 15-26

Fatemi, A & Luft, C. (2002). Corporate risk management: Costs and benefits. *Global Finance Journal*, 13(1), 29–38.

Gonedes, N. J & Dopuch, N. (1974). Capital Market Equilibrium, Information Production, and Selecting Accounting Techniques: Theoretical Framework and Review of Empirical Work. *Journal of Accounting Research*, 12, 48-129.

Schofield, N.C. (2007). Commodity Derivatives - Markets and Applications, John Wiley & Sons Ltd.: London

Spence, M. (1973). Job market signaling. Quarterly *Journal of Economics*, 87(3), 355-74.

Stamp, E. (1981). Why Can Accounting Not Become a Science Like Physics? *Abacus*,17(1).

Tran Thi Hong Hanh and Tran Thu Giang (2007). The solution developed derivatives market in Vietnam. *Scientific seminar*, 168-173

Tirole, J. (1988). The theory of industrial organization. Cambridge. CA, MIT Press.

Vietnam Accounting Law (2015)

Wernerfelt. (1984). A resource-based view of the firm. *Stragic Management Journal*, 5, 171-80.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE EFFECT OF FREQUENCY OF BOARD MEETINGS ON PERFORMANCE OF LISTED FIRMS: A CASE FROM VIETNAM

Hanh Thi My Le, Hoanh Thi Hoang Lam, Hoa Dinh Nguyen, Tay Hong Nguyen

ABSTRACT

This study investigates the effect of frequency of board meetings of listed firms in a fiscal year on firm performance. The authors use 95 listed firms on Hochiminh Stock Exchange (HOSE) with 190 observations for the period of 2013 - 2014. Firm performance is measured based on the firm's accounting value through indicators of ROA, ROE and ROCE. The study results showed that frequency of board meetings had a negative effect on the performance of listed firms, meaning that the higher frequency of board meetings the lower ratio of ROE and ROCE were. The results also showed that the firm's debt ratio negatively influence firm performance. However, company size did not affect the firm performance. In addition, the previous year's frequency of board meetings showed no relationship with firm performance in the next fiscal year.

Keywords: *firm performance, frequency of board meetings, listed firm, Vietnam*

JEL Classification: G32, G34

1 INTRODUCTION

Performance is one of the top targets of firms regardless of their size, business sectors or purposes of establishment. The firm managers always strive to identify opportunities, focus intelligences, manpower and resources to create the best profits for their firm. Recently, there have been many studies about factors affecting the firm's performance. These studies investigated the factors affecting the performance of firms under various views and provided different results; of which firm characteristics and management are paid more attention to in studies carried out in Vietnam and in the world. Of factors usually investigated such as board size (Jensen, 1993; Yermack, 1996; Hermalin & Weisbach, 2003), gender-diverse boards (Adams & Ferreira, 2009; Hoang & Vo, 2014), board structure (Arosa et al., 2013; Tsegba et al., 2014; Orazalin et al., 2014), frequency of board meetings were also studies by many authors. Jensen (1993) argued that the board of a firm with good performance rarely occurred conflicts. However, the role of the firm's board becomes more and more important in the firm's crisis periods. And during such difficult moments, regular board meeting is greatly important as it is a way to cope with the firm's hard times. Vefeas (1999) and Ntim (2009) found that frequency of board meeting brought much better quality in the management, supervision and therefore had a positive influence on economic performance of the firm. Mangena & Tauringana (2008) stated that board meetings could help managers to better understand their firm's problems and quick solutions were produced to solve emerging problems. Firms proficient in setting up appropriate frequency of board meetings could reduce related costs and thus increase the economic efficiency of the firm (Vafeas, 1999). Conger et al. (1998) said that the board meeting is an important resource in enhancing the effectiveness of the board. Hence, it can be seen that the board meeting keeps a vital role for the survival and development of a company. As board members regularly meet, they will have plenty of time to exchange, discuss, share ideas and

plan strategies for the firm, which are essential. However, in Vietnam, there have been few empirical studies investigating whether there is a relationship between the firm's board meetings and its performance or not. In this study, the authors investigate the relationship between frequency of board meetings and the performance of firms listed on Vietnamese stock market. We also examine the effect of frequency of board meetings in current year on the firm performance of the next fiscal year.

With above-mentioned objectives, part 2 reviews previous studies regarding the relationship between frequency of board meetings to the performance of listed firms in the world and in Vietnam as well as states the research hypothesis. Research methodology and data are presented in part 3 and Part 4 presents research results and discussions. Finally, the paper states some conclusions.

2 LITERATURE REVIEW AND HYPOTHESIS

Frequency of board meetings has the negative effect on the firm performance in the current year since high frequency of board meetings would be very costly in terms of time management and costs incurred in relation to the meetings (Vafeas, 1999). However, Vafeas (1999) also found that the firm performance improved significantly a year later. This shows that board members often discuss makes better decisions and increase their ability to supervise the firm's activities. The potential benefits of effective supervision are reflected for the firm performance in following years. It can be understood that frequency of board meetings need time to take effect on firm performance.

Kyereboah (2008) found different results and said that frequency of board meetings in a fiscal year had a positive impact on the firm performance. And in the same year, Mangena & Tauringana (2008) also found a positive relationship between frequency of board meetings and the firm performance.

The research by Ntim & Osei (2011) conducted in South African listed firms for the period of 2002-2007 showed a positive impact between frequency of board meetings and firm performance. As board members of South African listed firms met regularly through meetings, they would increase their capacity for consulting, supervision and management, which created higher financial performance for their firms (Ntim & Osei 2011). In addition, the authors also demonstrated that large or small number of board meetings had a positive impact on the firm performance. However, also in 2011, a study conducted with a sample of 328 Malaysian listed companies in the period of 2003-2007 stated the higher frequency of board meeting the lower firm performance (Amran, 2011).

Francis et al. (2012) used the financial crisis in the research period to examine the extent corporate boards affect to the performance of the firms. The results showed that the frequency of board meetings, directors' attendance behaviors and directors' age also affected the firm performance during the crisis.

Unlike previous studies, Horváth & Spirollari (2012) used a sample of 136 firms traded on S&P 500 Index in 2005-2009 to examine the relationship between firm performance and a number of factors related to the characteristics of board of directors, including the frequency of board meetings. However, from results of this study, the authors found no relationship between firm performance and frequency of board meetings.

Johl et al. (2015) stated that board independence did not affect firm performance, while board size, board accounting expertise and low frequency of board meetings had positive and effective relationships with firm performance.

Irshad & Ali (2015) found that independent directors, frequency of board meetings and board size had a positive impact on the performance of firms measured through coefficients of Q and ROA. Akpan (2015) also found similar results with a study using a sample of 79 listed companies in Nigeria from 2010 to 2012.

In Vietnam, empirical studies on the performance of firms in recent years have been paid much attention by researchers. Some studies showed that financial institutions with higher management point had higher performance, expressed by indicators of ROE, ROA better than the remaining financial institutions (Le & Nguyen, 2012). Performance of real estate firms was affected by the financial leverage ratio, ratio of fixed assets on total assets, ratio of treasure stock on equity, ratio of sales expenses, general and administrative expenses and operating time of the firm (Quan & Ly, 2014). Nguyen et al. (2014) showed that short-term debt ratio affected the firm performance, and factors of long-term debt ratio, firm size and growth did not have an impact on ROE. Hoang & Vo (2014) said that the percentage of women in boardroom had positive impact on firm performance in terms of the market value (Q) but did not affect firm performance in terms of the accounting value (ROE, ROA and ROCE). Vo (2014) showed that the firms with higher ownership percentage of organizations had higher firm performance and value as considering the relationship between institutional ownership, firm performance and value. Le (2015) said that state ownership negatively affected the performance of listed construction firms, while foreign ownership positively affected firm performance. Test results also showed that state and foreign ownership had a linear relationship with the firm performance. To the best knowledge of the authors, as mentioned above, there have been no empirical studies to examine the relationship between frequency of board meetings and firm performance in Vietnam up to now and authors produced hypotheses as follows

H1: There is a relationship between frequency of board meetings and performance of firms.

To clarify the effect of frequency of board meetings to performance in different measurement coefficients, hypothesis H1 can be divided into three following hypotheses:

H1a: There is a relationship between frequency of board meetings and ROE ratio of firms.

H1b: There is a relationship between frequency of board meetings and ROCE ratio of firms.

H1c: There is a relationship between frequency of board meetings ROA ratio of firms.

In addition, the study also explores whether frequency of board meetings of the previous year affects firm performance in the current financial year or not. Meetings often set up short-term and long-term operational strategies for the firm, therefore, it takes time for the board to enforce their ideas during the meetings and to what extent this brings results for the firm in the future (Vafeas, 1999), so the authors produced hypothesis H2 as follows

H2: Frequency of board meetings affected performance for the next financial year of the firms.

3 RESEARCH DATA AND METHODOLOGY

3.1 Measurement of variables in the model

Dependent variable: firm performance (FPi): firm performance is measured by three metrics:

- Ratio of ROA: This indicator provides investors information on profits generated from investment (or assets). The assets of a firm are formed from borrowing capital and

equity. Both capitals are used to finance the firm's activities. The effect of turning investment capital into profit is expressed through ROA.

- Ratio of ROE: Higher ratio of ROE demonstrates the more effective use of shareholders' equity, which means that the firm balanced harmoniously between equity and borrowing capital to exploit its competitive advantages in the process of raising capital and expanding the scale.
- Ratio of ROCE: is a measure of the firm's profitability from capital employed. Capital employed is calculated by equity plus long-term debt of a company (or total capital-short-term liabilities). In other words, it's all long-term capital employed by the firm. ROCE shows the effect of creating a profit from capital investments of a firm.

Independent variables:

- Frequency of board meetings $(FBMs)_i$: total board meetings of the firm in the fiscal year 2014.
- Frequency of board meetings $(FBMs\_2013)_i$: total board meetings of the firm in the fiscal year 2013.

Control variables:

- Company size $(SIZE)_i$: is measured by taking the natural logarithm of total assets.
- The firm's debt ratio $(DEBT)_i$: total liabilities on equity at the end of the fiscal year.

The above contents are presented in Table 1

Tab.1- Measurement of variables in the model. Source: Compiled by authors

Variable	Description	Definition
Independent Variables: Firm performance (FPi)		
ROA	Return on Assets	The ratio of Return on total Assets
ROE	Return on Equity	The ratio of Return on total Equity
ROCE	Return On Capital Employed	The ratio of Return on Capital Employed
Dependent Variables:		
$FBMs_i$	Frequency of board meetings in 2014	Total board meetings of the firm in the year 2014.
$(FBMs\_2013)_i$	Frequency of board meetings in 2013	Total board meetings of the firm in the year 2013.
Control Variables:		
FIRMSIZE	Firm size	The natural logarithm of total Assets in year i
DEBT	The ratio of debt	The total liabilities on Equity in year i

3.2 Regression model

Regression model for hypothesis H1:

$$\mathbf{FPi} = \boldsymbol{\beta_o} + \boldsymbol{\beta_1}(\mathrm{FBMs})_i + \boldsymbol{\beta_2}(FIRMSIZE)_i + \boldsymbol{\beta_3}(\mathrm{DEBT})_i + \boldsymbol{\varepsilon}$$

Regression model for the hypothesis H2:

$$\mathbf{FPi} = \boldsymbol{\beta_o} + \boldsymbol{\beta_1}(\mathrm{FBMs\_2013})_i + \boldsymbol{\beta_2}(FIRMSIZE)_i + \boldsymbol{\beta_3}(\mathrm{DEBT})_i + \boldsymbol{\varepsilon}$$

3.3 Sample and data

To assess and analyze the relationship between frequency of board meetings and performance of listed firms, the authors focuses on listed firms of Top VN100. These are the firms with the largest capitalization and the high liquidity on HOSE.

Research sample: 100 firms of Top VN100, we used 95 listed firms qualified for this study (5 banks inconsistent with the research data were removed), corresponding to 190 observations in the period of 2 years, 2013 and 2014.

Research Data: Data were collected from information on the financial statements, annual reports, minutes of board meetings and so on published on the website of HOSE and securities companies. From the regression results, the authors carried out analysis, evaluation and drew conclusions about the relationship between frequency of board meetings and firm performance.

4 RESULTS AND DISCUSSIONS

Table 2 describes in detail the business fields of 95 listed firms on HOSE. Among them, Business field that there is the largest number of firms is the processing and manufacturing industry, include 32 companies. In this group, the highest frequency of board meetings is 101 times (TAC), the lowest frequency of board meetings is 4 times (VNM, VHC, JVC, LSS), and the average frequency of board meetings is 14 times.

Tab. 2 – Describing business fields of study's sample.

Sources: Author's calculation in www.hsx.vn

Business fields	**Number of firms**
Wholesale and retail trade	7
Real estate	16
Processing and manufacturing industry	32
Administrative activity and support services	1
Finance and insurance services	10
Extractive industry	1
Agriculture, forestry and fisheries	6
Production and distribution of electricity	8
Information and communication	1
Total	**95**

Table 3 showed data on firm performance, firm size and debt ratio of firms in 2014 (ROA, ROE, ROCE, SIZE, DEBT), frequency of board meetings in 2013 (FBMs_2013) and 2014 (FBMs) that we obtained from firms' annual reports, financial statements. It can be seen that the average number of board meetings in 2013 was 11.97 meanwhile in 2014 was 13.13, which shows that firms tend to increase frequency of board meetings. In 2013, the firm had a minimum of 3 meetings per year and a maximum of 101 meetings per year. In 2014, the firm had at least 2 meetings per year and 99 meetings/year in maximum. In addition, the min value of ROE, ROA and ROCE was -1.07, -0.34, and -0.22, respectively, indicating that although these are the firms in Top 100 whose stocks have the highest trading values in ranking, certain firms still suffered losses in the fiscal year 2014.

Tab. 3 - Descriptive Statistics. Sources: Author's calculation

Variable	Minimum	Maximum	Mean	Std. Deviation
FBMs	2.00	93.00	13.1263	15.34028
ROE	-1.07	0.33	0.1330	0.14739
ROCE	-0.34	0.40	0.1673	0.10460
ROA	-0.22	0.25	0.0761	0.06406
SIZE	27.00	32.14	28.8675	1.06078
DEBT	0.06	8.01	1.2209	1.19776
FBMs_2013	3.00	101.00	11.9684	14.82196

Correlation coefficient of variables is described in Table 4. The results showed that there are no correlation coefficients of variables higher than 0.8 (the highest of 0.787). It can be confirmed that as using the regression model, it will be less likely to encounter the phenomenon of multicollinearity. For a more secure test, we also re-tested by using coefficient of VIF (Variance Inflation Factor) when running the regression and the results revealed no phenomena of multicollinearity (VIF < 5).

Tab.4 - Correlations. Sources: Author's calculation

		FBMs	ROE	ROCE	ROA	SIZE	DEBT
FBMs	Pearson Correlation	1					
	Sig. (2-tailed)						
ROE	Pearson Correlation	-.315**	1				
	Sig. (2-tailed)	0.002					
ROCE	Pearson Correlation	-0.210*	0.832**	1			
	Sig. (2-tailed)	0.041	0.000				
ROA	Pearson Correlation	-0.174	0.808**	0.821**	1		
	Sig. (2-tailed)	0.092	0.000	0.000			
SIZE	Pearson Correlation	0.028	-0.126	-0.190	-0.279**	1	
	Sig. (2-tailed)	0.787	0.224	0.065	0.006		
DEBT	Pearson Correlation	0.136	-0.555**	-0.322**	-0.625**	0.369**	1
	Sig. (2-tailed)	0.189	0.000	0.001	0.000	0.000	
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Tables 5 through 7 present regression results for dependent variable of ROE and independent variable of FBMs to test hypothesis (H1a) in this study. The regression results showed that frequency of board meetings negatively affected ROE at the level of significance of 5% and 10%. Thus, hypothesis (H1a) in this study is accepted. Specifically, the higher frequency of board meetings the lower ratio of ROE is.

Tab.5 - Model Summary. Sources: Author's calculation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.611[a]	.373	.352	.11861

a. Predictors: (Constant), DEBT, FBMs, SIZE

Tab.6 - ANOVA[b] . Sources: Author's calculation

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.762	3	.254	18.051	.000[a]
	Residual	1.280	91	.014		
	Total	2.042	94			

a. Predictors: (Constant), DEBT, FBMs, SIZE
b. Dependent Variable: ROE

Tab.7 - Coefficients[a]. Sources: Author's calculation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.095	.354		-.269	.789
	FBMs	-.002	.001	-.242	-2.885	.005
	SIZE	.012	.012	.085	.954	.343
	DEBT	-.068	.011	-.554	-6.148	.000

a. Dependent Variable: ROE

Tables 8 through 10 present regression results for dependent variable of ROCE and independent variable of FBMs test hypothesis (H1b) in this study. The results showed that frequency of board meetings negatively affected the ratio of ROCE at 10% significant level. Thus, hypothesis (H1b) in this study is accepted. Specifically, the higher frequency of board meetings the lower the ratio of ROCE is.

Tab.8 - Model Summary. Sources: Author's calculation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.372[a]	.139	.110	.09867

a. Predictors: (Constant), DEBT, FBMs, SIZE

Tab.9 - ANOVA[b] . Sources: Author's calculation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.143	3	.048	4.883	.003[a]
	Residual	.886	91	.010		
	Total	1.028	94			

a. Predictors: (Constant), DEBT, FBMs, SIZE
b. Dependent Variable: ROCE

Tab.10 - Coefficients[a]. Sources: Author's calculation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.459	.295		1.558	.123
	FBMs	-.001	.001	-.171	-1.746	.084
	SIZE	-.009	.010	-.087	-.832	.408
	DEBT	-.023	.009	-.267	-2.526	.013

a. Dependent Variable: ROCE

Table 11 presents the regression results for dependent variable of ROA and independent variable of FBMs to test hypothesis (H1c) in this study. The results showed that there is no relationship between frequency of board meetings and ROA ratio (Sig = 0.264) at the significance of 5% and 10%. Thus, hypothesis (H1c) in this study is rejected.

Tab.11 - Coefficients[a]. Sources: Author's calculation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.222	.150		1.478	.143
	FBMs	.000	.000	-.092	-1.123	.264
	SIZE	-.004	.005	-.059	-.673	.503
	DEBT	-.032	.005	-.591	-6.718	.000

a. Dependent Variable: ROA

Table 12 presents the regression results for dependent variable of ROE, ROA and ROCE and independent variable of FBMs_2013 to test hypothesis H2 in this study. The results showed that the value sig. (ROE) = 0.68, sig. (ROA) = 0.454 and sig. (ROCE) = 0.69 (all>0.05 and 0.1); which means that all 3 models were no statistically significant at the level of 5% and 10%.

Thus, the hypothesis H2 is rejected, meaning that frequency of board meetings in 2013 did not affect the performance of the fiscal year 2014.

Tab.12 - Coefficients[a]. Sources: Author's calculation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
Dependent Variable: ROE						
1	(Constant)	-.139	.369		-.376	.708
	FBMs_2013	.000	.001	-.038	-.414	.680
	SIZE	.013	.013	.090	.971	.334
	DEBT	-.071	.012	-.577	-5.917	.000
Dependent Variable: ROA						
1	(Constant)	.218	.151		1.449	.151
	FBMs_2013	.000	.000	-.064	-.753	.454
	SIZE	-.003	.005	-.058	-.661	.510
	DEBT	-.031	.005	-.584	-6.376	.000
Dependent Variable: ROCE						
1	(Constant)	.439	.299		1.467	.146
	FBMs_2013	.000	.001	-.042	-.400	.690
	SIZE	-.008	.010	-.084	-.787	.433
	DEBT	-.024	.010	-.279	-2.504	.014

In addition, authors also found that the control variable of DEBT had negative estimated coefficient and sig. <0.05 in all models. This reflects that firm's debt ratio negatively affected firm performance, which is consistent with studies of Vo and Hoang (2014), meaning that the more debt the firms suffer the lower their performance measured by ROE, ROA and ROCE indicators. Meanwhile, control variable of SIZE is statistically insignificant showing that the firm performance is not dependent on company size and this result is contrary to the study of Vo and Hoang (2014) and other studies as examining the relationship between firm performance and firm size.

5 CONCLUSION

This study investigates the relationship between firm performance and frequency of board meetings of firms with the market's largest capitalization and high liquidity on HOSE, with 190 observations for the period 2013 - 2014. The study also looked at the relationship between the firm's frequency of board meetings in 2013 with its performance of 2014. The research results show that the firm's frequency of board meetings negatively affect firm performance as measured by ROE and ROCE ratios, which can be concluded that the firms' more meetings show their problems and difficulties that negatively affect their performance, especially issues regarding equity and capital employed. That the board members need to hold meetings to discuss shows their firm is in trouble, but they fail to solve indirectly. On the other hand, this result can be because the more meetings are organized, the more costs including energy costs,

travel expenses, and expenses incurred for the meeting, the firm has to suffer. These costs negatively influence performance of the firm. In addition, frequency of board meetings does not have any relationship with the performance of the next fiscal year, which suggests that the board meetings do not bring about effectiveness in the long term and such meetings fail to outline long-term plans and strategies but only handle the needs arising in the short term or the firm's meetings do not fully take the opportunities to meet, discuss and exchange to create benefits for the firm. These results also suggest policies for firms to review their meeting schedules and duration as well as agenda innovation in order to bring about more benefits to their firms.

6 LIMITATION AND FURTHER RESEARCH

This study provides useful information for the firms to improve their performance by reducing their frequency of board meetings. However, ROA, ROE and ROCE are not always the best representatives of firm´s performance and can be influenced by more variables. Authors will study more by widen variables in the next research. Besides, the selected sample size is insufficiently large and wide to generalize all of the listed firms on Vietnamese Stock Market, and the authors failed to gathered data in 2015 due to objective reasons regarding time of information disclosure of firms, especially information about the firm's board meetings. In addition, the authors did not assess the effect of frequency of board meetings in which different kinds meetings such as direct meetings, meetings via email, and meetings in writing are classified. The authors will expand the sample size and study period in combination with other related variables such as ratio of board attendance on total board members or examine the effect of various kinds of meetings on firm performance to obtain more valuable research results.

REFERENCES

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, *94*(2), 291–309. http://doi.org/10.1016/j.jfineco.2008.10.007

Akpan, E. O. (2015). Corporate Board Meetings and Company Performance : Empirical, *4*(1), 75–82.

Amran, N. A. (2011). Corporate governance mechanisms and company performance: Evidence from Malaysia Company. *International Review of Business Research Papers*. 7(6), 101 – 114.

Arosa, B., Iturralde, T., & Maseda, a. (2013). The board structure and firm performance in SMEs : Evidence from Spain. *Investigaciones Europeas de Dirección Y Economía de La Empresa*, *19*, 127–135.

Conger, J, Finegold, D and Lawler III, E (1998).Appraising Boardroom Performance, *Harvard Business Review*, 76, 136-148

Francis, B., Hasan, I., & Wu, Q. (2012). Do corporate boards affect firm performance? New evidence from the financial crisis. *Bank of Finland Research Discussion Papers*, *11*. http://doi.org/10.2139/ssrn.2041194

Hermalin, B. E., & Weisbach, M. S. (2003). Boards Of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature. *Economic Policy Review*, *9*(1), 7–26. http://doi.org/10.2139/ssrn.233111

Hoang, T., & Vo, N. (2014). Anh huong cua thanh vien nu trong hoi dong quan tri den hieu qua hoat dong cua cac cong ty niem yet. *Journal of Economic Development*, vol. 53, no. 9, pp. 61–75, 2014

Horváth, R., & Spirollari, P. (2012). Do the Board of Directors´ Characteristics Influence Firm´s Performance? The U.S. Evidence. *Prague Economic Papers*, *21*(4), 470–486. http://doi.org/10.18267/j.pep.435

Irshad, R., & Ali, M. (2015). Board Effectiveness , Ownership Structure and Corporate Performance : Evidence from Pakistan. *Journal of Business Studies Quarterly*, *7*(2), 46–61.

Jensen, M. C. (1993). the Modern Industrial Revolution , Exit , and the Failure of Internal Control Systems the Failure of Internal Control Systems. *Journal of Finance*, *48*(3), 831–880. http://doi.org/10.1111/j.1540-6261.1993.tb04022.x

Johl, S. K., Kaur, S., & Cooper, B. J. (2015). Board Characteristics and Firm Performance: Evidence from Malaysian Public Listed Firms. *Journal of Economics, Business and Management*, *3*(2), 239–243. http://doi.org/10.7763/JOEBM.2015.V3.187

Kyereboah-Coleman, A. (2008). Corporate Governance and Firm Performance in Afica : A Dynamic Panel Data Analysis. *Studies in Economics and Econometrics*, *32*(2), 1–24. http://doi.org/10.1111/j.1467-8683.2005.00419.x

Le, T., & Nguyen, T. (2012). Quan tri cong ty va hieu qua hoat dong cua cac to chuc tai chinh tai Viet Nam. *Banking Tecnology Review,* (2006), 3-18.

Le, H. (2015). Tac dong cua cau truc so huu toi hieu qua hoat dong cua cac doanh nghiep o Viet Nam. Doctoral thesis of National Economics University.

Mangena, M., & Tauringana, V. (2008). Corporate boards, ownership structure and firm performance in an environment of severe political and economic uncertainty. British Accounting Association Conference, April 2008, Blackpool.

Nguyen, D., Dao, K., Nguyen, H., Dao, H. (2014). Anh huong cua cau truc von, quy mo, tang truong doanh thu toi hieu qua hoat dong cua cac cong ty Thuy san niem yet tren TTCK Viet Nam. International Conference on Emerging Challenges: Innovation Management in SMEs (ICECH2014)

Ntim, C. G. (2009). Internal corporate governance structures and firm financial performance : Evidence from South African listed firms, (October), 1–426.

Ntim, C., & Osei, K. a. (2011). The impact of corporate board meetings on corporate performance in South Africa. *African Review of Economics and Finance*, *2*(2), 83–103. [online] Available at: http://eprints.soton.ac.uk/343111/

Orazalin, N., Mahmood, M., & Lee, K. J. (2014). Bank Ownership and Performance : Evidence from Russia in a Post Crisis Period, *7*(June), 1–10.

Quan, N., & Ly, T. (2014). Phan tich cac nhan to anh huong den hieu qua hoat dong cua cac doanh nghiep bat dong san dang niem yet tren thi truong chung khoan Viet Nam. *Can Tho University Journal of Science,* 33 (2014), 65-71.

Tsegba, I. N., Herbert, W. E., & Ene, E. E. (2014). Corporate Ownership, Corporate Control and Corporate Performance in Sub-Saharan African: Evidence from Nigeria. *International Business Research*, *7*(11), 73–84. http://doi.org/10.5539/ibr.v7n11p73

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, *53*(1), 113–142. http://doi.org/10.1016/S0304-405X(99)00018-5

Vo, V. (2014). Cau truc so huu, hieu qua hoat dong va gia tri doanh nghiep tren thi truong chung khoan Viet Nam. *Journal of Development and Integration*, *16*(26), 28–32.

Yermack, D. (1996). Higher market valuation forfirms with a small board of directors. *Journal of Financial Economics1*, *40*(1494), 185–211.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE IMPACT OF FIRM SIZE AND AUDIT FIRMS' REPUTATION ON QUALITY OF FINANCIAL REPORTING: EVIDENCE FROM VIETNAMESE LISTED FIRMS

Hanh Thi My Le, Tra Thi Thanh Nguyen, Ngoc Hong Vu

ABSTRACT

This study aims to explore whether the quality of financial reporting is good by examining the impact of firm size and audit firms' reputation on the quality of financial reporting of listed companies on the Vietnamese stock market. This paper uses 100 samples of (VN100) listed companies, the questionnaires are used for assessing the quality of financial reporting based on Framework of IASB (2010) and research of Beest et al. (2009). The results show that the quality of financial reporting of Vietnamese listed companies was just at an average point, the factors of firm size and audit firms' reputation also affect the quality of financial reporting of Vietnamese listed firms. Specifically, we find that firm size and audit firms' reputation are positively associated with the quality of financial reporting. This study is also the suggestion for investors to consider in making decisions appropriately and for agency policy parties to provide suitable policies to improve the quality of financial reporting of listed firms on the stock market.

Keywords: *quality, financial reporting, firm size, Audit firms' reputation, Vietnam*

JEL Classification: M41, M48

1 INTRODUCTION

The quality of financial reporting is one of the subjects received special attention from the professional organizations, researchers, investors, financial institutions, etc. in both domestic and foreign with many different angles, which is mentioned in many important kinds of literature, especially in framework of the Financial Accounting Standards Board 2010 (FASB) and International Accounting Standards Board 2010 (IASB).

The quality of financial reporting is affected by these factors: accounting standards, legal system, execution environment, firm size and financial leverage (Beest et al., 2009). Huang et al. (2012) examine the relationship between CEO's age and the quality of financial reporting; the results show that the age of CEO has an effect on the enterprise's financial reporting. Hope et al. (2013) also conclude that the private firms are audited by the Big4 audit firms tend to have higher quality of financial reporting. In addition, Hassan and Bello (2013) find that firm size, leverage, independent directors, institutional shareholding, profitability, liquidity, and growth are all factors which can explain and predict the quality of financial reporting of production enterprises in Nigeria. Gajevszky (2015) suggests that return on assets (ROA), the cash flow operating (CFO) can affect the quality of the financial reporting of listed firms in Romania stock market. Another study suggests that the early compliance with IFRS standards in Malaysia and Singapore provides higher quality financial reporting (Hla, 2015).

In Vietnam, there are some individual studies related to the usefulness and the quality of financial reporting (Nguyen T. Hoa, 2007; Nguyen X. Hung, 2010; Le H. Phuc, 2014). However, at present, there are very few empirical studies examine which factors will affect the

quality of financial reporting. In addition, financial reporting in Vietnam today still has many limitations in meeting the useful information to the users. This makes decreasing the efficiency of economic decisions, limiting the use of resources and investment opportunities. Especially, listed firms have large market capitalization as VN100; this issue should be considered and studied specifically. Therefore, this study focuses on the evaluation of the quality of financial reporting of VN100 listed firms and considers the impact of firm size and audit firms' reputation on the quality of the financial reporting of VN100 listed firms. This research is based on the qualitative characteristics of useful financial information in the pattern of IASB, FASB to provide a theoretical framework for research background. In addition, this study also refers the building of 21 scales about the quality of financial reporting (Beest et al., 2009) to measure and evaluate the quality of the financial reporting of VN100 listed firms based on the scales adjustment to fit the regulations and conditions of Vietnam today.

With this goal, following this introduction, section 2 will present the theoretical backgrounds related to the study content. A brief presentation of research methodology and research data was mentioned in section 3 and the results of the study and discussions were stated in section 4. Finally, this article gave some conclusions.

2 THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

2.1 The purpose of financial reporting

The objective of general purpose financial reporting* is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. Those decisions involve buying, selling or holding equity and debt instruments, and providing or settling loans and other forms of credit. (IASB 2010, p.OB2).

Many existing and potential investors, lenders and other creditors cannot require reporting entities to provide information directly to them and must rely on general purpose financial reports for much of the financial information they need. Consequently, they are the primary users to whom general purpose financial reports are directed (IASB 2010, OB5).

The objective of general purpose financial reporting forms the foundation of the Conceptual Framework. Other aspects of the Conceptual Framework - a reporting entity concept; the qualitative characteristics of, and the constraints on, useful financial information; elements of financial reporting; recognition, measurement; presentation; and disclosure - flow logically from the objective. (FASB 2010, OB1).

"The purpose of financial reporting is to provide the information about the financial situation, business situation and cash flows of an enterprise, that meet the useful needs for many users in making economic decisions" (Vietnamese Accounting Standard 21 (VAS), 2003).

2.2 The quality of financial reporting in accordance with IASB and FASB

The quality of financial reporting in accordance with the framework of IASB, FASB (2010) is divided into Fundamental Qualitative Characteristics and Enhancing Qualitative Characteristics. Fundamental Qualitative Characteristics: *relevance* and *faithful representation*. Relevant Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value, or both (IASB, FASB 2010, QC7). Financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both. (IASB, FASB, 2010, QC7). To be a perfectly faithful representation, a depiction would have three characteristics. It would be *complete*, *neutral* and *free from Error* (IASB, FASB, 2010, QC12).

Enhancing qualitative characteristics: *Comparability*, *verifiability*, *timeliness* and

understandability are qualitative characteristics that enhance the usefulness of information which is relevant and faithfully represented. Comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items... (IASB, FASB, 2010, QC21).

Some degree of comparability is likely to be attained by satisfying the fundamental qualitative characteristics. A faithful representation of a relevant economic phenomenon should naturally possess some degree of comparability with a faithful representation of a similar relevant economic phenomenon by another reporting entity. (IASB, FASB, 2010, QC24).

Verifiability helps assure users that information faithfully represents the economic phenomena it purports to represent. Verifiability means that different knowledgeable and independent observers could reach consensus, although not necessarily complete agreement, that a particular depiction is a faithful representation. Quantified information need not be a single point estimate to be verifiable. A range of possible amounts and the related probabilities can also be verified. (IASB, FASB, 2010, QC26).

Timeliness means having information available to decision-makers in time to be capable of influencing their decisions. Generally, the older the information is the less useful it is. However, some information may continue to be timely long after the end of a reporting period because, for example, some users may need to identify and assess trends. (IASB, FASB, 2010, QC29).

Some phenomena are inherently complex and cannot be made easy to understand. Excluding information about those phenomena from financial reports might make the information in those financial reports easier to understand. However, those reports would be incomplete and therefore potentially misleading. (IASB, FASB, 2010, QC31).

Financial reports are prepared for users who have a reasonable knowledge of business and economic activities and who review and analyze the information diligently. At times, even well-informed and diligent users may need to seek the aid of an adviser to understand information about complex economic phenomena. (IASB, FASB, 2010, QC32).

The qualitative characteristics of useful financial information in accordance with the IASB and FASB

Tab. 1 - Qualitative Characteristics of Useful Financial Information.
Sources: IASB, FASB, Framework, 2010

Fundamental Qualitative Characteristics	**Relevance**		**Faithful Representation**	
Enhancing Qualitative Characteristics	Comparability	Verifiability	Timeliness	Understandability

Thus, the quality of the financial reporting is expressed through the benefits that it brings to the user based on the guarantee of qualitative characteristics of useful financial information (IASB, FASB, 2010) or VAS such as relevance, faithful representative, comparability; enhancing qualitative characteristics: verifiability, timeliness, and understandability. These characteristics of financial reporting are considered an important basis for assessing the quality of financial reporting, thereby making economic decisions appropriately.

2.3 Measurement of financial reporting quality and research hypotheses

2.3.1 Measurement of financial reporting quality

Based on the qualitative characteristics of useful financial information IASB, FASB and the

scale of the quality of useful financial information (Beest et al., 2009, Gajevszky, 2015), the authors build the scale of financial reporting quality in Vietnamese listed firms that include 15 criteria to reflect the qualitative characteristics of financial reporting such as: relevance, faithful representation and comparability; enhancing qualitative characteristics: verifiability, timeliness and understandability with the measurement of 5 point levels. The detailed content of the scale will be presented in the appendix below.

2.3.2 Research hypotheses

According to Beest et al., 2009, there are many factors affect the quality of financial reporting such as accounting standards, legal system, execution environment, firm size and financial leverage. Gajevszky (2015) suggests that return on assets (ROA), the cash flow operating (CFO) can affect the quality of the financial reporting of listed firms in Romania stock market. The previous study also finds that firms audited by Big4 audit firms tend to provide the higher quality of financial reporting.

In this study, the authors examine the impact of firm size and audit firms' reputation on the financial reporting quality of VN100 listed firms in Vietnam with the hypotheses as following:

Hypothesis 1: Firms audited by Big4 audit firms have the higher quality of financial reporting than firms audited by Non-Big4.

Hypothesis 2: There is a positive association between listed firm size and the quality of financial reporting.

3 RESEARCH METHODOLOGY

3.1 Research data

This study limits the scope of the sample in 100 listed companies (VN100) published on https://www.hsx.vn at the period 2/2014.

The features of VN100 indices and the companies in VN100: VN100 includes 100 codes with the largest market capitalization, 30 codes with the largest market capitalization will be selected in accordance with some new criteria for calculating VN30 indices, and the next 70 codes for VNMidcap (midrange shares), the rest for VNSmall.

The shares cannot be in disclosure violations group, under control, suspended the transaction for 3 months. In addition, shares have listed time over 6 months (shares in top 5 market capitalization are 3 months) and the volume of free transfer is over 10% (codes in the top 10 market capitalization are 5%) (HOSE, 2015).

This study uses consolidated financial reporting audited in 2014, explanation reporting before and after the audit in 2014, which are published on http://www.hsx.vn website on Ho Chi Minh stock market (HOSE).

3.2 Variable measurement

3.2.1 Audit firms' reputation

The comments of auditors on financial reporting play an important role in the financial reporting of listed firms. Financial reporting audited by Big4 (KPMG, PWC, E & Y and Deloitte) is one of important basis to consider the faithful representation and relevance of financial reporting information. With the experience and prestige all over the world, Big4 is considered the assurance of financial reporting quality of firms. According to Hope et al. (2013), firms audited by Big4 tend to provide a higher quality of financial reporting.

This study uses the clustering of audit firms in accordance with previous studies, the audit firms

are classified into 02 groups: Big4 audit firms include KPMG, PWC, E&Y and Deloitte; the rest audit firms are Non-Big4 (Gajevszky, 2015; Le H., 2015).

Because audit firms' reputation are the qualitative variables, therefore, this study uses dummy variables to replace with the value of one if firms audited by Big4 audit firms, otherwise zero.

3.2.2 Listed firm size (SIZE)

The previous studies show the evidence that firm size has capable of explaining and predicting the quality of financial reporting of the enterprises (Hassan & Bello, 2013). Beest et al., 2009 also suggest that firm size (SIZE) has an effect on the quality of financial reporting, and these results are also consistent with the previous studies. However, Gajevszky (2015) find that there is no relationship between firm size (SIZE) and the quality of financial reporting in the Romania stock market. The listed firms have big size are the firms which have large shares and shareholders. The pressure from the shareholders of these listed firms makes them have to provide more information on the financial reporting and this information should be useful for shareholders to ensure their benefit and restrict the investment risks. Therefore, firms have large scope tend to provide more information so that the qualities of the financial reporting of these firms are also higher.

In the research model of Beest et al. (2009) and Gajevszky (2015), firm size (SIZE) is measured by total assets. However, according to Le, H. (2015), if firm size (SIZE) measured by total assets and there are also audit firms' reputation variable in the same model, that will occur the multicollinearity. In addition, Gajevszky (2015) also shows that both firm size (SIZE) and audit firms' reputation are not the factors affecting the quality of financial reporting on the Romania stock market. Therefore, to overcome the multicollinearity in the model as well as to eliminate all factors that influence the research, the authors propose the measurement of firm size (SIZE) will be replaced by total revenue of the company in 2014.

3.3 Building the quality assessment of financial reporting of VN100 listed firms

This study refers the definition of qualitative characteristics of financial information (IASB, FASB, 2010) and scales of Beest et al. (2009) to build the scales. The scales of Beest have the content related to corporate governance, annual reports, internal reports, this study does not use all because of the research limitation, therefore, this study only assesses the quality through financial reporting. Besides, the authors also refer the scales in the previous study of Le H. (2015). Therefore, in this study, the scales of financial reporting quality of VN100 listed firms are based on the definition of qualitative characteristics of financial information (IASB, FASB) and are built on the scale of Beest et al. (2009). The scales are as following:

(R) Relevance: requires financial information to have the difference in making a decision, specifically, the information need to have predictive value and confirmatory value or both.

(F) Faithful representative: There are three characteristics of faithful representation: Completeness (adequate or full disclosure of all necessary information), Neutrality (fairness and freedom from bias), and Free from error (no inaccuracies and omissions).

(U) Understandability: The information is classified, described, and presented clearly and concisely.

(C) Comparability: Information reported by enterprises will become more useful if it is compared similarly with other enterprise's reporting or same enterprise in different information period.

(T) Timeliness: means providing information to decision-makers in time.

4 RESULTS AND DISCUSSIONS

4.1 Research results

4.1.1 Descriptive statistic

Tab. 2 - Descriptive statistics. Sources: Author's calculation

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Relevance (R)	100	1.0	5.0	**2.045**	1.0662
Faithful representation (F)	100	3.0	5.0	**4.660**	0.4900
Understandability (U)	100	2.25	4.0	**2.628**	0.3380
Comparability (C)	100	2.0	4.0	**2.332**	0.3306
Timeliness (T)	100	1.0	5.0	**2.82**	1.1114
The quality of financial reporting	100	2.40	3.40	**2.871**	0.21521

Table 2 presents that *the quality of financial reporting of Vietnamese listed companies is just at an average point (2.87).* Among them, relevance has the lowest mean value 2.045; Faithful representation has the highest mean value 4.660. Besides, the empirical survey in VN100 listed firms has 92/100 financial reporting accepted fully by auditors. Relevance has the lowest value against the rest qualitative characteristics; this is quite understandable because the information needs to have predictive value and confirmatory value or both (IASB, FASB, 2010, QC7). However, most VN100 listed firms do not present predictive information. There are about 5 companies that financial reporting has presented non-financial information, the lawsuit issues, tax arrears issues, etc. such as Binh Minh Plastic Joint-stock company (BMP). Therefore, investors or lenders do not have more information to make judgments about the operations of firms at present or future.

4.1.2 Hypothesis test results

This study mainly uses the parametric tests to test the hypotheses. The results as following:

❖ **Audit firms' reputation**

Hypothesis H1: Firms audited by Big4 audit firms have the higher quality of financial reporting than firms audited by Non-Big4.

Tab. 3 - The differences between firms audited by Big 4 and firms audited by Non Big 4 with the quality of financial reporting. Sources: Author's calculation

Audit firm (AF)	Quantity	Mean	Std. Deviation	Std. Error Mean
BIG 4	67	2.9333	.20367	.02488
NONBIG 4	33	2.7434	.18114	.03153
		Equal variances assumed	Equal variances not assumed	
Levene's Test	F	.964		
	Sig	**.329**		
t-test	T	4.542	4.728	
	Sig (2-tailed)	**.000**	**.000**	

Table 3 has the mean value of Levence test 0.329 (>0.1), the mean value of t test in Equal variances not assumed is 0,000 (sig ≤ 0,1).

The difference between firms audited by Big 4 audit firms and Non-Big 4 has the reliability 99%. According to this result, we can affirm that quality of financial reporting audited by Big4 and Non-Big4 are different. That means hypothesis 1 is accepted. As such, firms audited by Big4 have a higher quality of financial reporting than Non-Big4. These results are also consistent with the research of Hope et al. (2013) and different with results of Gajevszky (2015) in Romania stock market.

❖ **Size variables**

Hypothesis 2: There is a positive association between firm size and the quality of financial reporting.

Tab. 4 - Correlation between Size Variable and The quality of financial reporting. Sources: Author's calculation

Variables		Log_SIZE
Parametric Testing	Pearson Correlation	.371**
	Sig.(1-tailed)	.000
**. Correlation is significant at the 0.01 level (2-tailed).		

The result in table 4 presents the correlation between size and the quality of financial reporting. The Pearson's coefficient has value .000 <5%, it means there is a significant association between the quality of financial reporting and size variable. We can conclude that if the firm size is bigger, the quality of financial reporting will higher. This study is also appropriate with previous studies (Beest et al., 2009, Hassan & Bello, 2013) and different with studies of Gajevszky (2015) in Romania listed firms.

4.2 Discussions

From the correlation test, the results show that audit firms' reputation and firm size have an impact on quality of financial reporting in 100 largest listed firms (VN100).

Firms audited by Big4 have a higher quality of financial reporting than firms audited by Non-Big4. From the empirical surveys of VN100 listed firms on HOSE in 2014, there are 67/100 listed firms audited by Big4. And in these 67 firms, there are 49/67 listed firms (73.13%) owned by foreign investors with over 10% of the capital structure. Firms with stock code such as VNM, REE, DHG, DMC and CTD have 49% foreign ownership ratio in ownership structure. Because investors can not directly check the presented information on the financial reporting, so companies with high foreign ownership ratio will require the listed firms to present the information in detail to guarantee the benefit and diminish investment risks. Moreover, the presented information on financial reporting is required to audit by Big4, to ensure that it is faithful and reasonable. Besides, in 29 listed firms with the highest points of financial reporting quality have 26/29 financial reporting audited by Big4. This results are also consistent with the findings of Hope et al. (2013) and different with the research results of Gajevszky (2015) in Romania stock market.

In addition, we also find that there is a positive relationship between firm size and the quality of financial reporting. According to the survey, there are 29/100 companies with the highest point of financial reporting quality, which are companies with the largest income in VN100 listed firms as well as Vietnamese stock market such as VNM, FPT, HAG, SSI, MSN, and REE. Moreover, the above companies also have a large number of listed shares, shareholders, funds and individual foreign investors with high ownership ratio. Hence, the listed firms need to provide more information and higher quality of financial reporting for investors. The research results are also appropriate with the findings of Beest et al. (2009) on the US, UK and Netherlands stock market.

5 CONCLUSION

This study examines the level of quality of financial reporting in group VN100 listed firms and factors affect the quality of financial reporting of 100 largest listed firms on Ho Chi Minh stock market.

The results show that the quality of the financial reporting of VN100 listed firms has relatively low points level, it indicates that although this study uses 100 samples of largest listed firms on HOSE, however, the level of the quality of financial reporting is unequal and big different. The average point of quality of financial reporting of VN100 listed firms is quite low, the lowest of average point is 2.40 and the highest is 3.40. There are 71/100 companies have points level from 2.40 to 2.93, 29/100 companies are from 3.00 to 3.40. From 15 criteria surveyed for VN100 listed firms, we can see that although 100 companies are the largest listed firms on HOSE, however, the survey results above indicate that the companies still have many mistakes in the presentation and disclosure of information on the financial reporting. This affects the quality of presented information on financial reporting and diminishes the quality of financial reporting and prestige of listed firms as well as Vietnamese stock market.

Firms audited by Big4 have a higher quality of financial reporting than Non-Big4. The study results also showed that the listed firm size and reputation of audit firms affected on quality of financial reporting. This shows that the auditing quality is highly evaluated by the investors when considering the quality of financial reporting. Auditing should be paid much attention in order to contribute to enhancing the quality of financial reporting. In addition, this study also shows that size has a positive effect on quality of financial reporting. In order to set up the good information systems, the companies must be large enough to send the cost for organizing the accounting information system.

These results are also the suggestion for investors to consider in making decisions appropriately. Moreover, this study is also useful information for related objects for those who are interested in the quality of financial reporting to consider when making decisions. For parties issuing agency policies for the stock market, this study is also useful reference information to provide appropriate policies to improve the quality of financial reporting of listed firms on the stock market. This study is still some limitation. The scope of the sample is small and some factors can affect on the quality of financial reporting are not mentioned in this study.

REFERENCES

Beest, F. Van, & Boelens, S. (2009). Quality of Financial Reporting: measuring qualitative characteristics, April, 2009, p.1–41.

Financial Accounting Standards Board (FASB), 2010. Conceptual Framework for Financial Reporting.

Gajevszky, A. (2015). Assessing Financial Reporting Quality: Evidence from Romania, *Audit financiar*, XIII, Nr. 1(121)/2015, 69-80.

Hassan, S. U., & Bello, A. (2013). Firm characteristics and financial reporting quality of listed, *International Journal of Accounting, Banking and Management*, *1*(6), 47–6. http://ijabm.com/

Ho Chi Minh Stock Exchange, 2014. Shares' portfolio VN100 period 2/2014. https://www.hsx.vn/Modules/CMS/Web/DownloadFile?id=9e5ea988-422f-463c-b2ce-5926cce8848e&rid=603337015.

Ho Chi Minh Stock Exchange (HOSE) (2015). Rules for Building and Management of HOSE-index indicators, June 2015. https://www.hsx.vn/Common/DownloadAtt/?id=e8c6e60a-807b-4b4e-969f-13f9d2a61170&rid=1796800086q

Hla, D. T. (2015). Globalisation of financial reporting standard of listed companies in asean two : Malaysia and Singapore, *International Journal of Business and Society*, *16*(1), 95–106.

Hope, O.K., Thomas, B., W & Vyas, D. (2013). Financial Reporting Quality of U.S. Private and Public Firms, (September), 1-48.

Huang, H.W., Green, E & Lee, C. (2012). CEO Age and Financial Reporting Quality, *Accounting Horizons*, *26*(4), 725–740.

International Accounting Standards Board (IASB), 2010. Conceptual Framework for Financial Reporting 2010.

Le, T. M. Hanh (2015). Minh bạch thông tin tài chính của các công ty niêm yết trên thị trường chứng khoán Việt Nam. Doctoral thesis. University of Economics Ho Chi Minh City, Vietnam.

Le, H. Phuc (2014). Vận dụng chuẩn mực kế toán quốc tế để hoàn thiện hệ thống báo cáo tài chính doanh nghiệp trong điều kiện ở Việt Nam. Doctoral thesis. University of Economics Ho Chi Minh City, Vietnam.

Liou, C. (n.d.). A Study on Financial Reporting Standards and Accounting Quality ─ Evidence from China, International Conference on Mathematical Modelling in Physical Sciences IOP, *Journal of Physics*: Conference Series 410 (2013) 012107, 8–12. http://doi.org/10.1088/1742-6596/410/1/012107

Nguyen T. Hoa (2010). Hoàn thiện hệ thống báo cáo tài chính trên thị trường chứng khoán, *Tạp chí kế toán,* 7, p.49-51.

Nguyen, X. Hung (2007). Báo cáo tài chính ngôn ngữ của thế giới kinh doanh, *Tạp chí tài chính*, 12, p.45-47.

Vietnamese Ministry on Finance (2003). Presentation Financial Reporting, Vietnamese

Accounting Standards No. 21 (VAS 21).

Vietnamese Association of Certified Public Accountants (VACPA) (2013). Sample Audit Program 2013. Available at: http://www.vacpa.org.vn/Page/Detail.aspx?newid=2451

Appendix 1 – Scale the quality of financial reporting

Features	Sign	Questions	Score	Scales	Resoures
RELEVANT	R1	To what extent does the presence of the forward-looking statement help forming expectaions and predictions concerning the future of the company?	1	1= No events occurring after the balance sheet date	Beest et al. (2009)
			2	2= Events occurring after the balance sheet date are not included in the notes to the financial statements	
			3	3= Events occurring after the balance sheet date are included in the notes to the financial statements	
			4	4= Events occurring after the balance sheet date are included in the notes to the financial statements but incomplete	
			5	5= Events occurring after the balance sheet date are included in the notes to the financial statements for the user useful decision	
	R2	To what exent does the company use fair value instead of historical cost?	1	1= only historical cost	Beest et al. (2009)
			2	2= Most historical cost	
			3	3= blance fair value/ historical cost	
			4	4= Most fair value	
			5	5= Only fair value	
FAITHFUL	F1	Which types of auditor's report is included in the annual report?	1	1= adverse opinion	Beest et al. (2009), (Le, Hanh, 2015)
			2	2= disclaimer of opinion	
			3	3= qualified opinion	
			4	4= unqualified opinion : finacial figures	
			5	5= unqualified opinion : finacial figures +internal control	
	F2	*Materialitymistake degree of financial statements*	1	The percentage difference in profit before and after auditing 10% threshold	(Sample Audit Program, VACPA)
			2	The percentage difference in profit before and after auditingthreshold < 5 % to 10 %	
			3	The percentage difference in profit before and after auditingthreshold <1% - 5 %	
			4	The percentage difference in profit before and after the audit threshold <0.5% -1 %	
			5	The percentage difference in profit before and after the audit threshold < 0.5 % - 1 %	
	F3	Reputation of audit firm	1	Other company	(Auditing quality Inspection
			2	ACPA, AVA, TDK TL, VACO, CPA	

Features	Sign	Questions	Score	Scales	Resoures
			3	AAC, GTV, AFC VN, VAE	Report, VACPA, 2014), (Le, Hanh, 2015)
			4	AASC, A&C, DTL, AISC	
			5	Big 4	
UNDERSTANDABILITY	U1	To what extend are the notes to the balance sheet and income statement sufficiently clear?	1	1= no explanation	Beest et al. (2009)
			2	2= very short description, difficult to understand	
			3	3= explanation that describes what happens	
			4	4= terms are explained (which assumptions ect.)	
			5	5= everything that might be difficult to understand is explained	
	U2	To what extend does the present of graphs and tables clarifies the presented information?	1	1= no explanation	Beest et al. (2009)
			2	2= 1-2 graphs	
			3	3= 3-5 graphs	
			4	4= 6-10 graphs	
			5	5=> 10 graphs	
	U3	Whats is the size of the glossary?	1	*No Notes* to the *financial statements*	Beest et al (2009)
			2	1-16 papers *notes* to the *financial statements*	
			3	17-25 papers *notes* to the *financial statements*	
			4	26-36 papers *notes* to the *financial statements*	
			5	>=37 papers *notes* to the *financial statements*	
	U4	Whats is the size of the glossary?		no glossary	Beest et al (2009)
				1 paper glossary	
				2 papers glossary	
				3 parpers glossary	
				>=4 glossary	
COMPARABILITY	C1	To what extend do the notes to changes in accounting policy explain implications of the change?	1	1= changes not explained	Beest et al (2009)
			2	2= minimum explanation	
			3	3= explained why	
			4	4= explained why + consequenes	
			5	5= No changes or comprehensives notes	
	C2	To what extend do the notes revisions in accounting estimates and judgements of explain the implementation of the revision?	1	1= revision without notes	Beest et al (2009)
			2	2= revision with few notes	
			3	3=no revision/ clear notes	
			4	4= clear notes/ implications (past)	
			5	5= comprehensives notes	
	C3	To what extent did the company adjust previousaccounting period's figures, for the effect of theimplementation of a change inaccounting policy or revisions in accounting estimates?	1	1= no adjustments	Beest et al (2009)
			2	2= described adjustments	
			3	3= actual adjustments (one year)	
			4	4= 2 years	
			5	5= > 2 years + notes	
	C4	To what extend does the company provide a comparison of the results of current accounting period with previous accounting periods?	1	no comparison	Beest et al (2009)
			2	only with previous years	
			3	with 3 years	
			4	3 years+ description of implications	
			5	5 years + description of implications	
		To what extent does thecompany presents	1	1= no ratios	Beest et al (2009)
			2	2=1-2 ratios	

Features	Sign	Questions	Score	Scales	Resoures
	C5	financialindex numbers and ratios in the annual report?	3	3=3-5 ratios	
			4	4= 6-10 ratios	
			5	5=> 10 ratios	
TIMELINE	T1	The time releases audit report	1	Submit financial Statement filed late	(Le, Hanh, 2015), (Circle, 155/2015 of Vietnam's Ministry on Finance)
			2	Submi Financial Statement filed on time or early 1 day	
			3	Submit financial statements from 2 to 14 days early	
			4	Submit financial statements from 15 to 28 days early	
			5	Sumit Finance report filed earlier from 29 days or more	

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

ORGANIZATIONAL TRAUMA: DOES IT REALLY EXIST?

Stanislav Háša, Martin Lukeš

ABSTRACT

The conceptual paper presents the state of the art review of a newly emerging concept of organizational trauma, with focus on its theoretical definition. While we can assume that people in organizations exposed to distressing events may suffer collective traumas in the same way as any other social groups, there has been surprisingly lack of studies that recognize the existence of this phenomenon as such. Incidental reports in literature suggest that institutions are in no way immune to suffering symptoms of collective trauma. Hence, when affected by events with a strong adverse impact, an organization (or parts of it) may show signs of collective traumatization. An organizational trauma shows causative mechanisms and own symptomology. The absence of recognition of the traumatizing nature of distressing events, actually inhibits the healing process in the affected community. Therefore, when trauma-like events occur in organizations, it is essential for leaders to acknowledge its distressing nature and to get awareness what is actually going on, in order to be able to mitigate emotional as well as functional consequences. This paper proposes possible means of intervention and possible methods to study and measure the impact of organizational trauma empirically.

Keywords: *organizational trauma, symptoms of organizational trauma, causes of organizational trauma, employee well-being, impact of organizational change, collective trauma in organizations*

JEL Classification: I31, M14, M54

1 TRAUMA IN ORGANIZATIONS

Life in today's organizations has its upsides and downsides. On the one hand, employee's life in corporations is becoming easier compared to the situation observed decades ago. The Labor Code establishes limits to working time and protects the worker's rights, work-life balance is no longer a taboo word and many employees focus significantly more on getting a reasonable amount of leisure time to replenish their energy. There is an ongoing discussion in many organizations about employee engagement, which implies that a "job" can also be a source of fulfillment and self-realization. So, under favorable circumstances, the life in an organization can be quite comfortable. However, in today's VUCA (volatility, uncertainty, complexity and ambiguity) environment many organizations are confronted with sudden unexpected changes that can have a negative impact on workers' lives (e.g., mergers, transformations, downsizing, etc.). When such organizational turbulences overcome the employees' coping capacity, they can lead to psychological wounds that take time to heal. When such "wounding" affects a group of employees or a large portion of the organization, we can then talk about a group trauma. One can assume that such "organizational trauma" has an impact not only on the well-being of employees, but also on their individual performance which ultimately affects the performance of the entire organization. As pointed out by De Klerk (2007), unresolved emotional trauma is a significant barrier to employee performance.

2 TRAUMA: A PSYCHOLOGICAL PERSPECTIVE

Present research in the field of trauma and post-traumatic stress disorder (PSTD) provides a rather detailed description of individual trauma, including its causative mechanisms, symptoms

and impact on the level of dysfunctional behavior of the individual (Allen et al, 2001. Stuart, 1996). Trauma can be understood as a reaction to disturbing events that the individual has no control of (or lacks the perception of control) and which flood the psyche in a way that the person can no longer integrate and make sense of what is happening to her (Kahn, 2003. Stuart, 1996). The traumatizing event thus dramatically undermines the sense of personal integrity and welfare. A shock and a slightly altered state of consciousness always comes with the trauma, accompanied by confusion and a freezing reaction, often followed by feelings of anger, helplessness and depression. The intensity of traumatic experience depends on the subjective perception; the more intensely we experience the traumatic event, the deeper and longer-lasting is the impact on the individual, regardless of the event's "objective strength" (Stuart, 1996). When a trauma is not recognized as such in the given social context and the victims try to detach from the traumatic event without "processing" it, the trauma has a tendency to be "replayed" in forms of flashbacks, nightmares and physical symptoms (Audergon, 2004). Subsequently, the trauma has an extremely negative impact on the individual psyche and it significantly undermines people's ability to fully utilize their potential and skills.

An unprocessed individual trauma is subsequently transformed into a post-traumatic stress disorder, which can be characterized by the following symptomatology (Courtois, 2008, p. 414): 1) „Alterations in the regulation of affective impulses such as difficulty with modulation of anger and self-destructiveness, 2) Alterations in attention and consciousness such as amnesia, dissociative episodes and depersonalization, 3) Alterations in self-perceptions such as chronic sense of guilt and responsibility and intense shame, 4) Alterations in perceptions of the perpetrator, i.e. incorporation of his/her beliefs, 5) Alterations in relationships to others such as not being able to trust and feel intimate, 6) Somatization and/or medical problems, and 7) Alterations in systems of meaning such as feeling hopeless about finding anyone to understand them."

At present, numerous studies also explore the topic of collective trauma, i.e. a traumatic experience that affects a larger group of people who thereafter exhibit similar maladaptive behavior and emotional patterns. In the long term, these symptoms may shape social norms of the affected group and create a long-term mood and anxiety in the community. The most researched collective traumas include war conflicts, genocides and severe marginalization of ethnic and other minority groups (Luszczynska, Benight and Cieslak, 2009; Audergon, 2004).

According to Erikson, individual trauma interferes "only" with the intrapersonal structure of the individual, while collective trauma disrupts and alters the structure of social bonds of a community or a group of people (Erikson, 1995). An important finding concerning collective trauma is that the traumatic event does not only affect the direct participants in the traumatic event, but its impact is trans-generational. More specifically, the next generation that has not personally experienced the traumatic event may replicate the maladaptive behavior patterns of the direct victims. The same phenomenon is observed in individual traumas when e.g. grandchildren may show certain similar patterns of behavior as their traumatized grandparents (Hormann and Vivian, 2005). Thus while the group trauma is always experienced subjectively, it has at the same a collective dimension that transcends the individual experience.

3 ORGANIZATIONAL TRAUMA: A DEFINITION

Most trauma research studies that focus on organizational context deal with the trauma of individuals who have been directly or indirectly affected by challenging situations as part of their working environment (Gabriel, 2012. Burke, 2012) The majority of studies focus on professions that are more likely to be exposed to traumatizing events as part of their duty, e.g. medical staff, firemen, soldiers, policemen (Burke, 2012. Byron & Peterson, 2002). However,

only few of studies explore the collective dimension of organizational trauma (e.g. Hormann & Vivian 2005. Audergon 2004) and only a handful of scholars directly mention the existence of *organizational trauma* as a distinctive phenomenon (from the theoretical point of view) (deKlerk 2007. Kahn 2003. Hormann & Vivian 2005. Gabriel 2012) . An organizational research on this topic is still missing.

When employees of an organization are exposed to a negative event of such intensity that it exceeds their capacity to cope with the situation, they will be prone to suffer a trauma. We assume that similarly, as in the case of other traumas affecting groups, when a significant portion of individuals in the organization or its parts is either directly or indirectly affected by a traumatic event, the trauma will acquire a new, collective dimension. Employees within the affected group share their experience, approximate their behavior patterns and gradually create a "shared story" that makes sense of the events enabling to "interpret the reality". A shared identity in the affected group emerges and the group begins to define itself as "we" and see itself as different from the rest ("them"). The trauma, as well as the role of the "perpetrator" and the traumatized (the victim), acquires a collective dimension, even though the trauma itself is always anchored in the distinctive experience of each individual concerned (Kahn, 2003, Gabriel, 2012).

Gabriel (2012) writes about organizational "darkness" where unspoken injuries are hidden, while on the outside people behave as if everything was "alright". Nonetheless it is as if in the background there is an invisible power which can determine the fate of individuals, who then need to search for scapegoats, victims and oppressors (Gabriel, 2012). Thus the organizational trauma is characterized by a "deadlock" of the entire affected group which remains stuck in patterns of dysfunctional behaviors; collective relations with the outside world are also damaged. At the same time a "trans-generational" traumatization (Kahn, 2003) can also occur. According to Hormann and Vivian (2005), an organization can suffer a trauma in a similar way as the individual – when its self-defense mechanisms are overwhelmed and feelings of helplessness emerge in the collective. In a similar way Burke (2012) defines organizational trauma as a set of organizational responses to one or more events that go beyond the organization's ability to handle the situation adaptively, leading to dysfunctional patterns of behavior in the organization.

We suggest that the emergence of a common identity ("we"), collective patterns of behavior and shared ways of experiencing the traumatizing event in the affected group is what distinguishes organizational trauma from an individual trauma without collective dimension. Through these elements a traumatic event in an organization acquires collective dimension. Building on these ideas, we propose the following proposition:

> *Proposition 1: Organizational trauma includes a collective dimension that is manifested through "shared story" and collective identity "we" versus "the others".*

Three distinctive roles can be described: the survivors (affected directly, they were in "the center of events or were victims of it), the witnesses (affected indirectly, close observers with personal or other relations with survivors) and the perpetrators (or somebody who executed decisions). Gabriel (2012) describes 5 stages of survivors' reaction to trauma: 1) Denial, 2) idealization of the lost ones, 3) anger at their disappearance, 4) guilt, self-accusation and blame for "not having done enough" and 5) scapegoating others.

Quite interestingly, the "perpetrators group" in organizations tends to respond similarly. Stuart (1996) points out that these individuals also show stress, worry, angst and grief – feelings often associated with victims of disasters, catastrophes or abuse. Organizational trauma thus affects those who are directly involved in the event (victims, perpetrators) as well as those affected

indirectly (survivors and witnesses) (De Klerk, 2007). Moreover, in the same way as the individual trauma diminishes individual performance, the organizational trauma leads to a reduction of organizational performance (or the performance of its affected parts).

4 SYMPTOMATOLOGY OF ORGANIZATIONAL TRAUMA

The emergence of shared, collective identity is characteristic for groups affected by organizational trauma; the sense of "we" is created through which the survivors group defines itself and thus splits from the rest of the organization, the management or the owners. The "shared story" is being replayed in social interactions which revolve around the traumatic event and rumors emerge, including worries about the future. Hormann and Vivian (2005) enumerate a number of potential symptoms of organizational trauma. The first is isolation of the group from the outside: the traumatized group sets itself aside from the rest of the organization. The "rest" (or its parts) is perceived as a source of danger and is vilified whereas the perception of the in-group ("we") is progressively idealized. The group is closing inwards and becomes more defensive and resistant to change. Further, the in-group loses the ability to "objectively" assess external events, intensifies the internal life and personal relationships become more and more important. New (perceived) roles emerge: the perpetrator (perceived as omnipotent) and the victims (perceived as powerless). People affected by the organizational trauma show signs of PSTD, lose the sense of meaningfulness of the work or the organization as a whole, detach from the organization's mission and apply purely transactional approach to work. Moreover, stress and anxiety can be "transmitted" to individuals who were affected by the events only indirectly or not at all (secondary traumatization). It leads us to the following proposition:

> *Proposition 2: The long-term organizational trauma can be displayed on the individual level as an "aggressor introject", which subsequently leads to the feelings of helplessness and being a victim and, consequently, to resistance to change.*

Overall, in the current literature, there is insufficient attention to the collective processes and collective phenomena which are caused by the organizational trauma. We can assume, that there is a disproportional distribution of the power, one group is suffering, and other speaks of the necessity of change and moving forward. The dominant group yet refuses to include the traumatic story into its own story. At the same time there is no protection mechanism that would help to face the trauma; the trauma and traumatized group are marginalized. These thoughts lead us to propose the following:

> *Proposition 3: The dominant group enforcing change doesn't accept the perception and story of a marginalized group of survivors and push them to overcome the difficulties and move further.*

5 CAUSES AND MECHANISMS OF ORGANIZATIONAL TRAUMA

Burke (2012) suggests that possible causes of organizational trauma include organizational restructuring associated with headcount reduction, mergers and acquisitions, sudden deaths and suicides at the workplace, terrorism, natural disasters and severe accidents at work. Organizational trauma can affect the whole organization (most frequently as a result of "big", external events, e.g. 9/11, a hostile takeover by a competitor) or only its parts. Emotional wounding in organizations may also be caused by abuse of power and rank, manipulation, demeaning negative feedback, cynicism, gossip, humiliation and insensitive cost-cutting and lay-offs (De Klerk, 2007).

Events leading to organizational trauma can be categorized following several criteria: 1. Origin of the trauma: internal or external events. According to Byron and Peterson (2002), most of the existing studies focus on internal events and study the impact of trauma on mental health. 2. Time: acute or chronic stressors. According to Beehr et al (2000), the acute stressors tend to have a more devastating impact which lasts longer, than impact of the chronic stressors (e.g. work-life (dis)balance). 3. Visibility: visible causes (restructuring, deaths, etc.) or "invisible" causes (bulling, manipulation, abuse of power). Thus,

> *Proposition 4: Organizational trauma is caused by organizational change, restructuring, reorganization, and by maladaptive management style.*

Gabriel (2005) describes the process of projective identification through which the traumatized group creates a shared identity and sets itself apart from the rest of the organization. When a trauma is not dealt with properly, it has a tendency to spread to groups who did not experience the trauma themselves, resulting in a secondary or vicarious traumatization (Figley, 1982; Pearlman & Saakvitne, 1995) and compassion fatigue (Figley, 1995). According to Hormann and Vivian (2005), when the trauma imprints into the organization's culture, become a part of organization's identity; through a mechanism of emotional contagion and socialization the trauma spreads to the next generation of workers who have not experienced trauma themselves. Therefore, we suggest

> *Proposition 5: When organizational trauma becomes a part of organizational identity, it influences other employees who didn't experience the traumatic events.*

The way in which an organizational change is announced, presented and handled with may be experienced as traumatizing in a similar way as the change itself (Stuart, 1996). When a transformation is performed and communicated impersonally, cynically and without respect, then the employees affected by the event may internalize this approach. This ultimately leads to numbness and emotional withdrawal (Gabriel, 2012). Employees begin to perceive themselves as a "resource" and this leads to a transactional approach to work and consequently to a reduction in performance. We posit following proposition:

> *Proposition 6: The incorrect way of performing and communicating organizational change leads to emotional withdrawal and increase of transactional approach to work.*

We can state, that there is no sufficient description of the process and mechanism of the organizational trauma origin in the literature so far. It seems that the key topic is the common emotional wound and its "non-recognition" and the effort of the affected group to try to cope with the situation. The important topics are the ranks, guilt attribution, projective identification, perceiving of the own power, marginalization and group self-awareness.

Organizational trauma and performance

The phenomenon of organizational trauma has not yet been explored in depth in empirical research. Existing studies mostly focus on the impact of trauma on individual performance. Nonetheless it is to be expected that negative effects on performance should also appear on the level of organizational performance. Allen et al (2001) reported a negative impact of layoffs on survivors' performance. More specifically, they observed a decrease of organizational commitment and job involvement, lower satisfaction with job security and increased intent to turnover. While satisfaction with top management continued to increase with time, job involvement continued to decrease. High involvement employees seemed to be the most sensitive group to such organizational changes.

Even though no definite data is available on the impact of organizational trauma on the performance of the organization as a whole, available studies do point in that direction. Sahnev (2004) suggests that organizational performance can be negatively influenced just by the fact that the management announces organizational changes. After downsizing job attitudes such as job satisfaction, organizational commitment, job involvement and intentions to turnover become less favorable (Kozlowski et al, 1993). Noer (1993) mentions the phenomenon of 'lay off survivor sickness' - a term describing common symptoms of guilt, lack of organizational commitment and fear typical for survivors of downsizing. Sahnev (2004) reports a negative impact of organizational trauma on employee engagement, while other studies demonstrate a strong relationship between employee engagement and well-being and employee performance (Harter et al, 2002; Vanhala et al, 2006; Van De Voorde et al, 2012). Byron and Peterson (2002) showed that people who experienced acute stressful event had a higher rate of absenteeism in the following period and decreased job satisfaction. Finally, Brenner et al (2004) reported that the occupational injuries occur more frequently in workplaces undergoing transformations. Based on these ideas, we can propose following:

Proposition 7: Organizational trauma has strong negative impact on individual well-being and engagement of employees.

6 INFLUENCING AND HEALING ORGANIZATIONAL TRAUMA

An active approach to (potentially) traumatizing organizational changes should become an integral part of change management and transformation programs (De Klerk, 2007; Gabriel, 2012). In the first place, the negative consequences of traumatizing events can be mitigated by publicly recognizing them as such. Leaders can have a major positive impact on healing of organizational wounds by „acknowledging of existence of trauma, providing a safe place, bringing the trauma into awareness, and allowing the expression of and dealing with the emotion" (Burke, 2012). Getting an insight into what is happening and accepting the feelings associated with the trauma is essential (Moules, 2004), as well as recognizing the role of managers as facilitators of group processes associated with experiences around the trauma (Kahn, 2003; De Klerk, 2007; Dutton, 2002). A greater degree of compassion can promote the healing of organizational wounds (Dutton, 2002; Audergon, 2004). The managers' ability to enable sympathetic responses to trauma (as opposed to suppressing them) directly affects organizational ability to maintain high performance in the difficult times (Dutton, 2002). Active listening and an attempt to understand the traumatic experience from the victims' and survivors' point of view are essential (Stuart, 1996).

Most change management models focus on "selling" changes to the employees. However, many employees must grieve and mourn before they will be open up to see a new exciting future full of possibilities. De Klerk (2007) proposes four steps for treating the trauma: 1. Acknowledge the existence of trauma - organizations must do and be willing to deal with it openly. Only that way victims, survivors, witnesses and even perpetrators can reach contentment. Acknowledging the existence of trauma and supporting process of trauma healing is the role of the leader. 2. Provide a safe space to work through the trauma – as symptoms of trauma are often associated with weakness many victims are ashamed. They need to be provided with a safe space where they are allowed to express their feelings without embarrassment. 3. Symbolizing the trauma and putting it into perspective – trauma experiences need to be brought into awareness. Effective way is to develop a narrative. This helps to find meaning in traumas. 4. Allowing emotions and dealing with the emotions – time need to be granted to allow to complete the grieving process.

Some authors also suggest that strengthening of organizational resilience can reduce the vulnerability to suffer organizational trauma. For instance, Sheffi (2005) emphasizes the concept of "resilient organizational culture" where teamwork, collaborative spirit, engagement and personal relationships act as protective factors for the organization in the time of crisis. Based on these suggestions we propose the following:

Proposition 8: There is a significant difference between traumatized groups which could talk about trauma that was "acknowledged" and those which could not. The way how the trauma was dealt with, has impact on perception and experiencing of trauma.

7 RESEARCH PROSPECTS

Based on the previous literature review and formulated propositions, we can say that future research of organizational trauma may focus on the collective side of trauma, group process of its emergence and mechanisms, different roles and their dynamics, coping mechanisms, impacts on engagement and performance, possible ways of organization trauma measurement and opportunity of its influencing. Scholars could search for the empirical answers to the following questions:

- Is it possible to demonstrate the existence of organizational trauma as a separate phenomenon with distinctive characteristics?
- What are the causative mechanisms of organizational trauma?
- What are the triggers of organizational trauma?
- How does group process of organizational trauma work?
- What is the impact of organizational trauma on employees' engagement and well-being?
- What kind of measurement is best suitable to measure organizational trauma?
- What is the most effective way to mitigate impacts of trauma events on organizational life?
- How organization, team and individual cope with organizational trauma?
- How to make the process around organizational trauma a learning path both for organization and individual? Is there a way how to increase the organizational resilience through organization trauma?

The potential research may focus on a specific type of (potentially) traumatizing event – the organizational change affecting the organization or its parts. For research design it seems appropriate to combine a qualitative approach (necessary to study the causative mechanisms and group process of organizational trauma and its phenomenology – Strauss 1998) with quantitative methods (aimed to measure the impact of organizational trauma on engagement and well-being of employees as well as performance outcomes). To answer the questions above, it is appropriate to identify organizations where a major restructuring has been implemented recently or is currently being implemented (e.g. downsizing, change management projects, post-merger and merger related restructuring) and focus on departments/teams that have been affected by the potentially traumatic event directly, indirectly and not at all.

In order to explore the process of (possible) traumatization, study its causative mechanisms and symptoms on individual and group level, semi-structured individual in-depth interviews can be used. It would allow to develop "local theory" (Bryant & Charmaz 2007) and gain deeper insights at phenomenology of organizational trauma. In order to study its impact, group dynamics, process and possible ways of mitigation, we consider using focus groups with different groups of participants (directly, indirectly and not-affected) as useful instrument. There is still no organizational trauma measurement tool, that's why for research purposes, we

suggest using the proven individual trauma scale expanded by items for group dimension measurement. For well-being or engagement part, there are existing standard tools which allow finding relations (e.g. Voorde et al 2012).

Overall, the organizational trauma is, unfortunately, an integral part of the lives in number of organizations. If the management of the organization doesn't pay enough attention to this fact or doesn't acknowledge it, it can bring negative impact on the atmosphere in the organization as well as in teams. If we, on the other hand, take the time to understand the organizational trauma properly, it can enable us to prevent or decrease its consequences and thus increase the employee well-being. Last but not least, we can enrich the organization with bringing more humanity and respect for the employees.

REFERENCES

Allen, D., Freeman, D.M., Russell Joyce E.A., Reizenstein R.C., & Rentz J.O. (2001). Survivor reactions to organizational downsizing: Does time ease the pain? *Journal of Occupational and Organizational Psychology, 74*(2), 145–164.

Audergon, A. (2004). Collective trauma: The nightmare of history. *Psychotherapy and Politics International, 2*(1), 16-31.

Baruch, Y., & Hind, P. (2000). Survivor syndrome - a management myth? *Journal of Managerial Psychology, 15*(1), 29-45.

Beehr, T. A., Jex, S. M., Stacy, B. A., & Murray, M. A. (2000). Work stressors and coworker support as predictors of individual strain and job performance. *Journal of Organizational Behavior, 21*(4), 391-405.

Brenner, M.D., Fairris, D., & Ruser, J. (2004). Flexible work practices and occupational safety and health: Exploring the relationship between cumulative trauma disorders and workplace transformation. *Industrial Relations, 43*, 242-266.

Bryant, A. & Charmaz, K. (2007). *The SAGE Handbook of Grounded Theory*. London: Sage Publications.

Burke, R. J. (2012). The Trauma Impact on Organizations: Causes, Consequences, and Remedies. In R. Hughes, A. Kinder, & C. L. Cooper *International Handbook of Workplace Trauma Support* (p. 71-86). Wiley-Blackwell.

Byron, K., & Peterson, S. (2002). The impact of a large-scale traumatic event on individual and organizational outcomes. *Journal of Organizational Behavior, 23*(8), 895-910.

Courtois, C. A. (2008). Complex trauma, complex reactions: Assessment and treatment. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 412–425

De Klerk, M. (2007). Healing Emotional Trauma in Organizations: An O.D. framework and case study. *Organization Development Journal, 25*(2), 49-55

Dutton, J.E., Frost P. J., Worline M.C., Lilius J.M., & Kanov J. M. (2002). Leading in time of trauma. *Harvard Business Review, 80*(1), 54-61.

Erikson, K. (1995). Notes on trauma and community. In: C. Caruth, ed. *Trauma: explorations in memory* (pp. 183-199). Baltimore: John Hopkins University Press.

Evers, E., Prochaska J.O., Castle P.H., Johnson J.L., Prochaska J.M., Harrison P.L., Rula E.Y., Coberley C., & Pope J.E. (2012). Development of an individual well-being scores

assessment. *Psychology of Well-Being: Theory, Research and Practice 2*(2). doi:10.1186/2211-1522-2-2

Figley, C.R. (1982). *Traumatization and comfort: Close relationships may be hazardous to your health*. Conference on Families and Close Relationships: Individuals in social interaction, Texas Tech University-Lubbock, February 1982.

Figley, C.R. (Ed.) (1995). Compassion Fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized. Florence, KY: Brunner/Mazel.

Gabriel, Y. (2012). Organizations in a state of darkness: Towards a theory of organizational miasma. *Organization Studies, 33*(9), 1137-1152.

Harter, J.K., Schmidt, F.L., & Hayes, T.L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87*(2), 268-279.

Hormann, S., & Vivian, P. (2005). Toward an understanding of traumatized organizations and how to intervene in them. *Traumatology, 11*(3), 159-169.

Kahn, W.A. (2003). The revelation of organizational trauma. *Journal of Applied Behavioral Science, 39*(4), 364-380

Kozlowski, S. W. J., Chao, G. T., Smith, E. M., & Hedlund, J. (1993). Organizational downsizing: Strategies, interventions, and research implications. *International Review of Industrial and Organizational Psychology, 8*, 263–332.

Luszczynska, A., Benight, C.C., Cieslak, R. (2009). Self-efficacy and health-related outcomes of collective trauma: A systematic review. *European Psychologist, 14*(1), 51-62.

Moules N.J., Simonson, K., Prins, M., Angus, P., & Bell, J.M. (2004). Making room for grief: Walking backwards and living forward. *Nursing Inquiry, 11*, 99-107

Noer, D.M. (1993). *Healing the wounds*. San Francisco, CA: Jossey-Bass Inc.

Pearlman, L.A., & Saakvitne, K.W. (1995). *Trauma and the therapist: Countertransference and vicarious traumatization in psychotherapy with incest survivors*. New York: W.W. Norton and Company

Sahdev, K. (2004). Revisiting the survivor syndrome: The role of leadership in implementing downsizing. *European Journal of Work and Organizational Psychology, 13*(2), 165-196.

Sheffi, Y. (2005). *The resilient enterprise*. Cambridge, MA: Ballinger

Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques* (2nd ed.). Thousand Oaks, CA: Sage.

Stuart, R. (1996). The trauma of organizational change. *Journal of European Industrial Training, 20(*2), 11-16.

Van De Voorde, K. Paauwe, J., & Van Veldhoven, M. (2012). Employee well-being and the hrm-organizational performance relationship: A review of quantitative studies. *International Journal of Management Reviews, 14*(4), 391-407.

Vanhala, S., & Tuomi, K. (2006). HRM, Company Performance and Employee Well-being. *Management Revue, 17*(3), 241-255.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

REVIEW ON STUDENTS' ENTREPRENEURIAL INTENTION: A PROPOSED THEORETICAL FRAMEWORK

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ABSTRACT

The purpose of this study is (1) An overview of the fundamental theories on factors affecting entrepreneurial intention; (2) finding research gaps concerning the entrepreneurial intention of students; (3) proposing a theoretical framework on the entrepreneurial intention of Vietnamese students. Findings show that the factors affecting entrepreneurial intention of students in the studies are categorized into groups of factors: entrepreneurship education program, environmental impact, motivation, traits, mindset, attitude, gender.

Keywords: *entrepreneurship education program; entrepreneurial motivation; students' traits; mindset, attitude; entrepreneurial intention.*

JEL Classification: I2, I25

1 INTRODUCTION

Over the years, the field of entrepreneurship was highly interested in the world, especially the study of factors affecting entrepreneurial intention of an individual. Lee, Lim, Pathak, Chang, & Li, (2006) suggested that entrepreneurship was focused in many countries and was considered a way to promote economic growth and to create jobs. Sobel & King, (2008) said entrepreneurship was the key to economic growth, so the promotion of youth entrepreneurship was one of the top priorities of the politicians. The three most important approaches to the entrepreneurial intention include (1) entrepreneurship education program, (2) environmental impact and (3) learners themselves (motivation, traits, mindset, attitude, gender).

In the first approach, Åstebro, Bazzazian, & Braguinsky, (2012) provided evidence showing that in the United States, entrepreneurship was not only a program for business students, but also the outstanding program for natural science students, and even art students. Rae & Ruth Woodier-Harris, (2013) argued that entrepreneurs must have a good knowledge base to manage their business. Thus, the educator has to develop entrepreneurship programs for students, provide them with the necessary knowledge to build the business successfully and give them the proper career orientation. Huber, Sloof, & Van Praag, (2014) analyzed the effect of early entrepreneurship education for elementary children in the Netherlands and proved that investing early entrepreneurship education for 11 or 12-year-old children would bring the effect in improving entrepreneurship knowledge, and entrepreneurship skills. Different countries have different features in culture, economics, politics; hence, entrepreneurship education research based on these characteristics will give a significant contribution to the theory and the actual entrepreneurship education.

The second approach involved the environmental factors, such as "family support", "personal role models", "national culture", "social capital", "social exposure" (Chand & Ghorbani, 2011), (Pruett, Shinnar, Toney, Llopis, & Fox, 2009). Based on the results of the previous studies, this approach did not have much replicated research.

The third approach involved learners themselves, the authors focused on exploiting the factors: motivation (Shane, Locke, & Collins, 2003); traits (Obembe, Otesile, & Ukpong, 2014); mindset (Mathisen & Arnulf, 2013); attitude (Boissin, Branchet, Emin, & Herbert, 2009); and gender of students (Maes, Leroy, & Sels, 2014). This approach had many contradictions and inconsistencies of the results, and the following section will present the details of this matter. After the overview of previous papers, this study classifies the groups of factors affecting student's entrepreneurial intention following the three above approaches. From the gaps existing, the theoretical framework of factors that influence student's entrepreneurship intention is proposed in the context of Vietnam.

2 LITTERATURE REVIEW

2.1 Theoretical Background

The different theoretical background was used by the author/authors as the basis for the relationship between factors affecting entrepreneurial intention. This study summarized three approaches based on groups of theoretical background.

The first and second approaches could be deduced and explained by the institutional theory and the theories of culture. North, (1990) proposed the institutional theory which was used to account for the relationship between entrepreneurship education programs and elements of the environmental group. Institutions contribute to the formation of social structures in which the organizations are operated through policies (Fligstein, 1997). Thus, institutions shape the policies on education, economics, and law. In societies where the legal regulations are clear, and the material and intellectual resources that support business formation are provided in full, the businesses will have great motivation for the establishment and development (T. V. Nguyen, Bryant, Rose, Tseng, & Kapasuwan, 2009).

The cultural dimensions theory (Hofstede, 1980) and the theory of values (Schwarz, Wdowiak, Almer-Jarz, & Breitenecker, 2009) could explain the different effects of between national cultures on elements influencing entrepreneurial intention. The core of culture is the value, and the value of each in society is reflected in their views, thoughts, beliefs and behavior (Hofstede, Hofstede, & Minkov, 2010), and this might affect the thinking, the intention of students about entrepreneurship.

The traits theory combined with the motivation theory (Maslow, 1970); the theory of values combined with planned behavior theory (Ajzen, 1991) was used to explain the relationship of the third approach. The different personalities of each will influence their intended behavior, and they can affect entrepreneurial intention (Espíritu-Olmos & Sastre-Castillo, 2015). Indeed, attitudes towards entrepreneurship affect entrepreneurship intention of students was proposed and tested by Boissin et al., (2009), Wu & Wu, (2008).

2.2 Entrepreneurial Intention

Entrepreneurial intention can be defined as an individual's intention to start a business (Souitaris, Zerbinati, & Al-Laham, 2007); a process oriented towards the planning and implementing a plan of activities (Gupta & Bhawe, 2007). The entrepreneurial intention of an individual derives from recognizing their opportunities, taking advantage the resources available and the support of the environment to create their businesses (Kuckertz & Wagner, 2010). The entrepreneurial intention of students come from the idea of students and is oriented correctly from the education and training experts (Schwarz et al., 2009).

2.3 Education Program and Students' Entrepreneurship Intention

Aşkun & Yildirim, (2011) proved that entrepreneurship courses had a great impact on the entrepreneurial intention of students; their study supported the creation of enterprises through entrepreneurship education programs. According to Hong, Hong, Cui, & Luzhuang, (2012), the quality of students' entrepreneurship was related to entrepreneurship education programs because it enriched business knowledge and improved entrepreneurial qualities. "*Universities must pay more attention to the student entrepreneurs, cooperate with social corporations, offer more opportunities for internship, and strengthen the openness and practicality of entrepreneurial education*" (Hong et al., 2012, p1912). Bae, Qian, Miao, & Fiet, (2014) found that there was little effect of entrepreneurship education on entrepreneurial intentions. Entrepreneurship education has a statistically significant but small positive relationship with entrepreneurial intentions. "*Except for cultural contexts, many other moderators did not account for the problem of a very small relationship between entrepreneurship education and entrepreneurial intentions, which suggest that policy makers or program evaluators ought to identify other criteria for evaluating the effects of entrepreneurship education. For example, entrepreneurial knowledge and skills, real behavior, or performance would be better constructs rather than entrepreneurial intentions"*(p241). They also concluded that entrepreneurship education was related more positively to a participant's entrepreneurial intentions than was business education. With the theme of entrepreneurial training, Taatila & Down, (2012) concluded that students with business experience had a higher tendency for entrepreneurship than students with no business experience; students considered entrepreneurship as a real career would tend to be entrepreneurs more than students considered entrepreneurship as a negative career. Their findings contradicted the results of Kuckertz & Wagner, (2010) because these authors proved that students with no business experience have a higher tendency for entrepreneurship. Meanwhile, Dodescu, Pop-Cohuţ, & Chirilă, (2014, p1089) concluded that "*the potential of practice and internship stages in entrepreneurial skills empowered and encouraged entrepreneurship of students in Economics.*"

Enumerated contradictions in the results proclaim the probation program for the undergraduate need to be evaluated in the Vietnamese context through an exploratory research. Regarding the impact of the institutional environment on entrepreneurial intention, Schwarz et al., (2009) and Turker & Selcuk, (2009) shared the same point when they were assessing "institutional environment.". Whether the institutional environment in generally stimulated students' entrepreneurial ideas and initiatives; or whether the knowledge of the subjects produced entrepreneurial ideas and skills for college students. However, the different points between these authors were while Turker & Selcuk, (2009) regarded functional departments as a support for students' entrepreneurial ideas, Schwarz et al., (2009) focused on the innovative learning environment in lecturing and training to inspire students to start a new business.

From the two constructs of these authors, we propose the separation of two concepts named "curriculum assessment" concerning learners' evaluation of knowledge and skills. The concept "academic environment" in general concerning University policies, functional departments and academic atmospheres mentioned in definitions from Schwarz et al., (2009)'s study. This study proposed the research model to be verified in the Vietnamese context, aiming at Vietnamese students (from technology and business university)'s assessment of whether the current curriculum stimulates their entrepreneurial intent and to what extent the stimulation is, any statistical evidence of relationships between academic curriculum and students' entrepreneurial intention.

From the previous results, some studies were focusing on the educational programs. Regarding the context of Vietnam, we find that there has not been an official training program on startup yet. Therefore, learners' assessment of how management programs of all levels (bachelor, master) affect their entrepreneurial intent is worth implementing research. The hypothesis proposed is that the more negative "evaluation of program" based on students' views is, the weaker their entrepreneurial intention is.

2.4 Environment and Entrepreneurial Intention

Pruett et al., (2009) demonstrated "culture/country", "social exposure", "personal role models", "family support", "entrepreneurial disposition" had positive influences on "entrepreneurial intention". Chand & Ghorbani, (2011) suggested that differences in the national culture lead to the establishment and management of enterprises in different ways (financial management, running business, personnel training). The national culture also plays an important role in setting up and using the social capital. So, students' entrepreneurial intention will vary for different countries. Sesen, (2013) analyzed further Schwarz's model in respect of environmental factors, including "business information", "social network" and " the entrepreneurial environment of a school". Results showed that except for elements such as "access to capital", "the entrepreneurial environment of a school", the remaining elements of "business information", "social network" had a positive impact on "entrepreneurial intention". Pablo-Lerchundi, Morales-Alonso, & González-Tirados, (2015) research on the influence of parents' career on their children's career choice has concluded self-employed parents take a good typical example to their children's entrepreneurship and stimulate their entrepreneurial intention. Parents working in the public sector was not the start-up models for their children and even hinder their entrepreneurial intention. The following research has not verified this. These results suggested that environmental impact on entrepreneurial intentions was very different in each country. Different culture, politics, policy mechanisms between countries can lead to various entrepreneurial intentions among students. This study, thus, proposes a research approach to all the environmental factors in the current context of Vietnam.

2.5 Personal Factors

2.5.1 Entrepreneurial motivation and Students' Entrepreneurial Intention

Shane et al., (2003) proposed factors belonging to the entrepreneurial motivation as "need for achievement," "locus of control,", and "goal setting". From the perspective of Shane, Brandstätter, (2011) and Arasteh, Enayati, Zameni, & Khademloo, (2012) demonstrated "need for achievement" had a positive impact on the business creation and business success. Ghasemi, Rastegar, Jahromi, & Marvdashti, (2011) showed a relationship between the "need for achievement" and entrepreneurial intention. However, Sesen, (2013) didn't provide evidence to prove the influence of "need for achievement" on Turkish students' entrepreneurial intentions. This study gap shows that this relationship should be verified in the Vietnamese context.

2.5.2 Traits and Students' Entrepreneurial Intention

Shane et al., (2003) suggested the personalities as "risk taking"; "self-efficacy"; "locus of control,"; "tolerance for ambiguity"; "passion"; "vision" have a relationship with students' entrepreneurial intention. Brandstätter, (2011) showed that "innovativeness"; "proactive personality"; "self-efficacy"; "stress tolerance"; "locus of control" have a positive impact on the business creation and business success. Arasteh et al., (2012) found that "tolerance for ambiguity" had no impact on entrepreneurial intention. Heydari, Madani, & Rostami, (2013)

provided an opposite result. Sesen, (2013) confirmed the factors concerning personalities which influenced entrepreneurial intentions were the factor "locus of control", and "self-efficacy". In Vietnam, M. Nguyen & Phan, (2014) investigated the differences in traits of surveyed candidates including entrepreneurs, employees, and students. The results revealed that "enthusiasm"; "open-mindedness"; "sense of responsibility"; "sincerity" were the virtues that a young entrepreneur in need.

This paper suggests a continual consideration and examination of the relation between "tolerance for ambiguity" and "entrepreneurial intention", as the previous results are inconsistent. Moreover, factors of personalities should be tested in the context of Vietnam on the ground that it is not evident Vietnamese students' personalities are similar to those of other countries, and whether their personalities will be influential to their entrepreneurial intention.

2.5.3 Mindset and Students' Entrepreneurial Intention

Haynie, Shepherd, Mosakowski, & Earley, (2010, p218) defined "entrepreneurial mindset" as "*the successful future strategists will exploit an entrepreneurial mindset…the ability to rapidly sense, act, and mobilize, even under uncertain conditions*". The authors suggested the general cognitive model of entrepreneurial mindset which illustrates the relation between entrepreneurial mindset and entrepreneurship. Based on that suggestion, Mathisen & Arnulf, (2013) developed the construct "entrepreneurial mindset" which is comprised of two components: "elaborating mindset" and "implemental mindset". Mindset is the process of reassessing the perception, so "elaborating mindset" is the process of appraising the pros and cons of a wish and the ability to accomplish that desire. "Implemental mindset" is the thinking process of identifying targets, setting out strategies or plans and the specifying steps to achieve the objectives (Mathisen & Arnulf, 2013). The findings showed that "implemental mindset" has a positive impact on the business - establishment of an entrepreneur. However, there is no statistical evidence for "elaborating mindset" has a negative influence on the number of firms founded by students. The research conducted by Mathisen's group used the dependent variable of the number of businesses founded by students (3-Likert scale). Ever since the publication of the results, no other authors examining the relation repeat the finding. Some reasons for this are as follows:

First, the dependent variable used the by the Mathisen's group is the number of businesses founded by students. This variable may be difficult to conduct in different context, as not in any other countries, students do establish their companies during their schooling or upon their graduation.

Second, a thorough content analysis of the "implemental mindset" scale reveals that the construct is a variation of the "entrepreneurial intention" scale, with some similarities and differences as follows:

Regarding similarities, both scales are the statements of the respondents (students) about their intentions of and attitudes towards establishing their businesses in the future.

On the differences, the scale " implemental mindset" is a combination of the past actions related to the decision to create businesses and the plan of how and when the companies will be established. In essence, the contents of these statements are simply intentions toward behavior rather than the actual act. However, the certainty of these statements is likely higher than those in the measurement scale "entrepreneurial intention". Another difference is the assessment declarations of the entrepreneurship opportunities in the measurement scale "implemental mindset". Evaluating the entrepreneurship opportunities and the entrepreneurial intention are two entirely different concepts. Integrating (grouping) these two contents into one scale can

affect the validity of the construct. Therefore, the analysis as mentioned earlier suggests the validity of the scales, announced by the authors in different environments should be reassessed. If the validity of the scales is confirmed, we can use " implemental mindset" in replacement for the "entrepreneurial intention" in the models relevant to the relationship between attitudes and behaviors.

2.5.4 Attitude and Entrepreneurial Intention

Grounded on the Theory of Planned Behavior (TPB) of Ajzen, (1991); the authors modeled factors affecting the students' entrepreneurial intention. Wu & Wu, (2008) proved that both "attitude toward entrepreneurship" and "perceived behavioral control" have the positive impact on students' entrepreneurial intention, but no evidence to prove the positive effect of "subjective norm" on "entrepreneurial intention". This result was confirmed later in the research of Boissin's group. Boissin et al., (2009) testified and compared in the US and French market, showed a positive impact on both "attitude toward entrepreneurship" and "self-efficiency" on students' "entrepreneurial intention", but no evidence of the positive effect of the "subjective norm" in both markets.

Schwarz et al., (2009) categorized attitudes into such components as "attitude toward change", "attitude toward money", "attitude toward competitiveness" and "attitude toward entrepreneurship" to see if they all impact positively on "entrepreneurial intention". The findings revealed no statistical evidence supporting the relation between "attitude toward competitiveness" and "entrepreneurial intention" while accepting other hypotheses.

Yurtkoru et al., (2014) found that "attitude toward entrepreneurship" and "perceived behavioral control" influenced "entrepreneurial intention" positively. Being different from other previous researchers, Yurtkoru's model considered "subjective norm" as factors affecting the "attitude toward entrepreneurship" and "perceived behavioral control". The findings indicated a direct relationship between "subjective norm" and "attitude toward entrepreneurship" as well as "perceived behavioral control". Moreover, Yurtkoru reexamined the factors of "educational support" and " structural support" for the research of Turker & Selcuk's group, which had claimed direct relationships between these two factors and the "attitude toward entrepreneurship" and "perceived behavioral control". The research retrieved a different result when "educational support" had a direct relationship with "perceived behavioral control", but not with "attitude toward entrepreneurship" statistically.

According to Schlaegel & Koenig, (2014), the theory of planned behavior (TPB) determinants, as well as perceived feasibility, influences entrepreneurial intention through the mediator role of perceived desirability. The authors confirmed the model of goal-directed behavior (MGB) and suggested that it was an individual's desire through which the other determinants are transformed into entrepreneurial intention. The results, in particular, suggested that if a person has more perceived control over starting a business, perceived behavioral control (PBC) became a significant predictor of entrepreneurial intention next to the desire to start a business venture. One major contribution of this meta – analysis research was that the results of the moderator analysis suggest differential effects of the TPB and entrepreneurial event model (EEM) determinants of entrepreneurial intention. This finding challenged prior research, which had assumed that perceived desirability includes attitudes and subjective norm and that perceived feasibility includes entrepreneurial self-efficacy (ESE) and PBC. The findings also suggested the need for a more contextual perspective and approach to conceptualizing the development of entrepreneurial intention.

From the previous findings, our review induces "gaps" existing when considering the TPB model of the influence of the environmental factors such as "university environment", "social and economic policies", and gaps as follows:

First, those researchers suggested the positive impacts of "attitude toward entrepreneurship consistently" and "perceived behavioral control" on "entrepreneurial intention". However, the attitudinal factors are separated into different components; the results turned out to be inconsistent, like those in Schwarz et al., (2009). As there hasn't been any research examining these relations, it is advisable to focus further researches on this approach.

Second, while Autio, H. Keeley, Klofsten, G. C. Parker, & Hay, (2001) and Krueger Jr. & Reilly, (2000) illustrated the direct relation between "subjective norm" and "entrepreneurial intention", Boissin et al., (2009) failed to support the relationship. Nonetheless, the Fernández-Pérez, Alonso-Galicia, Rodríquez-Ariza, & Fuentes-Fuentes, 2015)'s research did produce the opposite outcome. To sum up, reexamining this relation is of significant importance in justifying the validity and the generalization of the theory.

2.5.5 Gender and Entrepreneurial Intention

Sullivan & Meek, (2012) and Zhang et al., (2009) showed that in comparison to males, females have a higher impact on their entrepreneurial intention while Nicolaou & Shane, (2010) concluded that there is no difference in men and women' entrepreneurial intention.

Maes et al., (2014) demonstrated that "personal attitudes" explained for weaker females' entrepreneurial intention compared to that of males; as women entrepreneurs desired more balance of social values, and consequently achieved less than men do. Hence, there is an apparent conflict in the findings of researchers on the impact of genders on entrepreneurial intention. This research, therefore, proposes a further study on the role of gender in "entrepreneurial intention" of Vietnamese students.

According to the available literature, we suggest a theoretical framework relating to factors affecting entrepreneurial intention of students:

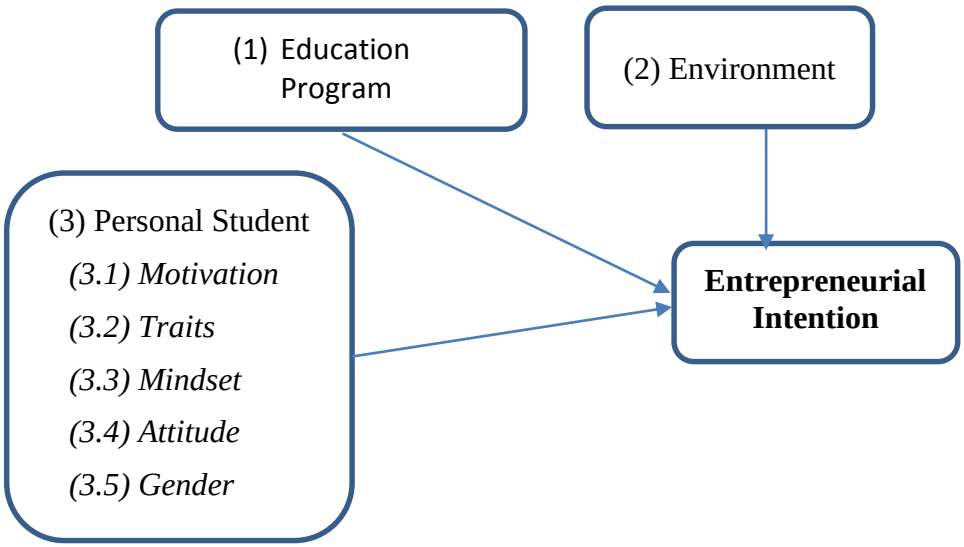

Fig. 1 – Theoretical Framework

3 CONCLUSION

With the above - mentioned theoretical framework, subsequent researchers might consider testing different groups of factors or combine components of these elements based on inference from background theories. However, qualitative researches should be conducted to explore and adjust the model. A multidimensional view is explored by different perspectives and attitudes of the learner, curriculum builders, and lecturers can bring new exploration to the model.

As for the dependent variable, besides using the concept of "entrepreneurial intention", researchers might try to use the "action mindset" as an alternative. The certainty of the behavioral intention, regarding the content validity of the scale, is, of course, better, but it is necessary to determine the value and the significance in different contexts.

As for the factors of entrepreneurship education program, the previous study showed that a more detailed the program is, the better oriented the students are toward entrepreneurship. It implies that a universal and complete entrepreneurship education program for students in universities and colleges across the country, which is separate from the regular business agenda, should be taken into consideration. After piloting the program, its effectiveness should be evaluated annually. Also, the school should collaborate with the practical entrepreneurship training program provided by business support centers to encourage students' entrepreneurship, and turn their initiatives into reality.

There is no guarantee that those with more "desire for success", "desire for independence", "need for achievement" will have more motivation for entrepreneurship in Vietnam's context, where learners are influenced heavily by families, educational program and those around them. It means that their entrepreneurial motivation can be manipulated by other factors which should be examined in future studies. Such other factors as personal characteristics, attitudes toward entrepreneurship do affect students' entrepreneurial intention in all countries around the world. Evaluating these factors in the context of Vietnam is necessary. It is great importance as the mission of the education program in general and the entrepreneurship education program in particular. It benefits students who are unaware of their studying objectives, their future selves, and their life purposes to realize what they like to do and whom they want to be.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. doi:10.1016/0749-5978(91)90020-T

Arasteh, H., Enayati, T., Zameni, F., & Khademloo, A. (2012). Entrepreneurial Personality Characteristics of University Students: A Case Study. *Procedia - Social and Behavioral Sciences, 46,* 5736–5740. doi:10.1016/j.sbspro.2012.06.507

Aşkun, B., & Yildirim, N. (2011). Insights on entrepreneurship education in public universities in Turkey: Creating entrepreneurs or not? *Procedia - Social and Behavioral Sciences, 24,* 663–676. doi:10.1016/j.sbspro.2011.09.050

Åstebro, T., Bazzazian, N., & Braguinsky, S. (2012). Startups by recent university graduates and their faculty: Implications for university entrepreneurship policy. *Research Policy, 41*(4), 663–677. doi:10.1016/j.respol.2012.01.004

Autio, E., H. Keeley, R., Klofsten, M., G. C. Parker, G., & Hay, M. (2001). Entrepreneurial Intent among Students in Scandinavia and in the USA. *Enterprise and Innovation Management Studies, 2*(2), 145–160. doi:10.1080/14632440110094632

Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The Relationship Between Entrepreneurship

Education and Entrepreneurial Intentions: A Meta-Analytic Review. *Entrepreneurship: Theory and Practice*, *38*(2), 217–254. doi:10.1111/etap.12095

Boissin, J.-P., Branchet, B., Emin, S., & Herbert, J. I. (2009). Students and Entrepreneurship: A Comparative Study of France and the United States. *Journal of Small Business & Entrepreneurship*, *22*(2), 101–122. doi:10.1080/08276331.2009.10593445

Brandstätter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences*, *51*(3), 222–230. doi:10.1016/j.paid.2010.07.007

Chand, M., & Ghorbani, M. (2011). National culture, networks and ethnic entrepreneurship: A comparison of the Indian and Chinese immigrants in the US. *International Business Review*, *20*(6), 593–606. doi:10.1016/j.ibusrev.2011.02.009

Dodescu, A. O., Pop-Cohuţ, I. C., & Chirilă, L. F. (2014). Do Practice Stages Encourage Students in Economics to Practice Entrepreneurship? Practeam Project. *Procedia Economics and Finance*, *15*(14), 1083–1090. doi:10.1016/S2212-5671(14)00560-7

Espíritu-Olmos, R., & Sastre-Castillo, M. a. (2015). Personality traits versus work values: Comparing psychological theories on entrepreneurial intention. *Journal of Business Research*. doi:10.1016/j.jbusres.2015.02.001

Fernández-Pérez, V., Alonso-Galicia, P. E., Rodríquez-Ariza, L., & Fuentes-Fuentes, M. D. M. (2015). Professional and personal social networks: A bridge to entrepreneurship for academics? *European Management Journal*, *33*(1), 37–47. doi:10.1016/j.emj.2014.07.003

Fligstein, N. (1997). Social Skill and Institutional Theory. *American Behavioral Scientist*, *40*(4), 397–405. doi:10.1177/0002764297040004003

Ghasemi, F., Rastegar, A., Jahromi, R. G., & Marvdashti, R. R. (2011). The relationship between creativity and achievement motivation with high school students' entrepreneurship. *Procedia - Social and Behavioral Sciences*, *30*, 1291–1296. doi:10.1016/j.sbspro.2011.10.250

Gupta, V. K., & Bhawe, N. M. (2007). The Influence of Proactive Personality and Stereotype Threat on Women's Entrepreneurial Intentions. *Journal of Leadership & Organizational Studies*, *13*(4), 73–85. doi:10.1177/10717919070130040901

Haynie, J. M., Shepherd, D., Mosakowski, E., & Earley, P. C. (2010). A situated metacognitive model of the entrepreneurial mindset. *Journal of Business Venturing*, *25*(2), 217–229. doi:10.1016/j.jbusvent.2008.10.001

Heydari, H., Madani, D., & Rostami, M. (2013). The Study of the Relationships Between Achievement Motive, Innovation, Ambiguity Tolerance, Self-Efficacy, Self-Esteem, and Self- Actualization, with the Orientation of Entrepreneurship in the Islamic Azad University of Khomein Students. *Procedia - Social and Behavioral Sciences*, *84*, 820–826. doi:10.1016/j.sbspro.2013.06.654

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work - related Values*. Beverly Hills, CA: SAGE Publications Ltd. Retrieved from https://us.sagepub.com/en-us/nam/cultures-consequences/book665

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind* (3rd ed.). New York: McGraw - Hill. doi:10.1007/s11569-007-0005-8

Hong, Z., Hong, T., Cui, Z., & Luzhuang, W. (2012). Entrepreneurship Quality of College

Students Related to Entrepreneurial Education. *Energy Procedia*, *17*, 1907–1913. doi:10.1016/j.egypro.2012.02.331

Huber, L. R., Sloof, R., & Van Praag, M. (2014). The effect of early entrepreneurship education: Evidence from a field experiment. *European Economic Review*, *72*, 76–97. doi:10.1016/j.euroecorev.2014.09.002

Krueger Jr., N. F., & Reilly, M. D. (2000). Competing Models of Entrepreneurial Intentions. *Journal of Business Venturing*, *15*(5/6), 411. doi:10.1016/S0883-9026(98)00033-0

Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions - Investigating the role of business experience. *Journal of Business Venturing*, *25*(5), 524–539. doi:10.1016/j.jbusvent.2009.09.001

Lee, S. M., Lim, S. B., Pathak, R. D., Chang, D., & Li, W. (2006). Influences on students attitudes toward entrepreneurship: A multi-country study. *International Entrepreneurship and Management Journal*, *2*(3), 351–366. doi:10.1007/s11365-006-0003-2

Maes, J., Leroy, H., & Sels, L. (2014). Gender differences in entrepreneurial intentions: A TPB multi-group analysis at factor and indicator level. *European Management Journal*, *32*(5), 784–794. doi:10.1016/j.emj.2014.01.001

Maslow, A. H. (1970). Unmotivated Behaviour. In *Motivation and Personality.* (3rd ed., pp. 62–72). New York: Longman. doi:10.1037/h0039764

Mathisen, J. E., & Arnulf, J. K. (2013). Competing mindsets in entrepreneurship: The cost of doubt. *International Journal of Management Education*, *11*(3), 132–141. doi:10.1016/j.ijme.2013.03.003

Nguyen, T. V., Bryant, S. E., Rose, J., Tseng, C.-H., & Kapasuwan, S. (2009). Cultural Values, Market Institutions, and Entrepreneurship Potential: a Comparative Study of the United States, Taiwan, and Vietnam. *Journal of Developmental Entrepreneurship*, *14*(01), 21–37. doi:10.1142/S1084946709001120

Nguyen, M., & Phan, A. (2014). Entrepreneurial Traits and Motivations of the Youth – an Empirical Study in Ho Chi Minh City – Vietnam. *International Journal of Business and Social Science*, *5*(1), 53–62.

Nicolaou, N., & Shane, S. (2010). Entrepreneurship and occupational choice: Genetic and environmental influences. *Journal of Economic Behavior & Organization*, *76*(1), 3–14. doi:10.1016/j.jebo.2010.02.009

North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. *Institutions, Institutional Change and Economic Performance* (1st ed.). Cambridge: Cambridge University Press. doi:10.2307/2234910

Obembe, E., Otesile, O., & Ukpong, I. (2014). Understanding the students ' perspectives towards entrepreneurship. *Procedia - Social and Behavioral Sciences*, *145*, 5–11. doi:10.1016/j.sbspro.2014.06.005

Pablo-Lerchundi, I., Morales-Alonso, G., & González-Tirados, R. M. (2015). Influences of parental occupation on occupational choices and professional values. *Journal of Business Research*. doi:10.1016/j.jbusres.2015.02.011

Pruett, M., Shinnar, R., Toney, B., Llopis, F., & Fox, J. (2009). Explaining entrepreneurial intentions of university students: a cross-cultural study. *International Journal of*

Entrepreneurial Behaviour & Research, *15*(6), 571–594. doi:10.1108/13552550910995443

Rae, D., & Ruth Woodier-Harris, N. (2013). How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the New Era economy? *Education + Training*, *55*(8/9), 926–948. doi:10.1108/ET-07-2013-0095

Schlaegel, C., & Koenig, M. (2014). Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models. *Entrepreneurship: Theory and Practice*, *38*(2), 291–332. doi:10.1111/etap.12087

Schwarz, E. J., Wdowiak, M. a., Almer-Jarz, D. a., & Breitenecker, R. J. (2009). The effects of attitudes and perceived environment conditions on students' entrepreneurial intent: An Austrian perspective. *Education + Training*, *51*(4), 272–291. doi:10.1108/00400910910964566

Sesen, H. (2013). Personality or environment? A comprehensive study on the entrepreneurial intentions of university students. *Education + Training*, *55*(7), 624–640. doi:10.1108/ET-05-2012-0059

Shane, S., Locke, E. a., & Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management Review*, *13*(2), 257–279. doi:10.1016/S1053-4822(03)00017-2

Sobel, R. S., & King, K. a. (2008). Does school choice increase the rate of youth entrepreneurship? *Economics of Education Review*, *27*(4), 429–438. doi:10.1016/j.econedurev.2007.01.005

Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, *22*(4), 566–591. doi:10.1016/j.jbusvent.2006.05.002

Sullivan, D. M., & Meek, W. R. (2012). *Gender and entrepreneurship: a review and process model*. *Journal of Managerial Psychology* (Vol. 27). doi:10.1108/02683941211235373

Taatila, V., & Down, S. (2012). Measuring entrepreneurial orientation of university students. *Education + Training*, *54*(8), 744–760. doi:10.1108/00400911211274864

Turker, D., & Selcuk, S. S. (2009). Which factors affect entrepreneurial intention of university students? *Journal of European Industrial Training*, *33*(2), 142–159. doi:10.1108/03090590910939049

Wu, S., & Wu, L. (2008). The impact of higher education on entrepreneurial intentions of university students in China. *Journal of Small Business and Enterprise Development*, *15*(4), 752–774. doi:10.1108/14626000810917843

Yurtkoru, E. S., Ku?cu, Z. K., & Do?anay, A. (2014). Exploring the Antecedents of Entrepreneurial Intention on Turkish University Students. *Procedia - Social and Behavioral Sciences*, *150*, 841–850. doi:10.1016/j.sbspro.2014.09.093

Zhang, Z., Zyphur, M. J., Narayanan, J., Arvey, R. D., Chaturvedi, S., Avolio, B. J., … Larsson, G. (2009). The genetic basis of entrepreneurship: Effects of gender and personality. *Organizational Behavior and Human Decision Processes*, *110*(2), 93–107. doi:10.1016/j.obhdp.2009.07.002

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FACTORS AFFECTING THE EFFECTIVENESS OF INTERNAL CONTROL SYSTEMS IN COMMERCIAL BANKS - EMPIRICAL EVIDENCE IN VIET NAM

Ho Tuan Vu

ABSTRACT

The purpose of this research were to determine the factors that affect effectiveness of internal control systems in commercial banks in Vietnam. Through the method of qualitative research and quantitative based on reliability Cronbach's Alpha, exploratory factor analysis (EFA) and multiple regression analysis (MRA). According to the report of COSO, BASEL organizations and the other authors, control environment; risk assessment; information and communication; control activities and monitoring could affected the effectiveness of internal control systems in commercial banks. In addition, this research has indicated that there are two new factors have an impact on the effectiveness of internal control systems in commercial banks in Vietnam: political institutions and interest groups.

Keywords: *factors, effectiveness of internal control systems, commercial banks, Vietnam, quantitative research*

JEL Classification: G21, G34, M48

1 INTRODUCTION

There were many researches on internal control system, the effectiveness of internal control system as well as factors affecting the effectiveness of internal control system. Some researches on internal control system and the effectiveness of internal control system were COSO (1992), Coco (1994), Basel (1998), Turbull (1999), Ge, W., & McVay, S. (2005), O'Donnell (2005), Doyle et al.(2007), Angella Amudo & Eno L. Inanga (2009), Sultana & Haque (2011), etc. Besides, some researchs on factors affecting the effectiveness of internal control system were Ramos (2004), Rae & Subramaniam (2006), Lannoye (1999), Walker (1999), Steihoff (2001), Hevesi (2005), Jenkinson (2008), Springer (2004), Muhota (2005), Diamond (1984), Calomiris & Khan (1991).

However, there had not been any research on factors affecting the effectiveness of internal control system in commercial banks in Vietnam. Therefore, this study will focus on the effectiveness of internal control system as well as factors affecting them in commercial banks in Vietnam.

2 LITERATURE REVIEW

2.1 The effectiveness of internal control systems

The report of the COSO (1992), Basel (1998), COSO (2013) said that: an internal control system is effective if the Board of Directors and the managers achieve the following criteria:

- They understand clearly the objectives of their organization
- The financial statements are prepared and presented reliably
- The laws and the regulations are being complied.

Beside those criteria, five other components of the internal control systems should be evaluated to consider the effectiveness of internal control system.

2.2 The factors that affect the effectiveness of internal control systems

2.2.1 Control environment

Control environment is one of the key components of an entity's internal control, it sets the tone of an entity, influences the control consciousness of all people within the organization and is the foundation for all other components of internal control system (Ramos, 2004). Some of the components of control environment for this study are; corporate culture, Competence levels, Quality of audit committees and Integrity and ethics (D'Aquila, 1998 & Ramos, 2004). According to Rae & Subramaniam (2006), the core of any organization is its people and they are the engine that drives the organization. They further assert that individual attributes (integrity, ethical values and competence) and the environment in which they operate determine the success of the institution and that the control environment as established by the organization's administration sets the tone of an institution and influences the control consciousness of its people. Control environment factors as listed by Subramaniam et al., (2006), include:

- Integrity and ethical values;

- The competence of an institution's people;

- Leadership philosophy and operating style;

- The way management assigns authority and responsibility and organizes and develops its people.

In relation to Subramaniam et al, (2006) organizational values cannot rise above the integrity and ethics of the people who create, administer and monitor them.

2.2.2 Risk Assessment

Lannoye (1999), said that the approach can vary between businesses but they must be designed to maintain an appropriate risk management through consideration of the concept of reasonable assurance about the cost-benefit balance. According to Walker (1999), the management of risks in the process of change should be designed to prevent or minimize the risk, managers should monitor any changes to ensure that each risk management continued when a change occurs. Managers should inform responsible employees directly about any proposed change in risk management. Managers should continue to monitor the factors that can affect the risk can create new risks.

According to the Lannoye (1999), this component of internal control system highlighting the importance of identifying caution in management and reviews the factors that can make your business barriers to achieve its mission. Risk assessment is a systematic process of integration of the adverse conditions and events can occur, evaluate the damage can (financial and non financial). Precondition to risk assessment is business must have clear objectives, as appropriate. Internal control give businesses the way in risk assessment from the inside as well as outside business like: identify risks; Risk analysis; Estimating the risk; Reviews of frequency of occurrence; Consider how to manage the risk

2.2.3 Control Activities

According to Jenkinson (2008), control policies and procedures must be established and executed to help ensure that actions necessary to achieve the institution's objectives are

effectively carried out. It is further argued that control activities are the policies and procedures that help ensure that management directives are carried out and also controlled activities occur as diverse as approvals, authorizations, verifications, reconciliations, reviews of operating performance, security of assets and segregation of duties. Similarly reviews should be made of actual performance versus budgets, forecasts and performance in prior periods and performance reviews should be made of specific functions or activities. Reviews in banks may focus on compliance, financial or operational issues. Ramos (2004) suggests that a variety of control activities should be performed to check the accuracy and completeness of information as well as the authorization of transactions. Development of new systems and changes to existing ones should be controlled. Additionally, access to programs and data should be restricted. Physical controls include control of equipments, inventories, securities, cash and other assets which should be secured physically and periodically counted and compared with amounts shown on control records. Performance indicators may be through anticipating certain operating results by investigating unexpected results that jeopardize the achievement of the banks' objectives. Duties are segregated among different people to reduce the risk of error or inappropriate actions. For example, responsibilities for authorizing transactions, recording them and handling the related assets should be separated.

2.2.4 Information and communication

Communication systems represent the institution's channels and methods of conveying important information, policies and directives as cited by Robert & Abbie (2003). In relation to the above, surrounding control environment activities are information and communication systems that enable the organization's people to capture and exchange the information needed to conduct, manage and control its operations therefore pertinent information must be identified, captured and communicated to appropriate personnel on a timely basis, thus effective communication must flow down, across and up the organization.

The study of Steihoff (2001) and Hevesi (2005), have shown that information and communication is an important factor affecting the effectiveness of the Internal Control systems. Information must be determined reliably from both inside and outside the enterprise, to be informed and handled by people with functions in a timely manner. Media information to be communicated officially and allowed by the board and staff to perform its responsibilities. Information and communication system that allows all employees understand their role in the control system, and the people involved. Businesses must be able to prepare accurate and timely financial reporting, including interim reports to report to managers to perform full responsibility and decision-making in a timely manner. Therefore, the need for job descriptions for all levels in the enterprise.

2.2.5 Monitoring

Monitoring is one of the most important aspects of internal control in any organization. According to Springer (2004), monitoring the performance of the internal control system over time, made continuous or separate assessment. The purpose of the monitoring is to determine the internal control made properly, fully and efficiently as designed all five components.

Monitoring is an on going activity which involves performing procedures periodically and reviewing banks documentation to confirm that all procedures have been performed as required (Muhota, 2005). The tools used in many organizations are reconciliations, internal checks and audits to ensure the accuracy of transactions being reported in financial statements in monitoring loans (Diamond, 1984). The entire process must be monitored and modified as necessary, thus the system can react dynamically to changing conditions. Internal control

systems need to be monitored, a process that assesses the quality of the system's performance over time. This is accomplished through ongoing monitoring activities, separate evaluations or a combination of the two. Ongoing monitoring occurs in the course of operations. It includes regular management and supervisory activities and other actions personnel take in performing during their duties. A good monitoring system should be able to identify internal control deficiencies and be reported immediately to top administration and governing boards as stated by Calomiris & Khan (1991).

2.2.6 Political institutions

Zingales's (1998), Beck (2003) points out that the political institutions that affect development finance. Kaufmann & partner (2009) has built the norms reflect the political institutions of a country, including: the quality article, political stability, government effectiveness, accountability, corruption control policy. Group author using the indicators were calculated, published and updated annually by the World Bank (World Bank database) to reflect the political factor. Kenjegalieva & Simper (2011) find that next to the macro economic factors, corruption in the organs of public power and the low efficiency of the Executive apparatus of the negative influence to results of operations of the Bank.

2.2.7 Group interests

Rawls, J.A. (1971) starting a political institutions are considered civilized when there is perfect legal system, create that important among interest groups, actively develop the mechanism of resistance through the reform process, constant innovation, regular, long, constantly backlogged, and separation of powers for the various components of the apparatus the right to monitor and the balance of power. Frank Scarpatti (1977) for that to continue building, modernization of the control mechanism of State power, the creation of a mechanism capable of encouraging the maximum positive influence of interest groups as well as minimize the negative influence of interest groups. Allan J.Cigler & Burdett A. Loomis (1995) states that benefits from the group forming the interest group. The society is a complex benefit system along with the interaction of interests in each group, or between different groups in a State competition, struggle continually to hold equal ownership, the distribution of public resources and the right to participate in the process of shaping, through, establishing the decision policy, in terms of State power with the purpose of bringing the benefits of the highest group. No formation, existence the Group stood outside interests. The society, which is a synthesis of the various interest groups, the number of them being regulated and limited by a single index: benefits-from which they link, form and operation.

From the model of the factors that influence the effectiveness of the internal control system of the authors before, when performing in-depth interviews with experts in the field of audit, the Bank in the country, the author proposes a research model to match the current conditions of the Vietnam commercial bank are as follows:

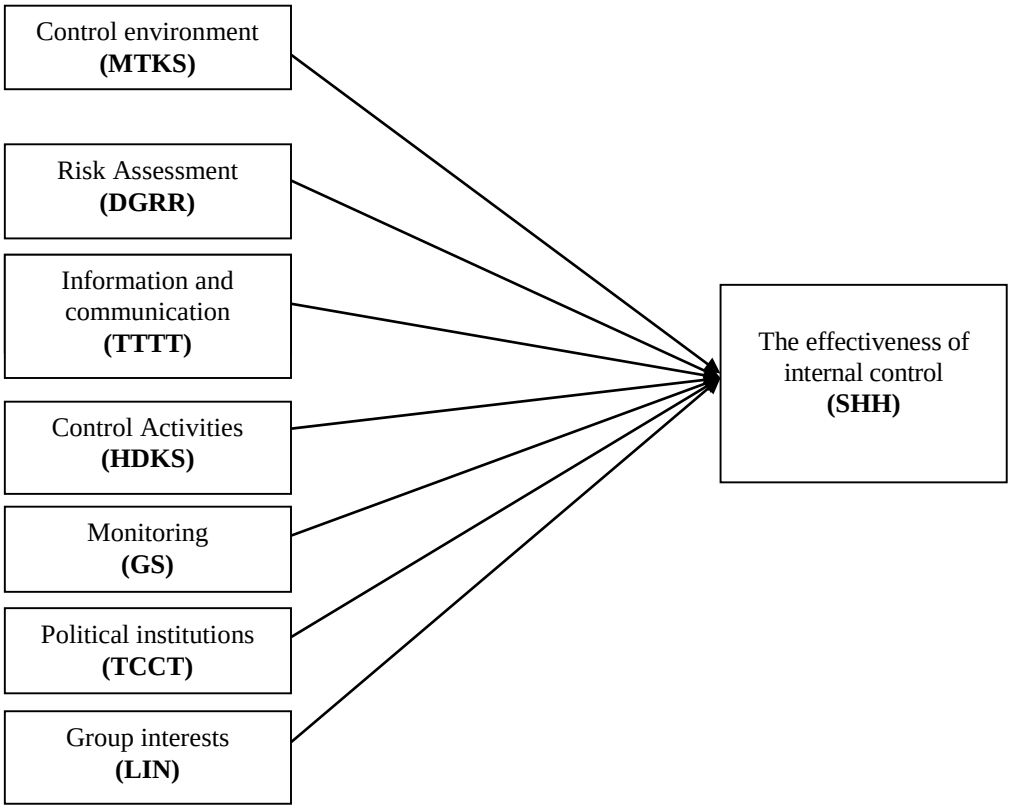

Fig.1 - Proposed model of factors affecting the effectiveness of internal control system in commercial bank of Viet Nam

Source: The model proposed by author

Thus, the hypotheses are posited as follows.

Hypothesis 1: The greater the control environment is, the more likely that internal control systems will achieve more effectiveness.

Hypothesis 2: The greater the risk assessment is, the more likely that internal control systems will achieve more e effectiveness.

Hypothesis 3: The greater the control activities are, the more likely that internal control systems will achieve more effectiveness.

Hypothesis 4: The greater the information and communications are, the more likely that internal control systems will achieve more effectiveness.

Hypothesis 5: The greater the monitoring is, the more likely that internal control systems will achieve more effectiveness.

Hypothesis 6: The greater the political institutions are, the more likely that internal control systems will achieve more effectiveness.

Hypothesis 7: The greater the Group interests are, the more likely that internal control systems will achieve less effectiveness.

3 DATA COLLECTION AND RESEARCH METHODOLOGY

The data were collected from the survey in 37 commercial banks in the 4th quarter of 2015 in Vietnam. There were 600 managers (in the total of 1,000 managers at commercial banks Vietnam) participated in this survey. After eliminating the invalid votes, 512 remaining votes were reliable to analyze. To achieve the goals of this research, I used a combination of the qualitative and quantitative methods.

Qualitative research was applied by interviewing the experts. Based on the collecting opinions from experts (including the Ministry of Finance, the State Bank of Vietnam, Vietnam Banking Association) about the factors affecting the effectiveness of internal control system, I developed, adjusted and rearranged the questionnaire to set a formal scale to do the survey in commercial banks in Vietnam.

Quantitative method was used by these steps: designing the study, collecting data, quantitative analysis using software version 20.0 SPSS. This software is used to synthesize and present basic data about the frequency of variables and statistical description of factors and their impact on the effectiveness of internal control systems. In this study, first author using Cronbach's Alpha Test techniques to test the factors of the scale then use technical analysis exploratory factor (EFA) to reduce the observed variables, change variable names and models shortened; finally ran regression models through regression analysis techniques to assess the final conclusions of the factors that affect the effectiveness of internal control in commercial bank of Viet Nam.

4 RESULT AND DISCUSSION

In this survey, the authors propose a model of 35 variables independent observers (variables) gathered in 7 groups of factors (Factors) and 3 observers for the dependent variable. To test the reliability of the scale model of the original author used the Cronbach's Alpha testing. Results of the testing were eliminated from model 8 observations following:

Tab.1 - Testing the rating scale by Cronbach's Alpha reliability coefficient (reliability statistics item-total statistics). Source: The results of analysis from SPSS 20.0 software

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Rating scale of Factor No.1, Cronbach's Alpha = 0.809				
MTKS2	7.9512	1.252	.603	.792
MTKS4	7.9824	1.152	.668	.727
MTKS5	7.9609	1.145	.703	.690
Rating scale of Factor No.2, Cronbach's Alpha = 0.795				
DGRR1	16.2383	3.266	.537	.770
DGRR2	16.1914	3.271	.592	.752
DGRR3	16.2344	3.346	.517	.775
DGRR4	16.2480	3.181	.635	.738
DGRR5	16.2520	3.246	.603	.748
Rating scale of Factor No.3, Cronbach's Alpha = 0.782				

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
HDKS1	12.0469	2.534	.577	.734
HDKS2	12.0234	2.477	.588	.729
HDKS4	12.0234	2.583	.607	.720
HDKS5	11.9766	2.626	.579	.733
Rating scale of Factor No.4, Cronbach's Alpha = 0.727				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
TTTT1	11.8535	2.626	.498	.678
TTTT3	11.8496	2.735	.517	.667
TTTT5	11.9648	2.543	.567	.637
TTTT6	11.9277	2.576	.489	.684
Rating scale of Factor No.5, Cronbach's Alpha = 0.742				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
GS1	8.0879	1.051	.535	.699
GS3	8.0078	1.115	.559	.669
GS4	7.9277	1.014	.613	.603
Rating scale of Factor No.6, Cronbach's Alpha = 0.797				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
TCCT2	12.2813	2.433	.612	.744
TCCT3	12.1973	2.370	.628	.736
TCCT4	12.2109	2.543	.578	.761
TCCT5	12.2773	2.385	.614	.743
Rating scale of Factor No.7, Cronbach's Alpha = 0.703				
LIN1	7.8535	14.431	.472	.648
LIN2	7.7813	14.246	.476	.646
LIN3	7.5391	13.118	.541	.604
LIN4	7.9395	14.828	.461	.655
Rating scale measuring the effectiveness of internal control systems in commercial banks in Vietnam, Cronbach's Alpha = 0.834				
SHH1	8.1719	1.125	.691	.774
SHH2	8.1465	1.123	.675	.791
SHH3	8.1270	1.133	.720	.747

As can be seen in the test result of the rating scale measuring the effectiveness of internal control systems in commercial banks in Vietnam, the Cronbach's Alpha = 0.834 (>0.6), the gross correlation coefficients are approximately or greater than 0.5 (much more than the acceptable level of 0.3); hence, the reliability of this rating scale is acceptable. After the Cronbach's Alpha test, we used the result acquired from the summary of 512 eligible answers and input variables into EFA to take out factors. The result of the selection of varimax rotation and shortened down to the variable load factor less than 0:55 after the second time running, the results showed: KMO = 0.844 with Sig = 0.000 significance level and extracting 7 factors with the gross s variance extracted = 60.944%.

Tab.2 - Result of the second exploratory factor analysis with varimax rotation (KMO and Bartlett's test). Source: The results of analysis from SPSS 20.0 software.

Kaiser - Meyer - Olkin Measure of Sampling Adequacy.		.844
Bartlett's Test of Sphericity	Approx. Chi-Square	4810.042
	Df	351
	Sig.	.000

Tab.3 - Analysis of the gross variance extracted elements. Source: The results of analysis from SPSS 20.0 software.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.806	25.209	25.209	6.806	25.209	25.209	2.711	10.039	10.039
2	2.188	8.103	33.312	2.188	8.103	33.312	2.534	9.384	19.423
3	1.917	7.101	40.412	1.917	7.101	40.412	2.423	8.974	28.397
4	1.636	6.058	46.471	1.636	6.058	46.471	2.307	8.544	36.941
5	1.477	5.469	51.940	1.477	5.469	51.940	2.290	8.483	45.424
6	1.260	4.665	56.605	1.260	4.665	56.605	2.156	7.984	53.408
7	1.171	4.339	60.944	1.171	4.339	60.944	2.035	7.536	60.944
8	.999	3.702	64.646						
9	.844	3.127	67.772						
10	.799	2.958	70.730						
11	.716	2.650	73.381						
12	.668	2.475	75.856						
13	.634	2.349	78.204						
14	.597	2.212	80.416						
15	.566	2.096	82.512						
16	.532	1.970	84.482						
17	.509	1.887	86.369						
18	.476	1.764	88.133						
19	.451	1.672	89.805						
20	.429	1.588	91.393						
21	.412	1.527	92.920						
22	.393	1.456	94.376						
23	.366	1.356	95.732						
24	.326	1.208	96.940						
25	.318	1.179	98.119						
26	.295	1.094	99.213						
27	.212	.787	100.000						

Extraction Method: Principal Component Analysis.

Tab.4 - Result of rotated component matrix. Source: The results of analysis from SPSS 20.0 software.

	Component						
	1	2	3	4	5	6	7
DGRR2	.720						
DGRR1	.700						
DGRR3	.673						
DGRR4	.637						
DGRR5	.599						
TCCT3		.773					
TCCT4		.740					
TCCT2		.738					
TCCT5		.675					
HDKS4			.733				
HDKS1			.694				
HDKS5			.672				
HDKS2			.667				
TTTT5				.808			
TTTT3				.725			
TTTT6				.663			
TTTT1				.639			
MTKS4					.840		
MTKS5					.808		
MTKS2					.734		
LIN3						.777	
LIN2						.715	
LIN1						.709	
LIN4						.692	
GS1							.789
GS4							.788
GS3							.773

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

As can be seen, 7 factors with the gross variance extracted equal to 60.944%, which mean these 7 factors can explain for 60.944% the effectiveness of internal control systems in commercial banks in Vietnam. The calibration model comprises of 7 factors that have impacts on the effectiveness of internal control systems in commercial banks in Vietnam, namely: factor no.1, which is referred to in our study as "Control environment" (motruongkiemsoat); factor no. 2 called " Risk Assessment" (danhgiaruiro); factor no. 3 called " Information and communication" (thongtintruyenthong); factor no. 4 called " Control Activities" (hoatdongkiemsoat); factor no. 5 called " Monitoring" (giamsat); factor no. 6 called " Political institutions" (thechechinhtri) and the final factor called "Group interests" (loiichnhom).

After successfully developing the model of factors that affect the effectiveness of internal control systems in commercial banks in Vietnam, we processed to assess this model by Multiple Regression Analysis (MRA) model to test its appropriateness and to examine the extent to which these factors influence the effectiveness of internal control systems. The result of MRA analysis generated by SPSS with "Enter" method is as follows:

Tab.5 - Result of assessing the calibrated model (model summary[b]). Source: The results of analysis from SPSS 20.0 software.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.844[a]	.713	.709	.27511	1.985

Tab.6 - ANOVA[a] . Source: The results of analysis from SPSS 20.0 software.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	94.812	7	13.545	178.959	.000[b]
	Residual	38.145	504	.076		
	Total	132.957	511			

Tab.7 - Result of MRA with individual regression coefficients in the model. Source: The results of analysis from SPSS 20.0 software.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.684	.151		-4.516	.000		
	moitruongkiemsoat	.088	.028	.090	3.193	.001	.718	1.392
	danhgiaruiro	.377	.036	.326	10.565	.000	.598	1.672
	hoatdongkiemsoat	.322	.031	.325	10.370	.000	.579	1.728
	thongtintruyenthong	.154	.027	.156	5.813	.000	.788	1.270
	Giamsat	.120	.027	.114	4.381	.000	.847	1.180
	thechechinhtri	.145	.029	.143	4.963	.000	.684	1.461
	loiichnhom	-.038	.010	-.090	-3.748	.000	.987	1.013

MRA result shows that adjusted R2 = 0.709, F-test (ANOVA table) expresses the significance level sig. = 0.000; thus, the regression model is suitable and these factors can explain 70.9% of the variations of the dependent variable. Considering the regression weights, we can identify the positive correlation between these factors and the effectiveness of internal control systems, these variables are statistically significant due to do sig. = .000), there is no sign of multicollinearity, or to be specific, these variables are not inter-correlated.

Based on Beta coefficient, we can arrange the order affects the effectiveness of internal control systems of these factors in turn were: Risk Assessment (factor no.2), Control Activities (factor no.4), Information and communication (factor no. 3), Political institutions (factor no.6), Monitoring (factor no.5); Control environment (factor no.1), Group interests (factor no7). Thus

the model factors affecting the effectiveness of internal control systems in commercial banks in Vietnam remaining 7 factors with specific equation is:

The effectiveness of internal control= -0.684 + 0.088 (Control environment) + 0.377 (Risk Assessment) + 0.322 (Control Activities) + 0.154 (Information and communication) + 0.120 (Monitoring) + 0.145 (Political institutions) - 0.038 (Group interests).

Testing of hypotheses

Tab.8 - Regression analysis results. Source: The results of analysis from SPSS 20.0 software

	Result	b	T	p- value
H1:MTKS □ SHH	Accept	0,090	3,193	0,001
H2: DGRR □ SHH	Accept	0,326	10,565	0,000
H3: HDKS □ SHH	Accept	0,325	10,370	0,000
H4: TTTT □ SHH	Accept	0,156	5,813	0,000
H5: GS □ SHH	Accept	0,114	4,381	0,000
H6: TCCT□ SHH	Accept	0,143	4,963	0,000
H7: LIN□ SHH	Accept	-0.090	-3,748	0,000

Compared with previous researches, this research discovered two factors that affect the effectiveness of the internal control system in the commercial bank of Vietnam: political institutions and interest groups.

5 CONCLUSION

This is an empirical study on the pattern of factors affecting the effectiveness of internal control systems in commercial banks in Vietnam in recent years. Based on the results of research, we came up with the key factors that affect the effectiveness of internal control systems were: Control environment; Risk Assessment; Control Activities; Information and communication; Monitoring; Political institutions**;** Group interests. Detection is very important to advice given reasonable solutions thereby improving the effectiveness of internal control systems in commercial banks in Vietnam in the coming time.

Limitations of this study:

In this research, author mainly based on the constituent factors of internal control system in accordance with COSO and BASEL organizations and have added two factors consistent with conditions in Vietnam are: political institutions and interest groups. The next research can investigate other factors, especially the factors within the commercial bank of Vietnam. In addition, the scope of the research is not to mention the foreign bank. Therefore, further researches need to expand the scope of research to many other objects.

REFERENCES

Ashbaugh-Skaife, H., Collins, D. W., Kinney, W. R., & LaFond, R., (2008). The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review, 83* (1): 217-250. doi: http://dx.doi.org/10.2308/accr.2008.83.1.217

Allan J.Cigler and Burdett A.Loomis, 1995. *Interest Group Politics,* Congressional Quarterly Presss: 89.

Angella Amudo, Eno L. Inanga, (2009). Evaluation of Internal Control Systems: A Case Study from Uganda, *International Research Journal of Finance and Economics*, 27 (2009):125-144. [online] Available at: https://www.researchgate.net/publication/282736409_Evaluation_of_Internal_Control_Systems_A_Case_Study_from_Uganda.

C.T.Gamage and AAJ Fernando, (2014). Effectiveness of internal control system in state commercial banks in Sri Lanka, *International Journal of Scientific Research and Innovative Technology*, Vol. 1 No. 5: 25-44. [online] Available at: http://www.ijsrit.com/uploaded_all_files/1633729483_o2.pdf.

Committee of Sponsoring Organizations of the Treadway Commission (COSO), (1992). *Internal control-integrated framework.* New York, NY: AICPA.

DiNapoli, T. P., (2007). *Standards for Internal Control,* In New York State Government.

Ge, W., & McVay, S., (2005). The disclosure of material weaknesses in internal control after the Sarbanes-Oxley Act. *Accounting Horizons, 19* (3): 137-158. Doi: http://dx.doi.org/10.2308/acch.2005.19.3.137.

Hammersley, J. S., Myers, L. A., & Shakespeare, C., (2008). Market reactions to the disclosure of internal control weaknesses and to the characteristics of those weaknesses under Section 302 of the Sarbanes Oxley Act of 2002. *Review of Accounting Studies,* 13 (1): 141-165. Doi: http://dx.doi.org/10.1007/s11142-007-9046-z

Hevesi G. (2005). *Internal Control Standards in New York States Government.* Retrieved from: http://www.osc.ny.us/audit/control/standards.htm2009june6.

J.Altamuro., A. B. (2010), How does internal control regulation affect financial reporting?, *Journal of Accounting & Economics*, 49: 58-74. Doi: http://dx.doi.org/10.1016/j.jacceco.2009.07.002.

Joseph M. Onumah, Ransome Kuipo, Victoria A. Obeng, (2012). Effectiveness of Internal Control Systems of Listed Firms in Ghana, *Accounting in Africa*. Published online: 2012; 31-49. Doi: http://dx.doi.org/10.1108/S1479-3563(2012)000012A006.

Kaufmann, D., Kraay, A. & Mastruzzi, M., (2009). Governance matters VIII: Aggregate and individual governance indicators 1996-2008, *World Bank policy research*, working paper 4280.

Kopp, Lori S. and O'Donnell, Ed. , (2005). The Influence of a Business-process Focus on Category Knowledge and Internal Control Evaluation. *Accounting, Organizations and Society*, 30:423–434. Doi: http://dx.doi.org/10.1016/j.aos.2004.03.004

Lannoye .M.A, (1999). *Evaluation of internal Controls*. Retrieved from: http://www.michighan.gov/documents/gf_master1_26775_7.pdf.

Leone, Andrew J., (2007). Factors Related to Internal Control Disclosure: A Discussion of Ashbaugh, Collins, and Kinney (2007) and Doyle, Ge, and McVay (2007). *Journal of Accounting and Economics*, 44:224–237. Doi: http://dx.doi.org/10.1016/j.jacceco.2007.01.002

Ofori W, (2011). *Effectiveness of Internal Control System: A perception or Reality*, [online] Available at: http://ir.knust.edu.gh/bitstream/123456789/4435/1/WILLIAM% 20OFORI%20FINAL% 20THESIS%202011.pdf.

O'Leary, Conor; Iselin, Errol; Sharma, Divesh, (2006). The Relative Effects of Elements of

Internal Control on Auditors' Evaluations of Internal Control**,** *Pacific Accounting Review 18. 2*: 69-96. http://dx.doi.org/10.1108/01140580610732822

Rae, Kirsty and Subramaniam, Nava, (2008). Quality of Internal Control Procedures: Antecedents and Moderating Effect on Organizational Justice and Employee Fraud. *Managerial Auditing Journal*, 23(2):104-124. Doi: http://dx.doi.org/10.1108/02686900810839820

Simmons M.R., (1995). *The framework for Internal Control: A strategic approach to internal audit*. [online] Available at: http://www.facilitatedcontrols.com/internalaudit/cosobsic.htm.

Walker D.M., (1999). *Standards for Internal Control in Federal Government*. [online] Available at: http://www.gao.gov/special.pubs/ai00021p.pdf.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

BANKING INDUSTRY OF VIETNAM FROM THE STATE CAPITALISM PERSPECTIVE

Hoa Anh Ho

ABSTRACT

State capitalism refers to the intervention of a state in its economy by direct tools other than law to achieve socio-political goals. This phenomenon originated from the wealthiest countries in the 17th century and has been adopted by developed countries even in the 21st century. State capitalism, however, is criticised as a negative method employed by developing countries to protect their domestic market. This paper analyses the banking industry of Vietnam from the state capitalism perspective. It argues that state capitalist tools, especially state owned banks, are necessary for Vietnam to govern the banking market and sustain competition because markets are becoming more globalised. However, a state should properly limit the power of these tools to prevent negative effects.

Keywords: *state capitalism, banking industry, state owned bank, state owned enterprises, bad debt, foreign bank, state bank, state intervention*

JEL Classification: E580

1 INTRODUCTION

Given that banking is an important industry in Vietnam, it is strictly governed by the state. Among different methods, state owned banks (SOB) are a powerful instrument that Vietnam employs to govern the banking industry. The strong intervention of the state in the operation of commercial banks in Vietnam is normally criticized to weaken the market mechanism and create unfairness between state and private sectors. However, given that Vietnam is a developing country of which the economy is small, the intervention of the state in some commercial banks is necessary to achieve efficiency and promote security for the monetary system of Vietnam.

This paper aims to analyze the banking industry of Vietnam from the state capitalism perspective and argues that the state's intervention in the operation of SOBs is necessary to maintain competition in the banking market and secure the banking system of Vietnam though this method should be properly limited. This paper focuses on the role of the state of Vietnam in governing the banking industry through SOBs. Besides, it analyses but does not focus on the role of commercial banks in financing state-supported industries.

This paper does not discuss the struggle between communism and capitalism or their surrounded political issues. It merely analyses the role of states in governing banking industry by direct methods other than general laws. The discussion focuses mostly on the functions of SOBs in the banking industry of Vietnam.

The second section of this paper starts with an overview of state capitalism. It discusses the definition and history of state capitalism. This phenomenon seems to attach with the socialist and developing countries, but it originated in wealthy capitalist countries and was an effective

way for powerful capitalist countries to develop their economies. The second section also provides pros and cons of state capitalism to indicate its advantages and drawbacks. The third section of this paper discusses the banking system of Vietnam and the role of SOBs in achieving the state's goals. This section highlights the problems of state capitalism in the banking market of Vietnam and suggests the necessary limit on the intervention of the state in running SOBs and the limits on SOBs' power. On the other hand, the third section also argues that state capitalism is necessary for Vietnam to govern the banking market and enhance effective competition when this market is globalized.

2 STATE CAPITALISM AND CRITICS

2.1 Definition and history of state capitalism

Many papers have discussed state capitalism but only some authors define this phenomenon. Given this concept is broad, it may differ from paper to paper. Musacchio and Lazzarini define state capitalism as "the widespread influence of the government in the economy, either by owning majority or minority equity positions in companies or by providing subsidized credit and/or other privileges to private companies."(Musacchio & Lazzarini, 2014, p. 2). Li provides a broader concept of state capitalism by referring to the undertaking of activities by the government to achieve its objectives within the context of a free market economy.(Li, 2015) In general, state capitalism is the intervention of a state in its economy by direct tools other than law to achieve socio-political goals such as enhancing domestic firms' competitiveness, stabilizing economy, solving market failure, or promoting social welfare.

According to Bremmer, state capitalism has four primary actors: national oil corporations, state-owned enterprises, privately owned national champions, and sovereign wealth funds (SWFs).(Bremmer, 2009, p. 42) Musacchio and Lazzarini also discuss tools that a state could employ to pursue state capitalism. They assert that the new varieties of state capitalism differ from the more traditional model in which governments own and manage state-owned enterprises (SOEs) as extensions of the public bureaucracy. They refer to this traditional model as leviathan which is an entrepreneur.(Musacchio & Lazzarini, 2014, p. 2) Webb observes in his discussion about actors of state capitalism that state capitalists are not just running companies but they are also managing huge pools of capital in the form of SWFs. He contends that leviathan is becoming a finance capitalist as well as the captain of an industry.(Webb, 2012c)

State capitalism, which centers power of state and bureaucrats, seems to be a product of socialist or communist countries but it originated from wealthy capitalist countries. East India Company, which was incorporated by royal charter on December 31, 1600, was an English company formed for the exploitation of trade with East and Southeast Asia and India.(Encyclopedia Britannica, n.d.) At the beginning, East India Company was a monopolistic trading body. It then involved in politics and acted as an agent of British imperialism in India from the early 18th century to the mid-19th century.(Encyclopedia Britannica, n.d.)

Similarly, state capitalism appeared in the U.S in 18th century. In September 1789, George Washington appointed Alexander Hamilton as America's first ever treasury secretary.(Webb, 2012b) Two years later Hamilton proposed a plan to Congress named the "Report on Manufactures" to foster American young economy.(Webb, 2012b) According to Webb, "Hamilton had no time for Adam Smith's ideas about the hidden hand. America needed to protect its infant industries with tariffs if it wanted to see them grow up."(Webb, 2012b)

Literature, however, does not take into account the early stages of state capitalism in 17th and 18th century. According to Nolke, there are three waves of state capitalism. The first wave

happened in 19th century and was in connection with trade protectionism in countries such as the United States, Germany, parts of Scandinavia, and later Japan.(Nolke, 2014, p. 3) The second wave of state capitalism emerged by the strongly increased role of the state in the economies of the United States, Europe, and the Soviet Union after the Great Depression, and also the rise of the East Asian developmental states after the Second World War.(Nolke, 2014, p. 3) The third wave of state capitalism, which happened in developing countries such as China, India, or Brazil, is based on a variety of formal and informal cooperative relationships between various public authorities and individual companies.(Nolke, 2014, p. 3)

Ian Bremmer observes four waves of state capitalism that started in mid-20th century. The first wave was shaped during the 1973 oil crisis, when the members of the Organization of the Petroleum Exporting Countries (OPEC) agreed to cut oil production in response to the United States' support of Israel in the Yom Kippur War.(Bremmer, 2009, p. 45) Bremmer asserts that the oil crisis gave birth to the modern national oil corporation, a model that has since become widespread and has been applied to the natural gas sector as well.(Bremmer, 2009, p. 45) The second wave of state capitalism emerged during the 1980s, driven by the rise of developing countries controlled by governments with state-centric values and traditions.(Bremmer, 2009, p. 46) The third wave of state capitalism attached to the rise of sovereign wealth funds that were generated by a huge increase in exports from emerging-market countries.(Bremmer, 2009, p. 48) The fourth wave of state capitalism arrived in 2009, strengthened by the global economic downturn. Bremmer observes that in the fourth wave of state capitalism, "the governments of the worlds' wealthiest countries, and not just those of emerging-market countries, are the ones intervening in their economies."(Bremmer, 2009, p. 49)

Thus, state capitalism originated from capitalist countries in 17th and 18th century. It was then revived in 19th century, again by capitalist economies, because of trade protectionism pursued by countries such as the U.S, European countries, or Japan. State capitalism in 20th century attached with socialist countries and members of the OPEC. In 21st century, state capitalism emerges again with the involvement of different types of countries including free-capitalist ones.

2.2 Revival and critics of state capitalism in 21st century

State capitalism emerges strongly again in 21st century, encompassing a wide range of economies and political regimes due to the world economy's uncertainty. In addition to developing countries such as China, India, Brazil, state capitalism is also adopted in developed economies. Bremmer observes that "across the United States, Europe, and much of the rest of the developed world, the recent wave of state interventionism is meant to lessen the pain of the current global recession and restore ailing economies to health."(Bremmer, 2009, p. 40)

SOEs are still an important instrument of state capitalism in 21st century either in socialist countries such as Vietnam or China or in capitalist countries. Norwegian Statoil is the world's 13th biggest oil company by revenue.(Webb, 2012c) Likewise, Singapore's Temasek is an example of a successful SOE.

State capitalism in 21st century, however, is marked by the blooming of SWFs. According to the International Working Group of Sovereign Wealth Funds, sovereign wealth funds are special purpose investment funds or arrangements that are owned by the general government.(Borst, 2015, p. 1) Many developed countries have established their SWFs. The French Government has set up a sovereign wealth fund.(Webb, 2012d) Norway has the third biggest SWF(Webb, 2012c) while the largest one in the world is the Japanese Government Pension Investment Fund.(Borst, 2015, p. 2) SWFs account for one-eighth of global investment.(Bremmer, 2009, p. 40) Bremmer concerns that "these trends are reshaping

international politics and the global economy by transferring increasingly large levers of economic power and influence to the central authority of the state."(Bremmer, 2009, p. 40)

Many scholars seem to criticize the adoption of state capitalist instruments in developing countries. According to Bremmer, state capitalism in developing countries differs from that of developed world. He asserts that the world's leading industrialized powers have not embraced state capitalism without reservations.(Bremmer, 2009, p. 49) On the contrary, states' heavy hand in an economy in developing countries is signaling a strategic rejection of free-market doctrine.(Bremmer, 2009, p. 40) Bremmer also criticizes that "one essential feature of state capitalism is the existence of close ties binding together those who govern a country and those who run its enterprises."(Bremmer, 2009, p. 44)

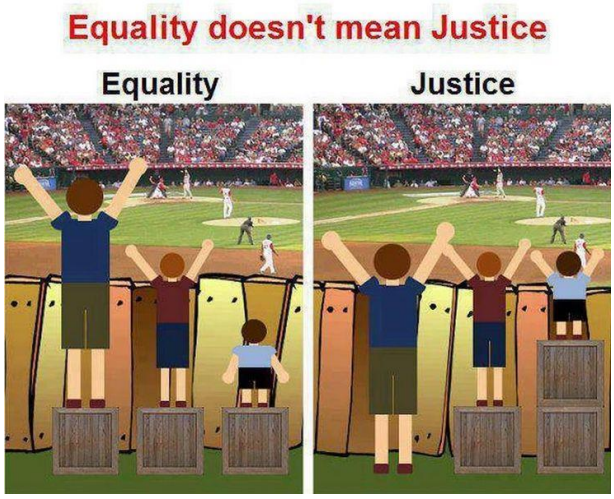
Bremmer therefore points out two risks of state capitalism. First, commercial decisions are often left to political bureaucrats, who have little experience in efficiently managing commercial operations. Second, the motivations behind investment decisions may be political rather than economic.(Bremmer, 2009, p. 44)

Similarly, Bacon asserts that state capitalism is likely to cause some problems. First, state capitalist governments may undermine interest of minority shareholders or private companies in emerging markets have to pitted against state-backed favourites.(Bacon, 2012) Second, state capitalism may put global trading systems at risk because some companies enjoy the support of national governments. Bacon observes that "western politicians are beginning to lose patience with state-capitalist powers that rig the system in favour of their own companies."(Bacon, 2012) Webb also considers state capitalism as a threat to liberal capitalism by asserting that "the crisis of liberal capitalism has been rendered more serious by the rise of [state capitalism] which tries to meld the powers of the state with the powers of capitalism".(Webb, 2012d)

Webb, however, points out some advantages of state capitalism in compared with liberal capitalism. First, state capitalism can claim the world's most successful big economy and some of the world's most powerful companies.(Webb, 2012d) Second, state capitalism is on the march, overflowing with cash and emboldened by the crisis in the West.(Webb, 2012d) Third, state capitalism has also been successful at producing national champions that can compete globally.(Webb, 2012a) Finally, state capitalism makes it easier for emerging countries to learn from the rest of the world.(Webb, 2012a)

Webb also provides a less skeptical view of state capitalism by highlighting its achievements. Singapore's sovereign-wealth fund, Temasek, is a model of good management. Brazil has pioneered the use of the state as a minority shareholder. Norway has successfully shielded its sovereign-wealth fund and state oil company from political interference.(Webb, 2012)

In sum, state capitalism is the intervention of a state in its economy by direct tools other than law to achieve socio-political goals. This phenomenon emerged in the wealthiest countries in 17th century and is adopted by developed countries in the 21st century. Powerful companies in liberal capitalist countries have been long enjoying the support of their governments, and such state's support is always available for them. Criticism of state capitalism, however, focuses on developing countries of which a government intervenes in its economy to produce national champions and to promote economic efficiency. In a developing country like Vietnam, although the state's intervention is not always rational, state capitalism is a good option to promote competition in a globalized market. As noted by Nolke, latecomer economies always need a certain degree of catch-up process orchestrated by the state, in order not to be overwhelmed by those economies that are dominant within the world economy.(Nolke, 2014, p. 4)



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3 THE BANKING INDUSTRY OF VIETNAM

3.1 Brief history

In 1997, the National Assembly of Vietnam passed the *Law on State Bank of Vietnam* and *Law on Credit Institutions* in place of the *Banking Ordinance* of 1990. These laws indicated that Vietnam started to reform its legal framework to pursue a market economy. After being a member of the World Trade Organisation (WTO) in 2007, banking market of Vietnam has been developed substantively. The National Assembly, again enacted the *Law on State Bank* and *Law on Credit Institutions* in 2010. These new laws make the banking market of Vietnam more transparent, and to some extent is more liberalized.

The banking system of Vietnam consists of the State Bank of Vietnam and commercial banks. The State Bank of Vietnam is a ministerial-level agency of the government and the central bank of Vietnam.(*Law on State Bank of Vietnam*, 2010, p. article 2(1)) Commercial banks include 7 banks of which state owns more than 50% of charter capital, 28 privately-owned commercial banks, banks for social policy, banks for development, people's credit funds, 100% foreign owned banks, and joint-venture banks.

SOBs are leading banks in Vietnam that have a long history of development and high reputation. The value of state owned capital is VND134,000 billion while the total capital owned by the private sector in banking market of Vietnam is VND193,000 billion.("The State Bank of Vietnam," n.d.) By using SOBs, the state of Vietnam has a strong visible hand in regulating the banking market of Vietnam.

The emergence of state capitalism in banking industry of Vietnam matches with Nolke and Bremmer's proposed waves of state capitalism. The establishments of Bank for Investment and Development of Vietnam (BIDV) in 1957 and Bank for Foreign Trade of Vietnam (Vietcombank) in 1963 was in accordance with Nolke's second wave of state capitalism which "emerged by the strongly increased role of the state in the economies."(Nolke, 2014, p. 3) The foundations of Bank for Agriculture and Rural Development (Agribank) and Bank of Industry and Trade in 1988 (Vietinbank) matched with Bremmer's second wave of state capitalism which "emerged during the 1980s, driven by the rise of developing countries controlled by governments with state-centric values and traditions."(Bremmer, 2009, p. 46) Finally, the foundations of Construction Bank and Global Petro Bank and Construction Bank in 2015 matched with Nolke's third wave and Bremmer's fourth wave of state capitalism.

In general, given that Vietnam is bound by commitments provided by trade agreements, markets are gradually deregulated. The direct intervention of state in the banking market, however, is still strong. The government employs a number of state capitalist tools especially SOBs to control and manipulate markets.

3.2 How state governs banking market

3.2.1 Macro tools

Legal documents that regulate the banking market consists of laws including the *Law on State Bank of Vietnam* and *Law on Credit Institutions*, decrees, and circular of the Governor of the State Bank. These documents provide state with the following instruments to control the banking system.

Granting licenses to commercial banks

According to article 18 of the *Law on State Bank of Vietnam,* the State Bank may grant, modify and revoke licenses to Credit institutions and foreign bank branches doing business in Vietnam. Besides, article 90(1) provides that the State Bank shall specify the scope, types and contents of banking operations and other business activities of each credit institution in the license granted to such credit institution.

Safety ratios

Commercial banks are financial intermediaries of the economy. The State Bank therefore is authorized to specify the following safety ratios to ensure the effectiveness of these credit institutions:

a/ The solvency ratio;

b/ The minimum capital safety ratio of 8% or higher as prescribed by the State Bank in each period;

c/ The maximum ratio of short-term funds for provision of medium-term and long-term loans;

d/ The maximum foreign currency and gold status against own capital;

e/ The ratio of outstanding loans to the total balance of deposits;

f/ The ratio of medium- and long-term deposits to the total outstanding medium- and long-term loans.(*Law on Credit Institutions*, 2010, p. article 130)

3.2.2 Micro tools

In addition to macro tools, the State Bank of Vietnam employs four non-institutional instruments to influence commercial banks' behaviours so as to regulate market: discounting interest rates, basic interest rates, compulsory reserves, open-market operations. Apart from the abovementioned four non-institutional instruments, SOBs are an institutional micro tool that facilitate the State Bank to control the banking market effective. There are many papers discussing the advantages and disadvantages of the four non-institutional instruments. This paper analyses the commercial bank system and banking industry of Vietnam through the operation of state owned banks.

SOBs are a direct instrument of the State Bank to govern banking market in particular and monetary policy in general. They help the State Bank balance interest rate. Thanks to state's support and their economies of scale, SOBs can provide corporations credits with lower interest rate and therefore enhance the economy's development. Besides, SOBs help the State Bank

control the injection of money to economy without issuing money or government's bond.(D. T. Nguyen, 2008) The close relationship between SOBs and the State Bank, however, gives them privileges and a certain degree of market power. The relationship between SOBs and the State Bank also reflects Bremmer' point that "one essential feature of state capitalism is the existence of close ties binding together those who govern a country and those who run its enterprises."(Bremmer, 2009, p. 44)

SOBs of Vietnam consist of four senior banks: BIDV, Vietcombank, Vietinbank, and Agribank, and three new comers: GP Bank, Construction Bank, and Ocean Bank. The charter capitals of senior SOBs are far bigger than those of private banks. Besides, SOBs in Vietnam are supported by the state and consequently they have more advantage than other competitors do. These supports, however, do not always contribute positively to their businesses.

Tab.1 - Commercial banks of which state owns more than 50% of the charter capital

	Name	Charter capital (VND billion)	Year of establish	Percentage of state owned capital
1	Vietcombank	26,650	1963	77.11%
2	BIDV	31,481	1957	95.28%
3	Agribank	29,003.6	1988	100%
4	Vietinbank	37,234	1988	64.46%
5	Ocean Bank	4,000	1993	100%
6	Construction Bank	3,000	2015	100%
7	GPBank	3,018	2015	100%

3.3 Shortcoming of the state's intervention in banking market

The intervention of the Vietnamese state in businesses of SOBs does not always rational and positive. In some situations, banks have to make decisions basing on state's instruction rather than market-based consideration. This way of making decision puts banks in high risk businesses.

SOBs finance SOEs or projects under instruction of state

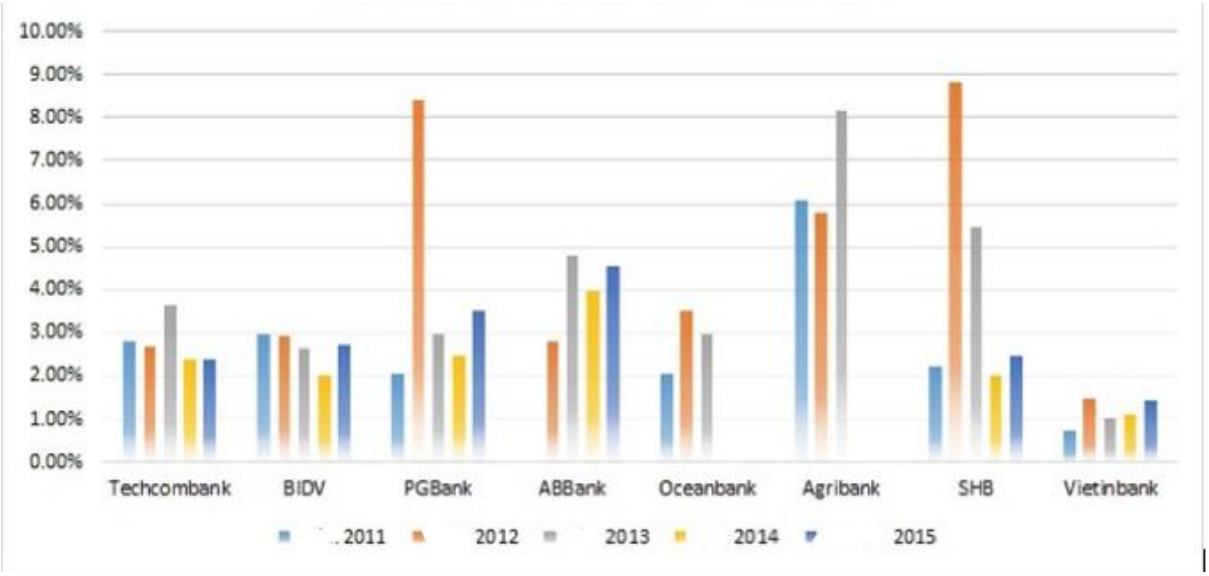
As a major shareholder, the state has used SOBs to finance national projects or SOEs, for example, the project of Son La hydro power plant was jointly financed by VietcomBank, BIDV, VietinBank, and Agribank. Given that national projects are subsidised by the state, SOBs normally could provide long-term credit without caring about risks. Therefore, when a project goes bankrupt, banks that finance such a project would have to face with financial hardship. In such a scenario, private banks would lose more than SOBs do. The bankruptcy of VINASHIN in 2011 is an example.

VINASHIN is a state owned economic group of which businesses are ship building and repairing, transforming ships and water-operate vehicles. Besides, VINASHIN operates sea ports, river ports and docks, and other supplementary businesses. The government of Vietnam pursued a plan to make VINASHIN a national champion in shipping industry so as to compete with international rivals.

Given that VINASHIN was designed to lead the shipping industry of Vietnam, it could attract a huge amount of capital, especially from three SOBs: VietinBank, AgriBank, and BIDV and five private commercial banks: TechcomBank, ABBank, SHB, OceanBank and HabuBank. In 2011, when VINASHIN went bankrupt, these eight banks suffered a bad consequence.

HabuBank was the creditor incurring the worst loss. By the end of 2011, the total loan that Habubank provided to VINASHIN was VND 3,345 billion including corporate bond. In the first quarter of 2012, the rate of Habubank's bad debt including loan and corporate bond reached 83% of the bank's charter capital. OceanBank, by the end of 2013, had provided VINASHIN VND 689.4 billion in credit and this amount was overdue. In addition, Oceanbank deposited VND 1,085 billion at VINASHIN's Finance Company which was overdue by the end of 2012. PGBank bought VND 50 million bond issued by VINASHIN of which VND 35 billion was set up for risk provisions. Techcombank credited VND 500 billion to VINASHIN. This overdue debt made Techcombank's bad debt increased from 2.69% in 2012 to 3.64% by the end of 2013. ABBank bought VND 500 billion bond issued by VINASHIN. By the end of 2013, ABBank used VND 140 billion budget which aimed to subsidize the loss of security market to clear a part of VND 500 million debt of VINASHIN. Another proportion of the debt, which valued VND 150 billion, was transformed to bond issued by Debt Asset Trading Corporation (DATC). The rest of the debt, which was VND 210 billion, was under processed. As a result, the rate of ABBank's bad debt increased to 4.8% in 2013 from 2.82% of 2012. Similarly, BIDV owned VND 6,600 billion of VINASHIN's debt. Such an amount contributed 3.2% of this bank's debt and it exceeded 15% of BIDV's equity. After VINASHIN's bankruptcy, an amount of VND 1,600 billion of debt credited by BIDV was transferred to VINALINES, another SOE of the shipping industry of Vietnam. The rest of VINASHIN's debt credited by BIDV was VND 5,000 billion which equated to 2.4% of this bank's debt.

Chart 1: Bad debt incurred by 8 SOBs due to VINASHIN's bankruptcy(Tran, 2015)



As a result of VINASHIN's bankruptcy, a number of banks suffered a financial hardship. HabuBank was merged to SHB in 2012. The former's bad debt was transferred to the latter and

made SHB's bad debt ratio increased from 2.22% in 2011 to 8.82% by the end of 2012. In 2014, SHB basically classified VINASHIN's debt under instruction of the State Bank. Similarly, OceanBank was acquired by Vietinbank in 2015. PGBank is also under process to be merged to Vietinbank in 2016. ABBank has been reconstructing bad debt by special bond. By the end of 2014, ABBank owned VND 2,343.370 billion of special bond issued by VAMC while in 2013 it owned only VND 531.524 billion. TechcomBank, which was the top retailing bank in 2010, made its best effort to decrease bad debt ratio from 3.64% in 2013 to 2.34% in 2015 while its strategic investor, HSBC, has been withdrawing invested capital from TechcomBank.(Phuong, 2014)

While private banks were difficult to deal with bad debt made by VINASHIN, SOBs such as Vietinbank and BIDV seem to expand their businesses despite of the crisis. For example, Vietinbank acquires PGBank by a VND 0 transaction and controls OceanBank under authorization of the State Bank. There are some reasons that make Vietinbank appeared to be more efficient. Besides having a strong financial capacity, Vietinbank dealt aggressively with bad debt by employing a wide range of instruments such as restructuring, regrouping, or selling debt, handle mortgages, especially convert debt into the bank's capital invested in borrowers. The last method on the one hand helps companies that are in threat of bankruptcy especially SOEs to keep doing business. On the other hand, it reduces the rate of Vietinbank's bad debt. By September 30, 2015, Vietinbank successfully converted VND 361 billion of debt into borrowers' charter capital.(H. Nguyen, 2015)

The VINASHIN's bankruptcy indicates that the way the state intervened in the banking market was not rational. Banks should make business decisions basing on their scrutiny rather than state's orders regardless of risk. The VINASHIN crisis indicated that state capitalism in the banking industry should not work in such a way that business decision is made by political will. The state's intervention should not undermine the self-determination of firms. The state instead should leave a gap for SOBs to make safer decisions.

Interest rate, which is decided by state, may constrain competition

The State Bank of Vietnam has authority to provide ceiling and floor interest rate. It means interest rates are not determined by market mechanism's demand-supply law but is decided by state through the "prime interest rate". By this mechanism, SOBs have more competitive advantage in comparison with private ones.

SOBs are always able to offer lower lending interest rates than private banks because the former have cheaper source of capital. SOBs can mobilize capital from big clients such as SOEs, ODA, deposits of insurance companies and the State Treasury. Besides, thanks to their reputation, SOBs can mobilize saving from citizen easier than private banks although the latter can offer higher depositing interest rate. Moreover, SOBs can mobilize foreign capital by commercial loans or refinancing under the support of state.(Dai, 2010)

Thanks to the abovementioned advantages, SOBs put a competitive pressure on private banks. Given that private banks are weaker competitors in comparison with SOBs, the former have to employ some negative instrument to attract clients. First, private banks only provide short-term credit and ease conditions for mortgages. Besides, private banks are willing to work with "black" financial intermediaries to enhance their loans. This phenomenon lead to the peak of loans in the period from 2009 to 2011 and the peak of bad debt in 2013.(Hoang, 2014) Second, commercial banks are willing to pay client cash for depositing interest exceeding the ceiling rate set by the State Bank. This additional interest is illegal but is employed by private banks because if the same interest rate is applied by the two sectors, people would prefer depositing their money to SOBs to private banks.

3.4 Does market mechanism work in the banking industry of Vietnam?

As a major shareholder of some commercial banks, the state can implement its policy to stabilise the monetary market. However, the high ratio of bad debt and inflation in the period from 2012 to 2014 indicated the inefficiency of state agencies in governing the market. The lack of commercial banks' freedom to make business decision lead to the increase of their bad debt.

Commercial banks are an instrument for the State Bank to govern the economy. Commercial banks expand or narrow the circulated money by providing credit and payment services. Moreover, commercial banks, by providing credit, control money flow, gather and distribute capital under a principle that "state regulates banks, banks lead markets".(Finance Academy of Vietnam, 2015, Chapter I)

A market mechanism, however, still works in the banking industry of Vietnam. Given that private banks are unable to compete with SOBs in the wholesale banking market[1] in terms of scale, management expense, and business opportunity, the former focus their businesses on the retail banking market. Retail banking, which is also known as the consumer banking, refers to the provision of services by a bank to individual consumers, rather than to corporations or other banks. The retail banking offers a number of services, such as savings and transactional accounts, mortgages, personal loans, debit cards, and credit cards. The Vietnamese population is 90 million but only 30% of the Vietnamese has bank account. Retail banking therefore is still an attractive market for banks in Vietnam.

By the end of 2015, the pressure of competition makes the Vietnamese private commercial banks more effective. These banks have been successful in providing retail banking services. The pressure of competition stems from lower barriers for foreign banks to entry the Vietnamese market especially the removal of the limit on the number of branches and provisions that prohibit foreign bank to mobilise money in Vietnamese currency. In general, private commercial banks in Vietnam are investing more in banking technology, and providing more service basing on modern technology such as ATM, internet banking, home banking, PC banking, mobile banking.

This investment of private commercial banks in banking technology contributes to the development of the retail banking in Vietnam. It provides premise to develop no-cash payment services. It also promotes the deposit from individual to 35-40% of the total mobilised money. Commercial banks in Vietnam are improving their financial capacity, technology, managing skills, and distributing network. This improvement provides their clients more utilities and makes their payment more convenient. By the end of 2006, most of the commercial banks of Vietnam have adopted software for retail banking which aims to provide a faster service to clients.

Thus, market mechanism still works in the banking industry of Vietnam. It makes banks regardless of ownership be more effective. In some sub-markets such as retail banking service, SOBs do not have clear advantage in comparison with private ones especially foreign banks. When the banking market of Vietnam is more open, foreign banks would gain more advantages over SOBs even when the latter are supported by the state.

[1] Wholesale banking is the provision of services by banks to organizations such as Mortgage Brokers, large corporate clients, mid-sized companies, real estate developers and investors, international trade finance businesses, institutional customers (such as pension funds and government entities/agencies), and services offered to other banks or other financial institutions)

3.5 State capitalism and the threat of foreign bank to the banking market of Vietnam

Foreign banks and foreign-invested banks (herein after called foreign banks) are important competitors in the banking market of Vietnam. According to the State Bank's report, there are more than 60 joint venture banks and 100% foreign owned banks in Vietnam, for example HSBC Vietnam, Australia and New Zealand Banking Group Limited, Standard Chartered Bank Vietnam, Shinhan Bank Vietnam, or Hong Leong Bank Vietnam. Besides, there are 47 branches and 53 representative offices of foreign banks in Vietnam. Branches of foreign banks possessed only 6.92% market share while those of 100% foreign-owned banks and joint-venture banks are 3% and 0.75% respectively.

Although foreign banks have more experience in providing services and possess more capital, their market share in Vietnam is low because of the legal barrier. For example, *Law on Credit Institutions* provides that the total outstanding credit of a foreign bank branch to a single client must not exceed 15% of its own capital, instead of the foreign bank's capital as before.(*Law on Credit Institutions*, 2010, p. article 128) Therefore, the total market shares of foreign banks in Vietnam is low. In 2014, foreign banks' market shares in providing credit service decreased from 9.2% in 2009 to 8.28% in 2014. Especially, the market shares of foreign banks' branches in this market dropped sharply from 6.3% in 2009 to 4.16% in 2014. Foreign banks therefore focus on financing foreign companies in Vietnam and providing retail banking market.

However, although foreign banks are constrained by legal barrier, they have some advantages in compared with Vietnamese commercial banks including SOBs in terms of experience and technology. The competitiveness of foreign banks over those of Vietnam will be exposed more clearly when the banking and finance markets of Vietnam are opened as provided by free trade agreements such as the Trans-Pacific Partnership (TPP). When legal constraints are lowered or removed, Vietnamese banks would become vulnerable competitors in the banking market. SOBs without the State's support would not be able to compete with foreign banks. The following comparison between Vietcombank - a leading bank of Vietnam and HongKong and Shanghai Banking Corporation Holdings plc (HSBC) illustrate the competitiveness of an SOB of Vietnam and that of a foreign bank.

Vietcombank founded in 1963 is an SOB of which the charter capital is VND 26,650 billion ($118 million). Vietcombank was awarded as "National Famous Brand" annually from 2010 to 2015. In 2013, this bank was in top 1000 banks in the world and was the first runner in Vietnam as ranked by the Banker.(Banker, 2013) In 2014, the Nikkei Asian Review listed Vietcombank as the only Vietnamese bank in top ASEAN 100 companies.("List of ASEAN 100 Companies," 2014)

HSBC founded in 1865 with a slogan as the world's local bank. HSBC is serving 54 million clients worldwide by providing five global services: individual finance service and asset managing service, enterprise finance service, global finance service, foreign currency and capital service, and global bank for individual service. Moreover, HSBC possesses a network of 6,300 offices in 75 countries and territories in Europe, Hongkong, Asian-Pacific countries, North America, Latin America, Midle East and North Africa. The total asset of HSBC by the end of 2013 was $2,671 billion. HSBC is one of the biggest banking and finance institution in the world.("About HSBC," n.d.)

Thus, in terms of experience, network size, asset, and range of service, Vietcombank in particular and Vietnamese bank in general is too small in comparison with foreign banks even when the former is supported by the Vietnamese state. The intervention or support of state, therefore, is not enough to make SOBs or Vietnamese bank more competitive than foreign

banks but may sustain competition in a globalized banking market. As Gerber notes in his discussion about globalization that

> from national and local perspectives, harms from globalization can appear more prominent than its benefits. Firms in some countries will not only be disadvantaged relative to firms in other countries, but they may also be forced out of even their own domestic markets if they cannot compete with better organized, better financed and more skilled management from abroad.(Gerber, 2010, p. 279)

From this perspective, state capitalism in banking industry, to some extent, enhances the capacity of domestic banks so as to compete effectively with foreign rivals. On the other hand, it may help Vietnamese banks not to be acquired by foreign institution.

4 CONCLUSION

When markets are becoming global, corporations have to compete transnationally regardless of their size or location. It is impossible for banks founded in developing countries and small sized economy like Vietnam to compete with powerful transnational banks established in wealthy countries. Giant banks from free market capitalist has long enjoyed the benefit of state capitalism and they probably can enjoy it whenever necessary. Therefore, it is necessary for a developing country like Vietnam to pursue state capitalism in the banking industry to promote efficiency of SOBs as well as the banking system because such a mechanism is a way to make competition between Vietnamese and foreign banks more effective. State capitalism in the banking industry of Vietnam, however, should be supervised strictly and transparently to prevent adverse effects on the economy and the reputation of Vietnam. SOBs should not make business decisions basing merely on political orders.

REFERENCES

About HSBC. (n.d.). Retrieved April 13, 2016, from http://www.hsbc.com/about-hsbc

Bacon, D. (2012, January 21). The rise of state capitalism. *The Economist*. Retrieved from http://www.economist.com/node/21543160

Banker, T. (2013, July 1). The Banker Top 1000 World Banks 2013 rankings. Retrieved April 13, 2016, from http://www.thebanker.com/Top-1000/The-Banker-Top-1000-World-Banks-2013-rankings-World-Press-release

Borst, N. (2015, March). The Rise of Asian Sovereign Wealth Funds. *Federal Reserve Bank of San Francisco*. Retrieved from http://www.frbsf.org/banking/publications/asia-focus/2015/march/rise-asian-sovereign-wealth-funds/

Bremmer, I. (2009). State Capitalism Comes of Age - The End of the Free Market. *Foreign Affairs*, *88*, 40.

Dai, A. (2010, May 10). State Owned Banks: Competitive Advantages. *Labour Newspaper*. Retrieved from http://finance.tvsi.com.vn/News/2010510/92843/ngan-hang-thuong-mai-nha-nuoc-loi-the-trong-canh-tranh.aspx

Encyclopedia Britannica. (n.d.). East India Company - English Trading Company. In *Encyclopedia Britannica*. Retrieved from http://www.britannica.com/topic/East-India-Company

Finance Academy of Vietnam. (2015). *Commercial Bank*. Hanoi, Vietnam.

Gerber, D. J. (2010). *Global Competition: Law, Markets, and Globalization*. New York, U.S.: Oxford University Press. Retrieved from http://papers.ssrn.com/abstract=1605230

Hoang, Y. (2014, January 7). Bad Debts in the period from 2011 to 2013. *Financial Times*. Retrieved from http://tapchitaichinh.vn/nghien-cuu--trao-doi/trao-doi-binh-luan/buc-tranh-no-xau-giai-doan-2011-2013-39689.html

Law on Credit Institutions, 47/2010/QH12 (2010).

Law on State Bank of Vietnam, 46/2010/QH12 (2010).

Li, J. (2015). State Capitalism: Leviathan Economics of the Future. *Yale Economic Review*. Retrieved from http://www.yaleeconomicreview.org/archives/article/state-capitalism-leviathan-economics-of-the-future

List of ASEAN 100 Companies. (2014, November 20). Retrieved April 13, 2016, from http://asia.nikkei.com/magazine/20141120-THE-REGION-S-TOP-COMPANIES/NIKKEI-Announcement/List-of-ASEAN-100-companies

Musacchio, A., & Lazzarini, S. G. (2014). *Reinventing State Capitalism, Leviathan in Business, Brazil and Beyond*. Boston: Harvard University Press. Retrieved from http://www.degruyter.com.ezproxy.library.uvic.ca/viewbooktoc/product/429843

Nguyen, D. T. (2008, October 5). Banking Industry of Vietnam and the World Finance Crisis. *The State Bank of Vietnam*. Retrieved from http://www.sbv.gov.vn/portal/faces/vi/pages/ddnhnn/nctd/nctd_chitiet?dDocName=CNTHWEBAP01162524986&dID=47645&_afrLoop=29664436335097835&_afrWindowMode=0&_afrWindowId=null#%40%3FdID%3D47645%26_afrWindowId%3Dnull%26_afrLoop%3D29664436335097835%26dDocName%3DCNTHWEBAP01162524986%26_afrWindowMode%3D0%26_adf.ctrl-state%3D1dog8b4l9i_4

Nguyen, H. (2015, December 2). How does Vietinbank Deal with Bad Debt. *Vietnam Economics Times*. Retrieved from http://investor.vietinbank.vn/News/2015/12/2/75255.aspx

Nolke, A. (Ed.). (2014). *Multinational Corporations from Emerging Markets*. Palgrave Macmillan. Retrieved from http://www.palgraveconnect.com/doifinder/10.1057/9781137359506

Phuong, L. (2014, April 19). HSBC's Representative to Withdraw from Techcombank's Boad of Management. *VNExpress*. Retrieved from http://kinhdoanh.vnexpress.net/tin-tuc/ebank/ngan-hang/dai-dien-hsbc-rut-khoi-ban-lanh-dao-techcombank-2980151.html

The State Bank of Vietnam. (n.d.). Retrieved April 12, 2016, from http://www.sbv.gov.vn/portal/faces/vi/pages/trangchu/gioithieunhnn/slqthtptnhnn?_afrLoop=29650494861578835&_afrWindowMode=0&#%40%3F_afrLoop%3D29650494861578835%26_afrWindowMode%3D0%26_adf.ctrl-state%3D1bw8bzeo77_99

Tran, G. (2015, September 30). Banks Downed by VINASHIN. *BizLIVE*. Retrieved from http://bizlive.vn/content/MTIyNDY2MA==.html

Webb, N. (2012, January 21). And The Winner Is…. *The Economist*. Retrieved from http://www.economist.com/node/21542926

Webb, N. (2012, January 21). Mixed Bag. *The Economist*. Retrieved from http://www.economist.com/node/21542929

Webb, N. (2012, January 21). Something Old, Something New. *The Economist*. Retrieved from http://www.economist.com/node/21542922

Webb, N. (2012, January 21). State Capitalism's Global Reach: New Masters of the Universe. *The Economist*. Retrieved from http://www.economist.com/node/21542925

Webb, N. (2012, January 21). The visible hand. *The Economist*. Retrieved from http://www.economist.com/node/21542931

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

STUDYING OPERATING PROCESSES OF THE MARKET MANAGEMENT DEPARTMENT OF GIA LAI PROVINCE, VIETNAM IN VIEW OF INTERNAL CONTROL SYSTEM

Hung Tang Tri, Ha Le Hong, Thien Nguyen Huu

ABSTRACT

Increasingly strong development of globalization has led to an increasing exchange expansion between countries, especially in the field of trade. This creates a favorable environment for those who produce counterfeit and poor-quality goods to compete unfairly, damage the trust of consumers and the economy of a country. Furthermore, the consumer lake of knowledge about identifying brand and less conscious of their role in counterfeit product anticipation. Therefore, countries including Vietnam are actively implementing the struggle with commercial fraud and counterfeit goods. There are many factors affecting the performance of organizations that perform this function, therefore, in this paper, secondary data comparison and analysis, interviews and descriptive statistical tools for primary data obtained from the questionnaire were used to explore the relationship between internal control system and operating processes of the market management department (MMD) of Gia Lai Province, Vietnam as well as awareness of the department members about the role of internal control system to their organization's operation. The study results showed that almost members did not about internal control system as well as COSO and INTOSAI, although their organization conduct ISO document. The study revealed that the application of operating processes in the organization, besides the strengths, has also many weaknesses in term of the control environment, risk assessment, control activities, communication information and supervision.

Keywords: *Internal Control, Commercial Fraud, Counterfeit Goods*

JEL Classification: M48, L38, H83

1 1 INTRODUCTION

In the context of current globalization, the trade is increasingly expanded and more and more different kinds of goods of countries in the world are imported in Vietnam. This provides an opportunity for Vietnamese consumers to use products with higher quality and more functions and efficiency besides local products. However, this also contributed to forming the intentions of illicit business of individuals or organizations to obtain huge profits through the production and trading of poor quality counterfeit goods, unfair competition, reducing the brand's reputation and consumer's trust as well as health (Galal-Khallaf et al., 2014; Chen et al., 2015; Wilson et al. 2015). Facing the situation, the government established a national steering committee against smuggling, trading fraud and counterfeit goods under Decision No. 389/QD-TTg dated March 19th, 2014, and Resolution No. 41/NQ-CP dated June 09th, 2015 of the Government on the combat with smuggling, trading fraud and counterfeit product.

Gia Lai is a mountainous province in Vietnam's Central Highlands with 17 administrative units (1 city, 2 towns, 14 districts including 3 bordering districts). It currently has 3,020 firms, 128 cooperatives and 17,656 business households that are in operation; Most of firms in the province are mainly small and medium sized ones. Moreover, Gia Lai province is not a place

where big producing, trafficking, transporting forbidden and smuggled goods appear but because it has 3 national highways of 14, 19 and 25, Pleiku airport, 90km border contiguous to Cambodia and Le Thanh international border gate, "tycoons" take advantage to transport forbidden and smuggled goods to put into circulation in the province and transit to other provinces; Forbidden and smuggled goods are mainly forest products, smuggled cigarettes. The province also has large proportion of agriculture, especially industrial plants as coffee, pepper, rubber, cashew, therefore, the market demand of fertilizers and pesticides is very high which creates conditions for occurrence of production and trading of substandard fertilizers in the province.

Furthermore, The Committee on Sponsoring Organizations of Treadway Commission (COSO) was organized in 1985 to sponsor the National Commission on Fraudulent Financial Reporting. It also developed recommendations for public companies and their independent auditors, for the SEC and other regulators, and for educational institutions. In 1992, COSO published Internal Control Integrated Framework and this framework was revised and reissued in May 2013. In addition, it also issued Enterprise Risk Management Integrated Framework in 2004. And, The International Organization of Supreme Audit Institutions (INTOSAI) was born in 1953 in Cuba 33 states of the Supreme Audit Institutions and partner organizations and increased to 191 full members and 4 associated members in 2013. Beside, in 1992, it issued guidelines for internal control standards that should be promoted for the design, implementation, and evaluation of internal control and in 2001, the 17th INTOSAI conference in Seoul agreed that the COSO's integrated framework for internal control should be relied upon. Moreover, it also updated COSO's Enterprise Risk Management Framework in 2004. Finally, in 2004, the guidelines for internal control standards for the public sector are presented for approval by the XVIII INTOSAI in Budapest.

In addition, a concern is the role of the internal control system for the combat against counterfeit and poor quality goods of competent agencies. Since the internal control system is a vital part of an organization's operation structure and the performance as well as the survival of the organization depends on this factor as well as the ability to reduce potential fraud and errors. The administrative units have their own management regulations and rules, but not everyone can understand the internal control or if they understand, they are not aware of all of its roles and benefits.

Therefore, in order to improve the efficiency of the struggle against counterfeit and shoddy goods in Gia Lai province to contribute to the market health during the economic integration process, this study was conducted to understand about the awareness of the staff and managers of Gia Lai Province MMD on internal control system. A comparison, contrast, and analysis were carried out to identify strengths and weaknesses of the processes deployed by the organization in accordance with the contents of the internal control system, INTOSAI 2004, as well as propose the appropriate solutions to improve the organization's performance which enable it to achieve the targets of market management.

2 FUNDAMENTAL THEORY AND RESEARCH METHOD

2.1 Fundamental theory

To conduct this research, we used "Intosai-gov-9100-guidelines-for-internal-control-standards-for-the-public-sector" as the fundamental theory. According to INTOSAI (2004), internal control is a flexible and unified process that continuously update changes an organization is facing. Managers and staff of all departments must be involved in this process to address risks and to provide reasonable assurance of the achievement of the organization's common goals and mission.

An effective internal control system consists of five components - Control Environment, Risk Assessment, Control Activities, Information and Communications, and Monitoring.

2.1.1 Control Environment

Control environment creates the foundation of an organization affecting control awareness of members of the organization. It is the basic factor of all components of internal control providing appropriate structures and guidelines. Factors of the control environment include:

- Personal honesty and professional ethical values of the leadership comprising support attitude toward internal control at all times and throughout the whole organization;
- Resources commitments for internal control implementation;
- The internal control is top priority in the management and awareness of leadership;
- Structure of the organization;
- Policies and implementation of HR policy.

2.1.2 Risk assessment

Risk assessment is the identification and analysis of risks affecting the achievement of goals, which can manage risks. Due to economic conditions, characteristics and business activities, and changeful rules, the mechanism to identify and respond to risks must be associated with the change. Risk assessment consists of three main activities that are risk identification, risk assessment and solution proposal.

- Risk identification is the activity to identify risks related to the organization's goals including risks of fraud and corruption, related to internal and external elements, related to the organization and its activity level.
- Risk assessment is the estimate of risk possibility, assessment of issues related to possible risks, assessment of the organization's interest of risk.
- Solution development there are four basic types of solutions to deal risks such as: conversion, bearing, settlement or elimination, of which risk settlement is paid most attention because this is the main technique of effective internal control in order to deal with the risk. Using appropriate control techniques can help detect or prevent risks.

Risk assessment is an active and changeful process since economic conditions, characteristics and activities of the organization constantly change which means that the identification and analysis of alternative conditions, opportunities and risks as well as the implementation of internal control adjustments to point out risks have changed, therefore, the risk identification mechanisms must be associated with changes of activities in an increasingly changing environment.

2.1.3 Control activities

In order to achieve the effectiveness, control activities must be appropriate, proportionate to plans of the entire cycle, cost-effective, comprehensive, reasonable and directly related to the control objectives.

Control activities occur throughout the organization, at all levels of functions and activities in parts. They include a variety of detective and preventive control activities such as procedure for approval and authorization, duty allocation (decentralization, settlement, recognition, evaluation), information access control to ensure the data safety, reports and use of resources,

investigation, reconciliation, review of operating activities, procedures and operation and supervision (appointment, assessment and approval, guidance and training).

The organizations should aim to balance between control activities of prevention and detection, and right and necessary actions need to be deployed for control activities to achieve their objectives.

Control activities of information technology: information system is the type of specific control activity. Therefore, information technology control consists of two groups of general control and application control.

- General control includes structure, policies and procedures implemented for all components of the organization's information system to ensure that their operating activities appropriately occur. The main items of general control are (1) the organization's planning programs and security management, (2) access controls, (3) control of development, maintenance and changes of application softwares, (4) control of system software, (5) division of responsibilities, and (6) continuous operation of the service.
- Application control includes structure, policies, and procedures implemented to separate individual application systems which relate directly to the personal computer applications. These controls are designed to prevent, detect and correct errors to ensure the flow of information throughout the system.

Application control and general control are required to ensure the implementation as well as the accuracy of the information process as information technology changes rapidly, combined controls must be continually developed in order to maintain the efficiency.

2.1.4 Information and communications

Information and communications are key elements for the realization of all goals of internal control. Managers often attain or create and use the helpful and quality information from both internal and external to fulfil the operation of the other components of internal control. Communication is an ongoing process, repeated of offering, sharing and collecting necessary information.

- Information: if the first condition for related and reliable information of events and transactions to be recognized and classified. Appropriate information should be identified, recorded, and communicated in appropriate forms and time for the management to implement internal control and their responsibilities (communications to right time and right subjects). therefore, the internal control system as well as all important events and operations should be adequately stored; The reports of information system process containing operating, financial and non-financial information, and applications related to activity implementation and control not only solve internally generated data but communicate external events, activities and conditions necessary to report and implement the decision making; The ability of managers' appropriate decision making is affected by the quality of information. It means that the information should be appropriate, timely, current, accurate and accessible.

- Communications: effective communication should be transmitted to the organization's entire components and structures; All individuals should receive clear messages from the leadership so that the control responsibility are taken seriously. They should understand their own role in the internal control system, as well as how their personal activities related to the work of other

people; Effective communication for external subjects of the organization should also be paid attention to.

2.1.5 Monitoring

Internal control system should be monitored to assess the operation quality of the system over time. Monitoring is done through activities of regular monitoring, separate assessment or a combination of both.

- Regular monitoring of internal control is built in normal conditions and periodical operating activities of an organization. It includes monitoring and management of rules, and other HR activities. Regular monitoring activities cover all components of internal control and activities against unethical, uneconomic, inefficient and ineffective behaviors of the internal control system.
- Separate assessment: The scope and frequency of separate assessment will depend primarily on the assessment of risks and effectiveness of ongoing monitoring procedures. Specific separate assessment includes assessment of effectiveness of internal control system and ensures internal control to achieve the desired results based solutions and procedures determined. The internal control deficiency should be reported to the appropriate management level.

In conclusion, beside the advantages of fundamental theory like helping managers monitoring the effectiveness of the controls in an ever-changing environment and identifying threats to the organizations (Jeff Thomson, 2015), it also have its own disadvantages like corruption and the limit of leaders' operated capacity and knowledge. And organizations showed more weaknesses in internal control system such as small, young, financial weakness or undergoing restructuring organizations (Doyle et al., 2007).

2.2 Research method

This study aim to discover the consciousness of the member at the Gia Lai MMD about the internal control as well as find out the strength and weakness in operation process at Gia Lai MMD and analyze the similarity and difference between operation process and internal control system under five components of it.

For the fist purpose, we conduct a survey with using the technique of making question under List-select any answer by Yes/No (Sue Greener, 2008). The questionnaires were sent to all of staffs of the Gia Lai MMD including 106 persons. The responds we received was 106, meaning at 100%. It creates the credibility of the result. Then we used the descriptive tool of SPSS 22 software to input and output data.

For the second purpose, we used the secondary data. According to Sue Greener (2008) opinion, there are two requirements to use secondary data. The first you need to know how to find it and the second that is you have permission to use it. So, we used the "Guidline of INTOSAI", "Quality Manual" and internal document of the Gia Lai MMD to analyse. Further, we also interview the director board to understand more about the environment, characteristics affecting to the operation of organization.

3 RESULTS AND DISCUSSIONS

After the data was collected and analyzed, the result demonstrated that nearly 80% of respondents said that their organization does not implement the internal control system and nearly 70% do not know about the term COSO or INTOSAI. However, all respondents were aware that their organization was carrying out its activities in accordance with ISO (a form of

quality management system of units/organizations). It can be concluded that many members of the Gia Lai MMD are unaware of the existence of the internal control system and its benefits for their organization's performance.

Tab 3.1 - Perceptions of internal control system. Source: own processing

Contents		Number	Percentage
Does your organization implement the internal control system?	Yes	84	79.2
	No	22	20.8
	Total	106	100.0
Are you aware of the term COSO or INTOSAI?	No	74	69.8
	Yes	32	30.2
	Total	106	100.0
Does your organization implement ISO?	Yes	106	100.0

According to the meaning of table 1 about consciousness of members at MMD about the internal control system. So, in order to understand the operating procedures of the market management department of Gia Lai province, the authors collected data and conducted interviews with department leadership to obtain an accurate and objective assessment as well as propose appropriate solutions. The research results are presented as follows:

The organization structure of MMD include a department director who takes responsibilities before the Director of Department of Industry and Trade and Provincial People's Committee Chairman for management and operation of the market management department including direct management of administrative organization division and implement the report to the Minister of Industry and Trade, Director of Department of Industry and Trade and Provincial People's Committee Chairman. Three deputy directors are responsible for managing the divisions and the market management teams (MMT), consulting and reporting the results to the department director in which deputy director 3 is also the chief of market management team No.1.

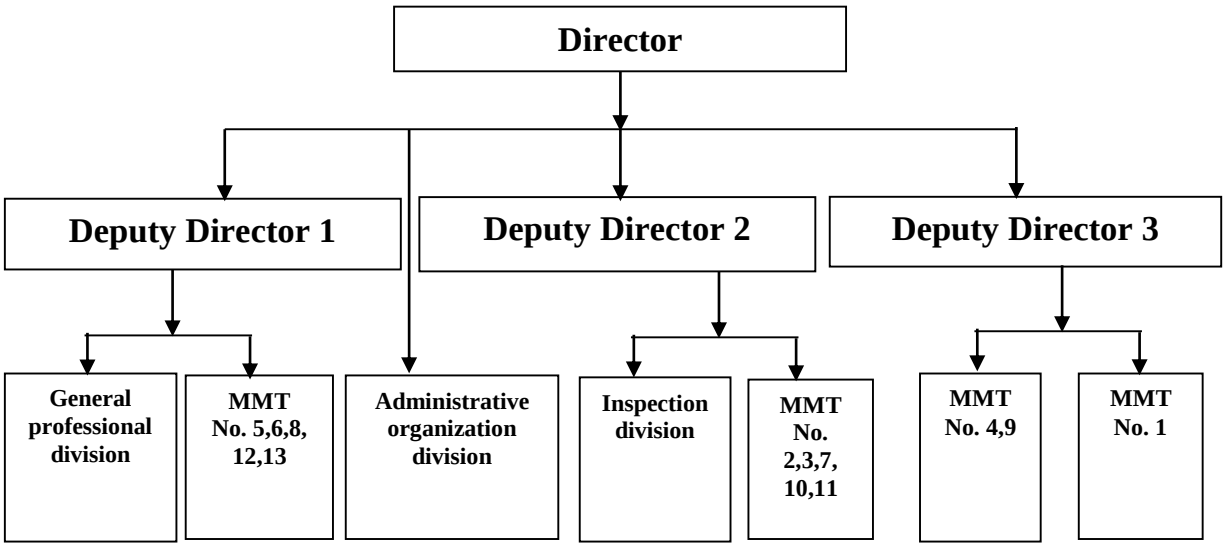
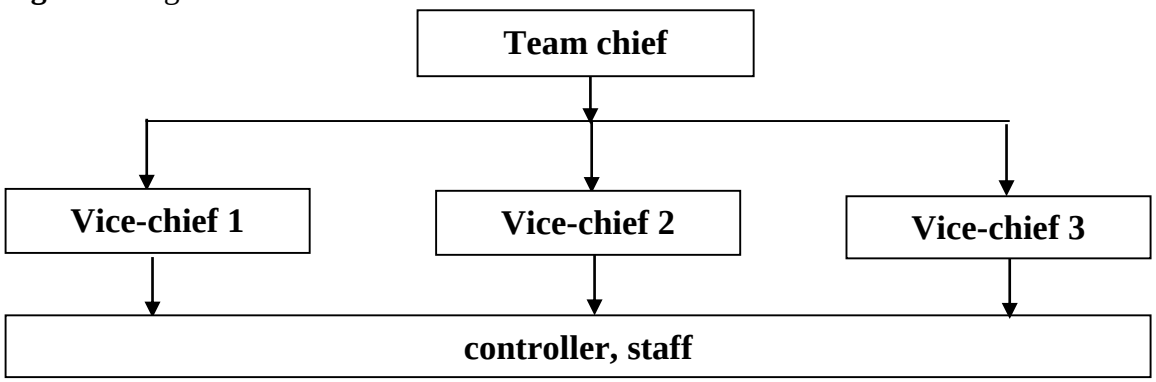


Fig. 3.1 - Organizational structure of Gia Lai Province MMD. Source: Gia Lai Province MMD

Each market management team includes a chief responsible for general management of the team and reporting the results to the deputy director. Vice chief is in charge of advising the chief, and representing the chief to manage the team's duties. And divisions include a manager performing a general management, a vice-manager in charge of consulting, representing the manager to manage the work, controller and staff directly performing assigned tasks.

Fig. 3.2 - Organizational structure of teams of Gia Lai Province MMD. Source: Gia Lai Province MMD



In general, organizational structure in the market management department of Gia Lai province is in line with operational characteristics, functions and duties of the organization. Besides, positions and their functions, duties and powers are specified in the documents of the organization which creates huge advantages for control environment as well as the control, inspection and supervision.

The operating procedures including objectives and quality policies, working plan, record and documentation management procedures, internal operating procedures, inspection and processing procedures are specified in the documents and managed under standards TCVN ISO 9001: 2008. This is the control environment component of internal control activities at the organization.

Tab. 3.2- List of processes applied in Gia Lai Province MMD. Source: Gia Lai Province MMD

No.	Items	Code
1.	Quality handbook	STCL-QLTTGL
2.	Quality policy; Quality goal; Work plan;	CSCL; MTCL; KHCT
3.	Document control process	ISO-QLTTGL-DC-QT01
4.	Record control process	ISO-QLTTGL-DC-QT02
5.	Control process of inappropriate products & corrective and preventive activities	ISO-QLTTGL-DC-QT03
6.	Internal evaluation process	ISO-QLTTGL-DC-QT04
7.	Review process of the leadership	ISO-QLTTGL-DC-QT05
8.	Monitor process of in and out dispatches	ISO-QLTTGL-TC-QT06
9.	Process of records management of administrative violation settlement, inspection and storage	ISO-QLTTGL-NV-QT07

10.	The settlement process of, petitions, complaints and denunciations	ISO-QLTTGL-PC-QT08
11.	The process of inspection, control and settlement of administrative violation	ISO-QLTTGL-ĐB-QT09

After investigating the materials regarding the processes Gia Lai MMD and contents of the components of internal control according to INTOSAI, the author conducted a summary, comparison, and analysis and found strengths and weaknesses of the processes applied at the organization in term of general objective, control environment, risk assessment, control activities, information and communications, monitoring presented in Table 3.3.

Tab. 3.3 - Strengths and weaknesses of the operating processes in Gia Lai Province MMD. Source: own analysis

Components	Strengths	Weaknesses
General objective	Compared with internal control system, contents of the processes are to ensure the organization's activities to go on constant, avoid loss of resources, protect assets and achieve its general objectives.	
	Ensures activities of teams and divisions in accordance with provisions of law and complete the mission entrusted by the state through written guidelines	Focuses on aims at completing the assigned tasks rather than increasing control to create efficiency in the use of resources.
Control environment	Control environment is the foundation for the individuals in the organization to be aware of internal control.	
	It is expressed specifically in quality manual, quality objective and policy of required qualifications, responsibilities and obligations corresponding to the job position. HR policies are implemented in accordance with the law.	Commitments of the organization leadership has not been paid attention, awareness of internal control has not been enhanced, especially the management members (more than 75% of management positions said that the organization does not implement the internal control system).
Risk assessment	Risk assessment is a process to identify and analyze risks related to achievements of the organization's objectives and propose appropriate solutions.	
	is shown in the two processes of internal assessment and review of leadership done once a year.	Failure to enhance skills to identify risks, mainly identifying risks and proposing solutions to overcome risks; furthermore, this activity should be carried out regularly and

		continuously rather than periodically.
Control activities	Make sure individuals to comply with the regulations as well as to prevent losses of resources, fraud and corruption.	
	are shown in the processes such as document control; records control, management of in and out dispatches, management of financial violation settlement records, inspection and storage, complaints and denunciations and inspection and control and administrative violation settlement of implementation steps, implementors and results report.	Do not show specific titles of implementors; control ways and tools have not been specifically mentioned; do not pay attention to control and prevention and especially there are no official documents on general and private control activities for current information technology environment.
Information and communications	Information and communications are key elements of internal control system to ensure members to be aware of their roles and responsibilities; and effective communication should be transmitted to the entire structure and components of the organization.	
	are performed fairly well through the listing of information on position, divisions, responsibilities and obligations in the workplace.	It has not been regularly and repeatedly communicated about the role of the internal control system due to lack of resources, skills and methods as well as awareness of the role of internal control system from the management. Limited external communication channels make it difficult for managers' decision making.
Monitoring	Internal control system should be monitored to assess the operating quality of the system over time. Monitoring is done through regular monitoring activities, separate assessment or a combination of both.	
	It is the responsibility of the leadership specified in the responsibilities of each position.	The monitoring is mainly based on personal experience, lacks of specific documents on the process of monitoring implementation.

It can be seen from Table 3.3 that the operating processes applied in Gia Lai MMD under standard TCVN ISO 9001:2008 create certain strengths during the organization's operation as

well as contribute to creating the internal control system at the organization which increase operational efficiency and achieve the objectives set out in the market management. However, in view of internal control system, there are still weaknesses of the applicable processes in all five components: control environment, risk assessment, control activities control, information and communications, and monitoring, whose reasons can be due to lack of knowledge and awareness of the importance of internal control system in the organization's activities.

Tab. 3.4 - Comparison between operating processes and internal control system. Source: own analysis

Items		**Operating processes**	**Internal control system**
Control environment	Similarity	Are reflected through the procedures, policies, applicable operating processes and legal regulations.	
	Difference	There are commitments of the management of resources for internal control implementation	Manager always considers internal control system as a top concern and has commitments of resources for control internal activities
Risk assessment	Similarity	Ways of implementation is presented in documents	
	Difference	Do not present specifically about human, method and way of implementation as well as methods to minimize risks.	Demonstrate reasons of risk assessment activities, the methods as well as solutions to satisfy interests of cost.
Control activities	Similarity	Presented in documents of the operating processes of the organization.	
	Difference	Implementation method has not been mentioned, and supportive tools have not been paid attention to	Mentioned specifically the methods used, ways to proceed, as well as supportive tools for control activities.
Information and communications	Similarity	Reports, report makers, information storage are specified in documents.	
	Difference	Ways of collecting information, solutions of processing external information sources are not paid attention, the communications are not shown in detail.	Focus on collecting, processing and analyzing external sources of information that affects the operation of the internal control system; Effective communication is enhanced, ensuring that

			information is communicated to everyone in the organization.
Monitoring	Similarity	carried out under the provisions of law and the assignment within the organization.	
	Difference	Do not specifying forms of monitoring, ways of implementation as well as requirements for implementors and support tools	Demonstrate two methods of monitoring, ways of implementation as well as requirements of resources and supportive tools for the implementation.

Table 3.4 shows that the components of control environment, risk assessment, control activities, information and communications, and monitoring are shown in the operating processes of the organization. However, there is a big difference between the operating processes and the internal control system regarding personnel issues, ways of implementation and supportive tools to operations of components of the internal control system. Particularly, for risk assessment, this is a greatly significant operation, but has not been paid adequate attention that causes from the limits of capacity and awareness of the personnel in the organization.

4 CONCLUSION

The struggle against smuggling, commercial fraud and counterfeit goods is a regular and ongoing activity of Vietnam General Department of market management in general and Gia Lai province MMD in particular. Through this activity, domestic trading and manufacturing sectors are transparently and equitably protected by the State. This contributes to the growth and creates a momentum for the economic development, gradually improves the position of Vietnamese products and goods on the path of economic integration in the region and in the world. Therefore, the effective operation in term of the internal factor of the market management departments across the country will enable to improve the performance of the market management in accordance with objectives set out.

Moreover, although the majority of the members of Gia Lai MMD are unaware of the existence and the limited knowledge of the internal control system which is being implemented in the organization, the components of the internal control system is still present in the organization. The implementation of operating processes according to the standards of TCVN ISO IS0 9001:2008, in addition to compliance with provisions of the state in the public sector, contributes to strengthening the effectiveness of the control environment as well as creates the foundations for effective control activities and monitoring.

The awareness limitation of internal control system will reduce the possibility, effectiveness and efficiency of operating processes implemented in the organization as well as the willingness to strengthen performance of internal control activities of all employees within the organization thereby contributing to improving the efficiency of the market management activity, struggle again smuggling goods, counterfeit goods to ensure a healthy business environment in the locality.

In order to overcome the weaknesses of the processes which are being operated/performed at the organization to enable its internal control system to be more efficient strengthening the market management capacity and control of smuggling and counterfeit goods as well as

reference solutions from same researches of authors in Viet Nam (Anh Nguyen Thi Lan, 2013; Phong Nguyen Anh and Hanh Ha Ton Trung, 2010), we would like to propose solutions as followings

(1) To organize training courses of the internal control system for the members in the organization, thereby raising their awareness of role of the internal control system in the process of performing their tasks (the implementation is relatively favorable because more than 99% of respondents said that their work would be more efficient if you knew about the internal control system as well as they were willing to participate in classes if organized).

Organization of implementation: with the aim of raising awareness of the members of the organization on the role of the internal control system as well as ways to implement, organization can hire experienced and qualified teachers of internal control carrying the training sessions at the organization for a week and arrange for related personnel in turn to participate in the training sessions. And to reduce the pressure on costs, the organization can notify the businesses wishing to participate in such training courses.

(2) The operating processes need to be revised and supplemented to specify functions, responsibilities and methods of operation of the working positions for specific tasks as well as work details done at every stage after having the appropriate and scientific risk assessment.

Organization of implementation: to ensure that the processes represent requirements proportionate to components of the internal control system, they should be revised and edited in perspective of the internal control system. This can be assigned to an independent team including members of both managers and staff trained about the knowledge of internal control systems as solution (1) and the selection of participants should have the objective consulting of course trainers based on professional competence and ability to perform their assigned tasks.

(3) To procure more equipment servicing for regular control activities and monitoring as cameras, means of transport, and specialized equipment in operation, enhance effective information and communications.

Organization of implementation: In order to ensure the objective of effective information and communications and regular and continual control and monitoring activities, the procurement of equipment is essential. This can be done through long-term estimation to spending budget for the procurement of expensive equipment. Besides, the organization can appeal to sponsors as well as the support of businesses in the province through the seminars and workshops with business associations, and the annual meetings since the effectiveness of market management is protect the normal business environment for businesses in the province. In addition, for communication to be effective, the management should be included in the training sessions taught by experienced instructors on effective marketing and communication.

In a nutshell, this study pointed out the relationship and the necessity of the internal control system and processes in the struggle against smuggling, commercial fraud and counterfeit goods of Gia Lai province MMD. In addition to the achievements, the paper has certain limitations as it just used methods of summary, comparison, analysis, interpretation and statistical tools during the research process. Therefore, it is suggested

that further studies should be carried out through quantitative research with measuring factors that affect the internal control efficiency of the organization.

REFERENCES

Anh Nguyen Thi Lan (2013). Improving internal control system at Vietnamese Chemistry Group.

Chen, J., Teng, L., Liu, S., & Zhu, H. (2015). Anticipating regret and consumers' preferences for counterfeit luxury products. *Journal of Business Research*, *68*(3), 507-515.

Doyle, J., Ge, W., & McVay, S. (2007). Determinants of weaknesses in internal control over financial reporting. *Journal of accounting and Economics*, *44*(1), 193-223

Galal-Khallaf, A., Ardura, A., Mohammed-Geba, K., Borrell, Y. J., & Garcia-Vazquez, E. (2014). DNA barcoding reveals a high level of mislabeling in Egyptian fish fillets. *Food Control*, *46*, 441-445.

Muñoz-Colmenero, M., Klett-Mingo, M., Díaz, E., Blanco, O., Martínez, J. L., & Garcia-Vazquez, E. (2015). Evolution of hake mislabeling niches in commercial markets. *Food Control*, *54*, 267-274.

Phong Nguyen Anh, Hanh Ha Ton Trung (2010), Improving of internal control operation efficiency at stock commercial banks in HCMC.

Report No: 60/BC-BCĐ389 of 389 Command Affair, Gia Lai Province

Sue Greener (2008). Business Research Methods.

Wilson, J. M., & Kinghorn, R. (2015). A-CAPP Backgrounder February 2015 Product counterfeiting represents a growing, global risk that poses many negative consequences for consumers, businesses, governments, national security, the economy, and society. Research suggests that the first step in formulating effective strategies to combat such crime is to understand what shapes the nature of the criminal.

Web page sources [online] available at the following addresses:

http://thuvienphapluat.vn/van-ban/Thuong-mai/Quyet-dinh-389-QD-TTg-2014-Ban-Chi-dao-quoc-gia-chong-buon-lau-gian-lan-thuong-mai-hang-gia-223857.aspx

http://thuvienphapluat.vn/van-ban/Thuong-mai/Nghi-quyet-41-NQ-CP-2015-dau-tranh-chong-buon-lau-gian-lan-thuong-mai-hang-gia-trong-tinh-hinh-moi-277256.aspx

http://www.aicpa.org/InterestAreas/EmployeeBenefitPlanAuditQuality/Resources/PlanAdvisories/DownloadableDocuments/Plan_AdvisoryInternalControl-hires.pdf

http://www.coso.org/aboutus.htm

http://www.intosai.org/fileadmin/downloads/downloads/4_documents/publications/eng_publications/E_Festschrift_2013.pdf

http://www.intosai.org/issai-executive-summaries/view/article/intosai-gov-9100-guidelines-for-internal-control-standards-for-the-public-sector.html

http://www.forbes.com/sites/jeffthomson/2015/09/24/the-importance-of-internal-controls/#31606bf26932

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

BASIC ISSUES OF COST STICKINESS: A STUDY IN VIETNAM

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ABSTRACT

Cost stickiness sticky cost is a form of cost mentioned in a study published by Noreen and Soderstrom (1994) and its official name was first mentioned in the article by Anderson et al. (2003). However, there have been not many scholars in Vietnam carrying out studies on this issue so far. By using qualitative research methodology including summarization, comparision and analysis of historical data as well as descriptive statistics tools of SPSS 20, the results show that the percentage of respondents who do not know about this cost is 77.9%, which is three times higher than 22.1% of respondents who know, especially the percentage of teachers who do not understand this cost is up to 75%. In addition, through the data summarization process, the authors realize that there have been three main research directions on cost stickiness carried out by the authors in the world including searching for evidence of the existence of cost stickiness (i); identifying determinants of cost stickiness (ii), and understanding the role of cost stickiness in the earnings forecasting and earnings adjustment behavior (iii).

Keywords: *cost stickiness, sticky cost, cost behavior*

JEL Classification: M41

1 INTRODUCTION

The existence of cost stickiness was mentioned in a study published by Noreen and Soderstrom in 1994 and the term of cost stickiness/sticky cost was first mentioned in the study by Anderson et al. (2003) [1. Since then, there have been many studies and articles by many scholars published in the world's prestigious journals on this topic.

Up to now, there were three study groups focusing on stickiness. The first one concentrated the evidence of the existence by using Anderson et al. (2003) model in different contexts such as Noreen and Soderstrom (1994, 1997); Anderson, Banker and Janakiraman (2003); Subramaniam and Weidenmier (2003); Calleja, Steliaros and Thomas (2006); Anderson and Lanen (2007); Balakrishnan and Gruca (2008); Zanella, Fernando Oyelere, Peter Hossain and Shahadut (2015); etc. The second focused on the determinants of "cost stickiness" like Subramaniam and Weidenmier (2003); Balakrishnan, Petersen and Soderstrom (2004); Balakrishnan and Gruca (2008); Banker, Ciftci and Mashruwala (2008); Kama and Weiss (2010); Yasukata and Kajiwara (2011); Chen, Lu and Sougiannia (2012); Banker, Byzalov and Chen (2013); Balakrishnan, Labro and Soderstrom (2014); etc. And The last group concentrated on the impact of "cost stickiness" on earnings forecasting as well as earning adjustment behavior such as Banker and Chen (2006); Anderson, Banker, Huang and Janakiraman (2007); Weiss (2010); Kim and Kinsey (2010); Dierynck, Landsman and Renders (2012), etc.

However, the researches on "cost stickiness" such as searching for evidence of the existence of cost stickiness; determinants of "cost stickiness" as well as understanding the impact of "cost stickiness" on earnings forecasting, and earnings adjustment behavior in Vietnamese companies have not been studied and published yet. This creates many "gaps" in the cost accounting research in particular and management accounting in general.

Therefore, awareness of the importance of the dissemination of new knowledge on the businesses' cost management, the authors carried out the paper in order to contribute to the introducing and understanding cost stickiness as well as opening up new research directions in regard with this topic in Vietnam.

2 RESEARCH METHOD AND RESULT

2.1 Research method

In oder to explore the knowledge of students and teachers, especially students majored in economic at general and accounting at specific about the cost stickiness, a survey was design with two separated parts, one was about respondent's information and the other was about "cost stickiness" including five question consulted by some experts.

And, the number of survey was delivered to students and teachers of several colleges and universities located in Ho Chi Minh City with 600 copies. The number of collected questionnaires was 493 accounting for 82.17% which ensured the reliability for the study. Then the data was processed by using SPSS 20 software and descriptive statistical tools.

Furthermore, to illustrate the knowledge about the cost stickiness, we also used archival method to have knowledge about the concept and study trend in this issue. And papers what we used belong to financial accounting journals and management accounting journal such as "The Accounting Review", "Contemporary Acoungting Research", Review of Accounting Studies", "Journal of Accounting, Auditing and Finance", etc. After reading, we conducted sorting, separating, analyzing, summarizing.

2.2 The result of survey

After collected data, used SPSS 20 to imput data and descriptive statistical tool to process the data, the results were presented as following:

The results showed that there were 413 women (83.8%) and 80 men (16.2%), of which there were 178 college students (36.1%), 234 university student (47.5%), 57 accounting postgraduates (11.6%) and 24 teachers (4.9%). The number of respondents who did not know about cost stickiness was 384 (77.9%), 3 times higher than the number of respondents, 109 (22.1%), who understood this cost. The percentage between the female and male groups who did not understand this cost was equal, 78% versus 76%, of which college students accounted for 85%, 5% higher than university students and the percentage of 47% from postgraduates was much less than the percentage of 75% from the teachers.

Tab.1 - Summary of knowledge about cost stickiness by level.
Source: own processing.

		Knowledge about cost stickiness				**Total**	
		None	**%**	**Yes**	**%**	**Number**	**%**
Level	College	151	84.8%	27	15.2%	**178**	36.1%
	University	188	80.3%	46	19.7%	**234**	47.5%
	postgraduate	27	47.4%	30	52.6%	**57**	11.6%
	Master	18	75.0%	6	25.0%	**24**	4.9%
Total		**384**	**77.9%**	**109**	**22.1%**	**493**	**100.0%**

Tab.2 - Summary of knowledge about cost stickiness by gender. Source: own processing.

		Knowledge about cost stickiness				Total	
		None	%	Yes	%	Number	%
Gender	Female	323	78.2%	90	21.8%	413	**83.8%**
	Male	61	76.3%	19	23.8%	80	**16.2%**
Total		**384**	**77.9%**	**109**	**22.1%**	**493**	**100.0%**

Moreover, the survey results also showed that, among respondents who had no knowledge about cost stickiness there were 306 stating that understanding of the cost stickiness would bring little to their knowledge, and 308 respondents (80%) were willing to participate in workshops on the topic. This number was fewer than the respondents who said they knew cost stickiness and 103/109 respondents (94%) stated that cost stickiness brought little for their knowledge and 96 respondents (88%) were willing to participate in seminars on the topic.

Tab.3 - The relationship between the knowledge and the usefulness of cost stickiness. Source: own processing.

		Benefits of cost stickiness for knowledge						Total
		None	%	Yes	%	Hesitant	%	
Knowledge about stickiness	None	23	6%	306	80%	55	14%	384
	Yes	6	6%	103	94%	0	0%	109
Total		**29**	**6%**	**409**	**83%**	**55**	**11%**	**493**

Table 4 - The relationship between the knowledge and demand to learn about cost stickiness. Source: own processing.

		Needs to learn about cost stickiness						Total
		None	%	Yes	%	Hesitant	%	
Knowledge about stickiness	None	34	9%	308	80%	42	11%	384
	Yes	13	12%	96	88%	0	0%	109
Total		**47**	**10%**	**404**	**82%**	**42**	**9%**	**493**

In addition, among respondents saying yes, there were 18% who knew the term through the magazines, 45% through teachers, 5% through workshops and 27% through other sources. It was remarkable that there were 5% of respondents understanding this cost through two different sources and only 1 case that knew this cost through three different sources. Moreover, 20% of respondents said they knew the research direction searching for evidence of cost stickiness, 47% of respondents knew about the research direction exploring for the determinants of cost stickiness, 15% knew the direction understanding the impact of the cost and 13% knew no research direction. And more specifically, only 5% knew two research directions on this cost meanwhile only 1 case knew three research directions of the cost stickiness. Furthermore, there were as many as 10% who knew no research directions on this form of cost although they had already known the existence of this cost.

Tab.5 - Sources of perception and knowledge about research direction of cost stickiness. Source: own processing.

	Information channel							**Total**
	Magazines	**Teachers**	**workshops**	**Other**	**Did not know**	**2 sources**	**3 sources**	
Quantity	20	49	5	29	0	5	1	109
%	**18%**	**45%**	**5%**	**27%**	**0%**	**5%**	**1%**	**100%**
	Research direction							**Total**
	Evidence	**Factors**	**Roles**	**Other**	**Did not know**	**2 trends**	**3 trends**	
Quantity	22	51	16	3	11	5	1	109
%	**20%**	**47%**	**15%**	**3%**	**10%**	**5%**	**1%**	**100%**

It could be seen from the survey results that the percentage of respondents who did not know cost stickiness was much higher than those who knew, especially the percentage of teachers who did not know cost stickiness was more than 75%. Besides, the percentage of respondents who knew cost stickiness thanks to teachers was the highest which showed the key role of teachers in disseminating new knowledge to their students.

2.3 The result of cost stickiness study

One of the important role of management accounting consists of cost classification and management. The analysis of the factors forming costs and results obtained from costs will help managers consider making appropriate decisions for specific situations and predictability which assists to use costs more efficiently as well as increase the business's profitability. Under the traditional model, costs are believed to tend to increase or decrease proportional to factors forming cost. In term of activity, costs are believed to have proportional relation to the activity volume. However, contrary to the traditional view, many studies were conducted to evaluate the complexity of this relation and the results showed that the cost change was unproportional change volume of activity and costs were different when the activities increased or decreased.

The first study confirmed this opinion was conducted by Noreen and Soderstrom (1994) entitled "Are overhead costs strictly proportional to activity volume?". In their study, Noreen and Soderstrom showed overall manufacturing costs changed in an unproportional manner to the change in activity volume. And the first time the term of "cost stickiness/sticky cost" was mentioned in the study by Anderson et al. (2003). In their study, these authors demonstrated that cost increase when increasing activity volume in comparison with cost decrease when activity volume decreased was in the same certain percentage. Since then, there have been more researches on "cost stickiness/sticky cost" conducted to enrich and widen new research directions in this issue.

Through published researches, the authors found that there were three main research directions about cost stickiness, including:

- The researched focused on understanding the existence of this cost by similarly applying or replacing the model used by Anderson et al. published in 2003 in various aspects such as using cost of goods sold (COGS) model, labor cost, cost of research and development (R&D), advertising costs and in different levels as comparing multiple department, companies, industries, and countries.

- The researches focused on exploring the determinants of cost stickiness as managerial optimism, labor scale, fixed asset scale and debt scale, costs adjustment decisions as well as technology limitations.
- The researches focused on the use of the results to find out about the role and impact of cost stickiness in earnings forecasting and profitability adjustment behavior of the businesses.

Tab.6 - The research directions on 'cost stickiness". Source: own summary.
Source: own.

Research directions	**Research subjects**
Evidence of the existence of cost stickiness	The number of company, parts in the company, a specific industry, multi-industry, multi-nations.
Determinants of cost stickiness	Decision and optimism of managers, labor, asset and debt scale, cost adjustment decisions as well as GDP, technology limitations
Impact of cost stickiness	Earnings forecasting and profitability adjustment behavior

However, besides the achievements, some researchers are skeptical about the reliability and value of the model that authors, Anderson et al., used in their research in 2003 .

2.3.1 Evidence of the existence of "cost stickiness"

There have been lots of studies and articles published in SJR journals showing the existence of "cost stickiness". Most of the authors used the research model by Anderson et al. published in 2003, except the study by Anderson and Lennon in 2007. These studies discovered the cost behavior of costs such as SG&A costs (selling, general and administrative costs, COGS, labor costs, administrative costs to prove the existence of cost stickiness).

The articles and results showing the existence of "cost stickiness" included the article by Noreen and Soderstrom (1994) stating that general production costs did not change proportionately with the change volume of overall production activity and in article released in 1997, two authors showed that costs changed immediately when increasing activity while decreasing more slowly when there was a decrease in activity.

Anderson, Banker and Janakiraman (2003) showed that costs increased more when activity volume increased and decreased less when the activity volume decreased; Anderson and Lanen (2007) also stated the relative relationship between SG&A costs and the difficulty to cut down costs while demonstrating a mismatch for the cost behavior under the traditional model.

Subramania and Weidenmier (2003) also proved that the manufacturing companies were the most sticky when there was a change in activity compared to other industries and commercial enterprises were the least sticky when activity changed.

Calleja, Steliaros and Thomas (2006) showed that the costs of firms in Germany and France were more sticky than firms were operating in the UK and US where there was a change in activity.

According to Balakrishnan and Gurca (2008) , the costs related to the main business activity was more sticky when there was a change in activity than the costs of other departments.

Table 7 summarizes the articles and research results exploring evidence of the existence of cost stickiness:

Tab.7 - The studies of evidence of cost stickiness. Source: own summary

Author	Sample	Period	Dependent variables	Independent variables	Results
Noreen and Soderstrom (1994)	100 hospitals	1973-1992, reality in 1987 and cost estimate in 1990	Cost	Service unit, Scale assumption	The results eliminated the hypothesis of correlation for most of the general accounts. On average of all accounts, the average cost per activity unit exceeded the marginal cost about 40% and over 100% in some departments. Thus, the average cost for the activity should be considered in decision making.
Noreen and Soderstrom (1997)	108 hospitals	1977-1992	Costs	activity, scale assumption	The results show that the costs system with costs assumption closely correlated with the activity volume reflected the impact of changes in costs activity for decision making and activity evaluation purposes. The study also found evidence that costs changed more while increasing activity than decreasing.
Anderson, Banker and Janakiraman (2003)	7,629 businesses	1979-1998	SG&A costs	Revenue, assumption on revenue decrease	Results showed that SG&A costs increased on average 0.55% per 1% increase in revenue. The traditional model of cost behavior stated that costs changed proportionately with the activity, the model of "cost stickiness" occured because managers adjusted their resources.
Subramaniam and Weidenmier (2003)	9,592 businesses	1979-2000	% changes of SG&A and COGS	% revenue, assumptions: different scale of revenue change, asset scale decrease, employee scale, inventory scale.	The findings showed that G&A and COGS did not show the behavior of "cost stickiness" for the small revenue changes. However, when revenues changed by over 10%, the cost exhibited sticky cost behavior. Besides, production sector was the most "sticky" due to the scale of fixed assets and large inventory, meanwhile the commercial sector is the least "sticky" due to the highly competitive environment. Financial and service sector also showed certain degrees of sticky cost.

Calleja, Steliaros and Thomas (2006)	1,891 US firms, 1,003 UK firms, 257 German firms and 349 French firms	1988-2004	△operating costs	△in revenue, consumption: revenue decrease	The results showed that the costs of French and German firms were more sticky than costs of UK and US firms. The costs tended to be less sticky over longer time and when firms had a larger decrease in revenue. Firm-specific and industry characteristics also affected on levels of "cost stickiness".
Anderson and Lanen (2007)	17,338 businesses	1978-2004	SG&A cost	Sales, assumption: Sales decrease	The results showed that there was little evidence consistent with sticky SG&A cost. Furthermore, the results did not represent an appropriate mode of cost behavior when checking the model of "cost stickiness" by using other kinds of costs (labor cost, R&D cost, and PP&E cost) aiming at the decisions of the administrators.
Balakrishnan and Gruca (2008)	189 hospitals	1986-1989	△in operating cost	△ The number of days of equivalent patients, assumption: if drop of patients	The results showed that "sticky costs" had a major role when focusing on behavior of SG&A cost over sales of production companies. The results also showed the operating cost was sticky in the hospital scale.
Zanella, Fernando Oyelere, Peter Hossain and Shahadut (2015)	105 companies	2002-2011	SG&A cost	Revenue Assumptions: revenue decrease, ratio of GDP growth, the ratio of assets on revenue and employee scale.	The results showed there was no obvious existence of "cost stickiness" on the revenue change whose cause was small market scale, low samples and not applying EPL (employment protection legislation).

In general, the purposes of the research related to "cost stickiness" to seek evidence of the existence of cost stickiness used or extended the model by Anderson et al. (2003).

However, another study conducted in 2007 by Anderson and Lanen argued that this model was inconsistent and more mechanical since the decisions made by the administrators were considered appropriately to each given moment based on the market change and operational needs of the organization and the study by Zanella et al. (2015) also failed to find clear evidence of the existence of cost stickiness. Therefore, later studies not only found out evidence of the existence of "cost stickiness" also focused on understanding the determinants of "cost stickiness" especially the manager's decisions.

2.3.2 Determinants of "cost stickiness"

The studies of determinants of "cost stickiness" have been carried out since 2003 focus on the determinants of the company management. The articles and results have shown the relevance of "cost stickiness" and determinants as identified by Anderson et al. (2003) that determinants

of "cost stickiness" consisted of managers' operation adjustment decisions, asset scale, employment scale and GDP growth.

Subramania and Weidenmier (2003) also showed that two determinants of cost stickiness were asymmetrical response of managers and fixed asset scale.

Balakrishnan, Peterson and Soderstrom (2004) identified an additional determinant of "cost stickiness", the core competency of the company.

Similarly, Balakrishnan and Gurca (2008) again confirmed that determinant of "cost stickiness" was the organization's core competency. In addition, Banker, Cifti and Mashruwala (2008) mentioned determinants of "cost stickiness" as managerial optimism, and GDP growth and fixed asset scale.

Kama and Weiss (2010) also showed that a determinant of "cost stickiness" was technological limitations.

In 2011, Kajiwara Yasukata identified a determinant of "cost stickiness" as the future sales expectation.

Later, Chen, Lu and Sougiannia (2012) showed that the agency problem was a determinant of "cost stickiness".

In 2013, Banker, Byzalove and Chen showed that resource commitment decisions of managers was a determinant of "cost stickiness".

And in 2014, Balakrishnan, Labro and Soderstrom found two determinants of "cost stickiness" including the scale of fixed assets and non-economic scales.

Through published studies, the authors synthesize and present the model of "determinants of cost stickiness" as follows:

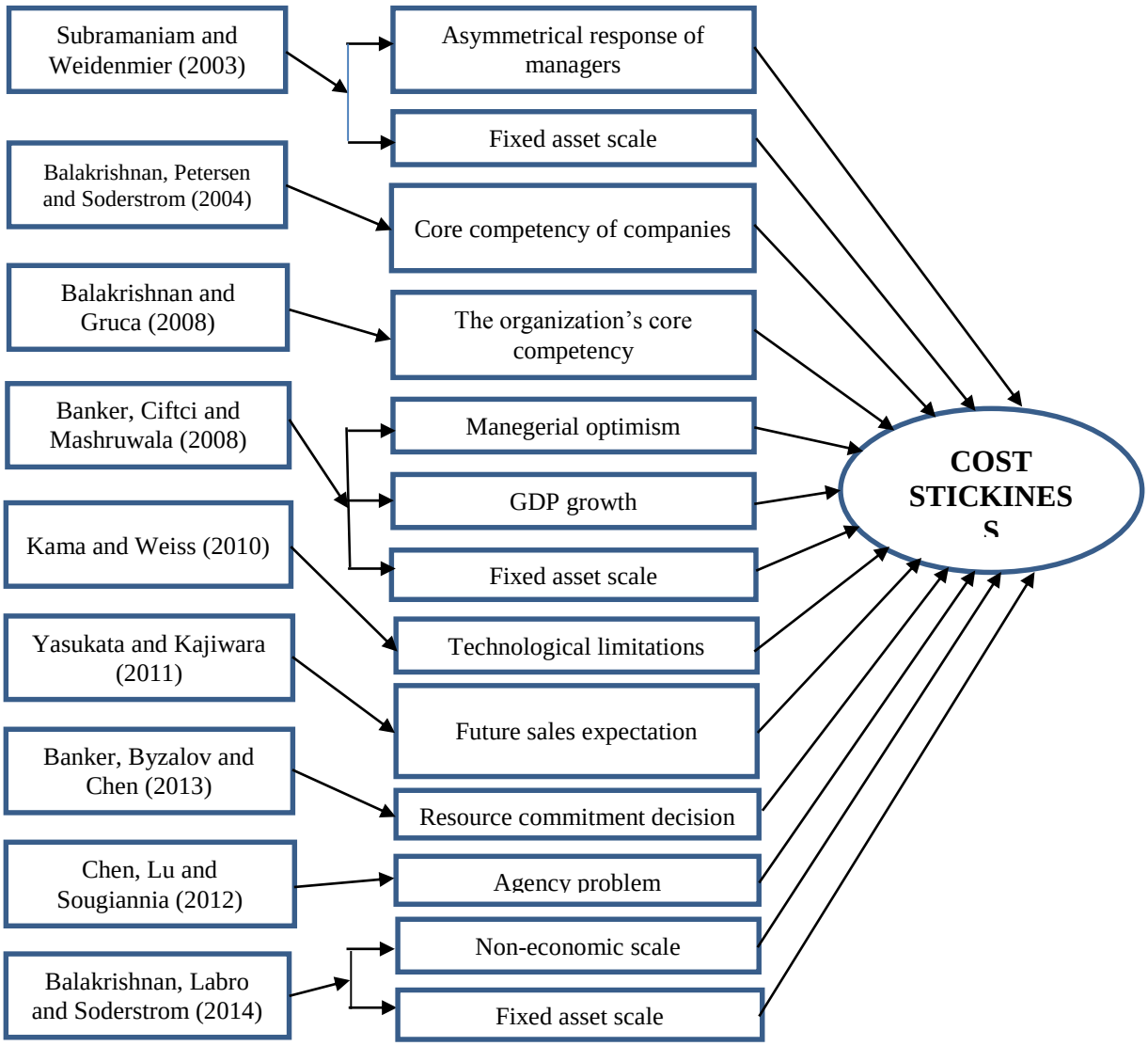

Fig.1 - Model of determinants of cost stickiness. Source: own

Thus, there have been a lot of studies conducted to explore the determinants of cost stickiness, contents and results of the studies are summarized and presented in Table 8:

Tab.8 - Studies about determinants of "cost stickiness". Source: own summary.

Author	Sample	Time	Dependent variable	Independent variable	Results
Subramaniam and Weidenmier (2003)	9,592 companies	1979-2000	△ SG&A cost, △ CGS cost	% revenue change, assumption: revenue decrease	The results showed G&A and COGS costs were sticky. And when revenue increased or decreased by more than 10% creating asymmetric responses of managers. And companies of manufacturing sector had the stickiest costs, especially the lowest sticky cost was financial sector.
Balakrishnan, Petersen and	49 hospitals	1992-1997	% change in time	%patient change, assumptions:	The results showed "cost tickiness" exhibited an obvious interaction with current capacity

Soderstrom (2004)			series of experts	small change/decrease in patients, capacity utilization control	utilization for the decrease in smaller operating scale (larger) when the current capacity is limited (redundant).
Balakrishnan and Gruca (2008)	189 hospitals	1986-1989	Change in operating cost	△ % patient change, assumptions: patient change	The findings showed that operating cost of SG&A costs were "sticky cost" and when the patients decreased, such costs did not decrease in the same scale of operation. Besides, "cost stickiness" appeared most in service departments related directly to patients.
Banker, Ciftci and Mashruwala (2008)	14,177 firms	1979-1998	△ SG&A cost	△Revenue, assumption: revenue increase at t/t-1/t-2, △big order, △GDP, assets and employment scales	The results showed that the intervention as well as the optimism of managers impacted on cost behavior in both directions of revenue increase and decrease.
Kama and Weiss (2010)	97,547 firms	1979-2006	Change in operating cost	△ revenue, assumptions: revenue decrease and annual earning changes, control of total assets, number of employees	Results showed that in term of objectivity, selection of previous technology created "cost stickiness", costs were stickier with stronger technology limits and decisions of managers could create or lose "cost stickiness".
Yasukata and Kajiwara (2011)	4,474 listed companies on Tokyo stock market	1991-2005	△ in costs	△ in sales, assumptions: sales decrease and profits on inventory, profit on fixed assets, sales on employees	The results showed that the prospect of future sales was related to the current level of "cost stickiness" and "cost stickiness" was the result of decisions made by managers.
Chen, Lu and Sougiannia (2012)	5.278 observed variables of firms in S&P 500 index	1996-2005	Log of SG&A cost was measured by delay of SG&A cost	Sales, assumption: reduction, employee scale, asset scale, successful activity, securities operation, agency change	The results showed that cost asymmetry was positively associated with managers' empire building incentives, SG&A cost was announced more when supervising activities in forms were weaker.

Banker, Byzalov and Chen (2013)	128,333 observed variables of 15,833 firms in 19 OECD countries	1990-2008	Firm scale reduced as the model of Anderson et al. (2003)	EPS index, fixed asset scale, assumption: countries used common law	Results showed that levels of "cost stickiness" in firms of different scales varies depending on the required extent of EPL provisions in a national scale.
Balakrishnan, Labro and Soderstrom (2014)	1,000 firms	Each firm with data of ten years	△ cost	△ Sales, assumption: sales decrease, economic scale controllable and industry impact.	The results showed that cost structure, fixed-cost and non-economic measure related to "cost stickiness" while the control of cost structure and economic situation of short-term management decisions contributed to the formation of asymmetric costs.

2.3.3 Application of research results on "cost stickiness"

For this issue, the authors focused on the study of the relationship between cost stickiness and earnings forecasting and earnings adjustment behavior of companies. The studies' results reveal that a model of earnings forecasting containing cost stickiness brings more accurate results with fewer errors. Meanwhile, for earnings adjustment behavior, the results of the studies show that companies with less "cost stickiness" are more likely to perform the earnings adjustment behavior than those with lots of sticky costs.

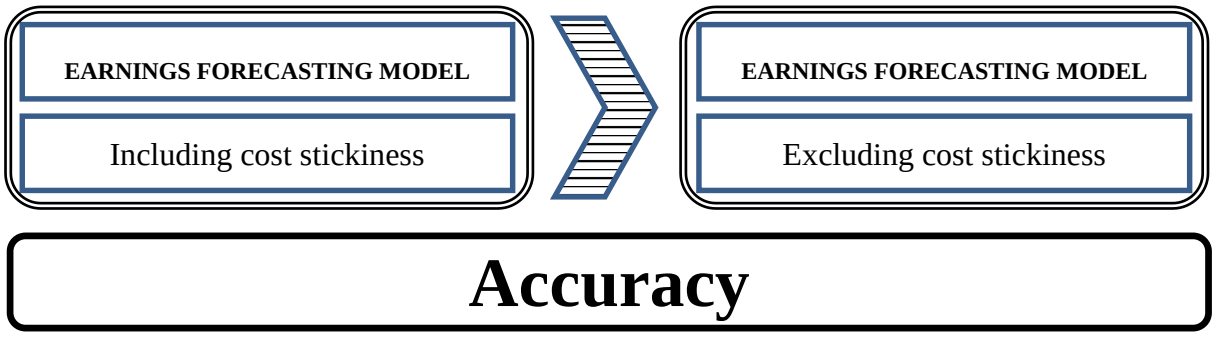

Fig.2 - Impact of cost stickiness on earnings forecasting model. Source: own.

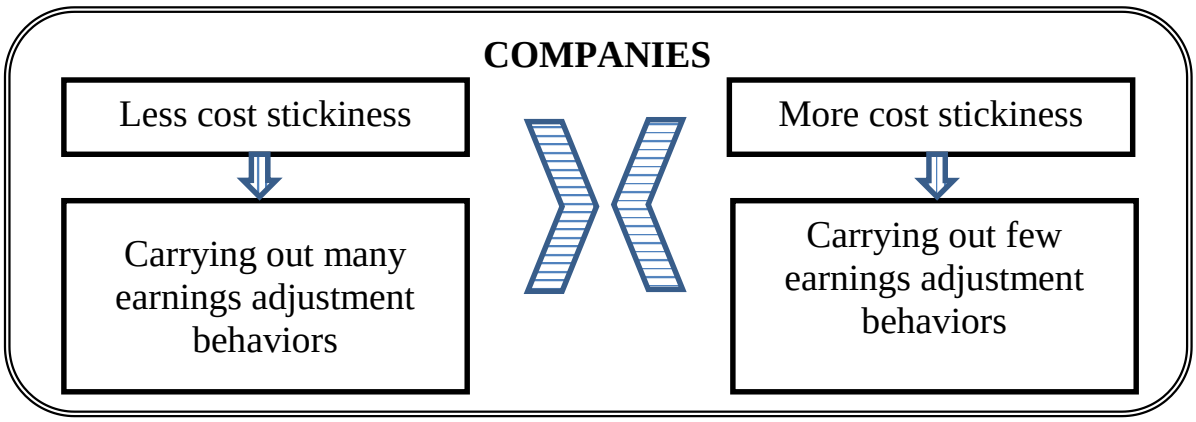

Fig.3 - Impact of cost stickiness on earnings adjustment behavior. Source: own

Articles and research results applies cost stickiness to understand the accuracy of earnings forecasting as Banker and Chen (2006) showed that the accuracy of forecasting model increased if that model includes "cost stickiness".

Anderson, Banker, Huang and Janakiraman (2007) also showed that forecast earnings positively associated with the ratio of increase of SG&A costs.

Similarly, in his article in 2010 , Weiss proved that firms with more "cost stickiness", the result of analysts' earnings forecasting had less accuracy than those with less "cost stickiness".

In addition, Kim and Kinsey (2010) also revealed the imperfect adjustment of analysts of cost behavior resulted in systematic errors in their earnings forecasts.

So far, there have been few articles/studies on "cost stickiness" and earnings adjustment behavior. In 2012, the article published by Dierynck, Landsman and Renders showed that if a firm had more proportional cost behavior (that means it would be less sticky when operational scale changed) then it performed more earnings adjustment behavior. In other words, firms with more "cost stickiness" are more difficult to perform earnings adjustment behavior than firms with less "cost stickiness".

Currently, the researches to understand the influence of "cost stickiness" was conducted fewer than those to explore determinants of "cost stickiness". Table 9 summarizes articles and their achieved results.

Tab.9 - Study of impact of the cost stickiness. Source: own summary.

Author	Sample	Period	Dependent variable	Independent variable	Results
Banker and Chen (2006)	8,771 firms	1988-2002	Forecasted earnings	Sales in the beginning period, earnings in the beginning period, assumption: sales decrease	The results showed that earning forecasting model included "cost stickiness" provided more accurate forecasting results than the model just used factors on the financial statements.
Anderson, Banker, Huang and Janakiraman (2007)	23,002 firms	1980-2003	Earning change in previous year	Assumptions: SG&A as sales increase/decrease, earnings changes in current year, other signs.	The results showed that forecasted earnings were closely associated with changes in the ratio of SG &A cost when sales decreased, and at the time of earnings decrease from investment portfolios formed in long-term increased as SG&A costs increased (and in the short term when the ratio of SG & A costs increased slowly).
Weiss (2010)	2,520 firms	1986-2005	Forecasting error	Cost stickiness (cost to sales ratio), the market value of capital, assumption: earnings decrease, the number of analysts, assumption: unexpected	The results showed that firms with more "cost stickiness" forecast their earning less accurately and cost stickiness affected the priority of analysts as well as asymmetric cost behavior consideration of investors about the value of the firms.

				earnings decrease.	
Kim and Kinsey (2010)	3,220 firms	1996-2005	Error in earning forecasting	Ratio of sales growth of analysts, variable rate of earnings before extraordinary items, number of analysts, abnormal accrual.	The results showed that errors in earnings forecasts of analysts was proportional to sales growth while showing the relevance of the hypothesis of imperfect adjustment of costs behavior by analysts making errors in their earnings forecast.
Dierynck, Landsman and Renders (2012)	32,139 annual observations of the firms	1994-2006	Labor cost	Change of sales, assumption: decrease, labor scale, asset scale, economic growth, abnormal accrual.	The results showed that companies with increase in statement of earnings had moderately proportionate costs behavior for activity expansion aiming at earnings management and the managers made different decisions on labor depending on their motivation of earnings adjustment.

3 CONCLUSIONS

Cost stickiness is a kind of cost in which the increased ratio as the activity increases is larger than decreased ratio when decreasing the activity volume at the proportionate ratio. Research of this kind of cost not only helps expand knowledge in the field of management accounting, but also plays an important role in assisting managers to make more appropriate decisions in order to help businesses use resources more effectively and achieve the desired profit.

Although this kind of cost was mentioned in the study by Noreen and Soderstrom in 1994 and was first termed "cost stickiness/sticky cost" in the study by Anderson et al. in 2013 and there have been many authors and articles published on this issue according to the research directions as searching evidence of the existence of cost stickiness, determinants of cost stickiness and cost stickiness in earnings forecasting and earnings adjustment behavior, there have not been many studies conducted in Vietnam as well as the understanding of cost stickiness has not been widely disseminated in education especially economic sector.

Thus, with knowledge compiled from foreign researches published in the prestigious journals, we try to provide/present basic contents related to this kind of cost in order to bring about further understanding for readers as well as with the hope that future researchers can conduct researches on this topic in the future. Furthermore, we also suggest that companies in Viet Nam should study on this issue as well as update this knowledge for staff responsed in accounting and finance to help cost management effectively.

Besides the presentation, certain limitations are inevitable as the survey can not be carried out in a large scale to produce more accurate results about the level of understanding cost stickiness in schools and the article fails to explore the knowledge of the companies related to this topic. Furthermore, the factors moderating the relationship between cost stickiness and earnings adjustment behavior like internal control, capability of cost managers and information systems

(e.g. ERP, AIS, IS…) was not mentioned in this paper. And there were not any real cases of example in Viet Nam. However, this is because there have been no research on this issue in Viet Nam was published.

Based on the knowledge to learn about cost stickiness, the authors would like to propose future researches on this topic as conducting researches to understand, prove whether cost stickiness exists in Vietnamese companies or not or check determinsants of cost stickiness in Vietnam companies at different scales including industry, business sector, investment and discover whether the earnings forecasting model of companies which with the appearance of cost stickiness affects the accuracy increase and error decrease in forecasting model or not.

REFERENCES

Anderson, M. C., Banker, R. D., & Janakiraman, S. N. (2003). Are selling, general, and administrative costs "sticky"? *Journal of Accounting Research,41*(1), 47-63.

Anderson, M., Banker, R., Huang, R., & Janakiraman, S. (2007). Cost behavior and fundamental analysis of SG&A costs. *Journal of Accounting, Auditing & Finance*, *22*(1), 1-28.

Anderson, S. W., & Lanen, W. N. (2007). Understanding Cost Management: What Can We Learn from the Evidence on'Sticky Costs'? *Available at SSRN 975135*.

Balakrishnan, R., Labro, E., & Soderstrom, N. S. (2014). Cost structure and sticky costs. *Journal of Management Accounting Research*, *26*(2), 91-116.

Balakrishnan, R., & Gruca, T. S. (2008). Cost stickiness and core competency: A note. *Contemporary Accounting Research, Forthcoming*.

Balakrishnan, R., Petersen, M. J., & Soderstrom, N. S. (2004). Does capacity utilization affect the "stickiness" of cost? *Journal of Accounting, Auditing & Finance*, *19*(3), 283-300.

Banker, R. D., & Chen, L. (2006). Predicting earnings using a model based on cost variability and cost stickiness. *The Accounting Review*, *81*(2), 285-307.

Banker, R. D., Ciftci, M., & Mashruwala, R. (2008). Managerial optimism, prior period sales changes, and sticky cost behavior. *Prior Period Sales Changes, and Sticky Cost Behavior (November 12, 2008)*.

Banker, R. D., Byzalov, D., & Chen, L. T. (2013). Employment protection legislation, adjustment costs and cross-country differences in cost behavior. *Journal of Accounting and Economics*, *55*(1), 111-127.

Calleja, K., Steliaros, M., & Thomas, D. C. (2006). A note on cost stickiness: Some international comparisons. *Management Accounting Research*, *17*(2), 127-140.

Chen, C. X., Lu, H., & Sougiannis, T. (2012). The Agency Problem, Corporate Governance, and the Asymmetrical Behavior of Selling, General, and Administrative Costs*. *Contemporary Accounting Research*, *29*(1), 252-282.

Dierynck, B., Landsman, W. R., & Renders, A. (2012). Do managerial incentives drive cost behavior? Evidence about the role of the zero earnings benchmark for labor cost behavior in private Belgian firms. *The Accounting Review*, *87*(4), 1219-1246.

Kama, I., & Weiss, D. (2010). *Do managers' deliberate decisions induce sticky costs?* Tel Aviv University, Faculty of Management, The Leon Recanati Graduate School of Business Administration.

Kim, M., & Prather-Kinsey, J. (2010). An additional source of financial analysts' earnings forecast errors: Imperfect adjustments for cost behavior. *Journal of Accounting, Auditing & Finance*, *25*(1), 27-51.

Soderstrom, N., & Noreen, E. (1994). Are overhead costs strictly proportional to activity? *Journal of accounting and economics*, *17*(1), 255-278.

Noreen, E., & Soderstrom, N. (1997). The accuracy of proportional cost models: evidence from hospital service departments. *Review of Accounting Studies*,*2*(1), 89-114.

Subramaniam, C., & Weidenmier, M. (2003). *Additional evidence on the behavior of sticky costs*. Working paper, Texas Christian University.

Weiss, D. (2010). Cost behavior and analysts' earnings forecasts. *The Accounting Review*, *85*(4), 1441-1471.

Yasukata, K. (2011). Are'Sticky Costs' the Result of Deliberate Decision of Managers? *Available at SSRN 1444746*.

Zanella, F., Oyelere, P., & Hossain, S. (2015). Are costs really sticky? Evidence from publicly listed companies in the UAE. *Applied Economics*,*47*(60), 6519-6528.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

EFFECT OF INFORMATION OF FINANCIAL STATEMENTS ON INVESTMENT DECISIONS: A STUDY IN VIETNAM

Huong Thi Thanh Nguyen, Tuyen Thi Kim Nguyen, Hanh Hong Nguyen

ABSTRACT

This study investigates the effect of information of financial statements on shareholders' investment decisions. It is necessary for investors as they decide to invest in listed firms on the Vietnamese Stock Exchanges. Information contents of financial statements affect shareholders' investment decisions. In order to examine the relationship between the information contents of financial statements and shareholders' investment decisions, the study used key information of financial statements such as profitability, dividend per share, earnings per share, leverage, and liquidity to investigate change in number of shares. The data of the study were obtained from the published annual financial statements of listed firms, thereby regression model was applied to establish the relationship between variables. The results indicate that the contents of published accounts significantly influence shareholders' investment decisions, particularly, profitability, dividend per share, earnings per share and liquidity affected the number of shares issued by firms through years. This study is vital for shareholders to make their proper investment decisions as they trade on the very young stock market in Vietnam.

Keywords: *Financial statements, shareholders, investment decisions, published accounts*

JEL Classification: G11

1 INTRODUCTION

"Financial information can be very useful in estimating the current business and creating assumption for more successful business in the future" and decision making is significantly affected by the accounting information system and financial statements (Blessing & State, 2015). In addition, listed firms use financial statements as one of main medium of communication on their equity to the public (Cheng and Yang, 2003; Sloan, 1996; Hribar and Collins, 2002).

Financial statement provides important information for a wide variety of decision, investors draw information from the statement of the firm in whose security they contemplate investing. Decision makers who contemplate acquiring total or partial ownership of an enterprise expect to secure returns on their investment such as dividends and increase in the value of their investment. Both dividends and increase in the value of shares of company depends on the future profitability of the enterprise. So investors are interested in future profitability. Past income dividend data are used to forecast returns from dividend and increase in share prices (Blessing & State, 2015)

The provision of reliable information is considered vital since it can affect decisions of the information users, more specifically, affect investors in their investment decisions. For that reason, the financial statements may have a strong influence on a company's stock price (Wang, Fu, & Luo, 2013).

So far, apart from few foreign studies, there have been no official studies on factors of published financial statements affecting investors' decisions in Vietnam, a very young stock market (Hung, 2012).

This study is expected to find out factors affecting shareholders' investment decisions through the information on financial statements, enhance shareholders' understanding about the financial status of the companies about which they concerned before making their investment decisions. Besides, shareholders should seek advice of financial analysts in order to be properly guided in their investment decisions.

2 LITERATURE REVIEW

A. E. Osuala (2012) studied the effect of factors of financial statements to shareholders' investment decisions of firms listed on the Nigerian Stock Exchange. Through data from the Nigerian Stock Exchange Fact Book and financial statements within 10 years from 1999 to 2008, the author collected data of 5 firms with over 300 investors surveyed for the study. According to the author, shareholders need to receive full benefit of their investment so need clear and fairly stated information in order to enable them make effective investment decisions, namely profitability, earnings per share, dividend per share, and financial index. To perform the study, the author stated hypotheses including profitability does not have significant impact on shareholders' investment decisions, there is no significant positive relationship between declared dividend per shares and shareholders' investment decisions, earnings per share does not have any significant impact on shareholders' investment decisions, leverage has no significant impact on shareholders' investment decisions and corporate firms' liquidity does not significantly influence shareholders' investment decisions. This study used Eview software, version 7.1 and after carrying out data analysis, the author stated the following conclusions: First: companies with high profitability attract more shareholders. This result is similar to the study results by Awa (2014), Attaullar and Tahir (2004) which noted that big firms have more advantages, and thus, attracting shareholders is higher than firms with less profitability; second: dividend per share does not affect shareholders' investment decisions; third: shareholders show less interest in companies' earnings per share while making their investment decisions in the Nigerian Stock market"; fourth: shareholders show more interest in the company's liquidity, but are not affected by its leverage.

Wang et al., (2013) studied the relationship between accounting information and stock price with a few accounting information indexes and relationship between earnings per share and investors' investment decisions. With indexes on financial statements collected from 60 listed companies on Shanghai Stock Exchange, in China for 2011, the study was based on the following hypotheses: profitability, earnings per share has a positive correlation with stock price; liquidity has a positive correlation with stock price; Accounts receivable and inventories has a positive correlation with stock price. This study used software SPSS17.0. Through correlation analysis and regression analysis between accounting information and stock price reaction, the authors concluded that the accounting information had some effect on stock price. Particularly, earnings per share had a direct impact on stock price, liquidity also has a positive relationship with stock price.

Luvembe & Njangiru (2014) investigated the effect of dividend payout on market value of listed banks in Kenya. The study set out hypotheses including there is no relationship between capital structure and market value among listed banks in Kenya; there is no relationship between corporate earnings and market value among listed banks in Kenya; there is no relationship between dividend payout ratio and market value among listed banks in Kenya; There is no relationship between capital market investments and market value among listed banks in Kenya.

To clarify these hypotheses, researchers used secondary and primary data. The data were obtained from the annual reports of banks listed on the Nairobi Securities Exchange, and interviews with financial managers of 10 listed banks. The banks listed between 2006 and 2010 include Equity bank, Co-operative Bank of Kenya, Barclays Bank Ltd, CFC Stanbic Holdings Ltd, Diamond Trust Bank Kenya, Housing Finance Company Ltd, Kenya Commercial Bank Ltd., National Bank of Kenya Ltd, NIC Bank and Standard Chartered Bank Ltd. The study used software SPSS 20. The results showed that there was a relationship between capital structure and market value among listed banks in Kenya; the concentration of ownership had an impact on dividend payout; corporate earnings had a positive impact on market value among listed banks in Kenya and there was a positive and significant relationship between dividend payout ratio and market value among listed banks in Kenya.

Blessing & State (2015) studied the role of financial statements on investment decision making of United Bank for Africa PLC, Nigeria. This study used secondary data from financial statements within 10 years of the bank listed on the Nigerian Stock Exchange. To process the results, researchers used SPSS software with linear regression model. The study results showed that "investor to take investment decision via the financial statement of the financial institution the focus is majorly on the profitability of the organization and the profit of the organization is a function of the assets, liabilities and equity contribution of the owner of the organization, as such the relationship between the profit and asset, liabilities, and equity is very significant for where the investors put their resources via multiplier effect; Investment are not made on a vacuum hence, there are bedrocks on which they will stand".

Above-mentioned results show that shareholders show more interest in some information contents presented in financial statements and some information contents of financial statements affect shareholders' investment decisions on the stock market.

This study was inherited from previous studies, and factors included in the model based on the study by A. E. Osuala (2012) and applied to the Vietnamese Stock Market in order to determine whether shareholders are affected by information of financial statements for their investment decisions.

Hypotheses of the study are formulated as follows:

H01: High profitability does not significantly impact on shareholders' investment decisions.

H02: Dividend per share does not impact on shareholders' investment decisions.

H03: Earnings per share does not have a significant impact on shareholders' investment decisions.

H04: Leverage does not significantly impact on shareholders' investment decisions.

H05: Liquidity does not significantly influence shareholders' investment decisions.

3 METHODOLOGY

3.1 Process of data collection

Secondary data were collected in this study. These data were obtained from the firms listed on the Vietnamese Stock Market and annual reports of selected firms. 5 selected firms in this study include FPT Corporation, Materials - Petroleum Joint-Stock Company (COMECO), Petrolimex Gas Corporation (PGC), Vietnam Dairy Products Stock Joint-Stock Company (Vinamilk) and Kido Corporation (KDC). The firms mentioned above were selected based on convenience and satisfaction of required data and continue operation in 2016. The data obtained from five above-mentioned firms covers a period of 10 years from 2006 through 2015.

3.2 Model development

To test the hypotheses, this study uses a number of variables:

Dependent variable:

ID = Change in investment decisions is represented by logarithm of number of shares

Independent variables included:

Profitability (PRO), dividend per share (DPS), earnings per share (EPS), leverage (LEV) and liquidity (LIQ).

With:

Hypothesis H01: ID = f (PRO).

Of which:

PRO = $\frac{Net\ profit}{Total\ assets.}$

f = Indicates that ID is a function of PRO.

Hypothesis H02: ID = f (DPS)

DPS = dividend per share (shown in annual reports of selected firms)

Hypothesis H03: ID = f (EPS)

EPS = Earnings per share (shown in annual reports of selected firms)

Hypothesis H04: ID = f (LEV)

LEV = leverage ($\frac{Total\ capital}{Total\ assets}$)

Hypothesis H05: ID = f (LIQ)

LIQ = Liquidity ($\frac{Total\ short-term\ assets}{Total\ short-term\ capital}$)

Scheduled model

$ID = \beta_0 + \beta_1 PRO + \beta_2 DPS + \beta_3 EPS + \beta_4 LEV + \beta_5 LIQ + \mu$

Of which:

- ID = Dependent variable
- PRO, DPS, EPS, LEV, LIQ = independent variables
- β_0 = block coefficient
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$: parameters ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$)
- μ: random variable.

4 RESULTS AND DISCUSSION

To test hypotheses, SPSS 20.0 software was used for data analysis and results are presented in Table 1.

Table 1 shows results of statistical description of independent and dependent variables for the samples. This table shows the values of min, max, mean and standard deviation for all variables in the regression model.

N Valid: total samples collected

Min: The lowest value

Max: The highest value

Mean: the mean value of agreed responses. The calculation is: = Average (number 1, number 2 ... number n)

Std. Deviation: The dispersion of responses around the mean value (closer to zero value shows more focused response). The calculation is: = Stdev (number 1, number 2 ... number n)

It can be seen from Table 1 that factors on financial statements and shareholders' decisions showed not much change in firms' investment decisions (ID) with mean of 7.8, a min of 6.52 and max of 8.92. Standard deviation indicates that there is no significant difference in the change of shareholders' investment decisions.

Profitability (PRO) between the firms over the years has a quite high fluctuation compared to the mean value of 1198537, of which max value is 7769553 and min value is -61000. Dividend per share (DPS) is also significantly different between firms during years with mean value of 1344.256. Similarly, mean value of earnings per share (EPS) is 3359.780 compared to max value of 22581.0 and min value of -1522. Mean level of leverage (LEV) is 39.017% and liquidity (LIQ) is 2.17 (fluctuating from 0.58 through 7.03)

Tab.1- Descriptive statistics of independent and dependent variables in the study (N = 50). Source: processed by the author with SPSS 20.0

Variables	Min	Max	Mean	Std. Dev
ID	6.52	8.92	7.8315	0.58770
PRO	-61000.0	7769553	1198537	1878444
DPS	0	4575.1	1344.265	996.0813
EPS	-1522.0	22581.0	3359.780	3472.417
LEV	9.27%	69.22%	39.017%	16.650%
LIQ	0.5762238	7.032754	2.170357	1.202577

Table 2 shows the correlation between variables in the study. The results show that there is some correlation between dependent variable and independent variables, namely correlation between ID and PRO with coefficient of 0.712; between ID and EPS with coefficient of 0.423. Results also show that there is no appearance of multicollinearity in regression results, therefore, regression results are not affected.

Tab.2- Correlation coefficient between variables. Source: processed by the author with SPSS 20.0

	ID	PRO	EPS	DPS	LEV	LIQ
ID	1					
PRO	0.712*	1				
	0.000					
DPS	0.423*	0.195	1			
	0.002	0.174				
EPS	0.071	-0.205	0.137	1		
	0.626	0.153	0.344			
LEV	0.204	0.020	0.267	-0.025	1	
	0.155	0.891	0.060	0.865		
LIQ	-0.214	0.049	-0.175	0.036	-0.765*	1
	0.135	0.738	0.224	0.801	0.000	

* Correlation is significant at the 0.01 level (2-tailed)

Tab.3- Regression results of dependent variable. Source: processed by the author with SPSS 20.0

ID	**Beta**	**T**	**sig**	**VIF**
PRO	0.00	7.875	0.000**	1.116
DPS	0.00	2.422	0.020*	1.166
EPS	0.00	2.162	0.036*	1.089
LEV	-0.03	-0.562	0.577	2.531
LIQ	-0.135	-2.035	0.048*	2.443
Const	7.669	24.173	0.000	

Dependent Variable: ID

R-square 0.668 Adjusted R-square 0.63

** Indicates significant at 5% level.*

*** Indicates significant at 1% level*

Table 3 shows that:

Profitability has a positive relationship with the change of number of issued shares (sig = 0.00), rejecting H01, so the firm's profitability has an impact on shareholders' investment decisions. This result match the study results by A.E. Osuala (2012): "companies with high profitability attract more shareholders" and Attaullar and Tahir (2004): "the determinants of capital structure of stock exchange-listed non-financial firms in Pakistan", which noted that big firms have more advantages, and thus, attracting shareholders is higher than firms with less profitability. Therefore, we conclude that profitability had an influence on shareholders' investment decision.

The analytical results show that the dividend per share has a proportional relationship to the change in number of shares (sig = 12:02), rejecting H02, so dividend per share has an impact on shareholders' investment decisions. This result matches Gordon's conclusions that shareholders will avoid risks and be willing to pay a higher price for shares that have a higher dividend rate but mismatch conclusions by A. E. Osuala (2012) that "dividend per share does not significantly affect shareholders' investment decisions". From the above results, it could be concluded that shareholders' investment decision are affected by dividend per share.

It can be seen from Table 3 that earnings per share has a positive relationship with the change in number of issued shares with sig = 0036. Therefore, hypothesis H03, earnings per share does not have a significant impact on shareholders' investment decisions, is rejected. This result does not coincide with opinions of A. E. Osuala (2012): "shareholders show less interest in companies' earnings per share while making their investment decisions". The above results give conclusion that shareholders' investment decisions are affected by earnings per share.

The results also show that liquidity has a negative relationship with the change in number of issued shares with sig = 0.048, H05 is rejected. This coincides with A. E. Osuala (2012): "shareholders are much interested in the companies' liquidity while making their investment decisions", but rejects conclusions by Waliullah & Mohammed (2008), and Bhole (2004), which said that shareholders are not interested in how the company manage its debts and loans but more interested in the money they receive compared to their investments in the company.

Regression analysis results in Table 3 showed R2 = 0.63. This indicates that independent variables were explained over 63% of total change of dependent variable which means variables of profitability, dividend per share, earnings per share, leverage and liquidity interpret 63% of change in number of shares; the remaining 37% left unexplained. This indicates that shareholders' decisions are significantly affected by indexes in financial statements, besides there are still some other factors such as psychological factors affecting them while making their investment decisions as stated a study by Hoang Thanh Hue Ton & Trung Kien Dao (2014).

5 CONCLUSIONS

Through evaluation of major contributions and limitations of previous studies, the authors selected and inherited appropriate factors, assessed and adjusted factors that are inappropriate to the research context. Relying that authors built theoretical backgrounds and research models, as well as scales for research concepts in order to apply and investigate factors of published financial statements affecting shareholders' investment decisions on the Vietnamese Stock Market.

This study identified information contents of financial statements affecting shareholders' investment decisions of firms listed on the Vietnamese Stock Market. The results of the study show that:

- Corporate profitability affect number of issued shares, which indicates that companies with higher profitability attract more shareholders.

- Shareholders' investment decisions are affected by the companies' dividend payout or in other words companies that pay high dividends attract more investors.

- Shareholders show more interest in companies' earnings per share while making their investment decisions on the Vietnamese Stock Market.

- Companies' liquidity influences shareholders' investment decisions.

- In addition to information contents of financial statements, shareholders are affected by other factors that were not mentioned in the model.

In view of the results of this study, it is recommended that:

- Firms listed on the Vietnamese Stock Market should focus on the preparation and presentation of their financial statements in order to show their true financial capacity and business activities for shareholders to make more informed investment decisions.

- Shareholders should make proper investigation about the financial status of the company as well as seek the advice of financial analysts before making investment decisions in the company of their interest for the most effective investment.

REFERENCES

Awan, A. G., & Amin, M. S. (2014). Determinants of capital Structure. *European Journal of Accounting Auditing and Finance Research*, *2*(9), 22–41.

Blessing, A., & Onoja, E. E. (2015). The role of financial statements on investment decision making: a case of united bank for africa plc (2004-2013). *European Journal of Business, Economics and Accountancy*, *3*(2), 12–37.

Bhole, L. M. (2004). *Finacial Institutions and Markets: Structure Growth, and Innovations.* Tata McGraw-Hill Publishing Company Limited, New Delhi.

Cheng, C. S. A. & Yang, S. S. M. (2003). The Incremental Information Content of Earnings and Cash Flows from Operations affected by their extremity. *Journal of Business Finance & Accounting* 30 (1&2)

Fallis, A. . (2013). No Title No Title. *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699. http://doi.org/10.1017/CBO9781107415324.004

Hribar, P., Hribar, P., Collins, D. W., & Collins, D. W. (2002). Errors in Estimating Accruals: Implications for Empirical Research. *Journal of Accounting Research*, *40*(1), 105–134. http://doi.org/10.1111/1475-679X.00041

Hung, N. Q. (2012). Vietnam ' s Capital Markets : Young and Growing, 141–160.

Luvembe, L., & Njangiru, M. J. (2014). Effect of Dividend Payout on Market Value of Listed Banks in Kenya, *3*(11), 350–370.

Okezie, B. N. (2008). *Fundamentals of International Accounting and Financial Reporting Standards*. BON Publishers.

Shah, A., & Hijazi, T. (2004). The Determinants of Capital Structure of Stock Exchange-listed Non-financial rms in Pakistan. *The Pakistan Development Review*, *43*(4), 605–618.

Sloan, R. G. (1996). Information in Accruals and Cash. *The Accounting Review*, *71*(3), 289–315. http://doi.org/10.2307/248290

Thanh Hue Ton, H., & Kien Dao, T. (2014). The Effects of Psychology on Individual Investors' Behaviors: Evidence from the Vietnam Stock Exchange. *Journal of Management and Sustainability*, *4*(3), 125–134. http://doi.org/10.5539/jms.v4n3p125

Ullah, W., & Nishat, M. (2008). Capital Structure Choice in an Emerging Market : Evidence from Listed Firms in Pakistan. *21st Australasian Finance and Banking*, 1–23. Retrieved from http://ssrn.com/abstract=1265447

Wang, J., Fu, G., & Luo, C. (2013). Accounting information and stock price reaction of listed companies—empirical evidence from 60 listed companies in Shanghai Stock Exchange. *Journal of Business & Management*, *2*(2), 11–21.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

LEADERSHIP AND CITIZENSHIP PERFORMANCE BEHAVIOUR OF TOMORROW'S MANAGERS

L N A Chandana Jayawardena, Ales Gregar

ABSTRACT

The primary role of universities is to nurture productive citizens. Youth view university education as a vital step to become future's managers. Possession of leadership initiatives and display of citizenship performance have been viewed helpful in securing preferred jobs, and career development for the youth. Citizenship Performance Behaviour (CPB) and leadership styles have been empirically found to be important factors for career enhancement. Objectives of the study are to empirically assess the CPB, leadership styles and Emotional Intelligence (EI) levels of university students, and to analyse the relationships among them. Hundred and seventy six university students (103 girls, and 73 boys) were selected from Zlin, Czech Republic. A shortened version of the multifactor leadership questionnaire, Genos EI Inventory, and Poropot & Jone's index of CPB were used to measure the key variables among respondents. Descriptive and inferential analyses of survey data were conducted using SPSS software. Variations were observed between boys, and girls in their leadership styles, EI levels, and CPB. Fluctuation of EI levels indicated the volatility of the reasoning ability of university students in competitive emotional encounters. Study concludes positive relationships of transformational leadership style with CPB, and EI in a collectivist and non-for profit context. There was no moderation effect of EI level to the relationship between transformational leadership style and CPB of university students. Improving awareness and practice of EI, and transformational leadership style among university students is expected to facilitate grooming of societally contributory managers. Further research among practicing managers will enrich knowledge and practice.

Keywords: *Citizenship Performance, Emotional Intelligence, Transformational Leadership*

JEL Classification: M14, J24, M53

1 INTRODUCTION

Chapter Leadership is viewed as a social interaction process. Humphrey (2002) has defined that the leader's ability in influencing the followers' behaviour strongly influences the performance outcomes. With the emphasis on leadership organizations increasingly pay attention to Citizenship Performance Behaviour (CPB) that explores the performance related behaviours going beyond the assigned tasks and responsibilities for which employees are usually held responsible.

1.1 Leadership and Emotional Intelligence

Leadership appears to be closely connected to the topic of Emotional Intelligence (EI). Corporate world has shown remarkable interest in EI and significant capital is invested into the development of this area. EI has become a sine qua non for executive development, and leadership programmes. Brackett, Mayer, and Warner have described EI as a competency or 'ability to perceive and accurately express emotion to facilitate thought, to understand emotions, and to manage emotions for emotional growth' (2004, p.1390). Mayer and Salovey

has defined EI as 'the ability to perceive accurately, appraise, and express emotion, the ability to access and/or generate feelings when they facilitate thought, the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth'(1997,p 3). These abilities are found to be vital in social interaction. Emotions serve as communicative and social functions, conveying information about people's thoughts and intentions. There is a plethora of descriptions of what an emotionally intelligent leader should possess in order to be effective. The conceptual works of Goleman (2001), and Boyatzis et al. (2006) have identified the 'emotional competencies' that may be associated with effective leadership. Goleman (2001) has listed four characteristics of emotionally intelligent leaders. The four characteristics indicate that emotional intelligence is associated with some skills or competencies of leadership. EI has been found to contribute to 'soft skills', which are found to be vital irrespective of whether students seek employment in the public or private sectors or chose to start their own business (Chamorro-premuzic et al. 2010). Leban and Zulauf examined the relationship between EI and transformational leadership style (2004). A positive relationship was found between EI and transformational leadership style of graduate managers (Jayawardena, 2012a). Jayawardena and Gregar recorded a positive relationship between the emotional self-control and academic performance of high school boys (2013).

1.2 Transformational Leadership Style

Transformational leadership focuses on a paradigm shift of the followers, i.e. shifting their values, beliefs, and needs. Transactional leadership involves an exchange relationship between leaders and followers'. Avolio noted that transformational leadership is characterized by idealized leadership, inspiring leadership, intellectual stimulation, and individualized consideration (2005). Further, he stated that the above leads to a cluster of interrelated styles focused on improvement of situations, developing leadership capabilities of members, overhauling organizations by providing strategic directions, and inspiring people through vision, and high ideal for moral and ethical conduct. Bass affirmed transformational leadership (unlike transactional leadership) results in organizational performance (1990). He concluded that facilitating transformational leadership in organizations will lead to effective performance. People oriented' (democratic) leadership style is more effective in 'moderately favourable, and unfavourable' situations. Research suggest that the people oriented (democratic) style of leadership would be the effective approach to manage human resources in greater majority of organisations (Foels et al., 2000, and Ogungbamila et al., 2010).

1.3 Citizenship Performance Behaviour

Organizations increasingly pay attention to Citizenship Performance Behaviour that explores the performance related behaviours going beyond the assigned tasks and responsibilities for which employees are typically held responsible. Researchers saw the merits of CPB as 'behaviours such as excelling at your job, putting extra effort in and engaging in self-development to improve your own effectiveness' (Maarleveld, 2009, p.3). Research has found four major categories of antecedents of CPB; viz.; task characteristics, organizational characteristics, leadership behaviours, and individual characteristics (Podsakoff et al., 2000). Research has found employee satisfaction, organizational commitment, and perceptions of leader supportiveness (which are focused in the conceptual framework in figure 1), among the antecedents of individual characteristics (Organ & Ryan, 1995). Researchers have also linked job task characteristics (refer figure 1) to correlate with CPB of an employee (Maarleveld, 2009). 'Citizenship Performance is a crucial aspect of performance in the workplace, so efforts at enhancing post-educational employability must address this' (Poropat, 2011). Some evidence for the relevance of Citizenship Performance to academic settings comes from examining how

grades are associated with pro-social, Citizenship-like behaviours, such as group work and conflict resolution (Jones & White, 1985). One factor that may mask the role of employability within education is the substantial difference between performance assessment in academic and workplace settings. The role of Citizenship Performance in academic settings has yet to be properly assessed (Poropat, 2011).

1.4 Scope of the Study

University graduates hold executive positions in public and private sectors, and this study focus on the roles of EI, and leadership styles on their CPB. By conducting the study in Czech Republic, an attempt is made to extend the theory to a culture that is more collectivist in nature than that of the west. By focusing on the CPB of university students the aim is to further extend the theory to a non-profit environment in an educational setting. Major research questions of the study were: "Does CPB have significant relationships with EI and transformational leadership?"; "Does EI moderate the relationship between transformational leadership and CPB?" Overall objective of the study was to empirically examine the relationships among the university students' CPB, EI level, and leadership styles. Specific objectives were to assess the CPB, EI level and the Leadership Styles, and to analyse the relationship of CPB of university students with their EI and Transformational leadership style. Study specifically focused on the moderating effect of EI to the relationship between Transformational leadership, and CPB of university students. Age, Gender, and degree programme of respondents were considered as control variables in the above relationships.

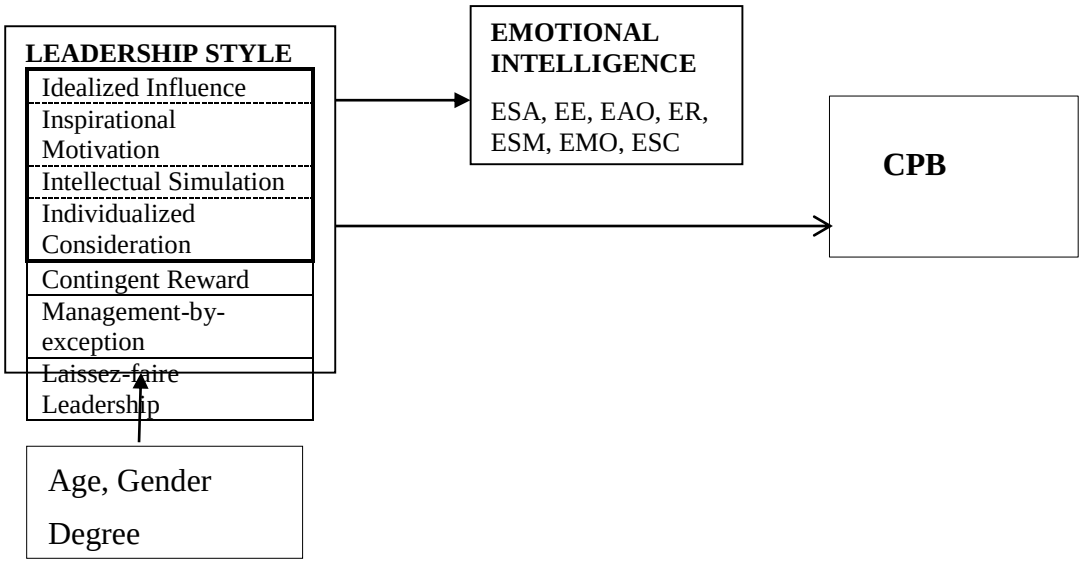

Fig. 1 -- Conceptual Framework of the Study**.**
Source: Based on literature review of the study

Three hypothesis are derived in the study. They are sub divided based on gender, and degree programmes of the participants.

Hypothesis One: There is no relationship between Transformational Leadership style and CPB in a collectivist and non-for profit context

Hypothesis Two: There is no relationship between the EI and CPB in a collectivist and non-for profit context

Hypothesis Three: EI of practitioners does not have a moderating effect to the relationship between Transformational Leadership style and CPB in a collectivist and non-for profit context

2 METHODOLOGY

The epistemological approach of the study was positivism and the underline methodological aim was exposure. Research design consisted of two mini cases, using two samples of university students following bachelor's degree programme (BDP), and master's degree programme (MDP).

2.1 Operationalization of the Study

Students of the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic participated in the study. Eighty four students (45 girls, and 39 boys) enrolled for the BDP, and 92 students (58 girls, and 34 boys) enrolled for the MDP were selected based on stratified (gender, specialization) random sampling. CPB questionnaire, Genos EI Inventory, and a modified version of the Multifactor Leadership Questionnaire (MLQ) were employed to compile the questionnaire. Questionnaire was translated into Czech language, and was pre-tested to improve the clarity. Students were briefed about the purpose of research assuring the confidentiality of their responses. Questionnaires were administered in groups for self-responses on the basis of anonymity. SPSS computer software was used for data analysis. Relationship among study variables was tested through regression analysis.

2.2 Research Instruments

2.2.1 Citizenship performance behaviour: This was measured using the Poropat and Jones scale (Poropat, 2009). It consisted of six statements, and they were answered using a likert scale that ranged from 1 (not at all accurate) to 5 (very accurate). It had been designed to be unifactorial, in line with recent meta-analyses of the structure of Citizenship Performance (Hoffman et al, 2007). The Poropat and Jones scale also has sound internal reliability (Cronbach's alpha), superior internal factor structure, and better external validity among other commonly used measures of Citizenship Performance (Poropat, 2009). CPB scores could vary from a maximum score of 30, to a minimum score of 06.

2.2.2 Leadership styles: A modified version of the MLQ questionnaire was used to measure the leadership styles of the respondents. MLQ measures leadership related to seven leadership styles [3]. Statements could be responded using a likert scale of 1 (not at all) to 5 (frequently, if not always). The seven leadership style factors are briefly defined as follows: Factor 1, Idealized Influence (II): indicates whether you hold subordinates' trust, maintain their faith and respect, show dedication to them, appeal to their hopes and dreams, and act as their role model. Factor 2, Inspirational motivation (IM): measures the degree to which you provide a vision, use appropriate symbols and images to help others focus on work, and makes others feel their work is significant. Factor 3, Intellectual stimulation (IS): the degree to which you encourage others to be creative in looking at problems in new ways, create an environment that is tolerant of seemingly extreme positions, and nurture people to question their own values, beliefs and those of the organization. Factor 4, Individualized consideration (IC): indicates the degree to which you show interest in others' well-being, assign projects individually, and pay attention to those who seem less involved in the group. Factor 5, Contingent reward: the degree to which you tell others what is necessary to be rewarded, emphasize what you expect from them, and recognize their accomplishments. Factor 6, Management by exception: whether you tell others of job requirements, content with standard performance, and believe in "if it isn't broke, don't fix it." Factor 7, Laissez faire: measures whether you are content to let things ride, and let others do

their own thing. Scores of the first four factors; viz. II, IM, IS, and IC cumulate the transformational leadership style.

2.2.3 Genos EI Inventory (Genos EI): Genos EI concise version was used to measure the EI of respondents. Genos EI test uses a self-report measure, designed with items of minimal personality saturation (Gignac, 2010, p.12-14). Genos EI focuses upon the EI ability dimensions, and measures them from a typical performance perspective. Genos EI self-report inventory (concise version) consists of 31 items designed to measure the frequency with which an individual displays emotionally intelligent behaviours across seven dimensions. It is applicable for individuals of age 18 to 76 years. Each sub construct is assessed using 4 or 5 items, which are scored on a five-point Likert scale (i.e. 1 = Almost never, to 5 = Almost always). It produces a cumulative EI score (maximum score of 155), and 7 subscale EI scores (Refer Table1).

Tab. 1 - Domains of EI description
Source: Gignac, Genos Emotional Intelligence Inventory; Technical Manual (2nd Ed.)

Name of the Factor (Sub Construct)	Description
1. Emotional Self-Awareness (ESA) (4 items and a maximum score of 20)	The skill of perceiving and understanding one's own emotions.
2. Emotional Expression (EE) (5 items and a maximum score of 25)	The skill of effectively expressing one's own emotions.
3. Emotional Awareness of Others (EAO) (4 items and a max score of 20)	The skill of perceiving and understanding others' emotions.
4. Emotional Reasoning (ER) (5 items and a maximum score of 25)	The skill of using emotional information in decision-making.
5. Emotional Self-Management (ESM) (5 items and a maximum score of 25)	The skill of managing one's own emotions.
6. Emotional Management of Others (EMO) (4 items & a max score of 20)	The skill of positively influencing the emotions of others.
7.Emotional Self-Control (ESC) (4 items and a maximum score of 20)	The skill of effectively controlling one's own strong emotions.
Overall Emotional Intelligence (31 items, and a maximum score of 155)	A combination of the seven skills aforementioned

3 FINDINGS

There were 176 respondents, viz. 84 students (45 girls, and 39 boys) enrolled into BDP, and 92 (58 girls, and 34 boys) enrolled into the MDP. Students' age varied from 20 to 26, with a mean of 22.47 (years), and a standard deviation (SD) of 1.27.

3.1 Domains of EI

The construct of EI consisted of seven domains (sub constructs). Boys recorded a cumulative Mean (M) value of 105.55 (table 2), and 103.43 by girls. BDP students recorded a cumulative M value of 105.90, and MDP students recorded a score of 102.85. Above EI scores are notably

lower than the normative EI M score of 121.86 (Palmer et al., 2009). The internal reliability (Cronbach Alpha score of 0.80) was acceptable.

Emotional Self-Awareness: The frequency of consciously identifying own emotions (and becoming aware of the impact of their behavior) at work. ESA scores (boys 14.42; girls 14.05) indicated low self-awareness of emotions, especially among girls.

Emotional Expression: The relative frequency of expressing (respondents) emotions in an appropriate way at work was above the norm. EE scores (boys 17.60; girls 17.53) indicated the demonstrations of emotional expressions were moderate. Respondents were limited in expressing emotions such as feelings of happiness, frustration, and feedback to colleagues.

Emotional Awareness of others: Scores of 13.29 (boys), and 12.77 (girls) indicated the identification of colleagues' emotions and their causes was low. It was particularly poor among girls. Normative M score was 16.01.

Emotional Reasoning: ER measures the relative frequency with which an individual incorporates emotionally relevant information in the process of decision making. Respondents recorded scores of 16.75 (boys) and 17.06 (girls), suggesting girls were moderately stable in emotional reasoning and decisions in comparison to boys.

Emotional Self-Management: Measures the relative frequency with which individuals manages their emotions at work. ESM scores of 16.86 (boys) and 16.28 (girls) were moderate. This can also be attributed to the age of respondents, which is prone to spontaneity.

Emotional Management of others: Measures the relative frequency of managing colleagues' emotions. Focus on creating emotionally positive work environments, and helping colleagues to resolve issues at work. EI scores of 13.15 (boys), and 12.90 (girls) indicated low efficiency among respondents in managing their colleagues emotions.

Emotional Self-Control: ESC measures the relative frequency of controlling strong emotions appropriately at work. The capacity to remain focused when anxious or disappointed at work, and also the ability not to lose temper was assessed. EI scores of 13.47 (boys), and 12.83 (girls) indicated boys were better in controlling themselves in strong emotional encounters.

Tab. 2 -- Gender-wise mean scores of respondents' Genos EI**.**
Source: Survey data of students from the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic.

Factors of EI Inventory	**Boys**	**Girls**	**BDP**	**MDP**
Emotional Self-Awareness	14.42	14.05	14.68	13.77
Emotional Expression	17.60	17.53	17.71	17.42
Emotional Awareness of others	13.29	12.77	13.17	12.82
Emotional Reasoning	16.75	17.06	16.89	16.97
Emotional Self-Management	16.86	16.28	17.07	16.02
Emotional Mgt of others	13.15	12.90	12.98	13.03
Emotional Self-Control	13.47	12.83	13.40	12.82
Total (score) EI Construct	**105.55**	**103.43**	**105.90**	**102.85**

3.2 Leadership Styles and Citizenship Performance

The maximum (theoretically) score for each style was 15, and the minimum was 3. Accordingly, the maximum score for the Transformational style was 60; the cumulative score of the first 4 factors, viz. Idealized Influence, Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration. The internal reliability was a Cronbach Alpha score of 0.76. Scores obtained by respondents for Leadership Styles are depicted in Table 3.

Tab. 3 -- Gender and programme-wise mean scores of leadership styles
Source: Survey data of students from the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic.

Leadership Style	**Boys**	**Girls**	**BDP**	**MDP**
1. Idealized Influence	10.60	11.45	11.05	11.14
2. Inspirational Motivation	10.08	9.77	10.06	9.75
3. Intellectual Stimulation	9.59	9.52	9.58	9.52
4. Individualised Consideration	9.47	9.73	9.46	9.76
5. Contingent Reward	10.48	10.83	10.85	10.53
6.Management–by-exception	11.36	11.71	11.88	11.27
7. Laissez-faire Leadership	9.01	9.64	9.52	9.50
Transformational Leadership	**39.74**	**40.47**	**40.15**	**40.17**

Respondents recorded higher values for Transformational leadership style. Girls possessed slightly higher values than boys. Laissez-faire Leadership style recorded the lowest scores among the respondents. Results depict a healthy picture for future.

Tab. 4 -- Citizenship Performance behaviour of respondents

Source: Survey data of students from the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic.

CPB	**Mean**				**Standard Deviation**			
	Boys	Girls	BDP	MDP	Boys	Girls	BDP	MDP
	19.16	19.57	19.77	19.07	3.35	3.04	3.04	3.26

Overall CPB of respondents was 19.4 with a SD of 3.17. It varied from a minimum of 9 to a maximum score of 30. CPB of respondents' was moderate (table 4). Girls indicated a higher level of CPB. BDP students were superior (19.77) to the MDP students (19.07) in display of CPB. It could also be that MDP students were more focussed on completing their tasks. Internal reliability was 0.81 Cronbach Alpha.

3.3 Significant Associations

There were significant correlations between Transformational leadership and EI, CPB and EI, and Transformational leadership and CPB (Refer Table 5). The relationship between transformational leadership and EI was stronger.

Tab. 5 -- Means, standard deviations, and bivariate correlational matrix

Source: Survey data of students from the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic.

Variables	Mean	SD	1	2	3	4	5
1. Age	22.47	1.27					
2. Gender	0.41	0.49	0.03				
3.Degree programme	0.52	0.50	0.63**	- 0.09			
4. CPB	19.40	3.17	- 0.09	- 0.06	- 0.11		
5. Transformational leadership	40.16	5.54	- 0.07	- 0.07	0.00	0.42**	
6.Emotional Intelligence	104.31	11.91	- 0.11	0.09	- 0.13	0.44**	0.52**

Notes: *p<0.05; **p<0.01; n=176; coded 0=female, 1= male

3.3.1 Transformational Leadership and Citizenship Performance

Citizenship Performance Behaviour = 9.51 + 0.24Transformational Leadership. In the presence of control variables, transformational leadership style is positively related to CPB. R^2 of 0.19 indicated that transformational leadership style of respondents (and control variables) has contributed to 19.1% of the variation of their CPB. F value of 10.10 confirmed the significance of the model at 95% level. Durbin Watson statistic of 2.20 indicated the generalizability of the model. Gender and age of respondents have not contributed significantly to their CPB.

Tab. 6 -- Hierarchical regression analysis of transformational leadership, and EI on CPB

Source: Survey data of students from the Economics and Management Faculty of Tomas Bata University in Zlin, Czech Republic.

Variables	**Model**			
	1	2	3	4
Control variables				
Age	0.02	0.00	0.02	0.02
Gender	-0.05	-0.11	-0.08	-0.08
Degree programme	-0.13	-0.67	-0.09	-0.09
Transformational leadership (TL)	0.42**		0.26**	-0.35
Emotional intelligence		0.44**	0.30**	-0.24
Interaction effects				
EI x TL				1.01
F	10.10**	10.95**	11.47**	9.80**
F change	1.06	1.06	3.58**	1.35
R^2	0.19	0.20	0.25**	0.26
R^2 change	0.02	0.19	0.06**	0.01

Notes: Standardized Beta values are reported; *p<0.05; **p<0.01; n=176;
Coded 0 =female, 1= male; 0 =BDP, 1= MDP

3.3.2 Relationship between Emotional Intelligence and Citizenship Behaviour

Citizenship Performance Behaviour = 7.84 + 0.12 Emotional Intelligence. In the presence of above control variables, EI is positively related to the CPB. R^2 of 0.20 indicated that EI (with control variables) has contributed to 20.4% of the variation of their CPB. F value of 10.95 confirmed the significance of the model (EI and CPB) at 95% of confidence interval. Durbin Watson statistic of 2.30 indicated the tenability of independent errors. Gender and age did not contribute significantly to the CPB of respondents along with EI.

3.3.3 Moderating effect of EI on Transformational leadership and CPB

To test the moderating effect of EI on the relationship between transformational leadership and CPB a hierarchical multiple regression analysis was conducted (refer table 6). Two variables were included in the first step: transformational leadership, and EI. They accounted for a significant amount of variation in CPB, $R^2= 0.26$, $F (5,170) = 11.47$, $p<0.01$. To avoid potential multicollinearity with the interaction term, variables were centred and an interaction term between transformational leadership and EI was created. Next, the interaction term between transformational leadership and EI was added to the regression model. It did not account for a significant proportion of the variance in CPB, change of $R^2 = 0.01$, change of $F (1,169) = 1.35$, $P =0.25$. Data do not support the third hypothesis. There is no moderation effect of EI on transformational leadership style and CPB of respondents.

4 CONCLUSIONS

4.1 Major Findings

There is a positive relationship between the transformational leadership style and CPB of university students. Students' level of EI also positively contributed to improve their CPB. The level of EI is positively correlated with the transformational leadership style of the students. However, there was no moderating effect of EI to the relationship between transformational leadership style and CPB of university students. We can conclude that EI level of university students has a positive impact on their CPB. EI had enhanced the CPB among students, though in low proportions. A previous study has found moderate positive correlations of Narcissism-Aloofness-Confidence-Empathy among medical students with the EI measure (Munro et al. 2005). Findings also report a positive relationship between transformational leadership style and EI among undergraduates (Jayawardena, 2012b). That study has also indicated a positive relationship between the transformational leadership style and academic performance of undergraduate girls. University students have a great potential to take responsibilities in future as managers. As per the study findings these students will promote desirable behavioural patterns in society. It also helps citizenship development and enhancement of social structures.

4.2 Recommendations and Further Research

It is recommended to inculcate programmes/activities promoting the CPB and transformational leadership style in academic curricula. Improving students' awareness of the merits of EI and personal development practices also will enhance their citizenship development in future. Further research among practicing managers will be timely to further knowledge and practice.

REFERENCES

Avolio, B. J. (2005), *Leadership Development in Balance; Made/Born*, Lawrance Erlbaum Associates, Mahwah, NJ.

Bass, B. M. & Avolio, B. J. (1997). *Full Range Leadership Development: Manual for the Multifactor Leadership Questionnaire*, Mind garden, Palo Alto, Calif.

Bass, B. M. (1990). 'From Transactional to Transformational Leadership: Learning to share the Vision,' *Organizational dynamics*, Winter.

Boyatzis, R. E. Smith, M. L. and Blaize, (2006). N. Developing sustainable leaders through coaching and compassion, *Academy of Management Learning and Education*, 5 (1), 8-24.

Brackett, M.A. Mayer, J.D., and Warner, R. M. (2004). Emotional Intelligence and its relation to every day behavior, *Personality and Individual Differences*, 36, 1387 – 1402

Chamorro-premuzic, T. Arteche, A. Bremner, A. J. Greven, C., and Furnham, A. (2010). 'Soft Skills in Higher Education: Importance and Improvement Ratings as a Function of Individual Differences and Academic Performance', *Educational Psychology*, 2010, 30 (2), 211-241

Foels, R. Driskell, J. E. Mullen, B. and Salas, E. (2000). The Effects of Democratic Leadership on Group Member Satisfaction and Integration, *Small Group Research*, 31(6), 676–701. DOI:10.1177/104649640003100603

Goleman, D. (2001). 'Emotional intelligence: Issues in paradigm building', In Cherniss, C. and Goleman, D. (Eds.), *The emotionally intelligent workplace*, San Francisco: Jossey-Bass, 182-206.

Gignac, G. E. (2010). *Genos Emotional Intelligence Inventory; Technical Manual*, 2nd Edition, Sydney, Waterloo, NSW

Hoffman, B.J., Blair, C.A., Meriac, J.P. and Woehr, D.J. (2007). 'Expanding the criterion domain? A quantitative review of the OCB literature', *Journal of Applied Psychology*, 92, 555-566.

Humphrey, R. H. (2002). 'A study of the relationship between emotional intelligence and performance in UK call centres', *Journal of Managerial Psychology*, 19(4), 442

Jayawardena, L.N.A.C & Gregar, A. (2013). Enhancing the Employability of High School Graduates: Impact of Emotional Intelligence, *WSEAS Transactions on Business and Economics*, 10(2), 89-96

Jayawardena, L.N.A.C. (2012a). Transformational Leadership and Emotional Intelligence of Graduate Managers, *Management and Production Engineering Review*, 3(3), 28–33, DOI: 10.2478/v10270-012-0021-1

Jayawardena, L.N.A.C. (2012b). *Leadership Styles of Undergraduates: The impact of Emotional Intelligence*, Proceedings of the 8th European Conference on Management Leadership and Governance, 505-513, Pafos, Cyprus.

Leban, W. & ZULAUF, C. (2004) 'Linking emotional abilities and transformational leadership styles'. *Leadership and Organization Development Journal, 25(7),* 554-564

Maarleveld, M. (2009). '*A study on identity orientation and citizenship performance behaviour'*, Unpublished Master thesis in Human Resource Development, University of Twente, Enschede, Netherlands.

Mayer, J.D. & Salovey, P. (1997). 'What is emotional intelligence?' In Salovey, P. Shuyter, D. eds., *Emotional development and emotional intelligence: Educational Implications*, Basic Books, NY.

Munro, D., Bore, M. & Powis, D. (2005). Personality factors in professional and ethical behavior: Studies of empathy and narcissism. *Australian Journal of Psychology*,.57, 49-60.

Ogungbamila, B. Ogungbamila, A., and Adetula, G. A. (2010). Effects of Team Size and Work Team Perception on Workplace Commitment: Evidence from 23 Production Teams, *Small Group Research*, 41(6), 725–745, DOI:10.1177/1046496410376306

Organ, D.W. & Ryan, K. A. (1995). Meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behaviour. *Personnel Psychology*, 48,775– 802.

Palmer, B.R., Stough, C., Harmer, R., and Gignac, G. (2009). The Genos Emotional Intelligence Inventory: A Measure Designed Specifically for Workplace Applications. In Stough, C., Saklofske, D. H., and Parker, J.D.A. (Eds.), *Assessing Emotional Intelligence*, Springer, New York, 103-116.

Podsakoff, P.M., Mackenzie, S.B., Paine, J.B., and Bachrach, D.G. (2000). Organizational citizenship behaviours: A critical review of the theoretical and empirical literature and suggestions for future research. *Journal of Management*, 26, 513–563.

Poropat, A.E. (2011). 'The role of citizenship performance in academic achievement and graduate employability' *Education & Training*, 53(6), 499-514.

Poropat, A.E. (2009). 'A meta-analysis of the five-factor model of personality and academic performance', *Psychological Bulletin*, 135, 322-338.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

EMPLOYEE'S PERFORMANCE: AN EMPIRICAL STUDY OF ENTERPRISING FAMILY FIRMS

Ravindra Hewa Kuruppuge, Aleš Gregar

ABSTRACT

The study has been designed to analyze probable determinants of employee's performance in family firms. Although many studies have adequately conceptualized about employee's performance against various factors in terms of level or amount, almost all those studies have considered business firms generally. As a result, a vacuum of knowledge has been created of the same concept in the case of special category of business like family firms. Existing limited studies also have made contradictory conclusions. The researchers of this study have concerned over significant features of family business to derive a theory about employee's performance. To solve the controversy of employee's performance in family firms, a quantitative methodology was adopted. Data were collected from hundred and thirteen employees from fifteen family businesses located in Western Province in Sri Lanka. Correlation and ordinal logistic regression analysis were used to elaborate the relationships. Correlation analysis indicated that both family involvement and employee's engagement have correlated to employee's performance. Family involvement in case of holding positions in functional and strategic levels by family members has shown no correlation to employee's performance. Yet, having a family member as immediate boss/supervisor of an employee in the job has made strong correlation to employee's performance. Regression analysis is evident that almost all coefficients of odds of employee have negatively related to employee's performance. Yet, all odds of employee's engagement are significantly related to employee's performance. It further shows that being the lower odds of employee's engagement increases being in the lower levels of employee's performance.

Keywords: e*mployee's performance, employee's engagement, family involvement, family firms, enterprising family firms, Sri Lanka*.

JEL Classification: M12

1 INTRODUCTION

Present day business firms are obliged to face sudden business challenges and uncertainties due to the influence of micro and macroeconomics factors in competitive global business environment. To cope with these uncertainties and challenges, most businesses rely on their human capital. Ultimately, being the one and only live resource in the firm, providing innovations and new knowledge to obtain competitive advantages, employees of the firm become responsible for human capital. As a result, employees in a firm are treated as the main asset in present day organization and individual employee's performance has become main determinant of organizational performance management. Performance management is a process of aligning of individuals and teams of the firm to achieve expected performance outcomes in case of strategic goals of the firm (Aguinis 2009; Cascio & Aguinis 2011). It directs both groups to perform in a way to minimize the gap of acquired and required performances (Cascio 1996). In complying with these changes in business world, scholars in research field started to analyse employees' individual performance in line with goals of the firm. Most of the scholars believe

that both firm performance and employees' performance can be enhanced aligning human resource practices with the performance management techniques (Hartog et al., 2004). Accordingly, employee's performance has been defined as a group of activities or behaviours which promote or demote of producing goods and services which satisfy organizational goals (Rotundo & Sackett, 2002)

According to previous research, mostly financial and non-financial rewards and intrinsic and extrinsic motives have been identified as drivers of employee's performance in an organization (Cascio & Aguinis 2011). Furthermore, variables such as managerial styles, leadership, types of the product or services, nature of customers which is significant to the particular firm or significant characteristics such as training, experience, education, position of individuals/group of employees in a firm have been identified as variables which drive employee's performance (Aguinis 2009). As a result, previous studies have adequately conceptualized employee's performance in different HR functions. At the same time, those researchers have been trying to analyse factors related to employee's performance in general. But, conclusions on employee's performance in case of internal and external factors of a business firm are mostly contextual and situational (Cascio 1996). Previous studies clearly indicate that conclusions of employee's performance are subject to change based on the job position, the firm, the region and the country. Even, those studies have reported insignificance and mixed conclusions on employee's performance as human behavior vary on individual basis. However, studies on employee's performance of different types of firms are very limited. Even though, the importance of different types of existing businesses in case of individual employees are identified in the literature clearly (Miller et al., 2004), research studies on this field have mostly concluded putting all firms into one basket. Perhaps, some of the factors which have been analysed in previous research studies in relation to employee's performance are equally not valid for all types of businesses. Especially, a business like family firms which is recognized as a different type of firm may not cover under the general conceptualization of employee's performance matters. Therefore, analyzing employee's performance and satisfying the knowledge gap of employee's behavior in family business have become important requirements.

Family firms are identified as a different category of businesses and highly debated firms among scholars in the recent past (Villalonga & Amit 2006) . Family firms which covers average 80 percent of firms all over the world have the problem of performing good in the long term (Miller et al., 2004, Salvato & Leif, 2008) while they are financially outperforming over non-family firms in the short term (Anderson & Reeb, 2003; Le Breton-Miller, 2005; Dyer 2006; Villalonga & Amit 2006). However, several studies exist in literature on how family businesses should operate for long term sustainability, survival and growth (Korsching & Allen 2004; Sharfman & Dean 1991). Many of these studies concentrated only on prevailing business system as a determinant of business survival and very limited studies have approached resources available in both family and the business. Mainly, studies of Resource Based View (Barney, 1991) on family businesses have focused about resources availability in the firm and ability of human resources to bring performance advantages. On the other hand, very limited studies have researched about human resource aspects of family business. Those studies also concluded with conflicting results and paved the path to many inconsistencies in performance measures of individual employees in businesses such as family vs. non family (Sciascia & Mazzola, 2008). Often, these inconsistencies are normally problematic to comparison of firms and difficult to apply the research findings in real work scenario. Accordingly, this research is expected to contribute to the literature by advancing the present knowledge of human resource management in family businesses. This study becomes one of the initial studies which conceptualized employee's performance in family firms. First, this study advances the knowledge of

employee's performance in the effect of family involvement in the firm. Second, this research offers a further analysis on the relationship of employee's engagement and employee's performance.

Business and economic environment in Sri Lanka

Sri Lanka is a multicultural country consisting with different religions, languages and races. According to Chandrakumara (2007) people of the country is characterized by many Eastern cultural orientation than Western. Yet, Nanayakkara (1999) argues that the culture of the country is highly influenced by Western culture in the recent past. However, Sri Lanka is having a history spanning over 2500 years which include different influences made by early traditional Indian culture to Sri Lankan society and Europeans in the colonization. This has happened easily as Sri Lanka is located in south eastern part of Indian Ocean having 65,610 square km. The population of the country is 20.3 million (Department of Census and Statistics, 2012) having the ethnic composition of Sinhalese 75%, Tamil 15%, Moors 9% and other ethnic groups 1%. Politically, Sri Lanka is a Democratic Socialist Republic and multi-party democracy is in practice from the year 1977. A President who is elected by people of the country is considered as the head of state. Presently, the economy has become politically stable after its thirty year old civil war.

Sri Lanka is categorized as a middle income developing nation. It accounts average US$ 79 billion in 2014. According to Central Bank report 2014, the contribution to GDP by service sector is around 60 percent and industrial and production sector accumulates 30 percent. Top exports earnings recorded by remittances, textile and garments, tea, rubber and tourism. Sri Lankan macroeconomic indicators such as annual GDP per capita, GDP growth rate, reported a continuous growth since the conclusion of civil war in 2009. She could maintain average 8 percent economic growth rate, single digit inflation and employment. In the meantime, the economy of Sri Lanka has been classified as a successful nation that shifted from import substitution based industrialized nation to export-based industrialization country in the world (Athukorala & Rajapatirana, 2000). As a result considerable amount of foreign investors and new ventures have started appearing in Sri Lanka. Currently, the contribution of foreign investment in export manufacturing sector is reported as 80 percent.

Sri Lankan population in working age is of 15.4 million (73.1 percent of total population) and the labor force counts 8.2 million with 65 and 35 percentages for male and female respectively (Department of Census and Statistics, 2014). The economic inactivity is higher in the case of females which counts average 68 percent for females. Interestingly, sectoral composition has been rapidly changing from agricultural to service & industrial sectors during last couple of years. However, service sector has occupied 43 percent of employment in Sri Lanka. But this percentage has reached up to 70 percent in urban areas in the country. Female to male, gender disparity is reported as 0.7 in public and 0.4 in private sectors. This ratio shows a higher deviation (2.87) in unpaid house worker category. Ultimately, Sri Lanka has shown a positive trend in education level of the labour force. Education level of employees who have studied only up to primary education is 19 percent and it is significant ratio to verify the movement of education status from less educated level to moderately educated status during the last decade.

2 LITERATURE AND HYPOTHESES DEVELOPMENT

2.1 Family businesses

Researchers in family business field of the world have not been able to commonly agree on one definition of family firm. In general, family firm implies a business which is partly or fully managed by people appointed based on blood or relative relationship. Moving beyond the general definition, this study treats family firm as a business which few or more family members on blood or relative relationship have management, governance & ownership responsibilities and at least more than one member from the founding family bear the strategic level decision making power in a position like Chief Executive Officer, General Manager, Founder or Chief Executive/s (Kellemarnns et al, 2012). At this point, considering the most recent definitional approaches, scholars of family firms have agreed upon two significant key concepts about family business. Firstly, family firms are not consistent to each other and they are significantly different to non-family firms (Sharma 2004; Chrisman, Chua, & Sharma, 2005). Secondly, all family firms have interaction of the business entity, the family unit, and its individual members (Habbershon & Williams, 1999). As a result, family firms fit into two descriptions, lifestyle and enterprising family firms. Business which is the primary focus to achieve non-financial objectives through value creation is identified as lifestyle family firms as their main purposes denote providing jobs to family members and stabilizing family ties (Chrisman, Chua, & Litz, (2003). An enterprising family firm which promotes wealth creation through entrepreneurial and management actions recognizing prospects of long-term vision with key stakeholder's objectives is identified as the other type (Chrisman, Chua, & Litz, 2003).

2.2 Family involvement in business

Family involvement in business makes family firms different to non-family firms. This differentiation mainly occurs as members from the owner family are involved in strategic and operational decision-making process in the business (Astrachan, Klein, and Smyrnios, 2002; Le Breton-Miller and Miller, 2009). Family involvement describes about owner family members influence in managerial decision-making and operational activities in functional areas of the business. In addition to business operational involvement, researchers have identified family involvement in business governance and ownership (Chrisman et al., 2003; Handler, 1989; Klein et al., 2005; Zahra, 2003). Furthermore, few studies have emphasized family involvement as workers in non- managerial positions (Kuruppuge & Gregar 2015). Yet, many empirical research evidences in family firms suggest that family involvement in operational activities is more important than other involvement activities such as ownership and governance (Chrisman et al., 2005; Zahra, 2003). Family involvement in operational or management activities explains the way of how family members from the owning family carry out duties and task to achieve objectives of the business as top, middle and lower level managers of the business. Such contribution may be further viewed in long and short period of time and strategic, functional and operational level decision-making. In the meantime, Sciascia & Mazzola (2008) emphasized in his study that those employees of family firms have familial concept in negotiating with each other in the firm. When family members are working in the firm, all employees who are surrounded by them are encouraged and motivated to perform well. Further, field theory (Lewin et al, 1939) explains about individual behavior in a unique physiologically interrelated society. Moreover, the interaction by family members is greater than the motivation for employees to perform well in the firm. Ultimately, family involvement motivates employees to participate in their duties and task efficiently and effectively (Kuruppuge & Gregar 2015).

H 1: Family involvement is positively correlated to employee's performance in enterprising family firms in Sri Lanka

2.3 Employee engagement in the job

Employee engagement is viewed as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Bakker et al., 2007, p. 274). Furthermore, Rich et al. (2010) defined employee engagement as a full deployment of individuals' hands, head, and heart in their job performance. However, employee's engagement is a result of employee's commitment and involvement in the job towards his or her job, values and organization (Schaufeli & Salanova, 2011). Knowing his or her responsibilities towards business goals, making colleagues motivated to perform well and expecting organizational success are identified as the main features of an employee who is engaged in the job. It is treated as a positive emotional connection of employees to his or her organization. An employee's positive view about the firm always makes the employee to engage in duties or tasks beyond his/her responsibility and even in voluntary basis (Bakker et al., 2007). Kahn (1990, p. 694), who firstly elaborated the employee's engagement viewed it as the "harnessing of organizational members' selves to their work roles" further mentioned that, in engagement "people employ and express themselves physically, cognitively, and emotionally during role performances". As a result of availability of many personalized definitions, researchers in this field have not agreed upon on one definition and the name of the construct. However, many researchers review the construct as employee engagement, while others argue that it should be named as job engagement (Rich et al., 2010) or work engagement (Schaufeli & Salanova, 2011).

Employee's engagement in the job is a mirror of financial and non-financial performance of the firm and firm's growth. As explained in the family involvement, field theory has provided a enough justification regarding why, employees engage in their job and its outcomes. Many studies have pointed out that employee engagement is a key determinant of employee and firm performance, task performance and organizational citizenship behavior as well (Christian et al., 2011; Rich et al., 2010). Further, they suggest that enhancing employee performance is mainly dependent on employee engagement in the job. Demerouti & Cropanzano (2010) concluded that employee engagement is lead to enhance both employee and firm performance. The same conclusion has been again confirmed by Mone & London (2010) elaborating positive relationship between employee engagement and individual performance.

H2: Employee engagement in the job is positively correlated to employee performance in enterprising family firms in Sri Lanka.

Literature review clearly emphasized the link between family involvement and employee engagement with employee performance. Hypotheses were set based on existing knowledge available in the knowledge base of performance management. Figure 01 provides the picture of the concept.

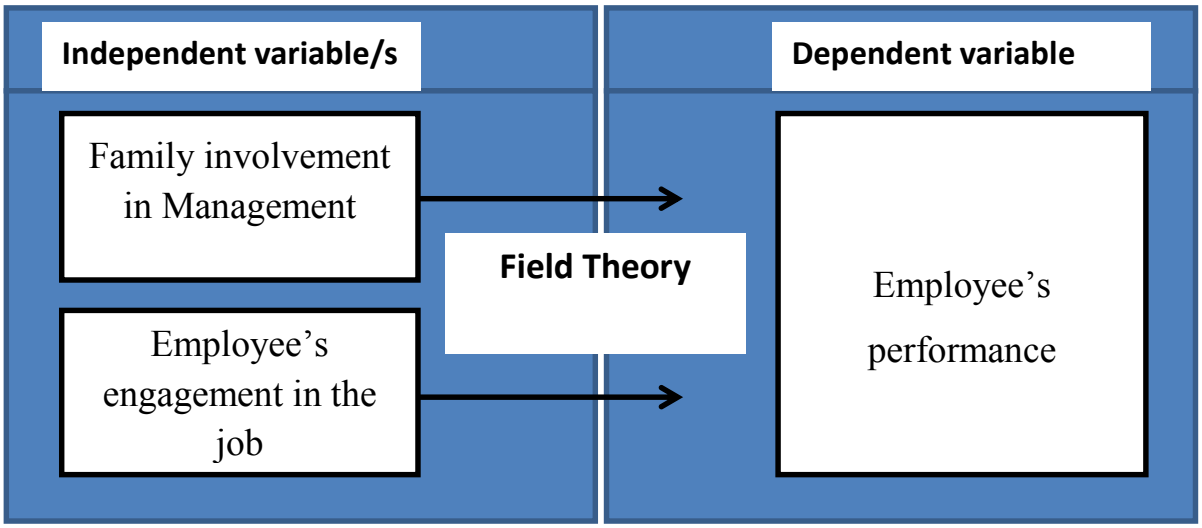

Fig.01 – Conceptualization. Source: Author's impression based on literature review.

3 METHODOLOGY

This study was designed based on quantitative methodology. Cross sectional data were gathered deploying a survey between the months of June to October, 2015. A survey questionnaire was designed as interviewee administered instrument to collect primary data from respondents. All respondents are employees in enterprising family businesses in Sri Lanka. Enumerators and the researcher collected data from one hundred thirty seven (137) employees on the site. Twenty four (24) questionnaires were rejected at the final round of data tabulation as they do not contain enough information. A total of one hundred thirteen (113) questionnaires were considered as valid responses for data analysis. Stratified random sampling technique was implemented to select businesses and respondents. First, fifteen (15) family oriented privately held enterprising family businesses were selected as the sample. Firms were randomly selected based on geographical location in the western province based on family business name list. The list of family businesses in the Western Province was provided by Chamber of Commerce, Sri Lanka.

The geographical boundary of this study is limited only to Western Province, which consists of three districts namely Colombo (capital city), Gampaha and Kalutara (figure 02). All fifteen (15) businesses selected as the sample of this study are located in one of these three (3) districts. The location of firms consists of nine (09) from Colombo, three (03) from Gamapha and three (03) from Kalutara. Second, an average of nine (09) employees from each business were considered as the sample of respondents. Respondents were selected based on their department, division or unit. Data analysis was initiated using descriptive statistics. Then, correlation and regression techniques were used to test the hypotheses. Correlation analysis helped to identify relation between / among variables. Regression was also used to identify the level of impact made by family involvement and employee engagement on employee's performance of family firms. Ordinal logistic regression (often called as 'ordinal regression'), more specifically **cumulative odds ordinal logistic regression with proportional odds** was used in the analysis. Results of analysis were interpreted in line with hypotheses.

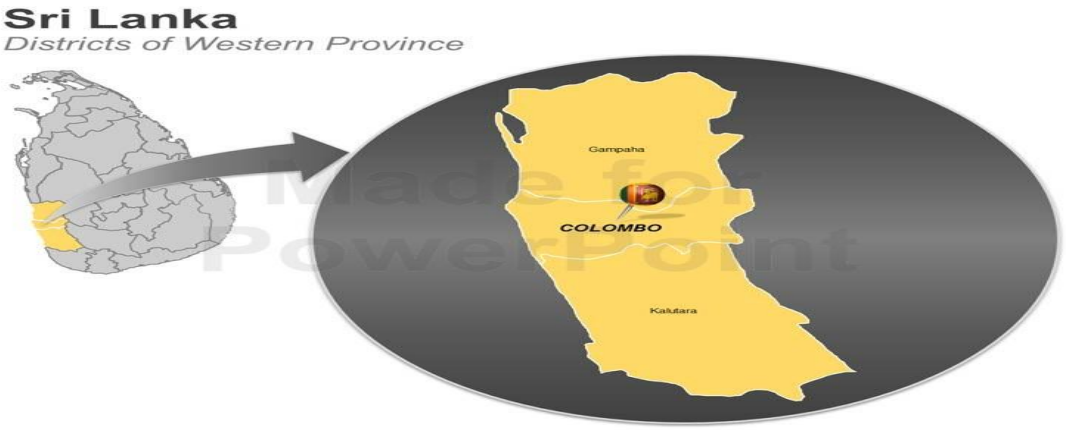

Fig. 02 - Study area. Source: satellitecitymaps.com

3.1 Measurements in variables

Conceptualization of this study consists of two independent variables and one dependent variable. Each variable of this study is assessed by validated measurements which were developed and used by some other study. A five-item, seven-point Likert-type scale ranging from 1 – strongly disagree to 7 – strongly agree was used to measure employee engagement (Saks, 2006). The other independent variable, family involvement in management, was measured by a nominal scale, six questions yes- no questions (Kim & Gao, 2013). The dependent variable, employee performance was measured using a six-item, seven-point Likert-type scale ranging from 1 – strongly disagree to 7 – strongly agree (Salanova et al, 2005). *See the annexure 01 for measurements*.

4 DATA ANALYSIS AND DISCUSSION

Data analysis of this study is carried out in two stages. First, a descriptive overview about respondents and responses is given at the beginning of the analysis. Respondent's demographic characteristics against main variable of the study are reviewed in this section. Second, the relationship of employee engagement and family involvement to employee performance (hypotheses) is tested.

4.1 Descriptive overview of the sample

A description of demographic characteristics of respondents and responses facilitates to identify the sample and sample characteristics in general. It would further strengthen the clarity of hypotheses testing. Sample consisted of 60 percent and 40 percent male and female respectively. At the same time, respondent's age is deviated between 18 and 49 years. Most respondents are represented the age ranges of 20 to 25 and 29 to 34 years. Figure 03 provides a brief overview of respondent's ages.

Fig. 03 – Distribution of employee's age in the sample. Source: Calculations are based on sample survey, 2015

At the same time, respondents' experience in the job varies in four ranges in years. Almost 56 percent of respondents are having less than six years of experience. Table 01 shows the summary of experience of respondents in their jobs.

Tab. 01 - Employee's experience in the job.
Source: Calculations are based on sample survey, 2015

Years of experience in the job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 6 years	68	55.8	56.3	56.3
	between 6 to 12 years	28	26.9	27.2	83.5
	between 12 to 18 years	15	14.4	14.6	98.1
	more than 18 years	2	1.9	1.9	100.0
	Total	113	100.0	100.0	
Total		113	100.0		

As the sample is selected from enterprising family firms, respondents' relation to the owning family is an important determinant to draw a conclusion of this study. Accordingly, only 13 percent of respondents have reported to be 'close' or 'very close relatives' to the owning family. Similarly, respondents' position in the job is also important in case of making a conclusion. Table 02 shows the nature of positions of respondents in businesses.

Tab. 02 - Employee's position in the firm. Source: Calculations are based on sample survey, 2015

Position in the firm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	represent in the top management	1	1.0	1.0	1.0
	represent in the middle management	7	6.7	6.8	7.8
	represent in the low management	21	20.2	20.4	28.2
	represent in the none managerial post	84	71.2	71.8	100.0
	Total	113	99.0	100.0	
Total		113	100.0		

One of the other characteristics is respondents' experience in his or her existing position. Around 60 percent of respondents are represented by experience category from 1 to 5 years. Around 35 percent have more than five years of experience in the existing position. Meanwhile, the job orientation of respondents is reported; 62 percent of the sample in both labour and machines while 30 percent of the sample represents employees who mostly work with machine rather than manual work.

4.2 Hypotheses testing

Correlation analysis of Table 03 indicates that employee performance is correlated with both family involvement and employee's engagement. Both variables are significant ($p < 0.05$) at 90 percent confidence level. Very strong positive correlation (0.702) is reported between employee performance and family involvement. Even though the family involvement is calculated based on seven indicators which comprised of family member's key position in the firm such as Chief Executive Officer [CFO]**,** Vice Chief Executive Officer [VCEO], Chief Financial Officer [CFO], Head/Production [HP], Head/Marketing [HM], Head/Human Resource Management [HHRM] and Immediate Boss [IB], the correlation analysis tested only the employee's IM's involvement with employee's engagement and performance. Only this variable is selected due to two reasons. First, Individual employee is treated as the unit of analysis of this study and second, the most influential determinant of employee's performance is their immediate boss (Cascio & Aguinis. 2011). At the same time, employee's performance is reported to have less strong correlation (0.387) with employee's engagement. Yet, the analysis indicates that the correlation between family involvement and employee's engagement is not significant ($p > 0.05$). Accordingly, it is clear that both variables are not dependent to each other. Based on the correlation analysis, it is justifiable to conclude that both hypotheses of this study are supported by the results of correlation analysis.

Further, correlation among employee's performance, employee's demographic and general characteristics, and all family involvement variables were tested. The test results ended up with some interesting findings. Job orientation & immediate boss of employees have resulted statistically significant with employee's performance. Especially, all other indicators in family

involvement other than immediate boss are not statistically significant. This implies that family member position as an immediate supervisor of an employee of the firm has greater impact on that employee performance. At the same time, all other key positions occupied by family members have shown no correlation to individual employee's performance. *See the attachment 03 for more information.*

Tab. 03 - Correlation analysis. Source: Calculations based on sample survey, 2015

			Employee's performance	**Family Involvement (IM)**	**Employee's engagement**
Spearman's rho	Employee's performance	Correlation Coefficient	1.000	.702**	.387**
		Sig. (2-tailed)	.	.000	.000
		N	113	113	113
	Family Involvement (immediate boss)	Correlation Coefficient	.702**	1.000	.004
		Sig. (2-tailed)	.000	.	.963
		N	113	113	113
	Employee's engagement	Correlation Coefficient	.387**	.004	1.000
		Sig. (2-tailed)	.000	.963	.
		N	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

According to the ordinal logistic regression which contained eight independent variables namely employee's engagement (ordinal- seven point likert scale), CFO (**dichotomous variables),** VCEO (**dichotomous variables)**, CFO (**dichotomous variables)**, HP (**dichotomous variables)**, HM (**dichotomous variables)**, HHRM (**dichotomous variables)**, and IB (**dichotomous variables)** were tested against employee's performance (ordinal- seven point likert scale) which is the dependent variable. The results of the model indicated case processing summary as shown in the annexure 02. Furthermore, model fitting information confirmed that the model is good to predict the outcome variable and the results. Chi-Square test results further confirmed that at least one of the predictors' regression coefficients is not equal to zero in the model. Result of goodness-of-fit showed that Pearson Chi-square is not significant. That implied that all data in the model are consistent. As shown Pseudo R-Square, around 75 percent (which is really a higher percent) of variance of outcome variable is explained by independent variables. *(see test results in the annexure 02)*

Tab. 04 - Parameter Estimates. Source: Calculations based on sample survey, 2015

							95% Confidence Interval	
		Estimate	Std. Error	Wald	df	Sig.	Lower Bound	Upper Bound
Threshold	[Employeesperformance = 4]	-28.230	1.500	354.202	1	.000	-31.169	-25.290
	[Employeesperformance = 5]	-24.817	1.316	355.601	1	.000	-27.396	-22.237
	[Employeesperformance = 6]	-1.709	1.152	2.203	1	.138	-3.966	.548
Location	[Employeesengagement=3]	-5.149	2.255	5.214	1	.022	-9.569	-.729
	[Employeesengagement=4]	-4.346	1.060	16.818	1	.000	-6.424	-2.269
	[Employeesengagement=5]	-3.583	.901	15.801	1	.000	-5.350	-1.816
	[Employeesengagement=6]	-1.263	.630	4.019	1	.045	-2.497	-.028
	[Employeesengagement=7]	0[a]	.	.	0	.	.	.
	[CEO=1.0]	0[a]	.	.	0	.	.	.
	[VICECEO=.0]	-1.640	1.034	2.516	1	.113	-3.667	.386
	[VICECEO=1.0]	0[a]	.	.	0	.	.	.
	[CFO=.0]	.197	.839	.055	1	.815	-1.447	1.840
	[CFO=1.0]	0[a]	.	.	0	.	.	.
	[HP=.0]	-.190	.549	.120	1	.729	-1.266	.886
	[HP=1.0]	0[a]	.	.	0	.	.	.
	[HM=.0]	-1.063	.781	1.855	1	.173	-2.593	.467
	[HM=1.0]	0[a]	.	.	0	.	.	.
	[HHRM=.0]	1.211	.676	3.210	1	.073	-.114	2.537
	[HHRM=1.0]	0[a]	.	.	0	.	.	.
	[IB=.0]	-22.920	.000	.	1	.	-22.920	-22.920
	[IB=1.0]	0[a]	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

One of the important analyses in the case of ordinal logistic regression is parameter estimation (Table 05). Almost all logged odds represent that employee's engagement is statistically significant and represented by minus coefficients. That indicates more likely lower cumulative scores. However, these evidences are supported to the second hypotheses of this study as odds of employee's performance are related by lower values of employee's engagement. At the same time, all variables of family involvement are not significant other than immediate boss. It makes the conclusion that employee's engagement is better influenced by employee's performance than family involvement. But, the role of a family member as an immediate boss of an employee has shown greater correlation with that employee' performance.

5 CONCLUSION

The main objective of this study is to identify determinants of employee's performance of enterprising family businesses in Sri Lanka. Two sub-objectives, analyzing employee's performance over family involvement and analyzing employee's performance over employee's engagement, have been achieved in the study. However, two hypotheses were tested in the study and both of them were supported by test results. Accordingly, this study could conclude that family involvement as an immediate boss of an employee and employee's engagement are highly influential factors of employee's performance in enterprising family firms in Sri Lanka. In top of all, family member as an immediate boss of an employee has shown very strong relation to particular employee's performance. All other positions held by family members in functional and strategic levels such as CEO, VCEO, CFO, HHRM, HM and HO have confirmed no influence to employee's performance. Employee's engagement in the job is also high influential determinant of employee's performance. This clearly signals that occupying top positions of the business by family members has not affected employee's performance of enterprising family firms in Sri Lanka. This can take place in Sri Lankan family firms as employees are not much concerned about top positions of their firm as they always coordinate with their immediate boss. When hierarchical structures of most of enterprising family firms in Sri Lanka are concerned, most of lower level positions have no proper access to higher level positions. As a result, employees mostly consider their immediate boss as their representations in other administrative levels in family firms. That may have forced employees to perform good when their supervisor is represented by owning family of the business. Results of the study further supported to the argument that designating family members to positions like manager and supervisor in functional areas of the business enable to get better performance of employees in larger scale than appointing family members in top positions in the family firms.

Employee's engagement has become a great matter of concern of employee's performance according to study results of this study. Once an employee of a family firm in Sri Lanka engages in his or her job, it is a clear indication of his or her contribution to the firm.

Results of the analysis indicate that family involvement and employee's engagement is not statistically significant. In order to keep the employees engaged in the job in family firms in Sri Lanka, managers have to look into other human resources strategies in line with family involvement. Therefore, if managers of family firms keen on improving employee's engagement, they would not consider increasing family involvement as an effective strategy.

The findings of this study are valued practically. Irrespective of the type of the firm, almost every business tries to maximize the use of their human resources. Knowing determinants of employee's performance by managers of a firm makes human resources to use effectively and

efficiently. At the same time, policy decisions related to employees could also be made based on the study findings. Especially, employee's performance in the short and long run is important for family firms as they are suffering from long term survival problem.

This study contains some limitations as well. First, this analysis is consisted with responses only from enterprising family firms. The lifetime family firms are not included in the sample. Therefore, generalizability of this study finding to family firms in general is difficult. Second, when the employee's performance is considered, only two probable factors, family involvement and employee's engagement are concerned as determinant of employee's performance. Yet, there are many other factors which may influence employee's performance. Third, cross sectional data which are used in this study elaborate only situational information relevant to particular time period. Yet, explaining employee's performance behavior should be more appropriate to analyse in details based on data like longitudinal. However, a direction for future research in the same content and context of this research can be found easily by removing one of the above limitations of this study.

Authors of this article are thankful to the Internal Grant Agency of FaME TBU No. IGA/FaME/2016/001: Enhancing Business Performance through Employees' Knowledge Sharing, for financial support to carry out this research.

REFERENCES

Aguinis, H. (2009). *Performance Management*. 2nd ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Aguinis, H., & K. Kraiger. (2009). Benefits of Training and Development for Individuals and Teams, Organizations, and Society, Annual Review of Psychology 60, 451–474. http://dx.doi.org/10.1146/annurev.psych.60.110707.163505

Anderson, A. R., & David M. R. (2003). Founding family ownership and firm performance: Evidence from the S&P 500, *Journal of Finance*, 58, 1301-1327. http://dx.doi.org/10.1111/1540-6261.00567

Annual Report (2014), Central Bank of Sri Lanka, Sri Lanka.

Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. (2002). The F-PEC scale of family influence: A proposal for solving the family business definition problem, *Family Business Review*, 15(1), 45–58. http://dx.doi.org/10.4337/9781847204394.00019

Athukorala, P., & Rajapatirana, S., (2000). Liberalization and Industrial Transformation: Lessons from the Sri Lankan Experience, *Economic Development and Cultural Change*, University of Chicago Press, vol. 48(3), 543-72.

Bakker, A.B., Hakanen, J.J., Demerouti, E. & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high, *Journal of Educational Psychology*, 99, 74-84. http://dx.doi.org/10.1037/0022-0663.99.2.274

Barney, J., (1991). Firm resources and sustained competitive advantage, *Journal of Management*, 17, 99-120.

Cascio, W. F. (1996). Managing for Maximum Performance. *HR Monthly (Australia)*, September, 10–13.

Cascio, W. F., & Aguinis, H. (2011). *Applied Psychology in Human Resource Management*. 7th ed. Upper Saddle River, NJ: Prentice Hall. Center for Creative Leadership.

Chandrakumara, A. (2007). Does HRM fit really matter to citizenship and task performance? Sri Lankan manufacturing sector experience. *Employee Relations*, *29*, 611 – 639. doi:10.1108/01425450710826113

Chrisman, J. J., Chua, J. H., & Litz, R. (2003). A unified systems perspective of family firm performance: An extension and integration. *Journal of Business Venturing*, 18, 467–472. http://dx.doi.org/10.1016/s0883-9026(03)00055-7

Chrisman, J. J., Chua, J. H., & Sharma, P. (2005). Trends and directions in the development of a strategic management theory of the family firm. *Entrepreneurship Theory and Practice, 29*, 555-576. http://dx.doi.org/10.1111/j.1540-6520.2005.00098.x

Christian, M.S., Garza A.S. & Slaughter, J.E., (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance. *Personnel Psychology*, 64, 89-136. http://dx.doi.org/10.1111/j.1744-6570.2010.01203.x

Danes, S. M., Lee, J., Stafford, K., & Heck, R. K. Z. (2008). The effects of ethnicity and culture on entrepreneurial experience: An extension of sustainable family business theory. *Journal of Developmental Entrepreneurship*, 13(3), 229–268.

Demerouti, E., & Cropanzano, R. (2010). From thought to action: Employee work engagement and job performance. In A.B. Bakker & M.P. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 147–163). New York: Psychology Press.

Dyer, G.W. (2006). Examining the "Family Effect" on Firm Performance. *Family Business Review*, 19(4), 253-273.

Habbershon, T. G., & Williams, M. L. (1999). A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review*, *13*(1), 1–25. http://dx.doi.org/10.1111/j.1741-6248.1999.00001.x

Handler, W. C. (1989). Methodological issues and considerations in studying family businesses. *Family Business Review*, 2, 257-276. http://dx.doi.org/10.1111/j.1741-6248.1989.00257.x

Hartog, D.N., Boselie, P., and Paauwe, J. (2004). Performance Management: a research agenda, Applied Psychology: an International Review, 53 (4), 556 – 569.

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, 692–724. http://dx.doi.org/10.2307/256287

Kellemarnns, F.W., Eddleston, K.A., Sarathy, R., & Murphy, F. (2012). Innovativeness in family firms: a family influence perspective. *Small Business Economics*, 38(1), 85–101. http://dx.doi.org/10.1007/s11187-010-9268-5

Klein, S. B., Astrachan, J. H., & Smyrnios, K. X. (2005). The F-PEC scale of family influence: Construction, validation, and further implication for theory. *Entrepreneurship Theory and Practice*, 29(3), 321–339. http://dx.doi.org/10.1111/j.1540-6520.2005.00086.x

Korsching, P. F., & John C.A. (2004). Locality based entrepreneurship: A strategy for community economic vitality. *Community Development Journal* 39, 385-400. http://dx.doi.org/10.1093/cdj/bsh034

Kuruppuge, R. H., & Gregar, A. (2015). *Family Involvement and Business Growth : A Study of Family Businesses in Sri Lanka*, proceedings, DOKBAT Conference, Tomas Bata University in Zlin. http://dx.doi.org/10.1515/fman-2015-0030

Le Breton-Miller, I., & Miller, D. (2009). Agency vs. stewardship in public family firms: A social embeddedness reconciliation, *Entrepreneurship Theory and Practice*, 33(6), 1169–1191. http://dx.doi.org/10.1111/j.1540-6520.2009.00339.x

Lewin, K., Lippitt, R., & White, R. K. (1939). Patterns of aggressive behavior in experimentally created social climates. *Journal of Social Psychology*, 10 (2), 271–299. http://dx.doi.org/10.1080/00224545.1939.9713366

Marisa S., Sonia A., & Jose´ Marı´a Peiro´ (2005), Linking Organizational Resources and Work Engagement to Employee Performance and Customer Loyalty: The Mediation of Service Climate, *Journal of Applied Psychology*, 90 (6), 1217–1227.

Miller, D., Isabelle L.B., & Steier L. P. (2004). Toward an Integrative Model of Effective FOB Succession. *Entrepreneurship Theory and Practice*, 28, 305-328. http://dx.doi.org/10.1111/j.1540-6520.2004.00047.x

Mone, E., & London, M. (2010). *Employee engagement through effective performance management: A practical guide for managers.* (New York: Routledge). http://dx.doi.org/10.1111/j.1744-6570.2011.01226_5.x

Nanayakkara, G. (1999). *Culture and management in Sri Lanka*, Postgraduate Institute of Management, University of Sri Jayawardenepura, Sri Lanka

Nicolas, A., Paulette R., and Dominique, B. (2013). French family business and longevity: have they been conducting sustainable development policies before it became a fashion? *Business History*, 55(6), 942–962.

Olson, D. H. (2010). Circumplex Model VII: Validation Studies and FACES III. *Family Process*, 25(3), 337–351.

Rich, B. L., LePine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*. http://dx.doi.org/10.5465/amj.2010.51468988

Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology*, 87, 66–80.

Saks, A.M. (2006). Antecedents and consequences of employee engagement, *Journal of Managerial Psychology*, 21 (7), 600-19. http://dx.doi.org/10.1108/02683940610690169

Salvato, C., & Melin, L. (2008), Creating Value Across Generations in Family-Controlled Businesses: The Role of Family Social Capital. Family Business Review, 21, 259–276. doi: 10.1111/j.1741-6248.2008.00127.x

Schaufeli, W. B., & Salanova, M. (2011). *How to improve work engagement*? In S. L. Albrecht (Ed.), Handbook of Employee Engagement. Perspectives, Issues, Research and Practice (pp. 399-415). Northampton, MA: Edward Elgar

Schaufeli, W. B., & Salanova, M. (2011). Work engagement: On how to better catch a slippery concept. *European Journal of Work and Organizational Psychology*, 20, 39-46. http://dx.doi.org/10.1080/1359432x.2010.515981

Sciascia, S., & Mazzola, P. (2008). Family involvement in ownership and management: Exploring non-linear effects on performance. *Family Business Review*, 21, 331–345. http://dx.doi.org/10.1111/j.1741-6248.2008.00133.x

Sharfman, M. P,. & James W. D. (1991). Conceptualizing and measuring the organizational environment: A multidimensional approach, *Journal of Management*, 17, 681-700. http://dx.doi.org/10.1177/014920639101700403

Sharma, P. (2004). An overview of the field of family business studies: current status and directions for the future. *Family Business Review*, 17, 1-36. http://dx.doi.org/10.4337/9781847204394.00010

Stafford, K., Vibha, B., Sharon, M.D., George, H., & Katherine E. B. (2010). Factors Associated with Long-Term Survival of Family Businesses: Duration Analysis, *Journal Family Economics*, 31, 442–457. http://dx.doi.org/10.1007/s10834-010-9232-1

Statistical Abstract (2012 and 2014), *Department of Census and Statistics*, Colombo, Sri Lanka.

Villalonga, B., & Amit, R. (2006). How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 80, 385-417. http://dx.doi.org/10.2139/ssrn.556032

World Bank (2000). *Sri Lanka: Recapturing missed opportunities. South Asia Region*: Poverty reduction and Economic Management Unit.

Kim, Y., & F.Y. Gao (2013). Does family involvement increase business performance? Family-longevity goals' moderating role in Chinese family firms, *Journal of Business Research*, 66, 265–274. http://dx.doi.org/10.1016/j.jbusres.2012.08.018

Zahra, S. A. (2003). International expansion of US manufacturing family businesses: the effect of ownership and involvement. *Journal of Business Venturing*, 18, 495-512. http://dx.doi.org/10.1016/s0883-9026(03)00057-0

Annexure 01

Variables measures - Employee performance

1. I really understand specific needs of customers (empathy).
2. I am able to "put ourselves in the customers' place" (empathy).
3. I am able to "tune in" to each specific customer (empathy).
4. Customer "surprise" with our excellent product and service (excellent performance).
5. We do more than usual for customers (excellent performance).
6. We deliver an excellent product and service quality that is difficult to find in other organizations (excellent performance).

Family involvement in management (FIM)

1. CEO (yes or no)
2. Vice CEO (yes or no)
3. Chief Financial Officer (yes or no)
4. Head of Production (yes or no)
5. Head of Marketing (yes or no)
6. Head of Human Resource Management (yes or no)
7. Your immediate supervisor (yes or no)

Employee engagement

1. I really "throw" myself into my job
2. Sometimes I am so into my job that I lose track of time
3. This job is all consuming; I am totally into it
4. My mind often wanders and I think of other things when doing my job (R)
5. I am highly engaged in this job

Annexure 02

Case Processing Summary

		N	Marginal Percentage
Employee's performance	Neutral	5	4.4%
	Slightly Agree	21	18.6%
	Agree	59	52.2%
	Strongly Agree	28	24.8%
Employee's engagement	Slightly Disagree	2	1.8%
	Neutral	18	15.9%
	Slightly Agree	26	23.0%
	Agree	43	38.1%
	Strongly Agree	24	21.2%
CEO	yes	113	100.0%
VICE CEO	no	9	8.0%
	yes	104	92.0%
CFO	no	88	77.9%
	yes	25	22.1%
HP	no	59	52.2%
	yes	54	47.8%
HM	no	71	62.8%
	yes	42	37.2%
HHRM	no	41	36.3%
	yes	72	63.7%
IB	no	43	38.1%
	yes	70	61.9%
Valid		113	100.0%
Missing		1	
Total		114	

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	196.963			
Final	69.748	127.215	10	.000

Link function: Logit.

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	44.088	113	1.000
Deviance	41.764	113	1.000

Link function: Logit

Test of Parallel Linesa

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	69.748			
General	39.074[b]	30.674[c]	20	.060

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Annexure 03
Correlations

			Gender	Experience	Link to business	Position	Experience in the position	Job orientation	CEO	VICE CEO	CFO	HP	HM	HHRM	IB	Employee's performance
Spearman's rho	Gender	Correlation Coefficient	1.000	-.330**	.092	.070	-.298**	-.074	.	.044	-.008	-.035	-.153	.063	.056	.091
	Experience	Correlation Coefficient	-.330**	1.000	-.297**	-.376**	.690**	.080	.	-.027	.230*	.305**	-.087	-.167	-.052	.131
	Link to business	Correlation Coefficient	.092	-.297**	1.000	.497**	-.420**	-.090	.	.051	.224*	-.140	.014	.091	.083	-.044
	Position	Correlation Coefficient	.070	-.376**	.497**	1.000	-.333**	-.242**	.	.223*	.303**	.243**	-.024	.257**	.088	-.074
	Experience in the position	Correlation Coefficient	-.298**	.690**	-.420**	-.333**	1.000	.161	.	.096	-.077	.330**	-.032	-.050	-.074	.054
	Job orientation	Correlation Coefficient	-.074	.080	-.090	-.242**	.161	1.000	.	.030	.116	.007	.251**	.224*	.124	.222*
	CEO	Correlation Coefficient	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	VICE CEO	Correlation Coefficient	.044	-.027	.051	.223*	.096	.030	.	1.000	.157	.281**	.382**	.390**	.039	.013
	CFO	Correlation Coefficient	-.008	-.230*	.224*	.303**	-.077	.116	.	.157	1.000	-.168	.340**	.047	.242**	-.070
	HP	Correlation Coefficient	-.035	.305**	-.140	-.243**	.330**	.007	.	.281**	-.168	1.000	.479**	-.126	.020	.097
	HM	Correlation Coefficient	-.153	-.087	.014	-.024	-.032	.251**	.	.382**	.340**	.479**	1.000	-.372**	.075	.029
	HHRM	Correlation Coefficient	.063	-.167	.091	.257**	-.050	.224*	.	.390**	.047	-.126	.372**	1.000	-.023	-.133
	IB	Correlation Coefficient	.056	-.052	.083	.088	-.074	.124	.	.039	.242**	.020	.075	-.023	1.000	.702**
	Employee's performance	Correlation Coefficient	.091	.131	-.044	-.074	.054	.222*	.	.013	-.070	.097	.029	-.133	.702**	1.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

R&D INVESTMENT, PROFITABILITY UNCERTAINTY AND FIRM'S VALUATION

Lai Van Vo, Huong Le, Danh Vinh Le, Ly Thi Minh Pham

ABSTRACT

This paper investigates how substantial changes in R&D lead to an increase in firm's value in the future. Using Pastor and Veronesi (2003) valuation model that firm's value increases with profitability uncertainty, we first document that R&D-intensive firms experience high uncertainty about their profitability in several years following their substantial R&D investment. Together with this uncertainty, the profitability levels for these firms significantly improve after they invest in R&D. We then find that these patterns hold for firms with substantial increase or decrease in R&D expenditures, resulting in increases in their valuation following significant changes in R&D. Finally, our findings suggest important channels through which substantial change in R&D investment generates firm's value.

Keywords: *profitability, R&D investment, valuation, uncertainty about profitability*

JEL Classification: G12, G32, O32

1 INTRODUCTION

The reasons for the positive relation between a substantial increase in research and development (R&D) investment and firm's future values shown in current literature can be categorized into two groups. On the one hand, some studies show that R&D investment will generate several benefits such as the new technological progress, the new physical capital and improving productivity of physical investment (Lin 2012). On the other hand, this positive relation can be explained by mispricing hypothesis. According to this hypothesis, investors are misrepresented by conservative accounting for R&D expenditure because it is recorded as expense under the current U.S. accounting standards (e.g. Chan et al. 2001, and Eberhart et al. 2004). Since investors tend to understate earnings when R&D expenditure is high, high R&D investment results in the high future value.

While these reasons can illustrate why firms with substantial increase in R&D will earn higher future values, they cannot illustrate why the values of firms with substantial decrease in R&D will go up in the future. First, the aforementioned benefits of reduction in R&D in generating intangible assets may be ambiguous. Second, under the mispricing hypothesis framework, investors should overstate earnings when R&D expenditure is low, causing low future values when firms substantially decrease their R&D investment.

This paper uses the valuation model developed by Pastor and Veronesi (2003) to examine how R&D investment generates firm's value. A prominent idea in this model is that the uncertainty about a firm's long run profitability increases with firm valuation. Because the future profits are a convex function of the growth rate of a firm's profits, high uncertainty of the growth rate implies high expected future profits, due to Jensen's inequality, then leads to higher firm value. Pastor and Veronesi (2003) provide strong supportive empirical evidence that firms with high uncertainty tend to have high value. This argument is also successfully used to explain the technology bubble during 1990s. Pastor and Veronesi (2006) document that high tech firms

have very high valuation because they have high uncertainty about their profitability, thus there was not necessarily a bubble in late 1990s.

There are some rational reasons to believe that R&D-intensive firms have high uncertainty about their growth rate of profits. Chan et al. (2001) argue that firms with high R&D investments have few tangible assets and their prospects are "tied to the success of new, untested technologies and hence are highly unpredictable". Thus, the benefits of R&D investment are likely to materialize only much later. Second, Lin and Saggi (2002) argue that R&D investments endogenously drive the new technological progress, which will generate the new physical capital and increase the productivity of physical investment (Lin 2012). This production process is more likely to be accompanied by high idiosyncratic volatility and high uncertainty about future growth (Pastor and Veronesi 2006, 2009) because it is not known previously. Moreover, Pastor and Veronesi (2009) further argue that the average productivity of a new technology is uncertain and subject to learning, implying that investors need time to learn about a firm's profitability.

Following the current literature (Pastor and Veronesi 2003 and 2009, and Zhang 2006), we use three different measures of profitability volatility idiosyncratic volatility of profitability, cash flow volatility, and the volatility of market-to-book ratio. Since there is no general measure for profitability uncertainty, we first replicate the results in Pastor and Veronesi (2003) and show that our profitability uncertainty proxies are reliable. We then find that our three uncertainty proxies of R&D intensive firms experience at high levels over five years following their substantial R&D expenditures while these proxies of firms with low R&D investment will decrease over time. This finding is consistent with the empirical evidence that the valuation of firms with high R&D will significantly increase several years and consistent with the firm valuation model developed by Pastor and Veronesi (2003).

We robustly test the finding that uncertainty about a firm's profitability will increase following its substantial R&D expenses by analyzing the changes in a firm's "excess uncertainty" which is measured by the abnormal difference from its benchmark. Following Fama and French (1993), we conduct 25 portfolios based on size and book-to-market, and then we use the value –equally weighted uncertainty of each portfolio as an uncertainty benchmark for this portfolio. We find that the excess uncertainty of R&D intensive firms is much higher and remains at high levels in 4 years following their R&D investment. This finding confirms that firms with substantial R&D investment tend to experience high uncertainty about their profitability in several years after R&D investment is made.

The second parameter in firm valuation model developed by Pastor and Veronesi (2003) is average profit. Jensen inequality shows that high uncertainty in growth rate implies high expected future earnings because the firm's future earnings are a convex function of the growth rate of its earnings. An increase in profitability, therefore, will lead to an increase in firm's value. To test this hypothesis, we examine how a firm's profits change following R&D expense. We find that the profits of R&D intensive firms tend to increase up to 14 years. This pattern is consistent with the trend of a firm's abnormal profits which is measured by the abnormal difference from its benchmark. Therefore, together with high uncertainty, the levels of profits for firms with substantial R&D investment are increasing following their R&D expense, implying that these firms' valuation will increase.

The next stage of our paper is to examine the effects of profitability uncertainty on the positive relation between changes in R&D investment and firm value. We find that substantial increase or decrease in R&D investment will lead to an increase in uncertainty about profitability. We also document that the profits of firms with substantial changes in R&D investment tends to

increase following their R&D expending. Consistent with the valuation model, firms' values increase after firms substantially increase or decrease their R&D investment.

To our best knowledge, this is the first paper using the valuation model developed by Pastor and Veronesi (2003) to explain how R&D investment generate firm future values. Further, although the literature on the benefits of R&D investment and mispricing can explain why R&D intensive firms earn high future values, it is unable to illustrate why firms with substantial decrease in R&D also have high values in future. This valuation model, in contrast, shows that these firms experience high profitability uncertainty, which will result in an increase in firm's values in the future.

Besides the literature on asset valuation (e.g. Pastor and Veronesi 2003 and 2006), our paper is also largely related to the literature that attempts to document the relation between R&D investment and firm valuation (e.g. Chan et al. 2001, Chambers et al. 2002, Eberhart et al. 2004,…). We add to the literature by showing that the valuation model developed by Pastor and Veronesi (2003) can explain the relation between R&D investment and firm valuation. We argue that substantial changes in R&D will experience high uncertainty about a firm's profitability as well as a firm's profitability level. As a result, firms with substantial changes in R&D will experience an increase in their value in the future. Our findings are consistent with the findings by Pastor and Veronesi (2006, 2009) that technological progress tends to have higher uncertainty about profitability.

The rest of the paper is organized as follow. Section 2 presents the data collection and measurement briefly introduces descriptive statistics. Section 3 briefly replicates the results from Pastor and Veronesi (2003) to show that our uncertainty proxies are reliable. The relation between R&D investment and the change in uncertainty about profitability is shown in section 4 and the relation between R&D investment and the change in profitability is shown in section 5. Section 6 examines the effect of change in R&D on firm value. Section 7 robustly test our results and section 8 concludes.

2 DATA, MEASURES AND DESCRIPTIVE STATISTICS

2.1 Data and measures

We collect stock prices and number of shares outstanding from the Center for Research in Security Prices (CRSP) monthly and daily tapes for all ordinary common stocks (share code of 10 and 11). We also use COMPUSTAT files to calculate book value, research and development (R&D) ratio, leverage ratio, dividend, total assets, return on equity, returns on assets, idiosyncratic volatility of profitability, cash flow volatility and capital expenditures. Following Fama and French (1993) and Pastor and Veronesi (2003, 2009), we define book value of equity as stockholders' equity book value plus deferred taxes minus book value of preferred stocks. Return on equity (ROE) is the ratio of profits and book value of equity at the end of last fiscal year, where profits is the sum of income before extraordinary items available for common stocks, deferred taxes from income statement, investment tax credit and interest expense total (financial services) . Return on assets (ROA) is profits scaled by total assets at the end of previous fiscal year. We define leverage as the ratio of total debt and total assets.

We also define firm value as the logarithm of the ratio of market capitalization at the end of fiscal year to the book value of equity. We use CRSP annual data to calculate the firm's age which is assigned the value of one in the year when this firm is born and increases by one in each consequent year. Then we follow Pastor and Veronesi (2003) to define AGE as minus the reciprocal of one plus the firm age. Size and market–to–book are defined in Fama and French (1993).

Following Pastor and Veronesi (2003), we exclude any observation with market to book less than 0.01 or greater than 100. We eliminate any observation with total assets and market capitalization and book value less than $1 million, or any observation with return on equity greater than 100 or less than -100. Financial, utility and other regulated companies are also excluded from our sample (the industries are taken from Barclay and Smith (1995)).

We use several proxies for R&D intensity: R&D expenditures to market capitalization (RDSIZE), R&D capital to size (RDCSIZE), R&D expenditures to total assets (RDAT), R&D expenditures to sales (RDSALE), and R&D capital to size (RDCSALE). Specifically, the ratio of R&D expenditures to size is defined as total R&D expenditures at the end of fiscal year divided by total market capitalization at the end of that calendar year. R&D capital is the last five-year cumulative R&D expenses assuming an annual depreciation rate of 20% (as in Chan et al. 2001 and Lev et al. 2005):

$$RDC_{it} = RD_{it} + 0.8*RD_{it-1} + 0.6*RD_{it-2} + 0.4*RD_{it-3} + 0.2*RD_{it-4} \quad (1)$$

In this paper, we mainly focus on R&D expenditures to size (market capitalization) and R&D capital to size to capture a firm's R&D intensity because the significantly positive relation between these R&D intensity measures and excess returns is widely documented in current literature (Chambers et al. 2002 and Eberhart et al. 2004). We examine the behaviors of a firm's uncertainty about its profitability and its profitability levels following its R&D investment. We also robustly check this relation by using R&D expenditures to total assets (RDAT), R&D expenditures to sales (RDSALE), and R&D capital to size (RDCSALE) to capture a firm's R&D intensity.

To capture uncertainty about a firm's profitability, we use three proxies: idiosyncratic volatility of profitability, cash flow volatility and market–to–book ratio volatility. Following Pastor and Veronesi (2003, 2009), we define profitability volatility (VOLP) as the residual variance from AR(1) model of profits (ROE) over last 5 years using quarterly data. We eliminate any firm at specific year if it has less than 4 observations available.

We follow Zhang (2006) to define cash flow volatility (CVOL) as the standard deviation of cash flow from operations in the past five years (with a minimum of three years). We treat CVOL as missing if the data is available in one or two years. Cash flow from operations is earnings before extraordinary items minus total accruals, divided by average total assets, where total accruals are equal to changes in current assets minus changes in cash, changes in current liabilities minus change in debt in current liabilities and minus change in income taxes payable, and depreciation expense.

To calculate market to book ratio volatility (MBVOL), following Fama and French (1993), we match market capitalization from July of year t to July of year t+1 to book value of equity of fiscal year t-1 to calculate market to book ratio. We then calculate the volatility of this ratio over previous three years. We treat missing if the number of observations is less than 12.

2.2 Descriptive statistics

Every year, we sort all firms without R&D investment into group 0 and the rest into four groups based on their R&D intensity. Group 1 consists of firms with R&D investments less than 25th percentile while group 4 includes firms with R&D investments more than 75th percentile. Table 1 reports the means of firms' characteristics for each group using R&D expenditures to size to proxy for R&D intensity. Table 1 shows that the average R&D expenditures to size increases from 10% for firms in group 2 to 49% for firms in group 5. Consistent with this pattern, the

average R&D expenditures to total assets, R&D capital to size and R&D expenditures to sales also go up from group 2 to group 5.

As shown in table 1, firms with substantial R&D investment are on average smaller and underperform, consistent with the finding by Chan et al. (2001). The average logarithm of total assets for firms in group 4 is 4.52 while this figure of firms in group 1 is 5.45. Similarly, the average firm's size decreases from 5.88 of group 1 to 4.00 of group 4. The average return on equity (ROE) of group 1 is 1.9% while this figure of group 4 is -43.85%. Moreover, R&D intensive firms are younger. The average age of firms in group 1 is 23.62, while the average age of firms in group 1 is 14.34.

Tab.1 - Firms' Characteristics

This table reports the firm's characteristics for the period from 1981 to 2011. Every year, we sort all firms without R&D investments into group 0 and the rest into four groups based on their R&D intensity captured by R&D expenditures to size (RDsize). Group 1 consists of firms with R&D investment less than 25th percentile while group 4 includes firms with R&D investment more than 75th percentile. RDAT is R&D expenditures to total assets, RDSALE is R&D expenditures to total sales, RDCsize is R&D capital to size, and RDCSALE is R&D capital to total sales. LAT is logarithm of total assets, SIZE is the market capitalization at the end of fiscal year, and MBF is market capitalization at the end of calendar year to book equity at the end of fiscal year. ROE is returns on equity, and ROA is returns on assets. CASH is cash to total assets, DIV is dividend to dividend to total assets, LEV is total debt to total assets, TANG is fixed assets to total assets, AGE is a firm's age, VOLP is idiosyncratic profitability volatility, CVOL is cash flow volatility, MBVOL is market-to-book ratio volatility, and N is the number of observations.

R&D group	**0**	**1**	**2**	**3**	**4**
RDAT	0.000	0.024	0.062	0.107	0.184
RDSALE	0.000	0.163	0.348	1.713	2.814
RDSIZE	0.000	0.010	0.031	0.073	0.492
RDCSIZE	0.002	0.029	0.084	0.193	1.341
RDCSALE	0.042	0.440	0.846	3.966	7.098
LAT	5.261	5.447	5.210	4.819	4.521
SIZE	4.853	5.882	5.533	4.927	4.003
MBF	2.394	4.756	3.763	3.025	2.136
ROE	0.066	0.019	0.088	-0.131	-0.438
ROA	0.034	0.025	0.000	-0.055	-0.149
CASH	0.109	0.187	0.221	0.256	0.265
DIV	0.022	0.015	0.011	0.008	0.006
LEV	0.272	0.177	0.161	0.153	0.164
TANG	0.585	0.488	0.431	0.405	0.439
AGE	13.772	18.391	17.025	14.779	12.662
VOLP	0.129	0.121	0.182	0.160	0.251
CVOL	0.097	0.096	0.103	0.117	0.134
MBVOL	1.411	3.379	2.509	2.249	1.728
N	64,230	13,588	13,725	13,789	12,770

Chan et al. (2001) and Brown et al. (2009) argue that R&D intensive firms tend to have more cash and use less debt. This argument is consistent with the evidence in table 1. The cash ratio of firms in group 4 is 26.5% on average while firms in group 1 have 18.7% cash holdings. Table

1 also reports that firms in group 1 on average borrow about 17.7% total debt, while this figure of firms in group 4 is 16.4%.

Table 1 shows that the R&D expenditures to size is positively related to uncertainty about a firm's profitability captured by idiosyncratic volatility of profitability and cash flow volatility while is negatively correlated with market to book ratio volatility. The negative relation between the ratio of R&D expenditures to size and the volatility of market to book ratio can be explained by the fact that R&D–intensive firms experienced poor performance in the past. However, if we use R&D to total assets or R&D to sales, this relation becomes positive. Because, the purpose of our paper is to examine how a firm's valuation will change following its R&D investments, the sign of this relation is not important in this case and does not change the nature of the change in uncertainty about a firm's profitability after it invests in R&D. Therefore, we use R&D expenditures to size as a proxy for R&D intensity as suggested in current literature (e.g. Chambers et al. 2002).

3 VALUATION, UNCERTAINTY AND PROFITABILITY

Pastor and Veronesi (2003) provide supportive empirical evidence for the positive relation between a firm's valuation and uncertainty about its profitability. However, they just use two proxies for this uncertainty: the firm's age and future profitability volatility. Thus, this section re-examines the relation between a firm's valuation and uncertainty about its profitability by using our three proxies for this uncertainty: idiosyncratic volatility of profitability, cash flow volatility and M/B volatility. Following Pastor and Veronesi (2003), for each year from 1981 to 2011, we regress logarithm of M/B cross-sectionally on a function of these proxies and potential determinants of M/B:

$$\text{Log}(M/B)_i = a + bAGE_i + cDD_i + dLEV_i + eLAT_i + g_0ROE(0)_i + g_1ROE(1)_i + f_0UNCER(0)_i + f_1UNCER(1)_i \quad (2)$$

where AGE is minus the reciprocal of one plus the firm age, DD is dividend dummy which is one if firm i pay dividend and 0 otherwise, LEV is total debt to total assets, LAT is logarithm of total assets, ROE is return on equity for firm i and UNCER is uncertainty about a firm's profitability captured by idiosyncratic volatility of profitability, cash flow volatility and M/B volatility.

Following Pastor and Veronesi (2003), we use ROE and UNCER of next year to capture expected profitability and uncertainty about a firm's profitability. However, different from Pastor and Veronesi (2003), we use total debt to total assets to measure a firm's leverage because R&D investment intensive firms tend to use very less long term debt. Our conclusions are consistent when long term debt ratio is used instead of total debt ratio.

Tab.2 - Firm Valuation and Uncertainty

This table reports the regression of a firm's valuation on its characteristics and its profitability uncertainty measures. AGE is minus the reciprocal of one plus the firm age, and DD is dividend dummy which is one if firm i pays dividend and 0 otherwise. LEV is total debt to total assets, LAT is logarithm of total assets, and ROE is return on equity. VOLP is the profitability volatility which is the residual variance from AR(1) model of a firm's returns on equity (ROE) over last 5 years using quarterly data. CVOL is cash flow volatility and MBVOL is market –to-book ratio volatility. VOLP(1), CVOL(1) and MBVOL(1) are profitability, cash flow and market-to-book ratio volatilities in next year. T-statistics are in parentheses.

Variable	LOGM/B	LOGM/B	LOGM/B	LOGM/B	LOGM/B	LOGM/B	LOGM/B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

AGE	-0.959***	-0.998***	-1.085***	-1.050***	-1.093***	-1.022***	-0.959***
	(-6.63)	(-8.54)	(-8.16)	(-9.01)	(-8.18)	(-7.45)	(-7.70)
DD	0.065***	0.072***	0.027**	0.028**	0.028**	0.036***	0.037***
	(6.16)	(9.15)	(2.23)	(2.48)	(2.41)	(3.09)	(3.92)
LEV	-0.371***	-0.383***	-0.471***	-0.465***	-0.473***	-0.465***	-0.515***
	(-7.50)	(-8.71)	(-8.56)	(-8.51)	(-8.62)	(-8.86)	(-10.81)
LAT	0.009***	0.004***	-0.002	-0.003	-0.002	0.010*	0.014***
	(1.70)	(0.85)	(-0.40)	(-0.53)***	(-0.35)	(1.71)	(2.67)
VOLP	0.210***	0.126**		0.187	0.162***	0.147***	0.065*
	(2.18)	(1.89)		(2.71)	(3.02)	(3.03)	(1.87)
ROE	0.069	0.056*		0.065*			
	(1.63)	(1.84)		(1.78)			
CVOL	0.863***						
	(14.03)						
MBVOL		0.060***					
		(10.66)					
ROE(1)			0.087**	0.052**	0.081**	0.093**	0.108***
			(2.24)	(1.96)	(2.10)	(2.45)	(3.59)
VOLP(1)			0.100***				
			(3.73)				
CVOL(1)						0.871***	
						(15.95)	
MBVOL(1)							0.063***
							(9.70)

Table 2 reports the results from regression model (2). As expected, leverage, age and dividend dummy are significantly related to firm valuation. Consistent with findings by Pastor and Veronesi (2003), young firms or firms without dividend payments have higher valuation, while firms with high debt ratio have lower valuation. Table 2 also shows that current ROE or future ROE is significantly positively correlated with a firm's valuation, implying that firms with high expected profitability will have high valuation. Similarly, all three proxies for uncertainty are significantly positively related to firm valuation. T-statistics for these uncertainty proxies are between 1.87 and 15.95. This evidence implies that our uncertainty proxies are consistent with the prediction by the valuation model developed by Pastor and Veronesi (2003).

4 R&D INVESTMENT AND CHANGE IN UNCERTAINTY ABOUT FIRM'S PROFITABILITY

In this section, we investigate the change of uncertainty about a firm's profitability following its R&D investments. Different from current literature (e.g. Chan et al. 2001, Pastor and Veronesi 2003, 2006, 2009), we focus on both the absolute level of this uncertainty and the changes in this uncertainty following R&D investment.

Every year, we sort all R&D intensive firms into four groups based on their R&D intensity captured by R&D expenditures to size (RDsize). Group 1 consists of firms with R&D investment less than 25th percentile while group 4 includes firms with R&D investment more than 75th percentile. Using idiosyncratic volatility of profitability to proxy for uncertainty about a firm's profitability, we find that this measure is significantly high for R&D intensive firms. As shown in table 3, the median profitability volatility one year before the investment date (portfolio formation year) is 0.028 for firms in group 1 and 0.049 for firms in groups 4. In the year of portfolio formation, this figure for firms in group 1 remains the same at 0.028 but this figure for firms in group 4 increases to 0.059. In three years after the portfolio formation, the median profitability volatility for firms in group 1 still remains at the level of 0.028 and then decreases. However, this volatility for firms in group 4 still increase to 0.061 in the third year following R&D expenditures and then will decrease. Under the model developed by Pastor and Veronesi (2003), this evidence shows that a high uncertainty about a firm's profitability will lead to high value.

Tab.3 - ROE Volatility following Firm's R&D Investment

This table reports the behaviors of a firm's profitability volatility (VOLP) following its R&D expenditures. Every year, we sort all R&D intensive firms into four groups based on their R&D intensity captured by R&D expenditures to size (RDsize). Group 1 consists of firms with R&D investment less than 25th percentile while group 4 includes firms with R&D investment more than 75th percentile. Profitability volatility (VOLP) is the residual variance from AR(1) model of a firm's returns on equity (ROE) over last 5 years using quarterly data.

Year	Group 1	Group 2	Group 3	Group 4
-5	0.026	0.029	0.035	0.042
-4	0.026	0.029	0.036	0.042
-3	0.026	0.030	0.036	0.043
-2	0.027	0.030	0.037	0.045
-1	0.028	0.031	0.039	0.049
0	0.028	0.032	0.041	0.059
1	0.028	0.032	0.041	0.062
2	0.028	0.032	0.041	0.062
3	0.028	0.032	0.041	0.061
4	0.027	0.031	0.041	0.060
5	0.027	0.031	0.041	0.055

Consistent with the change in profitability volatility, cash flow volatility is positively related with the R&D intensity, implying that firms with high R&D intensity have high cash flow volatility (not reported). In two years after portfolio formation, it increases for R&D intensive firms following their R&D expenditures. Similarly, the valuation volatility (captured by M/B volatility) also increases significantly for these firms after portfolio formation (not reported).

The fact that profitability uncertainty remains at high level can be explained by learning theory. In rational learning theory, investors form a prior belief about a firm's profitability and valuation based on their prior knowledge before R&D investments are made. Then investors receive signals about R&D investments and update their knowledge to form a posterior belief about a firm profitability and valuation. Because R&D investment is usually tied with new and untested technologies or production processes, investors cannot recognize the effects of these investments when they are made. This implies that R&D investment releases ambiguous signals

to investors. As a result, investors' posterior belief is still ambiguous in some years following these investments, meaning that they consider higher uncertainty about a firm's profitability and valuation. The high level of uncertainty about a firm's profitability will depend on the consequences of R&D investment. If these investments generate a totally new technology, uncertainty tends to be high, and if investors require long time to realize this technology, this high level can extend to several years following R&D expenses.

We test the change in this uncertainty by regressing the change in three uncertainty proxies on firm's characteristics and R&D intensity measured by R&D expenditures to size and R&D capital to size. Specially, using Fama-Macbeth (1973)'s method, for each year from 1981 to 2011, we regress the change in three uncertainty proxies from year 1 to year 4 following their R&D expenditures cross-sectionally on a function of firm's characteristics suggested by Pastor and Veronesi (2003) and R&D intensity proxies:

$$\Delta UNCER(4\text{-}1)_i = a + bAGE_i + cDD_i + dLEV_i + eLAT_i + gROE(0)_i + fUNCER(0)_i + hRDintensity_i \quad (3)$$

where $\Delta UNCER(4\text{-}1)_i$ is the change in three uncertainty proxies, AGE, DD, LEV, LAT, and ROE are defined above, and RDintensity is R&D expenditure to size or R&D capital to size.

Tab.4 - R&D Intensity and Change in Uncertainty

Variable	ΔVOLP	ΔVOLP	ΔCVOL	ΔCVOL	ΔMBVOL	ΔMBVOL
AGE	-0.015	-0.016	0.004	0.003	0.902	0.886
	(-0.62)	(-0.68)	(1.02)	(0.96)	(2.69)	(2.64)
DD	-0.029***	-0.029***	-0.003***	-0.003***	0.081	0.079
	(-3.43)	(-3.46)	(-3.12)	(-3.15)	(0.98)	(0.95)
LEV	0.092***	0.092***	-0.007***	-0.008***	-0.119	-0.125
	(4.13)	(4.10)	(-2.52)	(-2.52)	(-0.28)	(-0.30)
LAT	-0.006***	-0.006***	-0.006***	-0.006***	0.044	0.044
	(-3.55)	(-3.49)	(-16.07)	(-16.04)	(1.31)	(1.33)
ROE	-0.022**	-0.022**	-0.004***	-0.004***	-0.394	-0.395
	(-2.08)	(-2.09)	(-2.87)	(-2.85)	(-1.34)	(-1.34)
VOLP	-0.353***	-0.354***			-0.786**	-0.783**
	(-2.50)	(-2.51)			(-2.13)	(-2.13)
CVOL			-0.459***	-0.459***		
			(-25.67)	(-25.66)		
RDSize	0.076***		0.009***		0.545**	
	(2.89)		(3.67)		(2.15)	
RDCsize		0.026***		0.003***		0.178**
		(2.75)		(3.48)		(1.97)

This table reports the regression of changes in a firm's profitability uncertainty on its characteristics and its R&D intensity. AGE is minus the reciprocal of one plus the firm age, and DD is dividend dummy which is one if firm i pays dividend and 0 otherwise. LEV is total debt to total assets, LAT is logarithm of total assets, and ROE is return on equity. VOLP is a firm's profitability volatility and CVOL is a firm's cash flow volatility. RDSize is a firm's R&D expenditures to size. RDCsize is a firm's R&D capital to size. ΔVOLP is the change in a firm's profitability volatility from year 1 to year 4 (VOLP(4) –VOLP(1)) following its R&D expenditures. ΔCVOL is the change in a firm's cash flow volatility,

and ΔMBVOL is the change in a firm's market-to-book ratio from year 1 to year 4 following its R&D expenditures. T-statistics are in parentheses.

Table 4 reports the results from the regressions of the change in uncertainty proxies on firms' characteristics and R&D intensity measures. This table shows that large firms or firms with high profitability tend to have a decrease in uncertainty about their profitability. However, the effects of total debt ratio and firm's age on the change in uncertainty seem to be not consistent among these uncertainty proxies. Firms with high total debt tend to increase their uncertainty captured by idiosyncratic volatility of profitability but tend to reduce their uncertainty captured by cash flow volatility. Similarly, the firms' ages are insignificantly related to the change in their uncertainty captured by profitability volatility or cash flow volatility but significantly positively corrected with the change in market-to-book volatility, implying that the old firms tend to have higher market-to-book volatility following their R&D investment. This empirical evidence somewhat supports the argument by Cremers and Yan (2012) that firm's age is a noisy proxy for uncertainty, partly because it captures many firm's characteristics.

Table 4 also shows that R&D intensity captured by R&D expenditures to size or R&D capital to size is significantly positively related to uncertainty proxies. T-statistics for coefficients of these R&D intensity measures are between 1.97 and 3.67. The positive relation between R&D investment and changes in uncertainty can be explained by the change in firm's profit process. Chan et al. (2001) argue that firms with high R&D investment have few tangible assets and their prospects are "tied to the success of new, untested technologies and hence are highly unpredictable". Moreover, Lin and Saggi (2002) state that a large proportion of firms' R&D expenditures is used in innovations to generate the new products. Thus, the benefits of R&D investments are likely to materialize only much later.

We further investigate the behaviors of these excess volatilities by regressing the changes in these volatilities on firm's characteristics and R&D intensity measures, using (3). Consistent with the previous results, the R&D expenditures to size or R&D capital to size is significantly positively correlated with the changes in these excess volatilities, as shown in table 5, implying that the uncertainty proxies for R&D intensive firms tend to increase comparing with their benchmarks.

Tab.5 - R&D Intensity and Changes in Excess Volatility

This table reports the regression of changes in a firm's excess profitability uncertainty on its characteristics and its R&D intensity. AGE is minus the reciprocal of one plus the firm age, and DD is dividend dummy which is one if firm i pays dividend and 0 otherwise. LEV is total debt to total assets, LAT is logarithm of total assets, and ROE is return on equity. VOLP is a firm's profitability volatility and CVOL is a firm's cash flow volatility. RDSize is a firm's R&D expenditures to size. RDCsize is a firm's R&D capital to size. ΔEVOLP is the change in a firm's excess profitability volatility from year 1 to year 4 (EVOLP(4) –EVOLP(1)) following its R&D expenditures. ΔECVOL is the change in a firm's excess cash flow volatility, and ΔEMBVOL is the change in a firm's excess market-to-book ratio from year 1 to year 4 following its R&D expenditures. T-statistics are in parentheses.

Variable	**ΔEVOLP**	**ΔEVOLP**	**ΔECVOL**	**ΔECVOL**	**ΔEMBVOL**	**ΔEMBVOL**
AGE	-0.017	-0.019	-0.002	-0.002	0.713	0.701
	(-0.72)	(-0.77)	(-0.44)	(-0.48)	(2.44)	(2.40)
DD	-0.027***	-0.028***	-0.002***	-0.002***	0.044	0.042
	(-3.33)	(-3.37)	(-2.56)	(-2.59)	(0.67)	(0.64)
LEV	0.096***	0.096***	-0.005*	-0.005*	-0.051	-0.055
	(4.38)	(4.35)	(-1.75)	(-1.77)	(-0.15)	(-0.17)
LAT	-0.007***	-0.007***	-0.006***	-0.006***	-0.006	-0.006
	(-3.96)	(-3.89)	(-14.09)	(-14.09)	(-0.24)	(-0.22)

Variable	ΔEVOLP	ΔEVOLP	ΔECVOL	ΔECVOL	ΔEMBVOL	ΔEMBVOL
ROE	-0.022**	-0.022**	-0.003**	-0.003**	-0.039	-0.041
	(-2.04)	(-2.05)	(-2.37)	(-2.36)	(-0.18)	(-0.19)
VOLP	-0.354***	-0.354***				-2.250***
	(-2.51)	(-2.52)				(-3.65)
CVOL			-0.455***	-0.455***	-2.248***	
			(-25.87)	(-25.86)	(-3.64)	
RDSize	0.071***		0.006***		0.458**	
	(2.73)		(4.30)		(1.91)	
RDCsize		0.024***		0.002***		0.149*
		(2.57)		(3.96)		(1.71)

In summary, uncertainty about profitability for R&D intensive firms tends to increase following their R&D investment. This increase is robust when this uncertainty is adjusted by its benchmark. As shown in Pastor and Veronesi (2003), an increase in uncertainty will increase firm valuation. This conclusion is consistent with the empirical finding that firms with high R&D investment tend to earn excess returns following their R&D expenditures (e.g. Chan et al. 2001, Chambers et al. 2002, and Eberhart et al. 2004).

5 R&D INVESTMENT AND CHANGE IN PROFITABILITY

The second important factor in valuation model developed by Pastor and Veronesi (2003) is firm's profit. Because the future profits are a convex function of the growth rate of a firm's profits, high uncertainty in the growth rate implies high expected future profits, due to Jensen's inequality. Thus, if R&D investment will increase with a firm's profits, its valuation is expected to increase in the future.

In this section, we examine the behavior of a firm's profits following its R&D expenditures. As shown in figure 1, the median profits for R&D intensive firms are lower, but they increase after firms invest in R&D. The median profit for firms in group 4 is -9.0% in the year of portfolio formation but this figure increases to 6.2% in 10 years and 9.0% in 14 years following their R&D investment. In contrast, the median profit for firms in group 1 is 14.7% in the year of portfolio formation then decreases to 10% in 9 years after they invest in R&D.

We also investigate the behavior of a firm's excess profitability following its R&D expenditures. Every year, we sort all firms into 25 portfolios based on their size and book-to-market. We then calculate the average profits for each group and use them as "benchmarks" for all firms in the same portfolio. We then define excess profits as the abnormal profits above the firm's portfolio profits. We find that although the excess profits for firms in group 4 are negative in several years following their R&D expenditures, these profits increase over time (not reported). For example, the median excess profit for firms in group 4 is -11.75% in the year of portfolio formation but this figure increases to -0.27% in 9 years and 0.32% in 14 years after they make R&D investment.

This figure shows the median firm's profitability following its R&D investments. Every year, we sort all firms without R&D investments into group 0 and the rest into four groups based on their R&D intensity captured by R&D expenditures to size (RDsize). Group 1 consists of firms with R&D investments less than 25th percentile while group 4 includes firms with R&D investments more than 75th percentile. Profitability is captured by a firm's returns on equity.

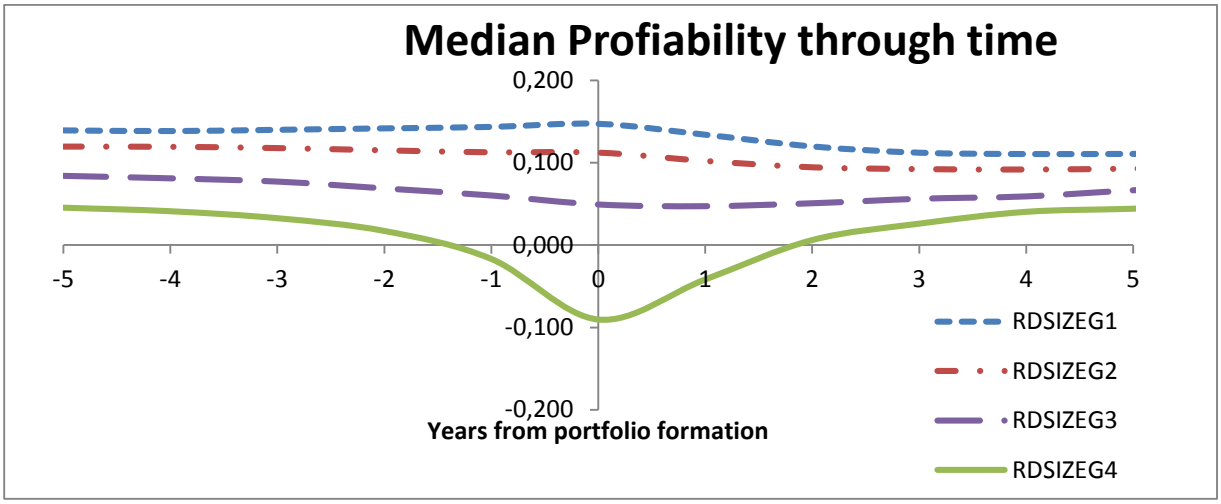

Fig.1 - Median Firm's Profitability following R&D Investment

We further examine the changes in a firm's profitability by regressing the change in a firm's profits from year 1 to year 4 following its R&D investment on its characteristics and R&D intensity proxies, using Fama-Macbeth (1973)'s method.

$$\Delta ROE(4\text{-}1)_i = a + bAGE_i + cDD_i + dLEV_i + eLAT_i + gROE(0)_i + fVOLP(0)_i + hRDintensity_i \quad (4)$$

where $\Delta UNCER(4\text{-}1)_i$ is the change in three uncertainty proxies, AGE, DD, LEV, LAT, and ROE are defined above, and RDintensity is R&D expenditure to size or R&D capital to size.

The results from these regressions are shown in table 6. This table reports that some important characteristics such as total debt ratio, total assets or dividend dummy are not significantly related to the changes in profits. However, R&D intensity proxies significantly impact on a firm's profits following its R&D investment. T-statistics for the coefficients of these R&D intensity measures are between 2.04 and 2.59. This evidence shows that R&D intensive firms will increase their profits, consistent with the prediction above that firms with high uncertainty tend to have high expected profits because the future profits are a convex function of the growth rate of a firm's profits.

Tab.6 - R&D Intensity and Change in Profitability

This table reports the regression of changes in a firm's (excess) profitability on its characteristics and its R&D intensity. AGE is minus the reciprocal of one plus the firm age, and DD is dividend dummy which is one if firm i pays dividend and 0 otherwise. LEV is total debt to total assets, LAT is logarithm of total assets, and ROE is return on equity. VOLP is a firm's profitability volatility. RDSize is a firm's R&D expenditures to size. RDCsize is a firm's R&D capital to size. ΔROE (ΔEROE) is the change in a firm's (excess) returns on equity from year 1 to year 4 following its R&D expenditures. T-statistics are in parentheses.

Variable	ΔROE	ΔROE	ΔROE	ΔROE	ΔEROE	ΔEROE
AGE	0.122*	0.080	0.118*	0.077	0.052	0.049
	(1.78)	(1.20)	(1.73)	(1.15)	(0.81)	(0.77)
DD	-0.004	0.000	-0.004	0.000	-0.006	-0.006
	(-0.27)	(0.02)	(-0.26)	(0.02)	(-0.45)	(-0.45)
LEV	-0.009	-0.021	-0.010	-0.021	-0.043	-0.043
	(-0.20)	(-0.42)	(-0.20)	(-0.43)	(-0.86)	(-0.87)
LAT	0.004	0.006	0.004	0.006	0.007	0.007

Variable	ΔROE	ΔROE	ΔROE	ΔROE	ΔEROE	ΔEROE
	(0.83)	(1.21)	(0.83)	(1.20)	(1.36)	(1.36)
VOLP	-0.004	-0.009	-0.005	-0.009	-0.008	-0.009
	(-0.11)	(-0.25)	(-0.14)	(-0.28)	(-0.26)	(-0.29)
ROE		-0.076**		-0.076**	-0.069**	-0.068**
		(-2.47)		(-2.47)	(-2.44)	(-2.43)
RDSize	0.108**	0.086**			0.084**	
	(2.41)	(2.10)			(2.04)	
RDCsize			0.045***	0.036**		0.034**
			(2.59)	(2.31)		(2.28)

6 CHANGES IN R&D INVESTMENT AND FIRM VALUE

Although current literature can explain the positive relation between R&D investment and firm value, it cannot illustrate why firms with substantial decrease in R&D can earn higher future value. Lev et al. (2000) and Pennan and Zhang (2002) argue that R&D costs can have perverse effects on accounting profitability measures because R&D investment are expected to generate future profits. In a period of increase (decrease) in R&D investments "accounting earnings will tend to be understated (overstated) relative to earnings that would result from an appropriate policy of capitalization and amortization" (Chambers et al. 2002). Thus, firms with significant increase in R&D investments will earn higher values while firms with substantial R&D decrease tend to have lower values. These predictions are inconsistent with empirical evidence that a decrease in R&D expenditures can generate higher values for firms in future.

In this section, we use the valuation model developed by Pastor and Veronesi (2003) to illustrate how firms with substantial increase or decrease in R&D will earn high future values. Every year, we sort all firms without R&D investments into group 0 and the rest into four groups based on their R&D investment change. Group 1 consists of firms with the most decrease in their R&D investments while group 4 includes firms with the most increase in their R&D investments.

This figure shows the median firm's valuation (market-to-book) following its changes in R&D investments. Every year, we sort all firms with R&D investments into four groups based on their R&D intensity captured by R&D expenditures to size (RDsize). Group 1 consists of firms with the most decrease in their R&D investments while group 4 includes firms with the most increase in their R&D investments. Market-to-book is the ratio of market capitalization to the book value of a firm's equity at the end of each fiscal year.

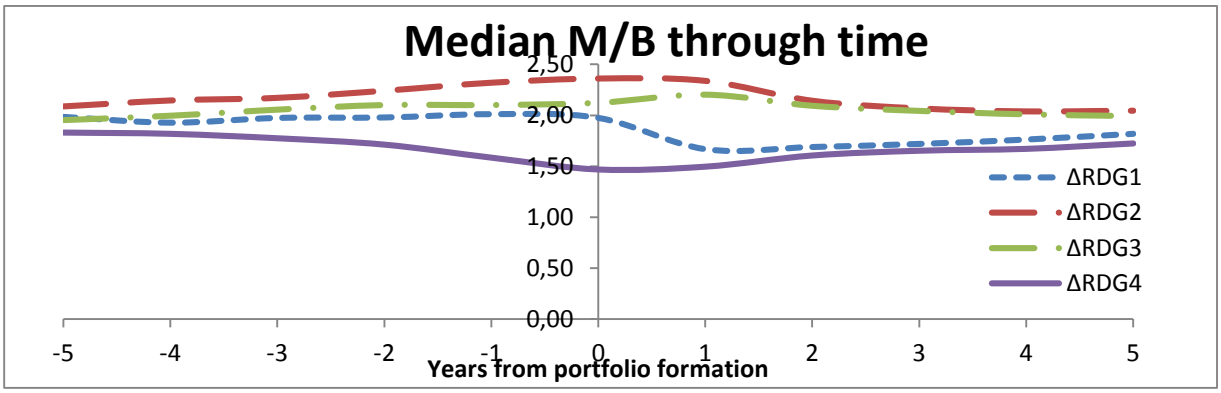

Fig.2 - Firm Valuation following Change in R&D Investment

Figure 2 shows that firms with substantial increase or decrease in R&D investments will experience increasing values in future. More interestingly, the median market-to-book ratios for firms in group 1 are higher than those for firms in group 4.

If firms with substantial decrease and increase in R&D investment will significantly experience an increase in their value, we should expect that these firms have higher uncertainty about their profitability as well as their profitability level. As shown in figure 4, both the median profitability volatilities for firms in groups 1 and 4 are significantly higher than the rest. More importantly, the median profitability volatilities for firms in these groups tend to increase up to 4 or 5 years following their change in R&D investment. The median profitability volatilities for firms in group 1 seem to be higher than for firms in group 4 from the fifth year after these firms change their R&D investment. Consistent with this trend, the median excess profitability volatilities for firms in these groups also increase in several years following their change in R&D investment (not reported). As shown in Pastor and Veronesi (2003), the increase in uncertainty about firms' profitability will increase their value.

This figure shows the median firm's profitability volatility following its changes in R&D investments. Every year, we sort all firms without R&D investments into group 0 and the rest into four groups based on their R&D changes captured by the changes in R&D expenditures to size (ΔRDsize). Group 1 consists of firms with the most decrease in their R&D investments while group 4 includes firms with the most increase in their R&D investments. Profitability volatility is the residual variance from AR(1) model of a firm's returns on equity (ROE) over last 5 years using quarterly data.

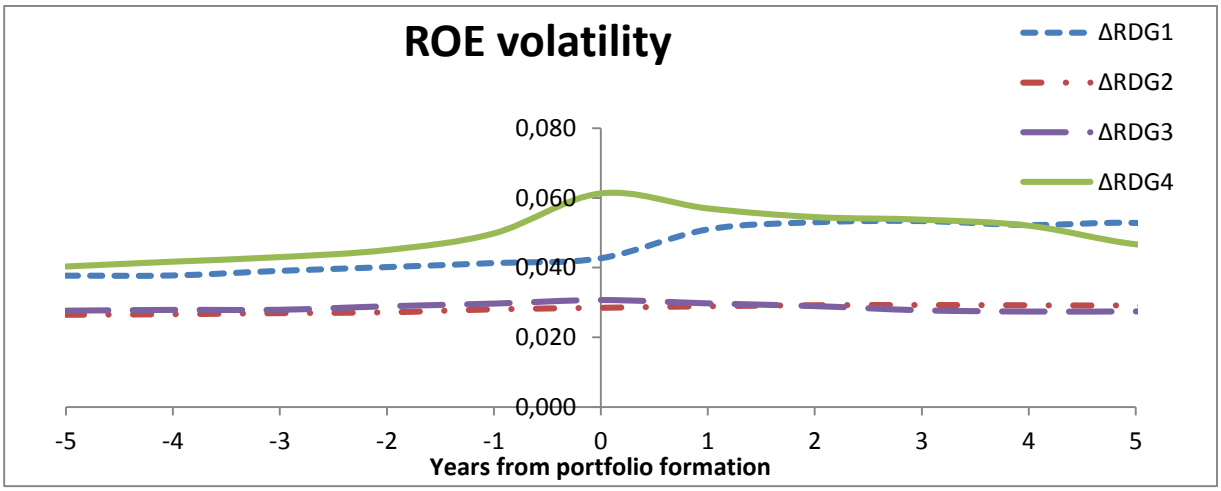

Fig.3 - Median Profitability Volatilities following the Change in R&D Investment

We further check this prediction by examine the behavior of profitability for firms in each group following their change in R&D investment. Consistent with our prediction, the median profits for firms in group 1 and 4 increase significantly after these firms change their R&D investment. As shown in figure 4, the profits for firms with substantial change in R&D tend to increase at least for 20 years after the year of portfolio formation. The median returns on equity (ROE) for firms in group 4 increases from 3.68% in the first year to 6.81% in the tenth year after portfolio formation, while this figure for firms in group 1 increases from -3.31% to 7.07% in the same period. Interestingly, firms in groups 1 and 4 tend to have nearly the same median profits from the sixth year following their R&D investment.

This figure shows the median firm's profits (returns on equity) following its changes in R&D investments. Every year, we sort all firms without R&D investments into group 0 and the rest into four groups based on their R&D changes captured by the changes in R&D expenditures to size (ΔRDsize). Group 1 consists of firms with the most decrease in their R&D investments while group 4 includes firms with the most increase in their R&D investments. ROE is returns on equity.

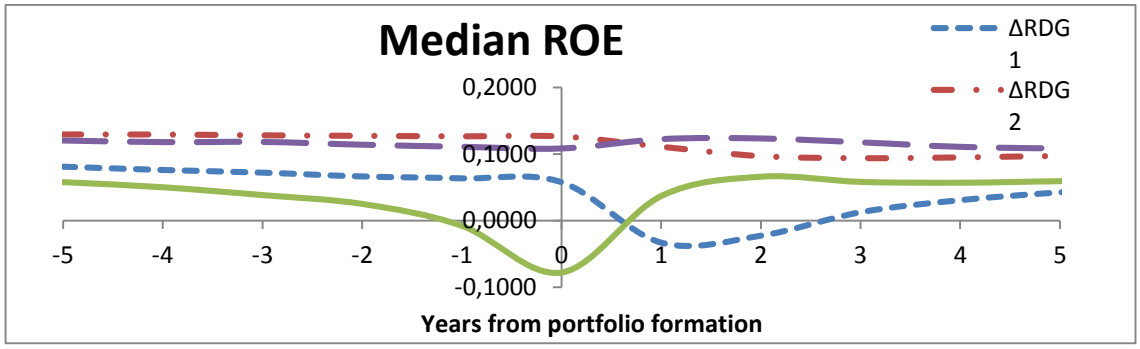

Fig.4 - Median Profits following the Change in R&D Investment

This evidence shows that firms with substantial decrease or increase in R&D investment tend to increase their uncertainty about their profitability as well as profitability level. These increases will lead to high valuation, according to the valuation theory developed by Pastor and Veronesi (2003). As a result, these firms will experience an increase in their values. This explanation is consistent with the empirical evidence shown above.

7 ROBUST TESTS

In previous sections, we use R&D expenditures to size and R&D capital to size as proxies for R&D intensity to examine the behavior of a firm's uncertainty about its profitability following its R&D investments. In this section, we will test the relation between a firm's R&D intensity and the uncertainty about its profitability by using other R&D intensity proxies: R&D expenditures to total assets and R&D expenditures to sales.

Using model (3), we regress the changes in uncertainty proxies on firms' characteristics and R&D expenditures to total assets or R&D expenditures to sales. If R&D investments will generate high uncertainty about a firm's profitability, it should be expected that the coefficients of these R&D intensity measures are significantly positive.

Table 7 shows that after controlling for firms' characteristics, R&D expenditures to total assets or R&D expenditures to total sales still significantly positively impact on the changes in profitability uncertainty proxies. T-statistics of coefficients of R&D expenditures to total assets are 3.53 and 7.23, while T-statistics of coefficient of R&D expenditures to total sales is 1.81. Consistent with the findings in previous sections, this evidence supports the hypothesis that firms with high R&D intensity tend to generate higher uncertainty about their profitability following their R&D expenditures.

Tab.7 - Change in Uncertainty and R&D Intensity

This table reports the regression of changes in a firm's profitability uncertainty on its characteristics and its R&D intensity. RDAT is a firm's R&D expenditures to total assets. RDSALE is a firm's R&D expenditures to total sales. All other variables are defined in table 4.

Variable	ΔVOLP	ΔVOLP	ΔCVOL	ΔCVOL	ΔMBVOL	ΔMBVOL	ΔVOLP	ΔVOLP
AGE	0.003	-0.007	0.004	0.006*	0.248	0.292	-0.010	-0.016
	(0.13)	(-0.31)	(1.25)	(1.71)	(1.18)	(1.27)	(-0.42)	(-0.68)
DD	-0.017**	-0.028***	-0.001	-0.002***	-0.112***	-0.230***	-0.029***	-0.029***
	(-2.04)	(-3.45)	(-1.11)	(-3.11)	(-2.82)	(-4.45)	(-3.45)	(-3.46)
LEV	0.146***	0.095***	0.000	-0.006**	0.121	-0.353	0.095***	0.092***
	(6.58)	(4.26)	(-0.07)	(-2.12)	(0.69)	(-1.34)	(4.22)	(4.10)
LAT	-0.004**	-0.006***	-0.005***	-0.006***	-0.065***	-0.074***	-0.006***	-0.006***
	(-1.97)	(-3.39)	(-16.11)	(-15.83)	(-2.76)	(-3.03)	(-3.40)	(-3.49)
ROE	-0.018*	-0.022**	-0.003**	-0.004***	-0.112	-0.160	-0.022**	-0.022**
	(-1.84)	(-2.06)	(-2.44)	(-2.56)	(-1.13)	(-1.59)	(-2.08)	(-2.09)
VOLP	-0.349**	-0.347**					-0.347**	-0.354**
	(-2.42)	(-2.41)					(-2.41)	(-2.51)
CVOL			-0.468***	-0.460***				
			(-26.22)	(-25.71)				
MBVOL					-0.571***	-0.561***		
					(-12.41)	(-12.06)		
RDAT	0.641***		0.081***		6.004***			
	(3.53)		(7.23)		(3.84)			
RDSALE		0.076*		0.008		0.464**		
		(1.74)		(1.23)		(1.87)		
RDCSALE							0.032*	
							(1.81)	
RDCsize								0.026***
								(2.75)

8 CONCLUSION

This paper examines how substantial changes in R&D lead to an increase in firm's value in the future. Under the valuation model developed by Pastor and Veronesi (2003), firm valuation will increase with uncertainty about its profitability because high uncertainty in the growth rate implies high expected future profits, due to Jensen's inequality. Thus, if R&D investment can generate high uncertainty about a firm's profitability, it is reasonable to argue that these investments will generate high value for a firm.

Using three profitability uncertainty proxies, we find that uncertainty about an R&D intensive firm's profitability tend to increase at least 4 years following its R&D investment. This finding is consistent with the findings documented in recent literature that R&D intensive firms have few tangible assets and their prospects are "tied to the success of new, untested technologies and hence are highly unpredictable" (Chan et al. 2001). Moreover, because a large proportion of firms' R&D expenditures is used in innovations to generate the new products (Lin and Saggi 2002) and the success of these product are uncertain, these technological innovations are more likely to be accompanied by high idiosyncratic volatility and high uncertainty about future growth (Pastor and Veronesi 2006, 2009).

Due to Jensen's inequality, high uncertainty in the growth rate implies high expected future profits because the future profits are a convex function of the growth rate of a firm's profits. Consistent with this expectation, we find that R&D intensive firms' profits improve significantly at least 10 years following their R&D investment.

We also compare our explanation with hypotheses of R&D benefits and mispricing in explaining how firms with substantial change in R&D will earn higher values in future. While these hypotheses can explain the relation between an increase in R&D and firm's future valuation, they cannot illustrate why the values of firms with substantial decrease in R&D investment will increase in the future. First, the benefits of reduction in R&D in generating intangible assets may be ambiguous. Second, mispricing hypothesis shows that investors should overstate earnings when R&D expenditure is low, resulting in a decrease in firms' values when these firms substantially decrease their R&D investment.

We, on the other hand, document that increases in firm value following substantial changes in R&D investment are due to high uncertainty about a firm's profitability. This uncertainty will increase profitability level and then increase firm's valuation. Consistent with this prediction, we find that firms with substantial decrease or increase in R&D investment will experience an increase in both uncertainty about their profitability and profitability levels following their R&D investment. These increases in both profitability uncertainty and profitability levels will increase firm valuation in several years following substantial changes in R&D investment.

REFERENCES

Brown, R., James, Fazzari, M., Steven, and Petersen, C., Bruce, 2009, Financing Innovation and Growth: Cash Flow, External Equity, and the 1990s R&D Boom, *Journal of Finance*, 64, 151-185.

Chambers, Dennis, Jennings, Ross, and Thompson, B. Robert, 2002, Excess Returns to R&D-Intensive Firms, *Review of Accounting Studies*, 7, 133-158.

Chan, K. C, Louis, Lakonishok, Josef, and Sougiannis, Theodore, 2001, The Stock Market Valuation of Research and Development Expenditures, *Journal of Finance*, 56, 2431-2456.

Cremers, Martijn, and Yan, Hongjun, 2012, Uncertainty and Valuations, *working paper*, University of Notre Dame.

Eberhart, C., Allan, Maxwell, F., William, and Siddique, R., Akhtar, 2004, An examination of Long-Term Abnormal Stock Returns and Operating Performance Following R&D Increases, *Journal of Finance*, 59, 623-650.

Fama, Eugene F.; and MacBeth, James D., 1973, Risk, Return, and Equilibrium: Empirical Tests, *The Journal of Political Economy*, 81, 607-636.

Fama, Eugene, and French, Kenneth, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics*, 33, 3-56.

Lev, Baruch, Sarath, Bharat, and Sougiannis, Theodore , 2005, R&D Reporting Biases and Their Consequences, *Contemporary Accounting Research 22, 977 – 1026*.

Lin, E., and Saggi, K., 2002, Product differentiation, process R&D and the nature of market competition. *European Economic Review*, 46, 201–211.

Lin, Xiaoji, 2012, Endogenous technological progress and the cross-section of stock returns, *Journal of Financial Economics*, 103, 411-427.

Pastor, Lubos, and Pietro Veronesi, 2003, Stock valuation and learning about profitability, *Journal of Finance*, 58, 1749–1789.

Pastor, Lubos, and Pietro Veronesi, 2006, Was there a Nasdaq bubble in the late 1990s? *Journal of Financial Economics*, 81, 61–100.

Pastor, Lubos, and Pietro Veronesi, 2009, Technological revolutions and stock prices, *American Economic Review*, 99, 1451--1483.

Pastor, Lubos, Lucian Taylor, and Pietro Veronesi, 2009, Entrepreneurial learning, the IPO decision, and the post-IPO drop in firm profitability, *Review of Financial Studies*, 22, 3005-3046.

Zhang, Frank, 2006, Information Uncertainty and Stock Returns, *Journal of Finance*, 61, 105-137.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE IMPACT OF SOFT BUDGET CONSTRAINTS ON CASH HOLDING AND BORROWING LOANS OF THE LISTED COMPANY IN VIET NAM

Le Thi Lanh, Lam Quang Hiep

ABSTRACT
Soft budget constraints is the situation that the company received the support from the State and State subsidiaries for external funding to cater for expansion of operations as well as investment. This affects to the competition between the companies in the different economic sectors. This issue has been researched by lot of economists and researchers in many developed countries around the world. However, this issue has not been studied extensively in many developing countries such as Viet Nam. With above reasons, author carried out this research to examine the impaction of the soft constraints on cash holding and borrowing loans of the listed company in Viet Nam.
The paper used the data from audited financial statements of 132 listed company on HOSE (Ho Chi Minh Stock Exchange) and HNX (Ha Noi Stock Exchange) in the period from 2009-2014. By using Stata 12 and Microsoft Excel 2013 to analysis the impaction of soft budget constraints through the State ownerships variable on cash holdings and borrowing loans through many models such as Pooled OLS, Fixed Effect Model and Random Effect Model. In Addition, the paper also examine another aspect of soft budget constraints through the marginal value of cash by using the model of Faulkender and Wang (2006). From the result of analysis, we conclude that: (1) there is a negative correlations between the soft budget constraints represented by state ownership variable and the cash holdings of the companies from 2009-2014. This implied that the companies which had more state ownership usually keep less money for their daily transactions than other companies in the same sector, (2) There is a positive correlations between the state ownership and the ability to access to loans of the companies and (3) State Ownership also has a positive impact on the marginal value of cash.

Key words*:* *state budget constraints, cash holdings, State ownership, Viet Nam*

JEL Classification: G32, G34, G38

1 SOFT BUDGER CONSTRAINTS THEORY

Kornai (1970) has defined that the companies have soft budget constraints when they lack of financial tools, especially cash and cash equivalent with high liquidity to cater the financial decision or investment project. There are two types of budget constraints: soft budget constraint and hard budget constraint. Hard budget constraint is the situation that the companies use only cash from retained earnings to deal with investment purpose and expansion of operations. The companies with the hard soft budget constraint can be hard to access to the bank loans from commercial banks and may face with financial distress in the near future. In contract, soft budget constraint happens when the companies received the support from the government to overcome the financial distress or they are easier than others to borrow bank loans from commercial bank. Overall, the companies with private capital and foreign ownership usually have hard budget constraint as they need potential project in order to receive the loans from commercial banks compared with others. According to Kornai (2003), political and social factors are the main reason to take form of soft budget constraints between the companies.

2 DATA

The paper employs the data of audited financial statements of 132 listed company on HOSE and HNX from 2009-2014 to conduct the empirical testing for hypothesis which mentioned above. The companies in the sample did not include companies operating in the financial sector or multi-sector companies which had financial income accounted for over 50% of total revenue, especially commercial banks, investment funds or insurance companies are excluded from the sample to ensure the consistency of all samples. Author used sample of companies in the 2009-2014 period because most companies are not listed and publicly traded on the stock market before. The audited financial statements of the listed company is taken from the main source as **www.cafef.vn, www.vietstock.vn, www.cophieu68.com,** and the information for non-financial information such as the percentage of ownership of the foreign or State ownership is taken from **website www.stox.vn**. In the samples, there are 45 companies without state ownership and 41 companies with state ownership altogether over 50% of the company.
To understand extensively, the study presents the descriptive statistics of all variables in the samples of listed companies in Viet Nam from 2009-2014.

Tab. 1 - Dependent and Independent Variables Description. Source: Authors' calculations

Variables	Measurement
Cash	$\frac{Cash\ and\ marketable\ securities}{Net\ assets}$
State	Percentage of State ownership.
Size	Ln(Net assets)
Bankloans	$\frac{Net\ proceeds\ banl\ borrowing}{Net\ assets}$
NWC	$\frac{Current\ assets - cash\ and\ equivalents - current\ liabilities}{Net\ assets}$
CapEx	$\frac{Net\ investment\ in\ fixed\ assets}{Net\ assets}$
Foreign	Percentage of foreign ownership
Debts	$\frac{Short\ term\ debts + long\ term\ debts}{Net\ assets}$
TL	$\frac{Total\ liabilities}{Net\ assets}$
Ndl	$\frac{Total\ liabilities - short\ term\ and\ long\ term\ debts}{Net\ assets}$
CF	$\frac{Net\ cash\ flow\ from\ operating\ activities}{Net\ assets}$
Growth	$\frac{Revenue(t) - Revenue(t-1)}{Revenue(t-1)}$
Age	The number of years from firm's IPO
DIV	Equal 1 if firm pays cash dividend and zero otherwise
State_dummy	Equal 1 if firm has state ownership and zero otherwise

Tables 1 shows some dependent and independent variables which we employ in the study. We use one dependent variable (cash) as the percentage of cash plus marketable securities scaled by net assets and State variables represented for the State ownership in the companies. The paper also employs some other financial and non- financial factor to increase reliability of the study such as size, capital expenditure, cash low from operating activities, the average sale growth, firm age and leverage which is calculated through three methods (debts, tl, ntl).

3 METHODOLOGY

The study uses the three different models to examine the impact of soft budget constraints on cash holdings and ability to access loans of companies. We employ Pooled OLS model, Fixed effect model and Random effect model to test these hypothesis which is mentioned above. However, after using Hausman test and Breusch-Pagan Lagrange multiplier (LM) we realized that Random effect model is the most appropriate model to perform, so we present the results from only this model to explain and conclude for the study.

In addition, some independent variables may be have potential endogeneity problems which occurs when explanatory variables is correlated with other variables, so we uses GMM-Generized Moments Model not only to test of control but also test the relation between state ownership and the marginal value of cash.

Firstly to test cash holding, we use the model as below:

$Cash_{i,t} = \gamma State_{i,t} + \alpha_i + \lambda_y + \varepsilon_{i,t}$

The dependent variable ($cash_{i,t}$) is cash holdings measured by cash plus marketable securities scaled net assets. Subcripts i and t are firm i and the year end t respectively. State ownership is the focus variable in this analysis and also the main explanation variable. According to soft budget constraints, the state ownership has a positive relation with the cash holdings which means that the higher state of ownership, the less cash the firm hold.

Tab. 2 - Random Effect Model for 3 different variables (debts, tl, ntl). Source: own research

	REM	**REM**	**REM**
State	-0.2009284*** (-3.87)	-0.207591*** (-3.99)	-0.2077878*** (-4.07)
Age	0.002387 (0.75)	0.0041137 (1.31)	0.002184 (0.7)
Foreign	0.4944949*** (5.02)	0.5338649** (5.44)	0.4823352** (4.99)
Size	-0.0724527*** (-6.13)	0.0921532** (-8.07)	-0.0729542*** (-6.58)
Nwc	0.5271573** (-13.8)	-0.3145523*** (-6.46)	-0.3853346*** (-12.5)
Capex	-0.1474683** (-8.18)	-0.1313512** (-5.57)	-0.1450385*** (-6.25)
Debts	-0.1392377** (-2.52)		
Tl		0.2132613*** (3.8)	
Ntl			0.3190619*** (6.09)
Cf	0.0289377*** (5.04)	0.0310166*** (5.47)	0.0293709*** (5.24)
Growth	0.0012208 (0.46)	0.001187 (0.45)	0.007093 (0.27)
Divgia	0.0074047 (0.54)	0.0143152 (1.07)	0.0080214 (0.61)
Constant	1.190039*** (7.81)	1.250744*** (8.34)	1.043*** (6.87)

	REM	REM	REM
Obs	792	792	792

, **, * indicate significant at 1%, 5% and 10% level respectively*
[.] is z- statistics
Source: Authors summary from the the table 1, 2, 3 of reference 2

As we can see in table 3, the study has confirmed that there is a negative relation between the state ownership and cash holdings with p-value=1%. This indicated that the increase in state of ownership, the decrease in cash holdings of the companies. When the percentage of state ownership increases 1%, the percentage of cash holdings decrease 0.2009%, 0.2076% and 0.2079% respectively to according with 3 different calculation of leverage (debts, tl, ntl). The reason for this is because the companies which have state ownership usually receive support from the government to access to the loans at the commercial banks. In addition, the percentage of foreign ownership has a positive coefficient with significant level of p-value =1%. This shows that companies with higher foreign ownership, they keep more cash than companies with state ownership due to the problem representation and asymmetric information in the making decision of foreign companies, because they have less information than companies operating in the country. The control variables also have strong significance in the study such as company size (size), net working capitals (NWC), investment in fixed assets (Capex), net cash flow from operating activities (cf) and leverage (debts, tl, ntl).

Secondly, we test to the relationship between state ownership, bank loans and cash holding by using the model below:

$Cash_{i,t} = \gamma State_{i,t} + Bankloans_{i,t} + \beta_k X_{i,t} + \alpha_i + \lambda_y + \varepsilon_{i,t}$

Which $bankloans_{i,t}$ is the net proceeds from the bank borrowings of firm i at year t. State*bankloans in column (1) is a continuous variable while statedummy*bankloan is a dummy variable that equal 1 if the firm has state ownership and zero otherwise.

Tab. 3 - Random effect model result with variable state*bankloans. Source: own research

	REM (1)	REM (2)
State	-0.2609391*** (-4.74)	-0.1990063*** (-3.8)
Bankloans	-0.0176688** (-2.2)	-0.0152318** (-2.04)
Statebankloans	0.626364*** (3.24)	
Statedummy_bankloans		0.0000239** (2.02)
Foreign	0.5324975*** (5.3)	0.5173896*** (5.25)
Size	-0.0895854*** (-7.66)	-0.0867321*** (-7.6)
Age	0.0029722 (0.93)	0.0035332 (1.11)
Nwc	-0.4734929** (-16.32)	-0.4651508*** (-16.22)
Capex	-0.07863** (-2.77)	-0.1358757*** (-4.18)
Growth	0.009319 (0.35)	0.0014902 (0.56)

Divgia	0.0139439 (1.03)	0.0082055 (0.61)
Constant	1.391289*** (8.84)	1.340339*** (8.71)
Obs	792	792

, **, * indicate significant at 1%, 5% and 10% level respectively*
[.] is z- statistics
Source: Authors summary from the table 4, 5 of reference 2

From the regression result in table 4, the result also shows a negative correlation between the state ownership and cash holdings which was presented above. The bankloans variables in two column shows a negative impact on the cash holdings of companies with significant level of p-value at 5% and regression coefficient -0.0176688 and -0.0152318 respectively. This is because the companies with more percentage of state ownership have more chances to access to bank loans from the commercial bank. In addition, the state*bankloans in column (1) and statedummy*bankloans in column (2) show a positive correlation with the state ownership with the significant level of p-value at 1% and 5% respectively. This is complied with some study that the companies with more state ownership are easy to borrow loans from commercial bank to cater their expansion for operation or investment decisions compared with other companies in the same sector.

Finally, to test the relation between cash holding, state ownership and marginal value of cash, we employ the model as below:

$$r_{i,t} - R^{B}_{i,t} = \beta_0 + \beta_1 \frac{\Delta Cash_{i,t}}{MEV_{i,t-1}} + \beta_2 \frac{\Delta Ebit_{i,t}}{MEV_{i,t-1}} + \beta_3 \frac{\Delta NA_{i,t}}{MEV_{i,t-1}} + \beta_4 \frac{\Delta INT_{i,t}}{MEV_{i,t-1}} + \beta_5 \frac{\Delta NF_{i,t}}{MEV_{i,t-1}} + \beta_6 \frac{\Delta DIV_{i,t}}{MEV_{i,t-1}} + \beta_7 State_{i,t} + \beta_7 State_{i,t} x \frac{\Delta Cash_{i,t}}{MEV_{i,t-1}} + \beta_8 MLEV_{i,t} + \beta_0 \frac{\Delta Cash_{i,t}}{MEV_{i,t-1}}$$

Which dependent variable is excess annual stock return defined as $r_{i,t} - R^{B}_{i,t}$, where $r_{i,t}$ is annual stock return of firm i in year t and $R^{B}_{i,t}$ is stock benchmark portfolio return of HOSE and HNX. $\Delta X_{i,t}$ indicates the unexpected change in variable X for firm i from time t-1 to time t. $MLEV_{i,t}$ is the market value of leverage which is calculated short term plus long term debt divided by total of short term debt and long term debt plus market value of equity. Following Faulkender and Wang (2006), we include $State_{i,t} x \frac{\Delta Cash_{i,t}}{MEV_{i,t-1}}$ variable to test the interaction between state ownership and the marginal value of cash.

Tab. 4 - The GMM result for interaction between state ownership and marginal value of cash. Source: Authors' calculations

	GMM
ΔCash	0.1036405 (0.99)
State	0.5051684 (1.11)
ΔEbit	-0.0502964 (-0.68)
ΔNA	0.1130479 (0.45)
ΔINT	-0.1297151

	GMM
	(0.54)
ΔNF	0.2680297*** (-3.87)
ΔMIEV	-1.399045*** (-5.48)
ΔDIV	0.1433132 (0.52)
State_ ΔCash	0.6303371** (1.96)
Constant	0.7315691*** (4.16)

, **, * indicate significant at 1%, 5% and 10% level respectively*
[.] is z- statistics
Source: Authors summary from the table 6 of reference 2

As we can see from table 5, state ownership has a positive interaction with the marginal value of cash with the significant of level p-value at 5%. This is not complied with previous study because the companies which received support from government in the period 2009-2014 usually have a power in political and economics, especially in investment decisions and expansion schemes. This leads to an increase in the marginal value of cash when there is a rise in the percentage of state ownership.

4 CONCLUSION

By using data of the listed companies from 2009-2014, the study concludes that: (1) the state ownership has a negative impact on the level of cash holdings in the companies. This indicates that the companies usually keep less cash than others in the same sector when there is an increase in state ownership in these companies and (2) state ownership positively influence to the ability for borrowing bank loans of companies in the samples. This is because the companies with more percentage of investment from government have more chances to access to bank loans compared with other companies in the same operation. By this way, the companies (3) there is a positive relation between state ownership and marginal value of cash which indicate that the increase in percentage of state ownership, the increase in marginal value of cash in the period from 2009-2014. In addition, the study also provide evidence about other financial and non-financial factor influence to the rate of cash holding at the companies in Viet Nam such as company size, company age, net cash flow from operating activities, investment for fixed assets and leverage of debts.

REFERENCE

Alfandari. G, F. Q. (1996). Government financial transfer to industrial enterprises and restructuring.

Anderson. J, K. G. (2000). Which enterprises (believe they) have soft budgets? Evidence on the effects of ownership and decentralization in Mongolia. *Journal of Comparative Economics 28 (2)*, 219 – 246.

Bergolf. E, R. G. (1998). Soft budget constraints and banking in transition economies. *Journal of Comparative Economics 26 (1)*, 18 – 40.

Boycko. M, S. A. (1996). A theory of privatization. *The Economic Journal 106*, 309 – 319.

Brandt. L, L. H. (2003). Bank discrimination in transition economies: ideology, information or incentives. *Journal of Comparative Economics 31*, 387 – 413.

Chen, Q. C. (2012). The sensitivity of corporate cash holdings to corporate governance. *The Review of Financial Studies 25 (12),* 3610 – 3644.

Chow Clement, F. M. (2009). Investment and soft budget constraint in China. *International Review of Economics and Finance,* 219 – 277.

Cull. R, X. L. (2000). Bureaucrats, state banks, and the efficiency of credit allocation: the experience of Chinese state-owned enterprises. *Journal of Comparative Economics 28,* 1 –31.

Denis. D, S. V. (2010). Financial constraints, investment and the value of cash holdings. *Review of Financial Studies 23,* 247 – 269.

Dittmar. A, M.-S. J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economiccs 83,* 599 – 634.

J, K. (19080). *Economics of Shortage.* North-Holland, Amsterdam.

Kalcheva. I, L. K. (2007). International evidenve on cash holdings and expected managerial agency problems. *Review of Financial Studies 20,* 1087 – 1112.

Kornai. J, M. E. (2003). Understanding soft budget constraint. *Journal of Economic Literature 41 (4),* 1095 – 1136.

Liu. Q, L. Z. (2007). Corporate governance and earnings management in the Chinese listed companies: a tunneling perspective. *ournal of Corporate Finance 13,* 881 – 906.

M, S. (1998). Do firms in transition have soft budget constraints? A reconsideration of concepts and evidence. *Journal Comparative Economics 26 (1),* 80 – 103.

Megginson. W, N. J. (2001). From state to market: A survey of empirical studies on privatization. *Journal of Economics Literature 39,* 321 – 389.

Megginson. W, U. B. (2014). State ownership, soft-budget constraints, and cash holdings: Evidence from China‟s privatized firms. *Journal of Economics Literature,* 276 – 291.

Opler. T, P. L. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics 52,* 3 – 46.

Shleifer. A, V. R. (1994). Politicians and firms. *Quarterly Journal of Economics 109 (4),* 995 – 1025.

Sun. Q, T. W. (n.d.). China share issue privatization: the extent of its success. *Journal of Financial Economics,* 2003.

Wei. Z, X. F. (2005). Ownership structure and firm value in China‟s privatized firms: 1991 – 2001. *Journal of Financial and Quantitative Analysis,* 87 – 108.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

AN ASSESSMENT OF STUDENT'S SATISFACTION TOWARD TRAINING SERVICE QUALITY IN TON DUC THANG VOCATIONAL TRAINING SCHOOL

Loan Thi Kim Nguyen

ABSTRACT

The study investigates the satisfaction extent of economic students towards the training service quality in Ton Duc Thang Vocational Training School. The data were randomly collected from 250 economic students. EFA method is used to identify factors affecting the student's satisfaction toward the training service quality. The research results of training quality including 05 factors: staff and empathy, teacher, curriculum, physical facilities and reliability showed that students express their pretty good satisfaction toward the training service quality in the school.

Keywords: *Satisfaction, satisfaction extent, service quality, training service quality*

JEL Classification: M10

1 INTRODUCTION

In recent years, Vietnam have been always in a state of "redundancy of teachers, lack of workers" due to the general psychology of families who always wish their children to study at higher education. Vocational training quality is low, below the regional level, and fails to meet the needs of organizations using educational products. There is still a gap between the skill level of newly- graduated students and the needs of enterprises. Meanwhile high school students have not received a scientifically vocational guidance and seen the importance of vocational skills right while they are at school. Remarkably, for education and training systems, the concept of quality comprises the quality of factors of teaching, curriculum, management, teacher and student, academic activities, scientific research, library, physical facility, and equipment that play a very important role.

Ton Duc Thang Vocational Training School (TDTVTS) directly under Ton Duc Thang University (TDTU) was established on May 14th, 2012 by Decision No. 647/QD-TLĐ of Vietnam General Confederation of Labour on the basis of upgrading Vocational & Business Department of TDTU. During 10 years of construction and development, TDTVTS has been always proud to be on behalf of TDTU to carry out the mission of "training, retraining, and improving skills and professional qualifications for the working class of the city, developing human resources for the industrialization and modernization of the country". In recent years, the school's training service quality has been constantly improved and its training methods has been increasingly innovated and completed in practice direction. In particular, many major subjects are taught with simulation software in dedicated computer rooms. However, in the current context of competitive education, an explosion of public and private training institutions leads to an increasingly cutthroat competition. In addition, the training scale tends to decrease due to the impact by a psychological tendency that students want to go to universities and colleges, which has a strong influence on the vocational training nationwide in general and for TDTVTS in particular.

The results obtained from the study of "An assessment of student's satisfaction toward training service quality in Ton Duc Thang Vocational Training School" bring about a small contribution

to the construction of scale of training service quality in vocational training schools in general and the foundations to assess the training service quality for the students of TDTVTS in particular. Through the study results, the school leadership, teachers, and staffs will know their students' perception of the quality of training service and their satisfaction extent towards training service quality, from which the school has plans to build and supply higher training service quality.

Service quality is the most influential factor on customer satisfaction (Cronin and Taylor, 1992; Yavas et al, 1997). If the service provider offers its customers quality products to satisfy their demands, then it initially makes its customer satisfied.

Therefore, to improve customer satisfaction, service provider must improve the quality of services. It can be said that service quality and customer satisfaction is closely related to each other, in which service quality is first created and then decides the customer satisfaction (Spreng và Mackoy, 1996). The causal relationship between these two factors is a core issue in most researches on customer satisfaction. In the study of the relationship between these two factors, Spreng and Mackoy (1996) also pointed out that quality of service is the premise of customer satisfaction.

Snipes & Thomson (1999) investigated the factors affecting students' perceptions of teaching service quality in higher education through a survey of 6 small and medium sized universities in three American states. For scale, the researchers adjusted Servqual from 5 into 3 dimensions with sufficient reliability and distinction: (1) Empathy, (2) Responsiveness and reliability, (3) Tangibles, of which empathy is the most significant factor for quality assessment.

Kwek et al. (2010) investigated the service quality in view of the service quality perceived by students of a Malaysian private university based on a combination of different education quality models. The studied variables included (1) informative (2) responsiveness, (3) curriculum, and (4) hedonic/pleasure. The results showed that the "curriculum" most significantly affected students' perception of service quality.

2 METHODOLOGY

2.1.1 Data

Research data were randomly collected in disciplines, at the same time, the author selected a random sample with the same probability surveyed for students in the same major.

The survey of 250 students in the fields of Business Accounting, Finance and Banking, Supermarket management and sales and Hotel business and management was conducted to collect primary data, analyze data, test scale, test research hypotheses and models.

2.1.2 Research methods

Based on the theory of customer satisfaction and analyses of relationship between service quality and satisfaction, where the SERVQUAL scale was applied by many researchers to measure student's satisfaction toward training service quality at higher education level. However, this study is carried out to measure student's satisfaction toward training service quality at the intermediate level, particularly at TDTVTS. Training programs at intermediate level have different characteristics compared to the tertiary level. Thus, for study results to obtain high reliability, it is required to adjust the scale appropriate to the context of research.

Based on the theoretical foundations of education quality, the scale SERVQUAL (Parasuraman et al., 1988), previous empirical studies, the manual of "Standards to assess the education quality of Vocational Training Schools (Issued together with decision No. 67/2007/QD -

BGDDT dated November 1st, 2007 by the Minister of Education and Training) and qualitative research results, this study examines 06 factors of training service quality: teacher, physical facilities, reliability, staff, empathy and curriculum. Hypotheses are divided into two groups: *The influence of components of the training service quality on the satisfaction of students and personal influence characteristics on satisfaction*. In the study, teacher, physical facilities, reliability, staff, empathy and curriculum are independent variables and satisfaction is dependent variable.

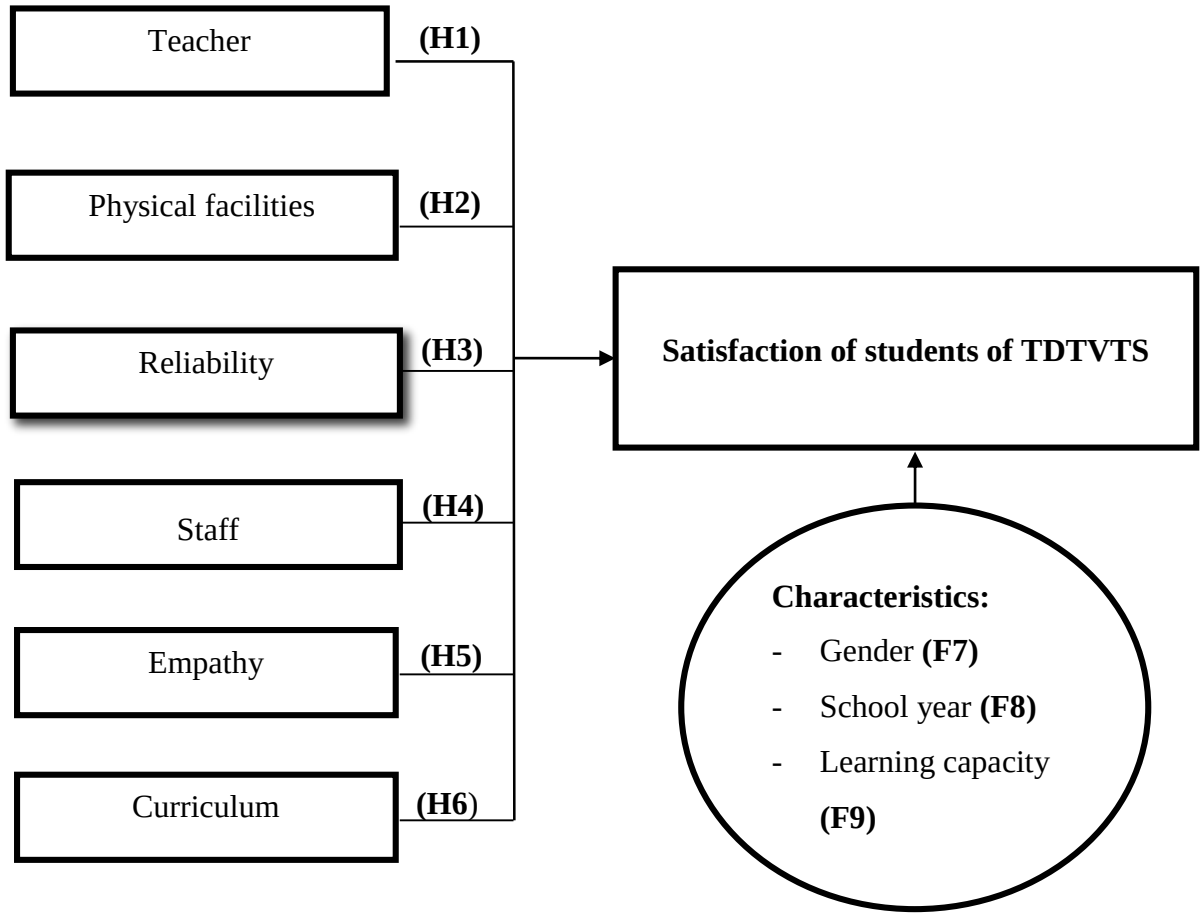

Fig. 1 - Theoretical research model of the relationship between training service quality and satisfaction

3 RESULTS AND DISCUSSIONS

3.1 Testing the scale:

The study uses factors with Cronbach's alpha coefficient higher than 0.7. Testing results of Cronbach's alpha reliability coefficient of the training service quality and satisfaction showed that all scales have Cronbach's alpha reliability coefficient > 0.7 which is satisfactory. Testing results of Cronbach's alpha reliability coefficient are 0.874 of teacher factor, 0.745 for physical facilities factor, 0.898 for reliability factor, 0.92 for staff factor, 0.845 for empathy factor and 0.882 for curriculum factor. Testing results of Cronbach's alpha reliability coefficient of satisfaction showed that variables correlation is higher than 0.3 and Cronbach's alpha coefficient = 0.822. Thus, 41 observed variables of 6 training service quality factors and 4 observed variables of satisfaction factor achieve reliability, have effective value and are used for EFA analysis of the next step.

3.2 Exploratory Factor Analysis (EFA)

With the research model of 06 factors with 41 observed variables affecting the satisfaction of students in TDTVTS, After the survey, EFA used with Varimax rotation to analyze 41 observed variables, the analysis results of training service quality scale eliminated 4 observed variables with factor coefficient less than 0.5. The results showed 05 factors had Eigenvalue = 1.060, total variance (cumulative %) extracted was 62.807% and the coefficient of KMO = 0937> (0.5) and sig = 0.000 <0.05. The total average variance extracted, thus, meets the requirements of testing standards (≥50%). Observed variables of the factors all have factor loading nearly equivalent to 0.5 so they are used to analyze the research model by multivariate linear regression model. The results showed that training service quality scale in TDTVTS changed into 5 factors. Namely, a number of variables of empathy and reliability, staff are combined into one factor. Reliability factor, however, has two variables which hold little percentage compared to variables in staff and empathy factors, so this factor is changed into staff and empathy factor and 37 new observed variables. Factor of ***staff and empathy (FNV and SCT)*** consists of 13 observed variables, factor of teacher ***(FGV)*** with 10 observed variables, factor of ***curriculum (FCTDT)*** with 7 observed variables, factor of ***Physical Facilities (FCSVC)*** with 3 observed variables and factor of ***reliability (FSTC)*** with 4 observed variables.

Tab.2 - EFA results of training service quality scale. Source: Data analyzed by the author

	Factors				
	FNV and SCT	FGV	FCTDT	FCSVC	FSTC
NV28: Staffs are very sympathetic and considerate	.810				
NV27: Students easily get precise answers in the responsible departments	.781				
NV24: Staffs are always willing to guide the procedures for students	.775				
NV23: Staffs are always willing to solve students' problems	.774				
STC20: The school always listens to the requirements of students	.764				
NV26: Staffs are always polite, gentle to students	.750				
SCT30: School regularly listens to students' opinions	.721				
STC21: School always responds quickly to the requirements of students	.691				
STC22: School always finds out the personal expectations of each student	.684				
NV25: Staffs always solve matters punctually	.655				
SCT32: School is much concerned about the living and learning conditions of students	.646				

	Factors				
	FNV and SCT	FGV	FCTDT	FCSVC	FSTC
SCT31: School always takes students' interests as the motto for its activities	.633				
SCT34: Good financial support for students when necessary	.540				
GV3: Teachers have charismatic and understandable teaching approach		.782			
GV7: Teachers assess learning results fairly and objectively		.682			
GV1: Teachers have profound knowledge of the subject		.666			
GV6: Teachers are enthusiastic and dedicated for students' acquisition at the highest level		.666			
GV8: Teachers answer students' questions fully and satisfactorily		.661			
GV4: Teachers use teaching methods towards promoting students' positive self - learning		.658			
GV9: Teachers organize and manage classes in a reasonable scientific and effective manner		.629			
GV5: Teachers are willing to share their knowledge and experiences with students		.603			
GV2: Lecturing contents match students' knowledge		.592			
GV10: Teachers' behaviors are always standard		.487			
CTDT 40: The training programs can be connected with other level of training and education programs			.751		
CTDT 41: The knowledge gained from the courses has practical applicability			.749		
CTDT 38: Contents are in line with the training goals			.714		
CTDT35: The goals of the training programs are clearly			.685		
CTDT 37: The percentage between theory and practice is in line with discipline			.663		
CTDT 39: The program contents update a lot of new knowledge			.641		

	Factors				
	FNV and SCT	FGV	FCTDT	FCSVC	FSTC
CTDT 36: Training programs meet the manpower needs of society			.639		
CSVC12: Classrooms ensure adequate conditions for learning (spaciousness, airiness, light)				.817	
CSVC11: Equipment for training is very modern (projectors, sound, practical tools, ...)				.740	
CSVC13: Schoolwide landscape looks spacious and clean				.550	
STC18: Information from school to the students is always accurate (information about studying, exams, enrollment, graduation, ...)					.573
STC16: School always implement the schedule of teaching (teaching schedule, curriculum, timetable) which are notified in advance					.563
STC19: required information is always timely informed to the students by the school					.562
STC17: School implements all of its commitments towards students					.519
Eigenvalue	**14.079**	**3.242**	**2.146**	**1.564**	**1.148**
Average Variance Extracted	**38.050**	**8.761**	**5.800**	**4.227**	**3.102**

EFA results of satisfaction scale showed that the observed variables are satisfactory. Specifically, the eigenvalue is 2.619, total average variance extracted is 65.473% and 04 observed variables have large factor loading and KMO coefficient = 0.788.

Tab.3 - EFA results of satisfaction scale. Source: Data analyzed by the author

	Factor loading	Eigenvalue	Average variance extracted %
HL45: You think that your decision to study here is correct	.834	2.619	65.473
HL42: You are satisfied with teaching activities	.828		
HL44: You are satisfied with learning environment	.826		
HL43: You are satisfied with activities outside teaching activities	.745		

From the above –mentioned analyses, the theoretical model is adjusted

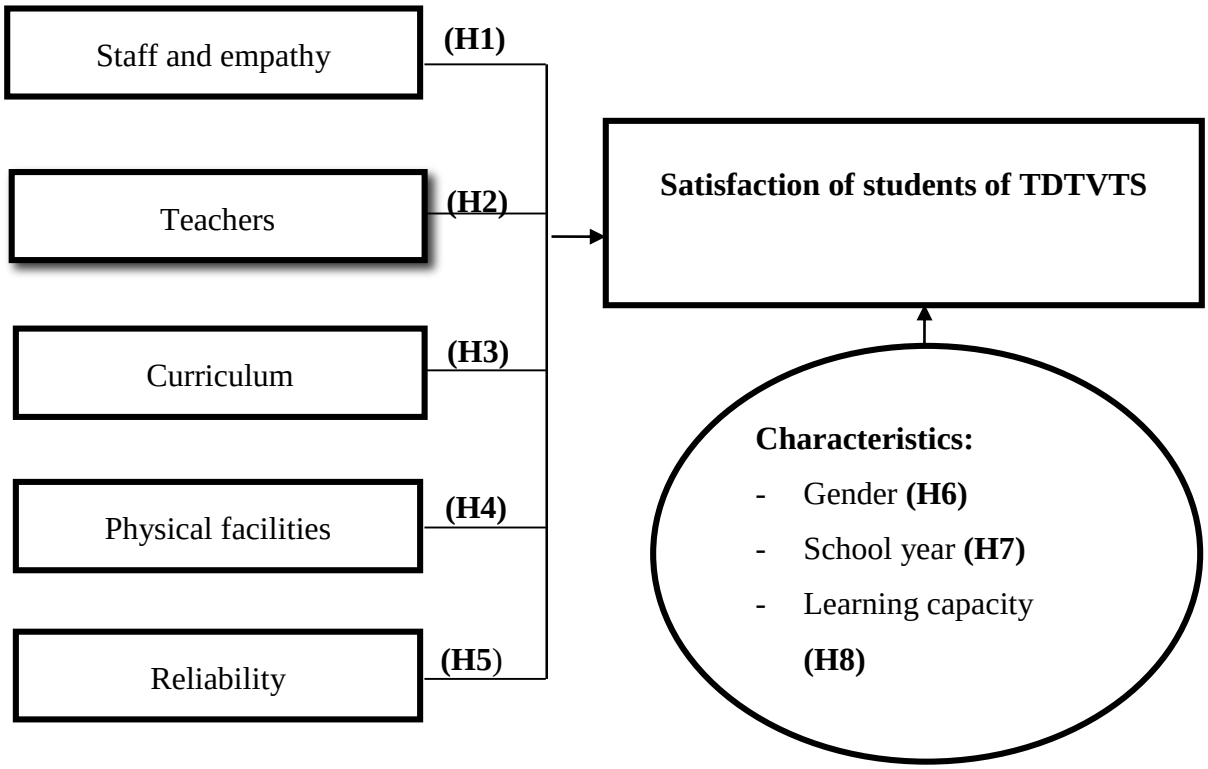

Fig. 2 - Adjusted research model. Source: Data analyzed by the author

The model is used to test two hypothesis groups:

- The influence of components of training service quality on student's satisfaction includes hypotheses H1 through H5 which are stated as follows

Hypothesis H1: The better students assess staff and empathy during the training service process the more satisfied they will feel.

Hypothesis H2: The higher students assess their teachers' capacity the more satisfied they will feel.

Hypothesis H3: The better students assess the school's curriculum the more satisfied they will feel.

Hypothesis H4: Physical facilities of the school well meet the student's needs of students, they will be satisfied

Hypothesis H5: School complies with its commitments (reliability) towards its students, students will be satisfied

- Characteristics of individual influence on satisfaction includes hypotheses H6 through H9, which are stated as follows

Hypothesis H6: There is no difference in student's satisfaction toward training service quality by gender

Hypothesis H7: There is no difference in student's satisfaction toward training service quality among groups of students in different school years.

Hypothesis H8: There is no difference in student's satisfaction toward training service quality among groups of students with different learning results.

Hypothesis H9: There is no difference in student's satisfaction for students with different morality practice results.

3.3 Test of the suitability of model - multivariate linear regression analysis

EFA results showed that factors of training service quality changed into five new factors which are staff and empathy, teacher, curriculum, physical facilities and reliability are independent variables, and satisfaction factor is dependent variable.

3.3.1 Correlation analysis of factors

Before conducting the model analysis by means of a multivariate linear regression, it is required to examine the relationship between independent variables and dependent variable and testing the discriminatory value between independent variables. According to the researchers, the correlation coefficient between independent variables in the research model<0.85 has discriminatory value and no multicollinearity phenomenon but if the correlation coefficient>0.85 will lead to multicollinearity phenomenon in independent variables which makes testing results not accurate (John & Benet - Marinez, 2000)

Analysis result of correlation coefficient among variables in the model.

Tab.4 - Correlation coefficient among factors. Source: Data analyzed by the author

		FHL	FNV& SCT	FGV	FCTDT	FCSVC	FSTC
FHL	Pearson Correlation	1	.677**	.518**	.672**	.543**	.610**
FNV & SCT	Pearson Correlation	.677**	1	.470**	.600**	.516**	.740**
FGV	Pearson Correlation	.518**	.470**	1	.479**	.300**	.466**
FCTDT	Pearson Correlation	.672**	.600**	.479**	1	.421**	.547**
FCSVC	Pearson Correlation	.543**	.516**	.300**	.421**	1	.540**
FSTC	Pearson Correlation	.610**	.740**	.466**	.547**	.540**	1

Note: ** Pearson Test at sig. level p = 0.01

The correlation matrix shows independent variables (FNV & SCT, FGV, FCTDT, FCSVC, FSTC) quite closely correlated with dependent variable (FHL) at sig. level p = 0.01, in which the highest variable is FGV&SCT=0.677 and the lowest variable is FGV=0.518 and correlation coefficients among independent variables are 03.00 through 0.74 satisfying the condition<0.85. This shows that all independent variables have discriminatory value, without multicollinearity phenomenon. Therefore, these 05 factors are considered independent variables in analysis of multivariate linear regression model.

3.3.2 Testing research model

In this section, Enter method is used (entering all variables at the same time to analyze). Factors of the training service quality are independent variables, namely: ***Staff and empathy (FNV&SCT), Teacher (FGV), curriculum (FCTDT), Physical facilities (FCSVC), Reliability (FSTC)*** and dependent variable, **student's satisfaction *(FHL).***

From the hypotheses, we have a linear regression equation as follows:

$$\mathbf{FHL = \beta_0 + \beta_1 \times FNV\&SCT + \beta_2 \times FGV + \beta_3 \times FCTDT + \beta_4 \times FCSVC + \beta_5 \times FSTC}$$

Result of multivariate linear regression analysis shows the relationship between independent variables and dependent variable in the model.

Tab.5 - Result of multivariate linear regression model. Source: Data analyzed by the author

Model	Unstandardized coefficient		Standardized coefficient	Value T	Value Sig.	Multicollinearity	
	B	Standard error	B			Acceptability	VIF
FNV&SCT	.239	.057	.267	4.178	.000	.383	2.611
FGV	.192	.060	.151	3.188	.002	.701	1.426
FCTDT	.359	.058	.327	6.234	.000	.570	1.755
FCSVC	.182	.046	.190	3.929	.000	.669	1.495
FSTC	.142	.037	.147	2.576	.001	.399	1.216
R^2 correction = 0.611; value F = 79.105, sig.= 0.000							

Note: value Sig. < 0.05 is accepted

The R^2 model is adjusted = 0.611. This indicates that the relevance of model is approximately 61.1%, or 61.1% of the variation of satisfaction extent is explained by 5 factors of training service quality.

Method of multivariate linear regression analysis with 5 factors of training service quality added at the same time shows that the regression model is appropriately used to test the hypothesis (sig. = 0,000). Value F = 79.105 proves the regression model's suitability.

Analysis results show that all factors are statistically significant with Sig.<5%. It can be concluded that factors of *staff and empathy, teacher, curriculum, physical facilities and reliability* are linearly related to satisfaction. Thus, model of the dependence between student's satisfaction and 5 independent variables are outlined as follows:

FHL = 0.072 + 0.239× FNV&SCT + 0.192× FGV+ 0.359× FCTDT + 0.182× FCSVC + 0.142 × FSTC

3.3.3 Assessing the violations in research model

- Multicollinearity hypothesis

Multicollinearity phenomenon occurs when independent variables are closely correlated. According to the researchers, this phenomenon occurs when variance inflation factor (VIF) > 10, but the testing results show that VIF of independent variables are ranged 1.216 through 2.611 (VIF<10). Thus, independent variables in the research model have no multicollinearity phenomenon.

- Hypothesis of standard distribution of residual:

The results of residual analysis show that mean value, Mean = 2.45^{-15}∼0 and standard deviation Std.Dev = 0.990 ∼1. It can be concluded that the residual is distributed approximately standard or hypothesis of standard distribution of residual in the model is not violated.

- Hypothesis of linear relationship

The scatter diagram between residual and predicted value of the regression model shows no relationship between residual and predicted value. The residual randomly distributes around ordinate 0, so hypothesis of linear relationship in the model is rejected.

- Hypothesis of independence of errors

Test result of the model by Durbin –Watson test with value d = 1.824 shows that there are not enough grounds to reject H_0. Therefore, there is no correlation phenomenon in the model

3.4 Testing research hypotheses

3.4.1 Hypothesis test results of the influence of training service quality on satisfaction

Based on the results of multivariate linear regression model analysis to test the suitability of research hypotheses

Hypothesis H1: *the better students assess staff and empathy during the training service process, the more satisfied they will feel*

Research results showed that factor *staff and empathy had* the positive impact on student satisfaction with $\beta = 0.239$ at significant level $p < 0.005$, which is the second strongest determinant factor after curriculum factor, which meant *staff and empathy* is one of the important factors of quality training services that affect student satisfaction. Hence hypothesis H1 is accepted

Hypothesis H2: *the higher students assess their teacher's capacity, the more satisfied they will feel*

Research results showed that factor of teacher positively impacts on student's satisfaction with $\beta = 0.192$ at significant level $p = 0.005$, a quite low influential factor among factors under consideration. Hypothesis H2 is accepted.

Hypothesis H3: *The better students assess the school's curriculum, the more satisfied they will feel*

Research results show that factor of curriculum has the positive impact on student's satisfaction with $\beta = 0.359$ at significant level $p < 0.005$, the strongest influential factor. This means that factor of curriculum is an important factor of training service quality affecting the student's satisfaction. Thus, Hypothesis H3 is accepted

Hypothesis H4: *Physical facilities of the school well meet the student's needs of students, they will be satisfied*

Research results showed that factor of physical facilities has the positive impact on student's satisfaction with $\beta = 0.182$ at significant level $p < 0.005$, a rather strong influential factor showing that the interaction between students and physical facilities has an important role to training service quality. Hence, Hypothesis H4 is accepted.

Hypothesis H5: *school complies with its commitments (reliability) towards its students, they will be satisfied*

Research results showed that factor of reliability positive impacts on student's satisfaction with $\beta = 0.142$ at significant level $p < 0.005$, a lowest influential factor. Thus, Hypothesis H5 is accepted.

3.4.2 Hypothesis test results of the influence of gender, school year, learning capacity and morality on the satisfaction

- Gender:

Hypothesis H6: *There is no difference in student's satisfaction toward training service quality by gender*

Testing results of satisfaction towards training service quality between males and females by independent sample T-test (Sig. = 0.721) show no difference. Namely, the mean score of males is 3.6386 and females is 3.6722, a tiny difference. This shows that the satisfaction of female students and male students are alike towards training service quality. Hypothesis H6 is, hence, accepted.

- School year

Hypothesis H7: *There is no difference in student's satisfaction toward training service quality among groups of students in different school years.*

With a survey sample of economic students of four majors of two courses 11C - the second year and 12C - the first year, the researcher used Independent – samples T-test. Test results of satisfaction towards training service quality among courses show no difference with Sig = 0.667, namely, the mean score of the first year group is 3.6446 and of the second group is 3.6818, a too tiny difference. Thus, Hypothesis H7 is accepted.

- Learning capacity

Hypothesis H8: *There is no difference in student's satisfaction toward training service quality among groups of students with different learning results.*

Learning capacity is divided into 5 groups: Very good, Good, Average good, Average and Weak. The method of Analysis of variance – ANOVA is used because it will conduct testing all groups at the same time with Sig. = 0.05.

The analysis of variance ANOVA showed that Sig. of independent variables in variance testing is greater than 0.05. It can be concluded from the results that there is no difference in student's satisfaction towards training service quality among groups of students with different learning results (otherwise H8 is accepted)

- Morality

Hypothesis H9: There is no difference in student's satisfaction for students with different morality practice results.

Morality results is divided into 6 groups: Excellent, Very good, good, Average good, Average and Weak. The method of Analysis of variance – ANOVA is used because it will conduct testing all groups at the same time with Sig. = 0.05.

The analysis of variance ANOVA showed that Sig. of independent variables in variance testing is greater than 0.05. It can be concluded from the results that there is no difference in student's satisfaction for students with different conduct results (otherwise H9 is accepted)

3.5 Analyzing students' assessment towards components of training service quality and satisfaction

The study uses the mean value according to scale of 5 scores for students' assessment towards 05 factors of training service quality and satisfaction through descriptive statistical method of

mean value. To be convenient for review, the standard convention of assessment scale is as follows:

- Mean score is below 3: Weak
- Mean score from 3 to below 3.5: Average
- Mean score from 3.5 to 4: Good
- Mean score greater than 4: Very good

3.5.1 Students' assessment towards the training service quality

- Students' assessment towards the staff and empathy factor

Data collected from 250 questionnaires measured the average rate in terms of staff and empathy with mean score greater than 3 (Mean = 3.1668). Among which, the lowest is variable SCT22 (Mean = 2.92). Next is variable STC21 (Mean = 2.96), and variable NV28 (Mean =2.97).

The interaction between the school's staff and empathy and students plays an important role which affects the student's perception towards training service quality. However, the analysis shows that students are not really satisfied with the staffs' manners of servicing and solving for students when they are in need. The school has not paid attention to the students' expectations. The requirements of students are not timely responded and its staffs do not really sympathize, thoroughly solve the problems of students.

- Students' assessment towards teacher factor

Teacher factor is one of the important factors that determine the training service quality. For this reason, students assessed this factor best among all factors of training service quality at the school, (Mean = 3.9064). Students' assessment scale for this factor was very good: GV5 with Mean = 4.24, GV1 with Mean = 4.16, and GV6 with Mean = 4.02.

- Students' assessment towards curriculum factor

According to the scale testing results, curriculum factor strongly influences on the satisfaction of students. Once the more their expectations are met the more satisfied they are. The results showed that students showed their pretty high satisfaction about the training program designed to suit each student's choice of major (Mean = 3.7771).

- Students' assessment towards physical facilities factor

The results showed physical facilities factor influences well on the satisfaction of students. Assessment of students for physical facilities has Mean = 3.7667 of which variable CSVC13 with Mean = 4.12 that is best assessed by students, CSVC12 is rather well – assessed with Mean = 3.93, which show that students feel satisfied with the school's physical facilities and this is an important factor for the image of the school so that the school can provide a good service for the annual entrance enrolment.

- Students' assessment towards reliability factor

It can be seen from the research results that the reliability factor strongly influences on the training service quality. Commonly, when students choose a school, they are much interested in what the school committed and the values they will receive if they study there. The mean score (Mean = 3.5080) shows that students feel satisfied with what are committed to them.

3.5.2 Students' assessment towards satisfaction factor

The analysis results of student's satisfaction towards training service quality achieve a good extent (Mean = 3.6610), which presents that students are quite satisfied with what school is offering in comparison with their expectations. However, school should also have better

improvements in training activities and outside training activities to meet the needs of students as well as improve its training service quality.

4 CONCLUSION

Through an empirical study at TDTVTS with 4 economic training fields consisting of Business accounting, Finance and Banking, Supermarket management and business, Hotel management and business, the results show that the satisfaction depends on 05 factors with the descending extent of influence: Curriculum (β = 0.359), staff and empathy (β = 0.239), teacher (β = 0.192) physical facilities (β = 0.182), and the last, reliability (β = 0.142). Thus, the scale of training service quality and satisfaction is effective and reliable and the research model is appropriate to data and hypotheses H1 through H5 are accepted.

The findings of this study indicated that students are fairly satisfied with training service quality in the school (Mean = 3.6610) which shows that training service quality in TDTVTS partly meets students' and society's expectations and needs. However, the contents of this study mainly examine factors affecting student's satisfaction and the influence of student's personal characteristics on student's satisfaction towards training service quality in TDTVTS within a field with representative nature. Specifically, the study only surveyed 250 of 1154 economic students and 4 of total 15 training disciplines in the school. Therefore, the generality of the findings is not high and more researches should be carried out with all disciplines and in-depth interviews with different students should be conducted to obtain generalized results. In addition, the author presented suggestions for administrators based on the studied results. Consequently, if considering the scope of the whole school, the results may not have the generalization and comprehensibility since there are factors of training service quality which are well- assessed by economics branch but not well- assessed in engineering branch, or vice versa.

REFERENCES

Berry L., Parasuraman A. & Zeithaml V. (1988), The Service - Quality Puzzle, *Business Horizons*, Sep-Oct, pp 35-43.

Carman J.M. (1990), Consumer perceptions of service quality: An assessment of the Servqual dimensions, *Journal of Retailing*, Vol 66(1), pp. 33-55

Cheng, Y.C., anh Tam, M. (1997), Multi – models of quality in education, *Quality Assurance in Education*, 5(1), 22-31.

Chu Nguyen Mong Ngoc (2010), Perceptions of higher education sector from student's perspective, *Development and Integration*, Vol 4

Gronroos C. (1984), A service quality model and its marketing implication. *European journal of marketing*, Vol.18, No.4, pp.36-44

Ha Nam Khanh Giao and Nguyen Tuan Vu (2011), Customer satisfaction towards services quality of Vinatex - mart supermarket system, *Journal of Economic Development*, Vol.235, pp.9-16

Hoang Trong và Chu Nguyen Mong Ngoc (2008), Analyzing data using SPSS, Hong Duc Publishing House

Ministry of Education and Training (2007), Decision Issuing Regulations on the evaluation criteria of education quality in university

Nguyen Thanh Long (2006), Using Servqual to assess the quality of higher education training services at An Giang University, *Scientific Research Report - An Giang University*

Nguyen Phuong Nga and Bui Kien Trung (2005), Students' effective teaching assessment, quality higher education and assessment, *Vietnam National University Hanoi Publishing House*.

Nguyen Dinh Tho and Nguyen Thi Mai Trang (2008), Scientific research in business, *Vietnam National University Ho Chi Minh Publishing House*

Parasuraman A., Zeithaml V. & Berry L. (1985), A conceptual model of service quality and its implications for future research, *Journal of Marketing*, Vol 49, pp 41-50.

Parasuraman A., Zeithaml V. & Berry L. (1988), A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality, *Journal of Retailing*; Vol. 64 Issue 1, pp12-40

Parasuraman, A., V.A Zeithaml, & L. L. Berry (1994), Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria, *Journal of Retailing*, 70(3): 201230

Wright C. & O'neill M. (2002), Service quality evaluation in the higher education sector, Vol.21, No .1, pp. 23-39

Zeithaml V., Berry L. & Parasuraman A., (1988), Communication and control processes in the delivery of service quality, *Journal of Marketing*, Vol 52, pp 35-48

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FACTORS INFLUENCING START-UP PROCESS RESULTS: LONGITUDINAL STUDY OF CZECH ENTREPRENEURS

Martin Lukeš, Jan Zouhar

ABSTRACT

Longitudinal studies of early-stage entrepreneurial activity help us understand the causal effects of a variety of factors influencing the future outcomes of this activity. The theory of new business foundation is, however, far from developed. The aim of the paper is to analyse various factors influencing birth and discontinuance of nascent and early-stage entrepreneurial activity. Compared to previous Czech studies, this paper is based on the most complete sample and serves as well as a robustness check of previous findings. We use data on 371 early-stage entrepreneurs that come from two longitudinal studies conducted between 2011 and 2015 in the frame of the Global Entrepreneurship Monitor project. Entrepreneurs were interviewed in three to four subsequent waves and asked questions regarding their entrepreneurial activity and its outcomes. We employ logistic regression to analyse the effects of various factors influencing outcomes of early-stage entrepreneurial activity. We confirmed that fear of failure, start-up duration and previous start-up experience influence outcomes of nascent entrepreneurship. Previous start-up experience increased the likelihood of both entrepreneurial discontinuation and actual launch. There was also a significant influence of a year in which data were gathered. We argue that better economic conditions (lower unemployment, higher GDP growth) increase the likelihood of discontinuation in nascent entrepreneurs, but decrease the likelihood of exit for operational business. The former group in those conditions find a job more easily, whereas the latter group persists as it operates in more favourable market situation. We also analysed various factors potentially influencing satisfaction with entrepreneurship, but found no significant results besides the role of a year of data gathering. Overall, the paper provides added value for our understanding of early-stage entrepreneurial dynamics.

Key words: *start-ups, nascent entrepreneurs, early-stage entrepreneurship, firm discontinuance, economic conditions, Czech Republic*

JEL Classification: L26, O31

1 INTRODUCTION

This paper seeks to find support for findings from previous studies on the process of early-stage entrepreneurship (e.g. Lukeš, Zouhar, 2016). It aims to better understand why are some start-up entrepreneurs successful in launching their new business while others discontinue. A significant ratio of nascent entrepreneurs exit their entrepreneurial activities and the same is true for new ventures (e.g., Parker, Belghitar, 2006; Reynolds, Curtin, 2008; Gelderen van, Thurik and Bosma, 2006). Thus, it is important to accumulate original evidence based studies on nascent entrepreneurial activity. Such studies are needed as the theory of early-stage entrepreneurship is underdeveloped and research findings so far are not fully convincing (Davidsson, & Gordon, 2012). The paper builds on previous studies (Lukeš, & Zouhar, 2013; 2015; 2016) but incorporates a larger sample size and the time frame of more years.

2 THEORETICAL BACKGROUND

There are different theories explaining why nascent entrepreneurs decide on launching a new firm or discontinuing from such activity. Classical economic theory explaining the deaths of new firms deals with liability of smallness and liability of newness (e.g., Cressy, 2006) and is positioned on the level of firms that try to compete against their older, bigger and thus more experienced and better positioned counterparts. Newer theories focus on the decision making of the individual (based on Kahneman & Tversky, 1979) and operationalize the opportunity-cost concept, e.g., introducing the threshold model of firm-closure (Gimeno et al., 1997). It means, that there are different reasons to close new firms such as recognizing better options, preventing further losses or experiencing bankruptcy. Withdrawal from the start-up process is thus not seen as a neccessarily negative outcome (e.g. Khan, Tang, & Joshi, 2014; DeTienne, 2010). Previous empirical studies described various factors that influence the outcomes of early-stage entrepreneurial activities. These factors will be shortly described in the following section.

2.1 Factors influencing nascent entrepreneurship outcomes

Davidsson and Gordon (2012), in their state of the art review of nascent entrepreneurship research, identified previous start-up experience as one of the main factors influencing nascent entrepreneurship outcomes, as identified in previous studies (e.g., Delmar & Shane, 2006). On the other hand, recent study based on Czech data (Lukes & Zouhar, 2013) found no significant role of previous start-up experience in venture emergence, a similar finding with Gimeno et al. (1997) study. Nascent entrepreneurs with higher levels of human capital have higher opportunity costs and must therefore expect higher rewards associated with their new business in order to stay self-employed (Brüderl, Preisendörfer, & Ziegler, 1992). As the research investigating how ex ante expectations of nascent entrepreneurs influence ex post outputs is missing to a large extent (Cassar, 2010), we include, in line with (Lukeš, & Zouhar, 2016) ex ante employee expectations in the analysis as the proxy for potential rewards expectations.

Another potentially important factor influencing the success of early entrepreneurial efforts is business planning (Delmar, Shane, 2003). Metaanalysis conducted by Brinckmann, Grichnik and Kapsa (2010) concluded that business planning is beneficial, however contextual factors pose a significant limit for the relationship. Further, new firms are founded by solo entrepreneurs or by entrepreneurial team. Parker and Belghitar (2006) found that entrepreneurial team is less likely to make a transition to actual venture when compared with solo founders. Teams are, on the other hand, more likely to have higher ambitions for their start-ups (Davidsson, Gordon, 2012).

Parker and Belghitar (2006) identified that a relatively large group of nascent entrepreneurs stayed in pre-launch phase for a long time without making the decision to launch or exit. The longer this period is, the less likely they are to create a new venture (Townsend, Busenitz, & Arthurs, 2010) or to discontinue (Lukeš, Zouhar, 2013). In a recent study, Lukeš and Zouhar (2013) emphasized the importance of fear of failure. People who feared of failure more probably terminated their start-up efforts in the subsequent period.

Finally, the trend covering the year in which respective data gathering took place is incorporated in order to account for systematic changes in entrepreneurial environment over time. Gender, education and city size are used as control variables.

2.2 Satisfaction as the outcome of early-stage entrepreneurship

Block and Kollinger (2008) found out that necessity based entrepreneurs "cannot get satisfaction" and that financial success is the most important determinant of start-up satisfaction. However, with some exceptions (van Gelderen, van der Sluis, & Jansen, 2005; Block, & Kollinger, 2008, Bianchi, 2012), entrepreneurial satisfaction of start-up entrepreneurs has not yet received much attention in the literature. Thus, we include the satisfaction with entrepreneurship as one of our outcome variables in order to investigate the role of various factors on satisfaction with entrepreneurship in its early phases.

3 SAMPLE AND METHODS

3.1 Sample

The data set used in our analysis is based on a longitudinal survey that combines two samples of 159 and 212 early-stage entrepreneurs identified in Global Entrepreneurship Monitor project carried out in the Czech Republic in 2011 and 2013. The sampling procedure was based on randomized phone calls, see (Lukeš, Jaklová, & Zouhar, 2014) for more details. These entrepreneurs were subsequently questioned in yearly follow-up interviews up until 2015.

Tab. 1 - Number of observations for a longitudinal analysis: number of entrepreneurs who entered the longitudinal study, based on year of first interview, year of data gathering and entrepreneurial state. Source: own data.

	First interviewed in 2011				**First interviewed in 2013**		
Data gathering in year:	**2011**	**2012**	**2013**	**2014**	**2013**	**2014**	**2015**
Nascent entrepreneurship	96	41	14	8	138	36	14
New entrepreneurship	63	91	64	47	74	119	98
Discontinued entrepreneurship	0	27	34	10	0	57	14
Celkem	159	159	112	65	212	212	126

3.2 Variables

Our dependent variable was the **entrepreneurial state**, coded into three different states: *nascent*, *new*, and *discent* state. In the first interview, in line with GEM methodology, *nascent* entrepreneurs were defined as individuals doing specific steps towards foundation of a new business who have not paid any salaries yet or paid them for less than three months. *New* entrepreneurs were those who paid salaries or received rewards from their business for more than three but less than 42 months. The possible transitions between the states in the follow-up years include transitions from the nascent state into nascent, new or discent states and from new state to new or discent states. The *nascent* → *new* transition was established based on the reported revenues and number of employees; see (Lukeš & Zouhar, 2016) for more details.

Independent variables include **start-up duration** (i.e., years passed from the beginning of start-up activities), **solo entrepreneurship** (i.e., 1 = single-person without co-owners, 0 = start-up team), the presence of a **business plan**, **fear of failure** and **previous start-up experience** (1 = yes, 0 = no for these variables), and **employee expectations** (i.e., log of the number of employees expected 12 months after the date of survey). Demographic control variables include gender (1 = **female**, 0 = male), the highest level of education (1 = **post-secondary education**, 0 = lower level of education), and place of residence in **Prague or Brno,** two largest cities in

the country (1 = yes, 0 = no). Finally, we included the **year** (**trend**) variable to account for changes in between years, e.g. given different economic conditions.

3.3 Model specification

We used standard discrete-time event history models to study the likelihood of transitions to different entrepreneurial states. We divided the person-year observations into those in the nascent and the new phase (see Table 1). For the transition from a nascent state, we applied the multinomial logit model of competing risks suggested by Allison (1982); for transitions from new entrepreneurship state, we used an analogous model based on binomial logistic regression.

In order to avoid *reversed causality*, we applied the principle of time separation of the dependent and independent variables (e.g., Davidson & Gordon, 2012), i.e. the independent variables were all lagged by one year. In line with other recommendations by Davidson and Gordon (2012), we used imputation techniques to reduce the loss of efficiency in regressions due to missing values. Missing values analysis revealed that a large part of observations is incomplete due to start-up duration, employee expectations and business plan variables. We used the multiple imputation suite in Stata 13 to implement the method of chained equations, described e.g. in (White, Royston, & Wood, 2011).

4 RESULTS AND DISCUSSION

Our results primarily serve as a robustness check of findings from previous studies (Lukeš, Zouhar, 2015; Lukeš, Zouhar, 2016) that were based on smaller sample sizes. Besides that, we also newly present results for the analysis of satisfaction with entrepreneurship.

As can be seen in the first two columns of Table 2, there are multiple factors causing the discontinuance from nascent entrepreneurship. Firstly, this study confirms previous results (Lukeš, Zouhar, 2015; Lukeš, Zouhar, 2016) showing that the length of involvement in entrepreneurial efforts plays the role. Entrepreneurial activity is more likely discontinued either shortly after conception of nascent entrepreneurship or, on the other hand, after a longer period of time. This suggest, that the decision to discontinue comes fast for a subgroup of entrepreneurs, whereas for other subgroup it takes quite long. It can be expected, in line with Parker and Belghitar (2006) that these entrepreneurs rather dream about the business and not do much in reality. Secondly, we confirmed previous findings that fear of failure increases the likelihood of discontinuance from nascent entrepreneurship. Thirdly, we confirmed a result first found in (Lukeš Zouhar, 2015) that people with start-up experience more likely discontinued from nascent entrepreneurship. It suggests that individuals with more entrepreneurial experience are faster in the evaluation of a business idea. They may try to get quick feedback from customers, iterate their business models and, based on feedbacks from customers and potential business partners, decide whether it makes sense to proceed with the idea (Sarasvathy, 2009; Maurya, 2012). On the other hand "dreamers" stay involved with the weak idea, are not able to make it run and this way waste their time and effort that might be better invested to some alternative course of action. Finally, the results confirmed that in later years nascent entrepreneurs discontinued more often. A possible explanation may lie in existing labour market opportunities. The level of unemployment dropped by two percent in between 2012 and 2015. Labor market offers now better chances to find a job, thus, in line with Gimeno et al. (1997) less people stay in early-stages of entrepreneurship with insecure future income.

Tab. 2 - Transitions from nascent entrepreneurship: multinomial logistic regression – influence of variables on likelihood of discontinuation (Models 1 and 2) and actual launch (Models 3 and 4). Source: own data.

	Nascent → Discent		**Nascent → New**	
	(1)	**(2)**	**(3)**	**(4)**
Year (trend)	0.446*** (0.167)	0.472*** (0.171)	0.183 (0.148)	0.166 (0.150)
Start-up duration	−1.967*** (0.643)	−1.920*** (0.647)	−0.622 (0.688)	−0.676 (0.685)
Start-up duration squared / 100	29.14** (11.96)	27.98** (12.04)	1.522 (14.35)	2.689 (14.26)
Previous start-up experience	1.008*** (0.356)	0.994*** (0.361)	0.594* (0.317)	0.631** (0.321)
Expectations: nr. of employees	0.0552 (0.176)	0.0555 (0.178)	0.164 (0.158)	0.168 (0.159)
Fear of failure	0.662* (0.364)	0.605* (0.368)	−0.384 (0.365)	−0.363 (0.368)
Solo entrepreneur	−0.193 (0.356)	−0.231 (0.360)	0.0965 (0.323)	0.120 (0.326)
Business plan	−0.264 (0.348)	−0.255 (0.350)	0.184 (0.309)	0.174 (0.311)
Control variables				
Prague or Brno		−0.705 (0.450)		0.0940 (0.350)
Post-secondary education		−0.112 (0.387)		0.234 (0.332)
Female		0.103 (0.352)		0.0593 (0.319)
N	276	276	276	276

Notes: (i) Results based on 20 chained-equations imputations of start-up duration, employee expectations and business plan. (ii) Standard errors in parentheses. (iii) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Tab. 3 - Transition from new operational entrepreneurship: binomial logistic regression – influence of variables on likelihood of discontinuation. Source: own data.

	New → Discent	
	(1)	**(2)**
Year (trend)	−0.322* (0.191)	−0.478** (0.216)
Start-up duration	0.439 (0.803)	0.678 (0.867)
Start-up duration squared / 100	−12.49 (14.64)	−16.23 (15.87)
Previous start-up experience	0.297 (0.389)	0.350 (0.410)
Expectations: nr. of employees	−0.352 (0.245)	−0.387 (0.258)
Fear of failure	0.409 (0.483)	0.447 (0.498)
Solo entrepreneur	−0.438 (0.456)	−0.632 (0.469)
Business plan	0.199 (0.396)	0.101 (0.407)
Control variables		
Prague or Brno		−1.152* (0.599)
Post-secondary education		1.200** (0.467)
Female		−0.134 (0.417)
N	250	250

Notes: (i) Results based on 20 chained-equations imputations of start-up duration, employee expectations and business plan. (ii) Standard errors in parentheses. (iii) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

When we look at columns 3 and 4 of Table 2, it is evident that whereas entrepreneurial discontinuance can be effectively predicted, the identification of factors influencing the transition from nascent entrepreneurship to operational business is much more difficult. The only factor influencing likelihood of actual launch is, in line with a finding from a previous study (Lukeš, Zouhar, 2015), previous start-up experience. It should be however noted that previous start-up experience is significant both for entrepreneurial discontinuance and actual launch. The conclusion is that entrepreneurs with previous experience are sooner able to decide whether to launch or quit. This finding is a potentially important theoretical contribution that may add to our understanding of behaviour of serial entrepreneurs.

Table 3 incorporates transitions of entrepreneurs who already owned and managed a new business. As in the previous study based on a limited data set (Lukes, Zouhar, 2015), entrepreneurs with postsecondary education more probably discontinued entrepreneurial activity. People with higher education have much better options on Czech labour market and are therefore more likely to discontinue if the business is not developing really well (cf. performance threshold theory by Gimeno, Folta, Cooper, & Woo, 1997). Further, less exits experienced entrepreneurs in Prague and Brno, probably due to higher purchase power in these larger cities. Such finding may suggest a relative advantage of starting up in larger cities.

Tab. 4 - Satisfaction with entrepreneurship (5-point Likert scale) – ordinal logistic regression with random effects. Source: own data.

	(1)	**(2)**
Year (trend)	0.657***	0.649***
	(0.125)	(0.127)
Start-up duration	−0.0673	−0.0603
	(0.0626)	(0.0620)
New entrepreneurship	−0.127	−0.0917
	(0.267)	(0.266)
Previous start-up experience	0.0309	0.0458
	(0.260)	(0.260)
Expectations: nr. of employees	−0.0112	0.0240
	(0.153)	(0.154)
Fear of failure	−0.109	−0.111
	(0.324)	(0.318)
Solo entrepreneur	0.401	0.365
	(0.275)	(0.272)
Business plan	0.0504	0.0427
	(0.241)	(0.239)
Control variables		
Prague or Brno		−0.300
		(0.285)
Post-secondary education		0.417
		(0.282)
Female		0.173
		(0.272)
N	313	313

Notes: (i) Results based on 15 chained-equations imputations of start-up duration, employee expectations and business plan. (ii) Standard errors in parentheses. (iii) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Interestingly, the influence of year trend on discontinuation has the opposite sign for transitions from operational business when compared to transitions from a nascent stage. However, the explanation is logical. Whereas GDP declined annually by 1.0 percent in 2012, in 2015 it

achieved a satisfactory growth of 4.3 percent. Thus, whereas nascent entrepreneurs have no income from entrepreneurship and better economic conditions primarily mean better options to find a job, for already operational entrepreneurs better conditions mean higher chances of successful business operations as their customers have more money to spend. Other factors did not play a significant role in explaining exits from operational start-ups.

As can be seen in Table 4, no factors had an effect on satisfaction with entrepreneurship besides a year trend, i.e., in recent years, entrepreneurs were more satisfied with their entrepreneurial activity. This may be again related to the fact that economic conditions in the country significantly improved. Thus, good overall economic climate may have both subjective (due to a higher general optimism level) and objective (due to a better development of a start-up) positive influence on how entrepreneurs experience their business endeavours.

5 CONCLUSION

This study served as a robustness check of previous findings from longitudinal studies of early-stage Czech entrepreneurs and utilised the most complete dataset so far. The findings confirmed the role of fear of failure, length of involvement in entrepreneurial activities and previous start-up experience in influencing outcomes of nascent entrepreneurship. The role of start-up experience lies primarily in enabling a person to decide faster whether to launch or to quit start-up efforts. New and interesting finding is related to the role of differences between the years in which the data were gathered. Compared to previous studies, this study incorporated more years of data gathering in which the economy was improving and was thus able to deliver new findings. Given the improving conditions of Czech economy, we argue that better economic conditions increase the likelihood that nascent entrepreneurs abandon their efforts and find a job, whereas new entrepreneurs decrease the likelihood of discontinuance of their firms as they operate on more favourable markets. Besides year trend, we found no other factors predicting the level of satisfaction with entrepreneurship.

ACKNOWLEDGMENT

This paper was supported by internal grant agency of Faculty of Business Administration, University of Economics, Prague, nr. IP300040.

REFERENCES

Allison, P. D. (1982). Discrete-time methods for the analysis of event histories. *Sociological Methodology*, 13(1), 61–98.

Bianchi, M. (2012). Financial development, entrepreneurship, and job satisfaction. *Review of Economics and Statistics, 94*(1), 273-286.

Block, J., & Koellinger, P. (2008). I can't get no satisfaction – necessity entrepreneurship and procedural utility. *ERIM Report Series Research in Management*. Retrieved from http://hdl.handle.net/1765/13221 [20.3.2016]

Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. *Journal of Business Venturing, 25*(1), 24–40.

Brüderl, J., Preisendörfer, P., & Ziegler, R. (1992). Survival chances of newly founded business organizations. *American Sociological Review, 57*(2), 227–242.

Cassar, G. (2010). Are individuals entering self-employment overly optimistic? An empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal, 31*(8), 822–840.

Cressy, R. (2006). Why do most firms die young? *Small Business Economics, 26*, 103–116.

Davidsson, P., & Gordon, S. R. (2012). Panel studies of new venture creation: a methods-focused review and suggestions for future research. *Small Business Economics, 39*(4), 853–876.

Delmar, F., & Shane, S. (2003). Does business planning facilitate the development of new ventures? *Strategic Management Journal, 24*(12), 1165–1185.

Delmar, F., & Shane, S. (2006). Does experience matter? The effect of founding team experience on the survival and sales of newly founded ventures. *Strategic Organization, 4*(3), 215–247.

DeTienne, D. R. (2010). Entrepreneurial exit as a critical component of the entrepreneurial process: Theoretical development. *Journal of Business Venturing, 25*(1), 203–215.

Gelderen van, M., Thurik, R., & Bosma, N. (2006). Success and risk factors in the pre-startup phase. *Small Business Economics, 26*(4): 319–335.

Gelderen van, Sluis van der, L., & Jansen, P. (2005). Learning opportunities and learning behaviours of small business starters: Relations with goal achievement, skill development and satisfaction. *Small Business Economics, 25*, 97–108.

Gimeno, J., Folta, T.B., Cooper, A.C., & Woo, C.Y. (1997). Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming. *Administrative Science Quarterly, 42*(4), 750–783

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263–291.

Khan, S.A., Tang, J., & Joshi, K. (2014). Disengagement of nascent entrepreneurs from the start-up process. *Journal of Small Business Management, 52*(1), 39–58.

Lukeš, M., Jaklová, M. L., & Zouhar, J. (2014). Global Entrepreneurship Monitor 2013: Podnikatelská aktivita v České republice. Retrieved from http://fph.vse.cz/wp-content/uploads/2014/07/GEM-CR-2013.pdf. [17.3.2015]

Lukeš, M., & Zouhar, J. (2013). No experience? No problem – it's all about yourself: Factors influencing nascent entrepreneurship outcomes. *Ekonomický časopis, 61*(9), 934–950.

Lukeš, M., & Zouhar, J. (2016). The causes of early-stage entrepreneurial discontinuance. *Prague Economic Papers, 25*(1), 19-36.

Lukeš, M., & Zouhar, J. (2015). *The birth and survival of new ventures in the Czech Republic*. Paper presented at International Days of Statistics and Economics, Prahue, Sep 10-12, 2015.

Maurya, A. (2012). *Running Lean: Iterate from Plan A to a Plan That Works*. Sebastopol, CA: O'Reilly Media.

Parker, S. C., & Belghitar, Y. (2006). What happens to nascent entrepreneurs? An econometric analysis of the PSED. *Small Business Economics, 27*(1), 81–101.

Reynolds, P. D., & Curtin, R. T. (2008). Business creation in the United States: Panel study of entrepreneurial dynamics II initial assessment. *Foundations and Trends in Entrepreneurship, 4*(3), 155–307.

Sarasvathy, S.D. (2009). *Effectuation: Elements of Entrepreneurial Expertise*. Edward Elgar Publishing.

Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: Outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing, 25*(2), 192–202.

White, I. R., Royston, P., & Wood, A. M. (2010). Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine, 30*(4), 377–399.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE EFFECTS OF WORK GROUP CHARACTERISTICS ON WORKING'S EFFECTIVENESS IN THE CONSTRUCTION INDUSTRY

Ly Thi Minh Pham, Hong Thi Nguyen

ABSTRACT

This research aims at figuring out the effects of the group characteristics on working effectiveness in the construction industry. By using various research methods including Exploratory Factor Analysis (EFA) and Linear Regression, the results show that the process plays the most important role in the effectiveness of a team. This study also indicates several issues resulted in the low working efficiency of the team such as lack of support among teams and the low expectation within team members to the success of their team. On the basis of the findings, several solutions to enhance the working effectiveness of teamwork in the company are suggested.

Keywords: *Teamwork, Team characteristic, Working effectiveness, Construction industry.*

JEL Classification: L7

1 INTRODUCTION

1.1 Problem discussion

Along with the development of science and technology, teamwork has become increasingly common in all areas of production and business in general and human resources management in particular. One of the common types of the teamwork is consulting team in the construction project.

The biggest advantage of teamwork is the flexibility. In the working process, the team members are quite flexible, they can be retained and modified if they work well together, or may be changed or replaced by the others if they do not cooperate well with each other in the team working process. In addition, teamwork can reduce unnecessary intermediaries as well as unnecessary staffs. Flexibility also indicates that it is easy to change the operation way to respond to the changes of environment, increase opportunities and reduce risk. We can say that teamwork can complete the whole project while an **individual** can only complete a specific task. Teamwork can also leverage the strengths of each individual work both inside and outside **expertise** to **achieve** common goals. Thereby, teamwork also creates the environment for members to learn from their experience, learn from each other, improve their attitude and behavior, etc.

Although, working in teams becomes more and more common in many consultant construction businesses. However, the process does not match with purpose and requirements of the initial activities, so it leads to the inefficiency in work. Some actual observations in specific companies show that effective teams usually have professional members, understand each other, support and coordinate with each other well as well as have time to work together. The result of the cooperation between the teams results in the quality of records and drawings. In many cases, the poor cooperation leads to overlapping records, un-matched drawings, wrong volume estimations, which affects the company reputation and quality of work, increased editing time, the progress of construction work, ... These causes reduce team performance and then affect the reputation of the company.

Realizing the urgency of the problems on the performance of companies in the construction industry, the research team conducted a deep understanding of the operational model in teams/ groups, particularly in the construction industry. Although there are many studies exploring on this issue, most of them are carried out abroad. Some typical studies might include: Research of Campion et al (1993) about the relationship between the characteristics of teams and effective teams; Gladstein study (1984) on the effective model; study by Cohen et al (1994, 1996, 1997) to predict the effective model of self-managed teams. Currently in Vietnam, it is only matter of interest and virtually no depth study yet. Therefore, this study was considered as one of the first studies to provide a general evaluation of the factors affecting the performance of the teams/ groups in the construction industry in Vietnam.

1.2 Purpose of this study

The main objective of this study is to establish the scale of the factors affecting the group characteristics of work in the construction project. This study also aims to analyse the group characteristics on working effectiveness (measured using "team member's satisfaction") in the construction industry. In addition, the finding of this study might provide useful solutions to enhance the working effectiveness of teamwork.

2 LITERATURE REVIEW

2.1 Literature review

"Team" is defined differently associated with specific context: "A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they are mutually accountable." (Katzenbach & Smith, 2003). According to research conducted by Robbins and Judge (2013), a team consists of at least two members, interactive activities and interdependent and towards the common goals together. **Feature teams** have distinctive character to distinguish them from other organizations such as: (1) the working process (2) job design, (3) specific context, (4) the interdependence between the members, (5) components team (according to research by Campion et al (1996)).

The process is how team members *interact with each other* such as exchange of information, express emotions, forming joint intelligent, support or reject a team leader. According to research by Guzzo & Shea (1992), the process includes the following elements: (1) the spirit, (2) social support, (3) workload sharing, (4) communication/ cooperation within groups.

The job design is to strengthen the motivation of employees in the implementation of common tasks. The job design includes the following characteristics: (1) self-management, (2) the participation, (3) tasks, (4) task significance.

The context of the organization is the characteristics belong to team situation that has impact on work efficiency, including: (1) Training, (2) Managerial support, (3) communication and cooperation between group (Gladstein, 1984; Hackman, 1987).

Interdependence is often the reason to build a team (Mintzberg, 1979), and is considered as one of the characteristics of the team (Salas et al, 1992; Tannenbaum et al, 1992). Interdependence refers to *the degree to which members interact with each other sometimes at the request of work* for team members to complete the task. Interdependence can increase workers' motivation to complete the task (Kiggundu, 1983). The features of interdependence are: (1) the task interdependence, (2) the goal interdependence, and (3) interdependence of feedback and rewards.

Composition consists of (1) the diversity, (2) flexibility, (3) preference for work group, (4) relative size. A research by Tannenbaum et al. (1992) showed that there are many of the component factors affecting the efficient team.

The interaction of these characteristics may affect the team's performance in the construction industry. Measure effectiveness team includes emotions, perceptions of team members and leaders (Baily, 1997, Hyatt & Ruddy, 1997). These studies objectively measured team performance using the data of production or financial performance.

We summarize previous studies to have an overview of effective team working as follows:

- Hackman (1987) measured the effective of team on the results of the production as output meets or exceeds the standards set out. Research confirmed that effective teams should maintain or improve the capacity of the team members.
    - Tannenbaum et al (1992) determined the effective team as a combination of product performance, ability to develop the team.
    - Cohen et al (1996) determine the effectiveness of the team including high performance and quality of labor at work. This idea draws from theories of social engineering, in which both social systems and techniques to achieve maximum efficiency for the team.
- Campion et al. (1993, 1996) discovered a link between the different characteristics from the implementation process, work design, the specific context, the interdependence between members, and the team effectiveness expressed by team member's satisfaction.

By analyzing the theoretical basis and the actual situation in Vietnam, the model of Campion and colleagues (1993, 1996) in the research about effective teams in the financial services company is selected and used for this study. Based on a theoretical model of Campion and colleagues (1993, 1996), we have modified some of the observed variables to match the characteristics of the construction industry in Vietnam.

2.2 The research model and the hypothesis

On the basis of previous studies, the proposed research model in this study is shown in Figure 1.

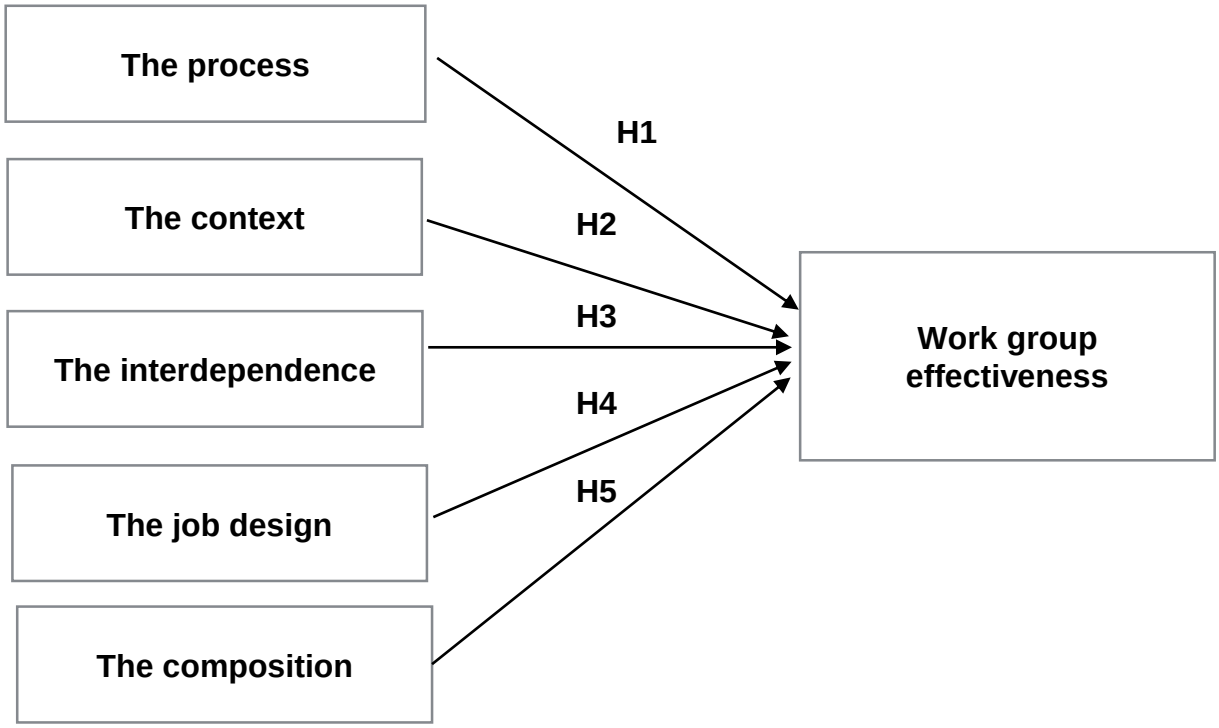

Fig. 1 - The proposed research model. Source: Authors' proposal

From the model research, the research hypotheses include:

- *H1: Working process increases the work group effectiveness.*
- *H2: There is positive relationship between the context and work group effectiveness.*
- *H3: Features of interdependence of the team increase the work group effectiveness.*
- *H4: Job design has a positive impact on the work group effectiveness.*
- *H5: There is positive relationship between the composition and work group effectiveness.*

3 METHODOLOGY

This study uses both of qualitative and quantitative research. Qualitative research is used to examine the experts' opinion for adjusting, supplementing or eliminating the observed variables measuring the study concept. Qualitative research results will give an official scale, the adjust research model, the adjust assumptions, and formal questionnaire for quantitative research. Qualitative research can also be used through the deep interview techniques and groups interview were examined for further explain the quantitative results. In addition, quantitative research is used to examine the scales with Cronbach's coefficient, Exploratory Factor Analysis (EFA). The results from factor analysis and scales testing will be then used to analyze linear regression to test the research hypotheses. At the same time, the test multicollinearity is done to test the limitations of the model.

3.1 Construction Scale

In this study, the scale was based on that from the research by Campion et al (1993) which includes five factors with 54 original observed variables. A proxy for team-working effectiveness is satisfaction, which is based on research by Hackman and Oldham (1980).

The observed variation in the original scale was put into discussion groups at construction companies. Results showed that we need to reduce the number of survey questions and revised the words to conform to construction field. This helps to focus on the key elements, easy to understand and convenient for respondents. Specifically, from 54 questions on the survey of the original scale, we have adjusted and keep only 23 questions used to investigate members of the team in the construction company.

Tab. 1 - Measurement Scale. Source: Calculated from survey data (2014)

CODE	Description
	The process
QT1	My team can complete most of the assigned tasks.
QT2	I have opportunities to get support from other team members or I am willing to support them.
QT3	Every team members share work load with each other
QT4	Every team members equally contribute to the work

QT5	All team members cooperate with each other to get the work done.
	Job design
TK1	All team members are responsible for working methods and schedules.
TK2	My ideas related to the job are always respected by the team members.
TK3	My team is designed to let everyone participate in decision-making process.
TK4	Team members have opportunities to conduct the task that they are interested in.
TK5	Task assignments regularly change to meet the work load and work schedule.
TK6	My team conducts important tasks of the company.
	The context
BC1	The company provides adequate teamop working skills training for my team (e.g., communication, organization, interpersonal, etc.).
BC3	My team received support from the leader during the work implementation process.
BC2	I frequently talk to other people in the company besides my team members.
BC4	Teams in the company cooperate to get the work done.
	The interdependence
PTLN1	Every task in my team always depends on at least another team member.
PTLN2	Every specific tasks s in the teams is related to the team's goal.
PTLN3	The investors' feedback on the performance of my team indicates the information on the work that I am conducting.
	Composition
TP1	The members of my team have skills and abilities that complement each other.
TP2	It is easy for any team members to conduct for other members' tasks.
TP3	I would rather work in a team rather than work alone.
TP4	I find that working as a member of a team increases my ability to perform effectively.
TP5	The size of my team members is too small to accomplish the work.
	T**he satisfaction of the team members (TMTV)**
TMTV1	I am satisfied with my team members.
TMTV2	I am satisfied with the way that I and my colleagues work together.
TMTV3	I am very satisfied with the current work of the team.
TMTV4	I often think I will quit this job.

3.2 The sample

According to the study by Saunders, Lewis & Thornhill (2008), the minimum sample size by *the expected number of observed variables multipled by 5*. Therefore, a survey of 115 (23 * 5 = 115) interviewees is conducted to get their answers on the characteristics and effective teams. The questions focus on evaluating the characteristics of the team and the effectiveness of the review of the scope of satisfaction (Neuman, 2000). Features of the subjects surveyed are presented in Table 2 as follows:

Tab. 2 - Descriptive Statistics of the respondents. Source: Calculated from survey data (2014)

Factor	Frequency	Percentage (%)	Cumulative (%)
Group Size			
2-4 members	94	81.7	81.7
5-6 members	12	10.4	92.2
7-9 members	9	7.8	100
Gender			
Male	79	68.7	68.7
Female	36	31.3	100
E**xperience**			
0-5 years	32	27.8	27.8
5-10 years	43	37.4	65, 2
10-15 years	14	12.2	77.4
>15 years	26	22.6	100
E**ducation level**			
Intermediate	4	3.5	3.5
College	8	7.0	10.4
University	100	87.0	97 4
Postgraduate	3	2.6	100

4 RESULT

4.1 Testing for Scale reliability

The reliability of the scale result is presented in **table 3.** The test results showed that the preliminary 1st most suitable scales are satisfied and matched with the Cronbach's alpha coefficient, it is greater than 0.6 and a total variation greater than 0.3, except for the scale of

Composition. Although the scale of **Composition** with Cronbach's alpha coefficient is significant but two variables of this scale are TP2 and TP5 have the correlation coefficient of total variation (TQBT) less than 0.3. Gradually dropping out each variable, the final result concludes that in these two variables measure this scale should be eliminated. Final test results show that the variable component of characteristic team are significant with Cronbach's alpha coefficient> 0.6, and the ratio of total variation are greater than 0.3. Therefore, measurement variables are significant and can be used for the EFA analysis.

Tab. 3 - Results of testing the reliability of the scales. *Source: Calculated from survey data (2014)*

	1st			2nd		
Factor	**No. of variables**	**CR Alpha**	**Min of Corrected Item-Total Correlations**	**No. of variables**	**CR Alpha**	**Min of Corrected Item-Total Correlations**
Process	5	0.826	0.440	5	0.826	0.440
Job design	6	0.884	0.552	6	0.884	0.552
Context	4	0.777	0.492	4	0.774	0.483
Interdependence	3	0.880	0.728	3	0.880	0.728
Composition	5	0751	0227	3	0887	0656
Satisfaction	4	0749	0309	4	0749	0309

4.2 EFA Analysis

After testing for a preliminary assessment of the scale, explore factor analysis EFA is conducted. When conducting exploring factor analysis, some criteria should be focused such as KMO coefficient ≥ 0.5 with a significance level of expertise Bartlett ≤ 0:05; factor loading > 0.5 with different coefficients of a variable loading factor among the factors observed to ensure value ≥0,3 distinguish between factors; total variance extracted ≥ 50% and Eigenvalue value ≥1.

From the first exploratory factor analysis with 21 times one independent variable, such variables as QT4, TK3, BC4, TP1 have difference between loading <0.3, then they do not guarantee the value distinction between workers.

After eliminating the inappropriate variables in turn, the 17 independent variables with suitable loading factor are presented in Table 4. The other criteria are KMO = 0807 (> 0.5), sig <0.05, the total variance extracted = 75.963 (≥ 50%) and Eigenvalue> 1.

Tab. 4 - Table result of factor analysis. Source: Calculated from survey data (2014)

Variable	Factor loading					Factor
	1	2	3	4	5	
TK1	.825					***Job Design***
TK6	.825					
TK4	.795					
TK5	.722					
TK2	.624					
QT5		.862				***Process***
QT3		.845				
QT2		.715				
QT1		.684				
PTLN2			.895			***Interdependence***
PTLN1			.859			
PTLN3			.798			
TP4				.949		***Composition***
TP3				.922		
BC3					.772	***Context***
BC2					.745	
BC1					.697	

Therefore, over 3 times taking the factor analysis and eliminating 4 observed variables, 5 factors and 17 observed variables are selected for analysis in this study.

For **Satisfaction** variable, we have KMO = 0702 (> 0.5), sig <0.05, total variance extracted = 57 961 (≥ 50%), Eigenvalue> 1. Loading factor coefficients are greater than 0.5 and collected it into 1 factor.

Tab. 5 - Factors analysis for satisfaction variable. Source: Calculated from survey data (2014)

Variable	Component	Factor
	1	
STM1	.887	**Satisfaction**
STM3	.827	

STM2	.773
STM4	.498

4.3 Cronbach's Alpha testing after EFA

The scale of Characteristics measured in 5 components with 17 observed variables, preliminary test results are presented in **Table 6.**

The results of a preliminary indicates the component scale variable of characteristics teams have coefficients Cronbach's alpha> 0.6, the observed variables in the scale components with correlation coefficients variable sum is greater than 0.3 .

Tab. 6 - Results of testing the reliability of the scales. Source: calculated from survey data (2014)

Scale	**No. of variables**	**CR alpha**	**Min of Corrected Item-Total Correlations**
Process	4	0846	0581
Job design	5	0887	0617
Context	3	0714	0498
Interdependence	3	0880	0728
Composition	2	0940	0887
Satisfaction	4	0749	0309

4.4 Linear Regression Analysis

After testing the Cronbach's alpha and factor analysis discovered EFA, scale of characteristics team consists of 5 components: process, job design, the context, the interdependent and composition with 17 observed variables. Satisfaction scale included only one component is satisfaction. The observed variations in each component of the research model will be calculated for the average value of each factor.

To test the hypothesis of the research model, we will consider the impact of the 5 factors including **process, design, context, interdependence** and **composition** on **satisfaction** using a linear regression model.

The 1st regression results showed that **process, design** and **context** variables are statistically significant (Sig. <0.05). Whereas the **Interdependency** and **Composition** variables have Sig. >0.05, so they have no statistical significance. The VIF of all factors are less than 10, which indicates no existence of multicollinearity. R^2 adjusted shows the existing variables in the model explain about 54% of the variation in **Satisfaction**.

Tab. 7 - Regression results. Source: Calculated from survey data (2014)

Observed variable	1st Model				Final Model			
	Unstandardized β	**Standardized β**	**Sig.**	**VIF**	**Unstandardized β**	**Standardized β**	**Sig**	**VIF**
(constant)	-.014		.975		.092		.826	.220
Process	.386	.404	.000	1,368	.388	.406	.000	.406
Job design	.308	.287	.001	1,734	.327	.304	.000	.304
Context	.223	.209	.006	1,406	.230	.215	.004	.215
Interdependence	.045	.043	.566	1358.				
Composition	.025	.191	964	1151				
R^2 adjusted				.540				.544

After in turn eliminating variables **Interdependence and Composition** because **they** are not statistically significant. Final models show the remaining variables in the model such as **Process, Job design** and **Context** are statistically significant (Sig.<0.05). Results of regression analysis showed that these 3 variables have statistically significant effects on **Satisfaction.** Therefore, the hypothesis H1, H2 and H4 are accepted. In addition, VIF indicate that multicollinearity does not exist in the model. R^2 adjusted shows the remaining three variables in the model explain about 54.4% of the variation in **Satisfaction**.

The research results conclude that **process** has the largest impact on **Satisfaction**, followed by **Context and job design** with β coefficients of .406; .304; .215 correspondingly.

5 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The results show that factors affecting the effectiveness of team work (expressed by **Satisfaction**) include three elements: **Process**, **Job design** and **Context**. The model of work group effectiveness explains 54.4% (R2 = 54.4%) of the change in **Satisfaction** from these three factors. Among of these Factors, **Process** has the strongest impact on the work group effectiveness, then in turn **Job design** and **Context**. Results from this study are similar to the study of Campion et al (1996). In particular, **Process** has the most impact on work group effectiveness and in turn followed by the **Job design** and c**ontext**. The difference of this study from other studies of Campion et al (1996) is the exploration of no impact of **Interdependence and Composition** on Work group effectiveness. In particular, the study results show that **Process** has the strongest impact on work group effectiveness, which is consistent with McGrath research (1984).

Through in-depth qualitative survey of experts and group interview with construction staffs, the study also found a number of issues existing in the organization of the construction company which may reduce performance such as:

First, in some teams, the support among members is still not good and the belief that the team will work effectively and expectation for long cooperation among members is not high.

Second, some teams have not been appreciated in terms of awareness of responsibility, working methods and the progress of the work. For self-management problems, the majority of the team has not been appreciated.

Third, it is the lack of the support from the managers and leaders in the companies. Some teams do not receive support and investment in computer equipment, updated information on regulations construction of the state authorities or the Circular, Decree from construction managers, to support additional regulatory information for the team.

Although there are some limitations in characteristics affecting the effective work of the working group of construction companies, this study also pointed out the highlights of the company's team: the factors such as the task significance, task diversity, the participation of the teams. Team members are entitled to participate in the decision-making process, have the opportunity to carry out the work they are interested in and be involved in the implementation of important projects of the company. In addition, companies regularly organize training and provide necessary knowledge to improve job performance.

5.2 Recommendation

These findings will help managers understand the operational status at the construction company team as well as company in related fields, thereby proposing solutions to build effective working team. Research results show that satisfaction in the operation of the team is not high, only 4.7 point average. Therefore, the solution should focus on strengthening three significant characteristics in the model in order to increase the satisfaction of the team members, thereby increasing the work group effectiveness.

Solutions to improve **Process.** From the research results, the average value of the elements of the process is still not high, ranging from 4.38 to 4.58. Therefore, there should be policies and solutions to increase up to 6-7 points to improve member satisfaction team:

First, company leaders need to supplement and specify the objectives and strategies of the team unit, while offering specific action programs, feasible, efficient and compelling to encourage by the same team members unanimously implement this policy.

Second, leaders must demonstrate their belief in the success of the team and transmits confidence, motivation for other members. Thereby, members will have the confidence and enthusiasm to work hard and then improve the efficiency of team work.

Third, companies should regularly organize exchange programs, organize activities to help the team members to come together and understand each other better. Thenceforth, the staff will support each other more in work and life, which thereby improves the working efficiency.

Fourth, the leaders should care, motivate and encourage employees to support each other, share the work, and share the team's job to catch up. Companies should set a certain amount of expenditure in each project with the aim at rewarding members with support and help share the work with other members to help complete projects on time and quality.

Solutions to improve **Job design**. According to the most common are the points on 5. However, individual case management order to raise awareness of responsible for the choice of working

methods and the progress made job. To raise awareness of responsible, should raise awareness of organization and discipline. Therefore, leaders need to make the contents clear to the members understand the role and powers as well as responsibilities for jobs, encourage ownership of the work. This will create a working attitude and positive emotions on the job. Besides, the leaders need to clarify for members to understand the benefits of discipline for individuals and organizations.

Solutions to improve **Context solution**. According to research results, it is need to strengthen the support of the management of material resources (equipment, information) in the process of implementing the work of the team. Specifically, leaders need to change or upgrade your computer with high configuration and server computers powerful enough to run the new software serving more effective job. Besides, leaders should always updated and notified to the members of the latest information on construction management as standards, regulations, circulars to members grasp the latest information aimed good service for his job.

5.3 Limitation

This study focuses on analyzing the characteristics of the team to help improve the team's performance in the construction sector in particular and business in general. The study results helped the company leaders aware of the factors affecting the work of the team, then to propose some solutions to improve the effectiveness and operation of the enterprise. However, there are still some inevitable limitations in this paper. Firstly, the sample size used in the study was not large. Secondly, because the sampling method is convenient in the study, the team may not be selected in the typical construction company including working teams.

REFERENCES

Baily, D. (1997), Manufacturing improvement programs in the semiconductor industry team, *IEEE Transactions on Semiconductor Manufacturing*, 10(1), pp. 1-10.

Cohen, SG & Ledford GE (1994), The effectiveness of self-Managing teams: A field experiment, *Human Relations*, 47, pp. 13-43.

Cohen, SG & Bailey, DE (1997), What Makes Teams Work: Group Effectiveness Research from the Shop Floor to the Executive Suite, *Journal of Management*, 23 (3), pp. 239-290.

Cohen, SG, Ledford, G. & SPREITZER, G. (1996), A predictive model of self-Managing work team effectiveness, *Human Relations*, 49 (5), pp. 643-676.

Gladstein, D. (1984), Groups in context: A model of the task group effectiveness, *Administrative Science Quarterly*, 29, pp. 499-517.

Guzzo, R. & Shea, G. (1992), Group performance and Intergroup relations in oganizations, *Industrial and organizational psychology Handbook*, (Alto Ward), Consulting Psychologists Press, United States, pp. 269-313.

Hackman, R. (1987), The design of work teams, *Handbook of organizational behavior*, (JW Lorsch), Prentice Hall, United States, pp. 315-342.

Hackman, JR & Oldham GR (1980), Work Redesign, Addison-Wesley, United States, 330.

Hyatt, D. & Ruddy, T. (1997), An Examination of the relationship the between workgroup Characteristics and performance: Once More Into the breech, Personnel Psychology, 50, pp.553-585.

Katzenback, JR & Smith, DK (2003), The wisdom of teams, Harper Business, New York, 275.

Kiggundu, M. (1983), Task interdependence and job design: Test of a theory, *Organizational Behavior and Human Performance*, 31, pp. 145-172.

M. Campion, Medsker, G. & A. Higgs (1993), Characteristics and Relations Between work group effectiveness: Implications for designing effective work groups, *Personnel Psychology*, 46, pp. 823-850.

M. Campion, papper, E. & Medsker G. (1996), Characteristics and Relations Between work team effectiveness: A replication and extension, *Personnel Psychology*, 49, pp. 429-452.

McGrath, JE (1984), Groups: Intemction andperformance, EnglewoodCliffs, NJ: Prentice Hall.

Mintzberg, H. (1979), The structuring of Organizations, Prentica-Hall, United States, 512.

Neuman, WL (2000), Social Research Methods: Qualitative and quatitative Approaches, 4th ed, Allyn and Bacon, United States, 558.

Nguyen Dinh Tho (2013), Curriculum methodology of scientific research in business, two, financial Publishers, Ho Chi Minh City, 644.

Nguyen Thi Minh Hien (2014), The situation skills training teamwork freshman student Hong Duc University, *Journal of Education* No. 327, p. 28-29.

Robbins, SP & Judge TA (2013), Organizational Behavior, 15th ed, Prentice Hall, United States, 711.

Tannenbaum, S., Beard, R. & Salas, E. (1992), Team building and Influence on team effectiveness: An Examination of the conceptual and empirical Developments, Issues, theory, and research in industrial / organizational psychology, 82, pp. 117-153.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

DEPENDENCE ANALYSIS AND RISK MEASUREMENT BY COPULA METHOD AND EXTREME VALUE THEORY: AN EMPIRICAL STUDY IN VIET NAM STOCK MARKET

Manh Hoang Duc

ABSTRACT

This paper research dependence of some return series by dynamic GARCH-Copula models and estimates portfolio VaR (Value-at-Risk) and ES (Expected Shorfall) on some stocks of VN30 using a GARCH-EVT-Copula based approach. The process first extracts the filtered residuals from each return series with a GARCH model, then constructs the sample marginal cumulative distribution function (CDF) of each asset using a Gaussian kernel estimate for the interior and a generalized Pareto distribution (GPD) estimate for the upper and lower tails. Copulas (Gauss and Student) are used to induce correlation between the simulated residuals of each asset. Finally, the simulation assesses the VaR and ES of the portfolio of some stocks. Empirical results shows that the GARCH-EVT-Copula models are better than traditional methods such that historical simulation and Gaussian model.

Keywords: *Extreme values, Fat tail distribution, Tail dependence Coefficient, VaR (Value at Risk), ES (Expected Shorfall), EVT (Extreme Value Theory).*

JEL Classification: G32

1 INTRODUCTION

The dependence study on financial markets is an important topic of financial analysis, specially in the period of market volatility or large crisis. Dependence structure describes relationship between risks and provides an estimation of risk. Traditional approaches measure dependence by linear correlation, but it is only a symmetric and linear dependence metric. The classical theories of risk measure and management have been built on the primary assumption multivariate normal. In addition, linear correlation measurement may induce when applied to nonlinear associations and the dependence of extreme values. We can use the extreme values theory ([5], [6]) to describe and analyze the extreme events. And tail dependence coefficients are used to measure the dependence of extreme events; And copula method is a powerful tool to describe the dependence structure of random variables. There is very few practical application of copula before the 1990s. Nelson (1999), who gave a description of copula from a mathematic perspective, is one notable example. As soon as copula and theirs applications were introduced and they became a favorite research trend of dependence in finance.

We can use unconditional copula model and conditional copula model. In addition, when combined with the GARCH model, we obtain the GARCH-Copula models. The GARCH-Copula models are a class of the conditional copula model. The GARCH-Copula models have time-varying dynamic parameters which is more suitable for financial time series data.

As we known, risk management is an importance topic of finance management. And VaR is now a common model to measure risk for portfolio of different type of assets such as equities, rates or currencies. It is used to give capital requirements of financial institutions. There are many methods to estimate VaR, such that: parametric and non-parametric models. On the other

hand, some models are based on some unrealistic assumptions. Specifically, VaR does not verify the sub-additivity property of a coherent risk measure, therefore the ES measure is superior and is preferable. The VaR and ES are based on tail of distribution, therefore EVT is used to estimate tail of distribution. Today, there are many people, such as ([2], [3], [5], [6]): Embrechts (1999), Reiss R. and Thomas, M. (1997, Koedijk K. G. (1990), Dacorogna M. (1995), Loretan and Phillips (1994), Login (1996), Danielsson and Vires (1997), Mc Neil (1999), Jondeau and Rockinger (1999),… using EVT for VaR and ES. Apart from, many authors have study on copula method in finance, such as: Rockinger Jondeau (2001), Kuzmics (2002), Fortin (2002), Chen and Fan (2002), Embrechts, McNeil and Straumann (2002), Hoing and Juri (2003), Cherubini, Luciano and Vecchiato (2004), Patton (2006), Polaro and Hotta, Zong-Run Wang, Xiao-Hong Chen, Yan-Bo Jin and Yan-Ju Zhou (2011),…

In Viet Nam, some authors: Tran Trong Nguyen, Hoang Duc Manh (2011), have applied EVT to estimate VaR of some stocks. And some authors: Do Nam Tung (2010), Tran Trong Nguyen (2011) have used the copula to estimate VaR of portfolio of some stocks. But applications of time-varying copula models and GARCH-EVT-Copula models are new topic in Viet Nam finance Market. In this paper, author wants to analyze the variation of the dependence of assets based on the dynamic GARCH-copula model and applies GARCH-EVT-Copula models to estimate VaR and ES of a portfolio of some stocks in Viet Nam Stock Market.

In addition to the introduction, the paper is structured as follows: Section 2 introduces content of GARCH-copula models; Section 3 presents risk measurement models; Section 4 presents the empirical analysis results; Section 5 provides some conclusions and issues need further study.

2 MEASUREMENT MODEL DEPENDENCE OF THE RETURN OF STOCKS

This paper uses dynamic GARCH-copula model to study the dependence of the return pairs. Based on the study of the dynamic of the parameters of the copula function, we know the dependence of the return pairs in normal market condition or in extreme market condition.

2.1 Copula functions

Copula functions represent a methodology that describes the dependence structure of a multi-dimension random variable. We base on the marginal distributions and a copula function to characterize the dependence structure of the components of a multivariate distribution. The following theorem is known as Sklar's Theorem ([5],[6]). It is the most important theorem about copula functions because it is used in many practical applications.

Sklar's theorem: Let F be an n-dimensional c.d.f. with margins $F_1,F_2,\ldots,F_n$. When it that exists a function copula copula $C:[0,1]^n \to [0,1]$ such that:

$$F(x_1,x_2,\ldots,x_n)=C(F_1(x_1),F_2(x_2),\ldots,F_n(x_n)), \text{ for all } x_1,\ldots,x_n \in [-\infty,+\infty]. \quad (1)$$

If the margins $F_1,F_2,\ldots,F_n$ are continuous then C is unique.

Conversely, if C is a copula function and $F_1,F_2,\ldots,F_n$ are the distribution functions, then function $F(x_1,\ldots,x_n)=C(F_1(x_1),\ldots,F_n(x_n))$ is a n-dimensional probability distribution function with marginal distribution $F_1,\ldots,F_n$.

Depending on the characteristics of data that we have choice of different copula ([5], [6]): the Gaussian copula, Student-t copula, ... or some of Archimedean copulas (Clayton, Frank, Plackett, Gumbel, ...), ... to analyze.

2.2 Dynamic GARCH-copula model

The GARCH-Copula models have two steps: Firstly, we filter log-return daily data using univariate GARCH models to obtain standard residuals and marginal distributions. Secondly, a static copula or time-varying copula are selected to joint the estimated marginal distribution.

People often use the model classes: model ARMA (m, n) describes the average return and model GARCH (p, q) describes the variance for each return series: Suppose we consider *N* assets, notation $r_{jt}, j = 1,...,N; t = 1,...,T$, is return of the asset j at time t.

- *Mean equation*:

$$r_t = \mu_t + u_t,\ \mu_t = \phi_0 + \sum_{i=1}^{m} \phi_i r_{t-i} + \sum_{i=1}^{n} \theta_i u_{t-i} \tag{2}$$

- *Variance equation*:

$$u_t = \sigma_t \varepsilon_t,\ \varepsilon_t \text{ i.i.d,}$$

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{p} \alpha_i u_{t-i}^2 + \sum_{s=1}^{q} \beta_s \sigma_{t-s}^2 \tag{3}$$

$$\alpha_0 > 0; \alpha_1,...,\alpha_p \geq 0; \beta_1,...,\beta_q \geq 0; \sum_{i=1}^{\max(p,q)} (\alpha_i + \beta_i) < 1. \tag{4}$$

if $p>q$ then $\beta_s = 0$ with $s>q$, if p<q then $\alpha_i = 0$ with $i>p$.

After estimating the mean equation and the variance equation of each series, we get the residuals $\hat{u}_t$ from the mean equation and standard deviation estimates $\hat{\sigma}_t$ of the conditional variance equation; and we have the standardized residual values $\hat{\varepsilon}_t = \frac{\hat{u}_t}{\hat{\sigma}_t}$. Next, we use the copula function to describe the dependence structure of the standard residuals.

In this paper, we use some copula functions to describe the dependence structure of the standardized residual series: Student copula, SJC copula. Moreover, when studying the GARCH-copula models, we can consider two cases: Case of the copula parameters are constant, and case of the copula parameters are time-varying. Here, we choose the model to analyze the change of the parameters of the copula function as follows:

- For T- copula, the correlation evolves through time as in the DCC(1,1) (Dynamic Conditional Correlation-DCC) model of Engle (2002) ([3]):

$$R_t = diag(q_{11t}^{1/2},...,q_{NNt}^{1/2}) Q_t diag(q_{11t}^{1/2},...,q_{NNt}^{1/2}), \tag{5}$$

$Q_t = (q_{ijt})_{N\times N}$ is the *N*x*N* symmetric positive definite matrix defined as :

$$Q_t = (1-\alpha-\beta)Q + \alpha\varepsilon_{t-1}\varepsilon_{t-1}^{'} + \beta Q_{t-1}, \tag{6}$$

where $\varepsilon_{it} = \frac{u_{it}}{\sigma_{iit}}; \alpha, \beta$ are non-negative scalars that $\alpha + \beta < 1$, Q is the *N*x*N* unconditional variance matrix of ε_{t-1}. Then we have the model: DCC-T- copula.

- For SJC-copula, we consider parameters: upper tail dependence coefficient-τ_U, lower tail dependence coefficient-τ_L following this equations: (form of Patton (2006)) ([1]) as follows:

$$\tau_t = \Lambda\left(\omega + \alpha_1\tau_{t-1} + \alpha_2 . \frac{1}{10}\sum_{i=1}^{10} | u_{1,t-i} - u_{2,t-i} |\right), \quad (7)$$

with Λ is the logistic transformation, $\Lambda(x) = \left(1+e^{-x}\right)^{-1}$, to ensure that the parameters of the SJC-copula in (0, 1).

3 RISK MEASUREMENT MODELS

3.1 VaR and ES

❖ The portfolio VaR in a k period (time unit) with confidence level (1 - α) 100%, denote $VaR(k,\alpha)$, and is defined as follows:

$$P(X \leq VaR(k,\alpha)) = \alpha \quad (8)$$

where X is a function of loss or profit k period of the portfolio, $0 < \alpha < 1$.

❖ The portfolio ES with confidence level (1 - α) 100%, denote ES(α), is condition expectation:

$$ES(\alpha) = ES_\alpha = E(X / X < VaR(\alpha)) . \quad (9)$$

3.2 Estimation method of VaR model and ES model

This paper uses parameter method with suppose the return of asset has normal distribution and non-parameter method with Historical simulation method and Monte Carlo simulation method.

For the GARCH-EVT-copula model:

➢ The first step in the overall modeling approach involves a repeated application of GARCH filtration and EVT to characterize the distribution of each individual equity index return series. Given the standardized, i.i.d. residuals from the previous step (GARCH filtration), estimate the empirical CDF of each index with a Gaussian kernel. This smoothes the CDF estimates, eliminating the staircase pattern of unsmoothed sample CDFs. Although non-parametric kernel CDF estimates are well suited for the interior of the distribution where most of the data is found, they tend to perform poorly when applied to the upper and lower tails. To better estimate the tails of the distribution, apply EVT to those residuals that fall in each tail. Specifically, find upper and lower thresholds such that 10% of the residuals is reserved for each tail. Then fit the amount by which those extreme residuals in each tail fall beyond the associated threshold to a parametric GPD by maximum likelihood. This approach is often referred to as the distribution of exceedances or peaks over threshold method.

➢ The next step, we have to estimate the scalar degrees of freedom parameter and the linear correlation matrix of the t copula, Gauss copula.

➢ After, with given the parameters of a Gauss copula, a t copula, we simulate jointly dependent stock returns by first simulating the corresponding dependent standardized residuals. With simalution standardized residuals, reintroduce the autocorrelation and heterokedasticity of GARCH model observed in the original stock returns.

➢ Finally, given the simulated returns of each stock, we form a portfolio composed of the individual stock returns and finally converting back to portfolio logarithmic return and calculate the VaR, the ES at (1 - α) 100% confidence level.

❖ **VaR Backtesting**: Under Basel II, in 1996 BIS (Bank for International Settlements) recommends that financial institutions can build their VaR models to estimate the P & L used in risk management but must regularly backtest the accuracy of models. Under the provisions of BIS: with $n = 250$, $\alpha = 1\%$, if the number of VaR exceedance actual P & L is smaller than 5 then the model is accurate; if $\alpha = 5\%$ then this number is 19.

❖ **ES Backtesting**: To backtest, we also estimate ES for each day and compare the actual returns of the portfolio with estimate of ES of each day and calculate the loss function:

$$\psi_{t+1}^1 = \begin{cases} |r_{t+1} - \mathrm{ES}_{\alpha,t+1}| & \text{when } r_{t+1} > \mathrm{VaR}_{\alpha,t+1} \\ 0 & \text{otherwise} \end{cases}; \ \psi_{t+1}^2 = \begin{cases} (r_{t+1} - \mathrm{ES}_{\alpha,t+1})^2 & \text{when } r_{t+1} > \mathrm{VaR}_{\alpha,t+1} \\ 0 & \text{otherwise} \end{cases}. \quad (10)$$

Suppose we choose days n to backtest, base on the loss functions, we calculate MAE (mean absolute error) and MSE (mean squared error): $MAE = \frac{\sum_{t=1}^{n} \psi_t^1}{n}$; $MSE = \frac{\sum_{t=1}^{n} \psi_t^2}{n}$. (11)

I will choose the method to estimate ES such that MAE, MSE is the smallest. Here, we will apply this models to empirical analysis on Vietnam's stock market.

4 EMPIRICAL RESULTS

4.1 Data

This paper uses the closing price (P_t) of a selected number of shares to calculate the VN30, VN-Index, HNX. The sample is selected from 2008 to 2014 for analysis. We will select somes of shares of the VN30: CII, DRC, FPT, GMD, RITA, KDC, PVD, REE, STB, VNM, VSH to analysis. Then, we have: RCII, RDRC, RFPT, RGMD, RITA, RKDC, RPVD, RREE, RSTB, RVNM, RVSH, RHNX, RVNINDEX return series ($Ln\left(\frac{P_t}{P_{t-1}}\right)$) of the closing price of shares and the HNX index, VNINDEX respectively, every series has 1491 observations.

4.2 The estimation results of GARCH-copula model

This section analyzes the empirical with copula-GARCH models, we will choose return series that has ARCH effect . Firstly, we consider stationary property of the return series:

4.2.1 Testing stationarity

From unit root test result, we have:

Tab. 1-Testing stationarity. Source: authors' calculation

	RCII	RITA	RDRC	RFPT	RGMD	RHNX
Satistic	-32.9845	-34.5157	-32.5458	-33.4246	-30.5743	-32.3421
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	RKDC	RPVD	RREE	RSTB	RVNINDEX	RVNM	RVSH
Statistic	-32.424	-34.53	-34.5677	-32.2689	-16.0808	-36.8412	-33.3567
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

With significance level 0.05, by Dickey-Fuller test, all return series are stationary.

4.2.2 Selection models for each return series

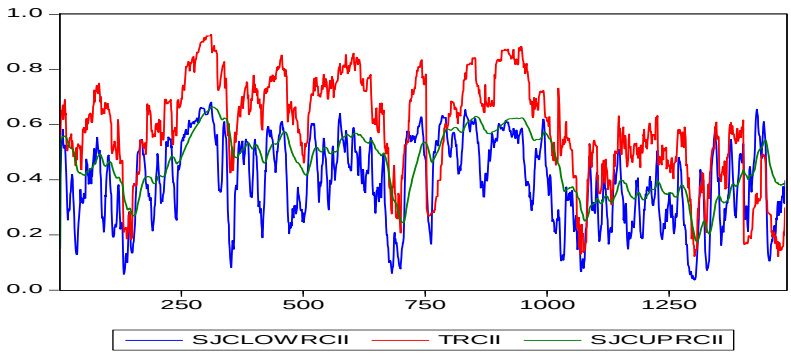
Based on the correlogram of the return series, we select mean equation for the return series. After fitting mean equation, we have residuals and square of residuals of the model. Based on correlogram of the square of residuals series, we see that RHNX, RVNINDEX, RCII, RFPT, RGMD, RKDC, RITA have ARCH effect.

According to the estimation results for the parameters of the copula-GARCH models in equation (5), (6) and (7) of the return pairs RHNX-RVNINDEX, RCII-RVNINDEX, RFPT-RVNINDEX, RGMD-RVNINDEX, RKDC-RVNINDEX, RITA-RVNINDEX, we give some analysis on the change of the degree of dependency of that return pairs in normal market condition, as well as extreme market condition:

4.2.3 Analysis of estimation results

According to the estimation results shows the conditional correlation coefficients in the copula-GARCH-DCC-T model of the return pairs that have large variation and linear dependence between RCII, RFPT, RGMD, RKDC, RITA with RVNINDEX around 60% and lower than the linear dependence between RHNX with RVNINDEX.

To see the dependence of the return pairs in extreme market condition change how, we study the change of the lower tail dependence coefficient and the upper tail dependence coefficient of the return pairs. Here, we have some graphs to describe the variation of the degree of dependence in normal market condition (using correlation coefficient) and in extreme market condition (using tail dependence coefficient) for every return pair:



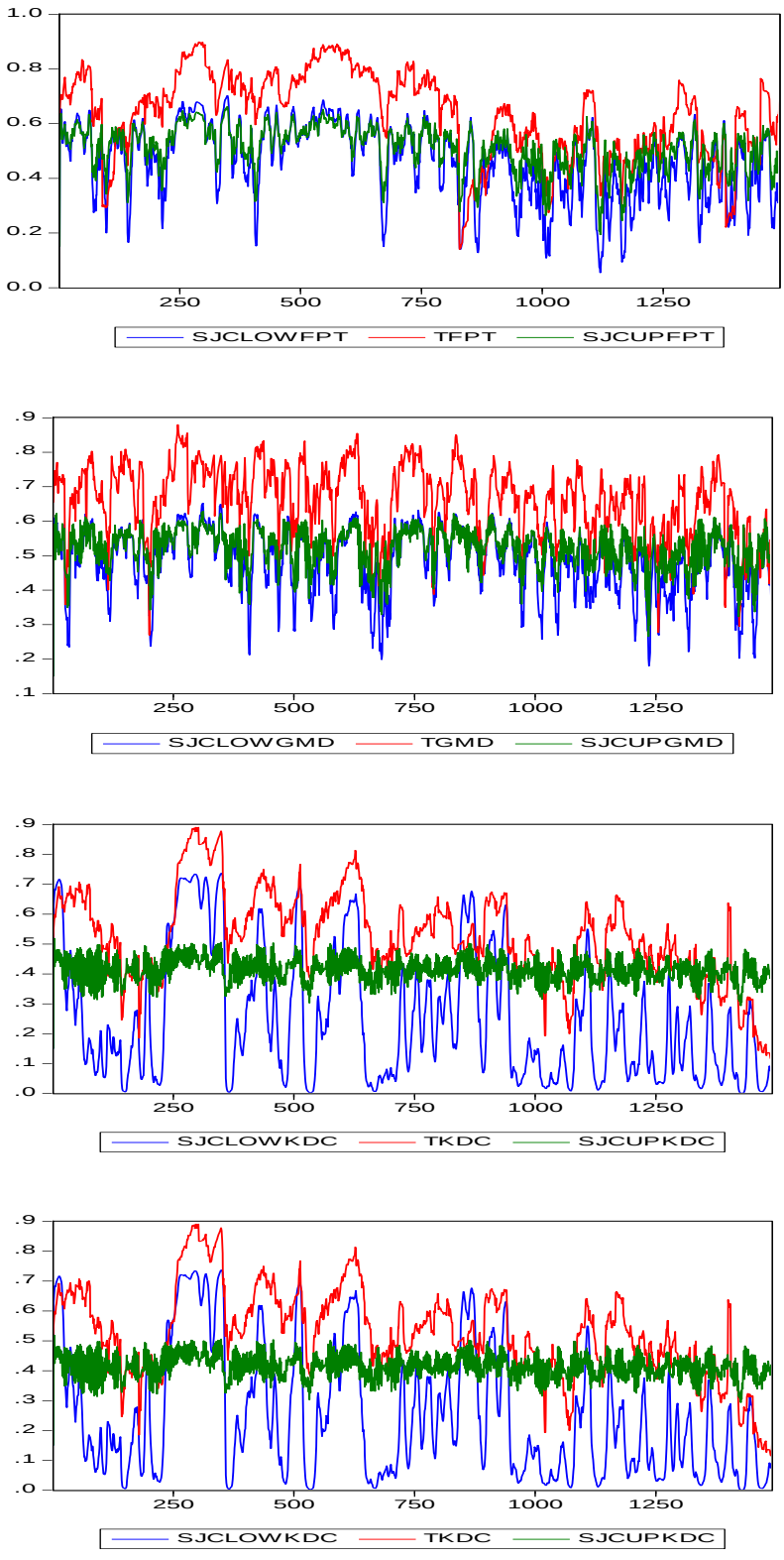


Fig. 1- Garph of change in the degree of dependence of the pairs by the correlation coefficient and the tail dependence coefficient. Source: own processing

Looking at the graph of the variation of the lower tail dependence coefficient and the upper tail dependence coefficient of the return pairs, I find most of the value of the lower tail dependence coefficient of some pairs: RCII-RVNINDEX, RFPT-RVNINDEX, RGMD-RVNINDEX,

RITA-RVNINDEX, RKDC-RVNINDEX và RHNX-RVNINDEX that are smaller than values of the upper tail dependence coefficient the corresponding, in which the most obvious difference shown in RITA-RVNINDEX pair. Moreover, looking at the graph, we see that in general the degree of dependence of the pairs in normal market condition is higher than in extreme market condition.

4.3 Estimating VaR and ES of stocks portfolio

4.3.1 Estimating VaR of stocks portfolio

In this section, this paper applies: GARCH-EVT-copula-Gauss model, GARCH-EVT-copula-T model, Variance - Covariance (normal distribution) , Historical simulation to estimate the porfolio. In the empirical analysis, we will choose the portfolio of five stocks (RCII, RFPT, RGMD, RKDC, RITA) and with equal weights.

- **VaR estimation**

This part still use the data presented in section 4.1, each return series consist of observations 1491. The author uses window that consists of observations 1241 to estimate the VaR of the portfolio. Then, the author performed backtesting VaR model with next observations 250. The first, we have the estimate results of the portfolio VaR for the first window which includes first observations 1241 of data series:

Tab. 2-VaR estimations of the first window**.** Source: authors' calculation

	GARCH-EVT-copula T	GARCH-EVT-copula- Gauss	Normal distribution	Historical simulation
VaR(95%,1-day)	-0.03503	-0.03556	-0.03685	-0.04141
VaR(99%,1- day)	-0.05240	-0.05236	-0.05212	-0.05023

- **VaR** backtesting ***:*** To assess the goodness of fit of the VaR estimation methods, the author have to backtest VaR model. I backest the 95% (or 99%) VaR estimations with observations 250 (from 1242 observation to 1491 observation) and compare the results with traditional models (Normal distribution, Historical simulation). We count the number of VaR exceedance for each model that is the number of times in which the effective loss is greater than the 95% (or 99%) VaR estimations. With observations 250 for the backtesting then observations 124 are negative, i.e the portfolio is loss. We consider only bias of the portfolio return with the estimate VaR value in cases of the loss portfolio. The error from the actual loss is calculated by method that the loss portfolio return minus the VaR estimated values. MAE from the actual loss is the sum of all the absolute error of the loss values 124 which divided by 124 (Tab. 3). The MAE value is smaller that it reflects estimated VaR values as close to the actual loss.

Tab. 3- VaR Backtesting**.** Source: authors' calculation

	VaR estimation model	Number of maximum exceedance	Actual losses exceed VaR	Mean absolute error
	GARCH-EVT-copula-T	19	5	0.024125

VaR(0.95)	GARCH-EVT-copula- Gauss	19	6	**0.023960**
	Normal distribution	19	8	0.023990
	Historical simulation	19	5	0.028579
VaR(0.99)	GARCH-EVT-copula-T	5	3	**0.037410**
	GARCH-EVT-copula- Gauss	5	3	0.037968
	Normal distribution	5	2	0.039653
	Historical simulation	5	2	0.044569

Thus, the number of observations such that the actual losses of the portfolio exceed the estimated VaR of the model are permissible limited of BIS with 95% and 99% levels.

However, with the VaR(0.95) model then the MAE of GARCH-EVT-copula-Gaussian model is 0.023960 and it is the smallest; with the VaR(0.99) model then the MAE of GARCH-EVT-copula-T model is 0.037410 and it is the smallest.

Thus, when using the conditional copula method and EVT for estimating VaR of this portfolio then results are better the traditional models (Normal distribution, Historical simulation).

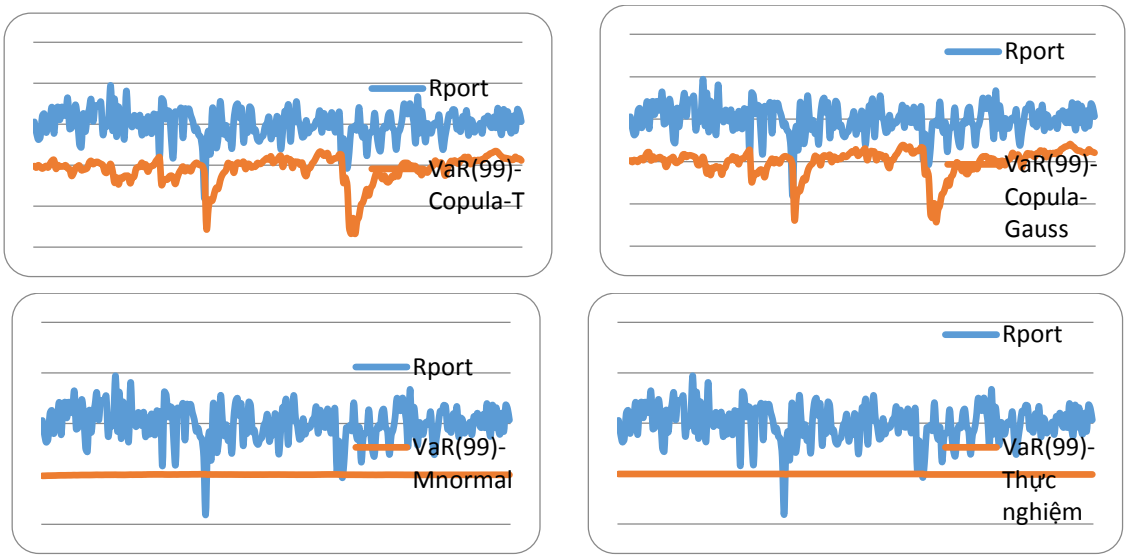


Fig. 2-Backtest VaR(0.99) . Source: own processing

4.3.2 Estimating ES of stocks portfolio

In this section, the author estimate ES(0.95) and ES(0.99) of return portfolio with 5 stocks: RCII, RFPT, RGMD, RKDC, RITA, with equal weights by models: GARCH-EVT-copula-Gauss model, GARCH-EVT-copula-T model, Normal distribution model, Historical simulation. At the same time, the author also backtest ES model to compare the results of the different models. First, the paper has results of the ES(0.95) and ES(0.99) of the portfolio for the first window (Table 4):

Tab. 4- ES estimations of the first window**.** Source: authors' calculation

	GARCH-EVT-copula-T	GARCH-EVT-copula- Gauss	Normal distribution	Historical simulation
ES(0.95,1- day)	-0.04596905	-0.0441147	-0.04621162	-0.051126156
ES(0.99,1- day)	-0.07313909	-0.0665023	-0.059709656	-0.068190381

As estimated result of the ES model, the author has some comments: After each transaction in HOSE for investors holding this portfolio:

- In bad situations, if the returns of the portfolio are deep fall and exceed VaR(0.95) threshold, according to the models: GARCH-EVT-copula-Gauss model, GARCH-EVT-copula-T model, Normal distribution model, Historical simulation then with 95% probability, the capability reduction is expected respectively: 4.596905%, 4.41147%, 4.621162%, 5.1126156%.

- In bad situations, if the returns of portfolio are deep fall and exceed VaR(0.99) threshold, according to the models: GARCH-EVT-copula-Gauss model, GARCH-EVT-copula-T model, Normal distribution model, Historical simulation then with 95% probability, the capability reduction is expected respectively: 7.313909%, 6.65023%, 5.9709656%, 6.8190381%.

❖ **ES Backtesting:** To assess the goodness of fit of the of the different models, the author have to backtest ES model. I backest the 95% (or 99%) ES estimations with observations 250 (from 1242 observation to 1491 observation) and compare the MAS of the different models (Table 5).

❖ **Tab. 5-** ES Backtesting **.** Source: authors' calculation

		GARCH-EVT-copula-T	GARCH-EVT-copula-Gauss	Normal distribution	Historical simulation
MAS	ES(0.95,1-day)	0.000301141	0.00034122	0.00033282	0.000259675
	ES(0.99,1 day)	0.000110719	0.00011077	0.000149318	0.000157367

Following backtest results of the ES model for days 250, the author has some comments:

- With ES(0.95), the MAS of every model: GARCH-EVT-copula-T model, Historical simulation is smaller the MAS of normal distribution model.

- With ES(0.99): the MAS of every model: GARCH-EVT-copula-Gauss model, GARCH-EVT-copula-T model is smaller the MAS of normal distribution model.

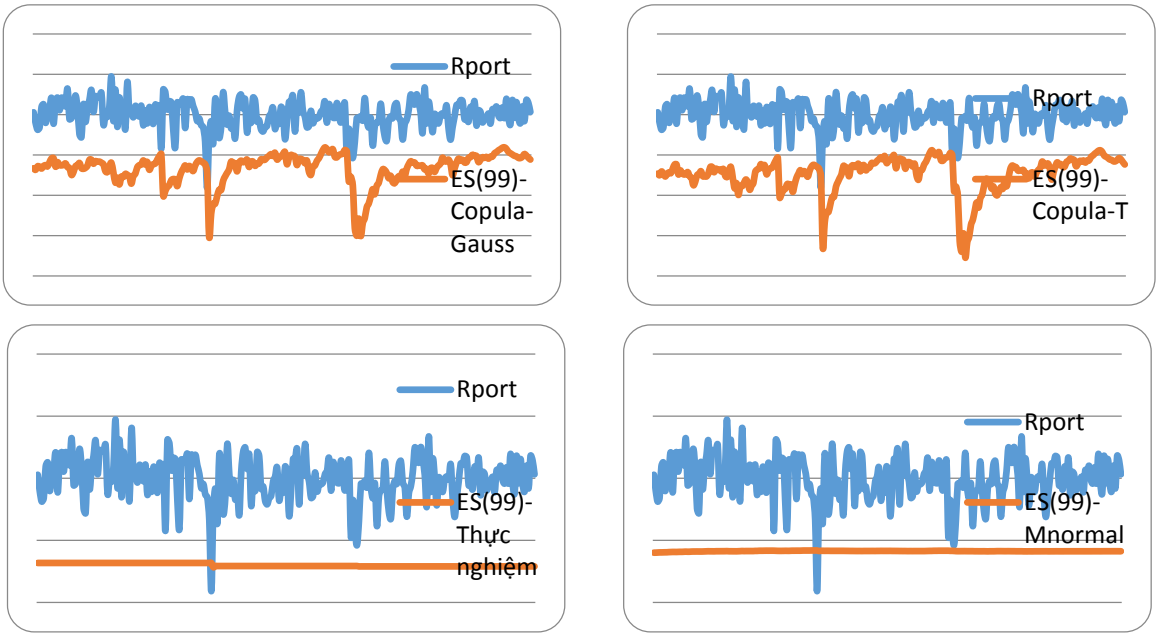


Fig. 3- Backtest ES(0.99) . Source: own processing

Thus, with both 0.95 level and 0.99 level, in the number of methods to estimate ES then the EVT-copula-GARCH-T model is showed which is better than the normal distribution. Therefore, GARCH-EVT-Copula models are appropriate and they reflect the actual loss value of the porfolio that is more accurate than the traditional models.

5 CONCLUSION

Based on the empirical analysis results of some return series in Viet Nam Stock Market, this paper has some following conclusions:

- Degree of dependence of every return pairs: RCII-RVNINDEX, RFPT-RVNINDEX, RGMD-RVNINDEX, RKDC-RVNINDEX, RPVD-RVNINDEX, RVSH-RVNINDEX, RDRC-RVNINDEX, RITA-RVNINDEX, RHNX-RVNINDEX in normal market condition is higher than in extreme market condition.
- Moreover, based on the VaR, ES backtesting, this paper has showed that the GARCH-EVT-Copula models are suitable. The models have reflected the actual loss value of the porfolio that is better than Normal distribution medthod, Historical simulation medthod. This results complement new approaches to the study of risk measurement models in Vietnam stock market.

REFERENCES:

Bae, K.H., Karolyi, G. A., Stulz, R. M. (2003). A New Approach to Measuring Financial Contagion, *Review of Financial Studies* 16, 717-63.

Cherubini, U. , Luciano, E. , and Vecchiato, W. , (2004), *Copula methods in Finance*, John Wiley & Sons, Ltd.

Huang, S. , Chien, Y. and Wang, R. (2011), Applying GARCH- EVT-Copula Models for Portfolio Value-at-Risk on G7 Currency Markets, *International Research Journal of Finance and Economics*, ISSN 1450-2887, Issue 74.

Karl Shutes and Jacek Niklewski (2010), Multivariate GARCH Models: a comparative

study of the impact of alternative methodologies on correlation, *Economics, Finance and Accounting*, Applied Research, Working Paper Series.

McNeil, A. J. , Frey, R. and Embrechts, P. (2005), *Quantitative Risk Management* , Princeton University Press.

Nelsen. R.B (2006), *An introduction to copulas*, Springer.

Patton, A. J. (2006), Modelling asymmetric exchange rate dependence, *International economic review*, Vol.47, No.2, pp. 527-556.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

DEBT FINANCING AND PROFITABILITY OF CZECH AUTOMOTIVE INDUSTRY

Hamdu Kedir Mohammed, Adriana Knápková, Florin Aliu

ABSTRACT

The study aimed at investigating the impact of debt on the profitability of Czech Automotive industry. Independent investigation of total debt, short term debt and long term debt has been done. Besides, the industry is composed of two units: vehicle manufacturers and component producers, the investigation has been done for both units independently. Panel data are analysed for 60 component producers and 10 vehicles manufactures during 2009-2014 using hierarchical regression model. The finding reveals that debt in general has a negative influence on the profitability of component producers. The impact is dominated by short term debt more than long term debt. However, the finding for vehicle manufacturers shows the positive relationship between debt and profitability. The result in this case is significantly influenced by long term debt.

Keywords: *Debt, Profitability, Agency cost theory, Czech automotive industry*

JEL classification: G21, G32

1 INTRODUCTION

Substantial theoretical and empirical studies try to explain the determinants of profitability from various perspectives. At the early stage some studies try to find the link between market structure and profitability, by examining inter industry variation in profitability in terms of market structure only. However, as empirical and theoretical literatures grown, several other factors which determine the profitability of companies such as growth, tangibility, age, size and leverage, among others has been identified. Nevertheless, the aim of this study is not to identify factors which affect the profitability of firms, rather to examine the impact of debt on profitability of Czech Automotive industry.

Financial literatures devoted a lot in explaining the importance of debt on corporate performance for more than fifty years. However, there is no conclusive solution which could be applicable as a general standard and the fact is still remaining questionable (Baum et al. 2007, Rao et al. 2007, Berger and Bonaccorsi 2006). The existing theories and empirical studies come up with highly contradicting results as to the effect of debt on the profitability of firms (Nunes et al. 2009, Goddard et al. 2005).

Cost and availability of finance is important agenda of competitive advantage and international competition in various industries (J.L Viviani 2008). Basically firms strive to find sources of finance at a lesser required rate of return (M. Kebewar 2014). The issue of debt financing and optimal debt ratio is manager's common dilemma. Basically optimal debt ratio is the one which maximize firm value and minimize cost of acquiring capital for the firm (M. Kebewar 2014). Therefore, it can be generalized that the optimal debt ratio results in maximum profitability. The question is where the optimal level of debt and what is the impact of being highly levered on the profitability of the firms.

Theoretical researches have strived to explain the relationship between debt and profitability of the firm. According to signalling theory, in the existence of information asymmetry, debt ought to be positively correlated with profitability (Ross 1977). Agency cost theory come up with binary view, accordingly, debt has two contradicting impact on profitability of firms. In one hand debt has positive impact considering agency cost between managers and shareholders and considers debt as a discipline tool on managers (Leland, H.E. 1998 Abor 2005). On the other hand debt could negatively affect the company's performance due to agency cost problem between shareholders and lender; that is risk of bankruptcy (Leland, H.E. 1998, Jensen M. and Meckling W. 1976). The other theoretical perspective is the tax advantage of debt (Modigliani, F., & Miller, M.H. 1963). Accordingly, to get the maximum benefit of debt to enhance their value firms should entirely be finance by debt. This theory has suffered with many criticisms, but it was a breakthrough theory in the field of financial economics.

On the other hand, several empirical studies have been done to explain the effect of debt on profitability. However, most of these studies found contradicting results. Some studies revealed a positive impact of debt on profitability while others found a negative relationship between debt and profitability. Some other studies found no relationship between debt and profitability.

Studies by Robb and Robinson (2009), Ruland and Zhou (2005) shows the positive impact of debt on the profitability of firms. For Jensen (1986), profitable firms tend to be levered, which indicate a positive relation between leverage and profitability. Robb and Robinson (2009) found the positive impact of external debt financing such as bank loan on new firms. Measuring profitability in terms of return on equity, Abor (2005) revealed a positive and significantly results of debt on profitability. When shareholders have total control on the firm's business it would be a base line debt to impact in a positive way on the profitability of the firm; the reverse is true when debt holders have significant influence on the activities of the firm (Berkivitch and Israel 1996). This implies that the effect of debt on the value of the firm is depending on the balance of power within a firm. After investigating French manufacturing firms Margaritis and Psillaki (2010), concluded that greater leverage associated with enhancement in efficiency. Baum et al. (2006) studied German manufacturing firms and found that firms which depend heavily on short-term liabilities are likely to be more profitable.

As opposed to the above findings, some studies have found negative impact of debt on the profitability of firms. Studies by Myers (1984), Sheel (1994), Rajan & Zingales, (1995), Lincoln et al (1996), Chittenden et al. (1996), Sunder and Myers (1999), Michaelas et al. (1999), Wald (1999), Myers (2001), Cassar and Holmes (2003), Gedajlovic et al. (2003), Phillips and Sipahioglu (2004), Akhtar & Oliver (2009), Olayinka Akinlo and Chandrapala and Knápková (2013) found in a negative relationship between debt and profitability.

Taking companies listed in Johannesburg Stock Exchange Negas (2001) has shown a negative relationship between leverage and profitability. Titman and Wessels (1988) revealed that profitable firms tend to have lower levels of leverage and justified that this is due to firm's exploitation of internal sources before entering in to costly sources of finance. Fama and French (1998) argued that debt does not concede taxes benefits and they suggested that leverage inclined to cause agency problems among shareholders and creditors that results a negative relationships between debt and profitability.

Some few other studies found no relationship between debt and profitability. Long and Malitz (1986) investigate the relationship between leverage and profitability and found no significant correlation. For Hall et al. (2000) long term debt has no significant impact on profitability of firms. Mazen Kebewar (2014) studied the relationship of debt and profitability of French

service sector companies and reported that debt has no effect on firm's profitability, irrespective of the size of company.

The contradicting result in empirical literatures show the variety of the outcome of debt financing depending on different macroeconomic climate and Industry specific nature. Harris and Raviv (1991), Mackey and Philips (2001), Mohammadzadeh M et al. (2013) have revealed that the industry type influences the use of debt and the company's overall performance. Hence, this study strived to show the effect of debt on the profitability of automotive industry of Czech Republic.

This study is unique; in one hand it used multiple types of profitability measurements. On the other hand it allowed different types of debts to be tested rather than pooling all debts in one category. It is also appropriate to see the effect of different types of debt on the profitability performance of automotive industry as the industry is highly responsive for external volatilities. The output of the study expected to be important for managers in the automotive industry in answering the question of which of debt type is affecting the industries profitability and how it is affecting the profitability of the firm. Therefore the main objective of this study is to investigate the effect of debt financing on the profitability of Czech Automotive industry.

2 DATA AND METHOD

2.1 Method of data collection and samples

This article has tested two important hypotheses. The first one is the general relationship of debt with profitability. It is hypothesised that debt in general has a significant impact in determining the profitability of Czech automotive industry. Secondly, it is also hypothesis that the impacts of debt on the profitability of Czech Automotive industry is depend on the structure of the liability of the firm.

The study used quantitative approach to test the formulated hypotheses and achieve the main objective. The financial data of the individual firms were gathered from Albertina 2015. This database provide company's financial statements, activities, number of employees, information on managers and ownership structure and other important information for most of companies registered in Czech and Slovakia. According to Czech Automotive Industry Association currently there are 13 automotive manufactures and 98 component producers in Czech Republic. From the database complete data has been found for 10 manufacturers and 60 component producers. The financial statement data for each company is consists from 2009 to 2013. The data analysis and hypotheses testing has been made separately for vehicle manufacturers and component producers in Czech Automotive industry in order to show the specific result for the two units in the industry.

2.2 Description of Variables

The dependent variable to be analysed is profitability. Literatures suggested several measures of profitability. This study used two measures of profitability. The first one is return on asset (ROA) this variable is defined as the ratio of earnings before interest and taxes (EBIT) to total assets. The second one is net operating profit margin (NOPM) which is defined as the ratio of net income from operation divided by total sales.

The key independent variable is debt. Debt is categorized in to short term, long term and total to single out the specific effect of each category. The ratio of each category of debt is calculated as each debt divide by total asset. Bank short term debt has not been included in the aggregate short term debt.

Finally, all regressions backed by control variables determined by previous studies to explain profitability of firms: firm size, growth opportunities, liquidity, non-debt tax shield, capital turnover ratio and tangibility. Size is defined as the logarithm of total assets. There is no general consensus regarding the relationship between profitability and firm size. Lang and Stulz (1994) found a negative relationship between firm size and profitability for US companies, whereas Berger and Ofek (1995) and Abor (2005) found a positive relationship. Hence, it is difficult to depict a clear picture on the relationship between firm size and profitability. Growth is measured by change in sales annual growth $(Sales_1 - Sales_0)/Sales_0$. In this sense, there is a common understanding among literatures. Firms that have well grown so far are expected to continue in growing Scherr and Hulburt (2001) and shows better profitability (Chandrapala and Knápková 2013, Nunes et al 2009). Therefore, it is expected a positive relation between growth and firm profitability. Tangibility measures the extent of tangible assets in the organizational composition of total asset. It is calculated by dividing the sum of net tangible assets to total assets. Literatures come up with conflicting results on the impact of tangibility on profitability. Himmelberg et al. (1999) argued that tangible assets can be easily monitored and be good collateral. Thus, they are important tools to resolve agency problem between shareholders and lender. Ultimately affects profitability positively (Majumdar and Chhibber (1999), Margaritis and Psillaki 2007). On the other hand, several studies show a negative relation between tangibility and profitability (Nunes et al. 2009, Weill 2008, Zeitun and Tian 2007). Liquidity is defined as the ratio of cash and other short term realizable asset to short term debt. The higher liquidity position could results in agency problem between managers and shareholder. Then could leads to negative relation with profitability. Whereas, for Bhayani (2010) and Chandrapala and Knápková (2013), liquidity has significant and positive relation with profitability of firms. Furthermore, capital turnover ratio is calculated by the Ratio of net fixed assets to sales and expected to have negative impact on profitability Chandrapala and Knápková (2013). Finally, non-debt tax shield is calculated as total deprecation of long term asset divided by total asset and expected to have positive relation with profitability.

2.3 Model Specification

The study used hierarchical regression analysis to show the effect of different types of debt on profitability. Under this model, predictors are entered in the order of short term debt, long term debt and total debt and then increments in the model explanation and changes in regression coefficients are evaluated. At every stage additional variables are added and whether the change in R^2 is significant or not has been evaluated. This shows whether the model in general is significantly explain the dependent variable.

$$Profitability_{it}=\alpha_0 +\beta_1 (Short\ term\ debt_{it}) + \beta_2 (Firm\ Size_{it}) + \beta_3 (Sales\ growth_{it}) +\beta_4 (Tangibility_{it}) +\beta_5 (Liquidity_{it}) +\mu_{it}, \quad \text{----------Eq. (1)}$$

$$Profitability_{it}=\alpha_0 +\beta_1 (Long\ term\ debt_{it}) + \beta_2 (Firm\ Size_{it}) + \beta_3 (Sales\ growth_{it}) +\beta_4 (Tangibility_{it}) +\beta_5 (Liquidity_{it}) +\mu_{it}, \quad \text{----------Eq. (2)}$$

Where i = Number of firms t = Time from 2009 to 2014 β= Coefficients of the predictors

3 RESULT AND FINDINGS

3.1 Descriptive statistics

The mean debt ratio of component producers and vehicle manufacturers in the automotive industry is 54 percent and 48 percent with the standard deviation of 12.9 percent and 23 percent respectively. This means that more than 48 percent of the Czech automotive industry is financed by debts. This highlights that debt ratio was high in this study. More specifically the mean long term debt of component producers is 9% and short term debt is 35%. Likewise, the mean long

term debt of manufacturers 8% and short term debt is 37%. This indicates the industry debt is more of composed of short term than long term.

Tab 1- Result of descriptive statistics. Source: Own calculation

	Component producers		**Vehicle Manufacturers**	
	Mean	SD	Mean	SD
NOPM	0.06	0.13	0.05	0.086
ROA1	0.05	0.12	0.05	0.086
Debt	0.54	0.23	0.48	0.23
Short	0.35	0.21	0.37	0.19
Long	0.09	0.14	0.08	0.099
Growth	24.7	300.9	0.29	0.52
Size	1.6	22.81	15.14	2.47
Liquidity	0.39	0.2	0.63	1.38
Tang	1.9	23.1	0.31	0.18
CTOR	0.056	0.04	0.23	0.15
NDTS	13.8	2.72	0.04	0.03

Tab 2- Result of person moment correlation component producers. Source: Own calculation

	NOP	**ROA**	**Debt**	**Short**	**Long**	**Gro**	**Size**	**Liq**	**Tang**	**CTOR**
NOP	1									
ROA	.7***	1								
Debt	-.1**	-0.1	1							
Short	-0.2	-0.1	.74***	1						
Long	-0.9	-0.01	.39***	-.3***	1					
Gro	0.2	0.01	0.05	-0.05	.15***	1				
Size	.2***	0.12	-.28***	-.36***	0.1	0.1	1			
Liq	.2**	.17**	.51***	.31***	.29***	0.03	-.12*	1		
Tang	-.2***	-0.01	0.1	-.21***	.35***	0.11	-0.12	.61***	1	
CTOR	.13*	0.02	.26***	.40***	-.23***	-.12***	-.33***	.2***	-.34***	1
NDTS	.2***	.12*	.47***	.38***	0.1	0.01	-.13**	.73***	.13*	.42***

****. Correlation is significant at the 0.01 level.* ***. Correlation is significant at the 0.05 level.*
** .Correlation is significant at the 0.10 level.*

Tab 3 - Result of person moment correlation Vehicle manufacturers. Source: Own calculation

	NOP	**ROA**	**Debt**	**Short**	**Long**	**Gro**	**Size**	**Liq.**	**Tang**	**NDTS**
NOP	1									
ROA	.9***	1								
Debt	.4***	.3***	1							

Short	.2*	0.2	.8***	1						
Long	.3**	.3**	.5***	0.2	1					
Groh	-0.2	-0.08	-0.1	-0.06	-0.09	1				
Size	.5***	.5***	0.2	0.09	0.13	-0.04	1			
Liq	-.2*	-.25*	.5***	.51***	-.28*	0.01	-.28**	1		
Tang	-0.01	-0.05	.4***	.26**	.5**	0.05	.31**	-.4***	1	
NDTS	-0.1	-0.11	.2*	0.18	0.17	-0.07	.29**	-.32**	.65***	1
CTOR	-0.15	-0.2	.4***	.23*	.4***	0.16	0.05	-.4***	.79***	.42***

****. Correlation is significant at the 0.01 level. **. Correlation is significant at the 0.05 level. * .Correlation is significant at the 0.10 level.*

Net operating profit margin (NOPM) and Return on asset ROA have been used as a proxy to measure profitability. Profitable firms are stronger to face financial distress and promising going concern than unprofitable firms. The mean value of NOPM and ROA for manufacturers is 5.05 percent with a standard deviation of 8.6, percent indicating high variation in profitability among vehicle manufacturers in Czech Republic. On the other hand the mean NOPM and ROA of component producers are 6% and 5% with 12.9% and 12% standard deviation respectively. Compared vehicle manufacturers, components producers in the automotive industry have significantly high variation in profitability. Growth of manufacturers and component producers shows 29% and 24.7% respectively. This indicates that, on average, growth rate was above 25 percent during the five – year period in the automotive industry of Czech Republic.

The mean of the firms' size which was calculated by the natural logarithm of total assets was 15.14 and 1.6 with 2.47 and 22.81 for vehicle manufacturers and component producers respectively. It indicates the variation in the size of the component producers is greatly varied. Moreover, summary of test statistic shows that the mean of liquidity for manufactures and component producers is 63 percent and 39 percent. This reveals as there was high variation in liquidity among automotive industries in Czech Republic.

The correlation between the explanatory variables and Profitability has been determined in order to show the degree of association between and among the variables. The correlation between two variables tests the extent of linear relation between them (Books 2008). Pearson product moment of correlation coefficient has been used to show the degree of relation between variables under the study.

The correlation matrix for component producers shows profitability negatively correlated with total debt, short term debt, long term debt and tangibility. Liquidity and Non debt tax shield are positively correlated with profitability. Whereas, the correlation matrix of manufacturers indicate that total debt, short term debt, long term debt, size and liquidity are significantly and positively correlated with profitability. Profitability and liquidity correlated significantly and negatively.

3.2 Results of Regression analysis

The study used hierarchical linear regression approach to test the effect of different types of debt on profitability. The data has been tested for the basic Classical Linear Regression Model (CLRM) Assumptions. There is no multicolinierity problem as VIF factors are less than 3.6. The data has been normally distributed. The data has also been tested for the problem of heteroskedasticity and autocorrelation.

Model I shows the regression result for component producers indicating that profitability is negatively and statistically significantly related with total debt. Model III evaluates the effect of long term debt and were no significant relation has been found. However the evaluation of short term debt for component producers in model II indicates a significant and negative relation with profitability. The results are consistent for both of profitability measures. Beside debt, liquidity has found to be positively and significantly affecting the profitability of component producers. However, Non debt tax shield and tangibility have negative relation with profitability.

Tab 4- Regression result for component producers in the automotive industry. Source: Own calculation

	NOPM			**ROA**		
	Model I	**Model II**	**Model III**	**Model I**	**Model II**	**Model III**
Total Debt	-.417***			-.412***		
	(-.803)			(-5.039)		
Sort term Debt		-.434***			-.459***	
		(-5.169)			(-4.715)	
Long term Debt			-0.037			0.011
			(-.442)			-0.123
Size	0.034	0.1	.160**	-0.008	-0.04	0.064
	-0.491	-0.141	-1.929	(-.110)	(-.544)	-0.738
Liquidity	1.313***	1.306	.944***	1.184***	1.174***	.743***
	-8.805	(-8.05)	-5.863	-7.32	-7.166	-4.601
Tangibility	-.846***	-1.02***	-.846***	-.731***	-.840***	-.634***
	(-7.847)	(-8.05)	(-5.643)	(-6.512)	(-6.595)	(-4.486)
Non Debt	-.411**	-.371***	-.271***	-.355***	-.364**	-.371**
	(-3.964)	(-3.514)	(-2.776)	(-3.077)	(-2.483)	(-3.534)
CTOR	0.14	0.089***	-0.065	-0.06	0.014	-0.042
	-0.205	-1.197	(-.707)	(-3.077)	-0.171	(-.438)
Growth	0.073	0.054	0.011	0.045	0.031	-0.03
	-1.185	-0.852	-0.148	-0.699	-0.476	(-.371)
R2	36%	33.10%	26.90%	22.70%	26.50%	56.80%
Adj.R2	32.80%	29.70%	22.10%	24.10%	22.90%	48.60%
Model (ANOVA-P_Value)	0.000	0.000	0.000	0.000	0.000	0.000
F-Stat	0.000	0.000	0.000	0.000	0.000	0.000

Note: values in parentheses are t values

On the other hand, the regression result of vehicle manufacturers shows total debt as a whole and long term debt specifically significantly affects the profitability of firms' positively. To the contrary, short term debt has not been found to be a determinant factor on the profitability of vehicle manufacturers. The result is consistent for both of profitability measurements. All the models are significantly explains the relationship between variables at p-value of 0.000. Moreover, size is found to be positively related with profitability. Nevertheless, non-debt tax shield and Ratio of net fixed assets to sales are negatively affecting the profitability of vehicle manufacturers.

Tab 5- Regression result for vehicle manufactures in the automotive industry. Source: Own calculation

	NOPM			**ROA**		
	Model I	**Model II**	**Model III**	**Model I**	**Model II**	**Model III**
Total Debt	.393***			.321**		
	(-2.976)			-2.503		
Sort term debt		0.167			0.117	
		(-1.252)			(-0.919)	
Long term Debt			.400***			.346***
			(-3.445)			-3.076
Size	.366***	.386***	.353***	.457***	.471***	.445***
	(-3.036)	-2.97	-2.998	-3.899	-3.796	3.905
Liquidity	(-0.126)	-0.222	-.260**	-0.146	-.234*	-.253**
	(-.945)	(-1.545)	(-2.217)	(-1.124)	(-1.700)	(-2.227)
Tangibility	0.21	0.257	0.112	0.132	0.176	0.044
	(-0.911)	(-1.039)	(-0.491)	(-0.591)	(-0.745)	-0.196
Non Debt	-.341**	-.382**	-.305**	-.326**	-.359**	-.292**
	(-2.40)	(-2.520)	(-2.184)	(-2.360)	(-2.483)	-2.162
CTOR	-.397**	-0.338	-.402**	-.354*	-0.308	-.359*
	(-2.019)	(-1.594)	(-2.097)	(-1.849)	(-1.520)	-1.934
Growth	0.067	0.031	0.072	0.045	0.015	0.052
	(-0.621)	(-0.274)	(-0.689)	(-0.434)	(-0.141)	-0.514
R2	51.50%	44.20%	54%	54.20%	49.10%	56.80%
Adj.R2	42.50%	33.60%	45.20%	45.20%	39.30%	48.60%
Model (ANOVA-P_Value)	0.000	0.001	0.000	0.000	0.000	0.000
F-Stat	0.001	0.001	0.000	0.000	0.000	0.000

Note: values in parentheses are t values

3.3 Discussion

Debt in general has found to be a determinant factor that affects profitability. However, the effect is differing for component producers and vehicle manufacturers. For component producers debt in total has a negative effect on the profitability of the form. Nevertheless, the independent test of long and short term debt shows, long term debt has no significant impact in determining the profitability of component producers. The result indicates that significant effect debt on the profitability of the firms is resulted from short term debt. The results are consistent with Raisa and Cristian (2015).

The negative impact of debt could be better explained by agency costs problem (Jensen, M., & Meckling, W. 1976); accordingly, conflict of interest could arise on shareholders to engage in excessively risky projects; having the fact that the future earnings are belonging to them given the adverse results are to be portioned with the debtholders. The negative impact of debt could also results from the fact that the high cost of capital due to excessively sceptical anticipation of the firms by their debtors. The agency problem and debtors excessively sceptical anticipation of the firm would obstacle on taking advantages of different lucrative investment alternatives.

It seems that excessive leverage diminishes the profitability of the firm and ultimately enhances the probability of financial distress; as far as the structure of the liabilities concerned, the short term liability and not the long term debt is the part of the debt that drive a significant influence on the profitability of the component producers in Czech Automotive industry. The result is contradicting with Baum, C et al (2006) as they found a positive impact of short term debt on profitability.

On the other hand the impact of debt on profitability of Vehicle manufacturers of Czech Automotive industry is positive. However, the part of debt that exercises greater influence on the profitability is long term debt as opposed from component producers.

This result can be explained by signalling theory (Ross 1977). Accordingly, due to the existence of Asymmetry information, debt results in positive outcome on profitability. The result could also be explained by agency cost theory (Leland, H.E. 1998 Abor 2005) between management and shareholders as debt could serve as a disciplinary too to control manager to serve for the best interest of the company. The result also seems due to the size of the firms. Vehicle manufacturers are large in size than component producers. Companies which are large in size (Abor (2005)) tend to be more levered and produce positive output of using of debt. Empirically, the result goes in line with Margaritis and Psillaki (2010) Robb and Robinson (2009) and Ruland and Zhou (2005). However, the result contradict with Akhtar & Oliver (2009), Olayinka Akinlo and Chandrapala and Knápková (2013) and Raisa and Cristian (2015).

4 CONCLUSION

In this article we examined the effect of debt on the profitability of firms in the automotive industry. Besides, the paper investigated whether the actual effect of debt on profitability has been influence by short term or long term debt.

There are three basic financial theories which explain the influence of debt on firms' profitability, called: agency costs theory, signalling theory and tax shield theory. Moreover, the contradictions among studies observed not only theoretically but also empirically.

The result of the study revealed that strong empirical support for a negative relationship between debt and profitability among component producers of automotive industries in Czech Republic. In this case, the major influence has been generated from short term debt. In other words, the more the extent the short term debt used by component producers, the lower the

profitability of the firm. However, the role of debt on profitability of vehicle manufacturers of Czech automotive industries has been found to be positive. In this case, the major driver of debt is long term debt. This shows that given all cautions, the more the vehicle manufacturers used long term debt the higher the profitability is expected.

ACKNOWLEDGEMENTS

The authors are thankful to the Czech Science Foundation (GA CR), project No 16-25536S, which provided financial support for this survey. We are also very grateful for the support provided by the Internal Grant Agency of Tomas Bata University in Zlin IGA/FaME/2016/018.

REFERENCES:

Abor, J., (2005), The effect of capital structure on profitability: empirical analysis of listed firms in Ghana, *Journal of Risk Finance*, 6(5), pp. 438-45

Akhtar & Oliver (2009), Determinants of Capital Structure for Japanese Multinational and Domestic Corporations, *International Review of Finance*, 9(1-2), 1468-2443

Barbosa, N. and Louri, H (2005), *"Corporate Performance: does ownership matter? A comparison of foreign-and domestic-owned firms in Greece and Portugal"* Review of Industrial Organization, 27, 1: 73–102. ISSN 0889-938X

Baum C. F., Schafer D. and Talavera O. (2006), The Effects of Short-Term Liabilities on Profitability: A Comparison of German and US Firms, *Boston College Working Papers in Economics* 636, Boston College Department of Economics

Baum C. F., Schafer D. and Talavera O. (2007), The Effects of Short-Term Liabilities on Profitability: The Case of Germany, *Money Macro and Finance (MMF) Research Group Conference 2006* 61, Money Macro and Finance Research Group

Berger A. and Bonaccorsi di Patti E. (2006), Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry, *Journal of Banking & Finance* (30), pp. 1065- 1102.

Berger, Philip, and Eli Ofek (1995), Diversification's effect on firm value, *Journal of Financial Economics* 37, 39–65.

Bhayani S.J., (2010), Determinant of Profitability in Indian Cement Industry: An Economic Analysis, *South Asian Journal of Management*, 17 (4), pp. 6-20.

Berkovitch, E. and R. Israel (1996), The Design of Internal Control and Capital Structure, *The Review of Financial Studies*, 9, 208–240.

Chandrapala Pathirawasam, Knápková Adriana (2013), Firm-specific factors and financial Performance of firms in the Czech Republic, *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 2013, LXI, No. 7, pp. 2183–2190

Cassar, G. & Holmes, S. (2003), Capital Structure and Financing of SMEs: Australian evidence, *Accounting and Finance*, 43, 123-147

Chittenden, F., G. Hall and P. Hutchinson (1996), Small Firm Growth, Access to Capital Markets and Financial Structure: Review of Issues and an Empirical Investigation, *Small Business Economics*, Vol 8, pp. 59-67

Fama, E. and French, K.R. (2002), Testing trade-off and pecking order predictions about dividends and debt, *The Review of Financial Studies*, Vol. 15, pp. 1-33.

Fama, E. and French, K.R. (2005), Financing decisions: who issues stock?, Journal of Financial Economics, Vol. 76, pp. 549-82

Gedajlovic, E.R., D.M., Shapiro, and Buduru., B., (2003), Financial Ownership, Diversification and Firm Profitability in Japan, *Journal of Management and Governance*, Vol. 7, pp. 315-350

Goddard J., Tavakoli M. and Wilson J. (2005), Determinants of profitability in European manufacturing and services: Evidence from a dynamic panel data, *Applied Financial Economics* (15), pp. 1269–1282

Hall G, Hutchinson P, Michaelas, N (2004) Determinants of the Capital Structure of European SMEs, *J. Bus Fin. Account* (31)1, 71 1 -728

Harris, M. and Raviv, A. (1991), The theory of capital structure, *Journal of Finance*, Vol. 49, pp. 297-355

Himmelberg C., Hubbard G. and Palia D. (1999), Understanding the determinants of managerial ownership and the link between ownership and performance, *Journal of Financial Economics* (53), pp. 353-384

Jean-Laurent Viviani, (2008), Capital structure determinants: an empirical study of French companies in the wine Industry, *Intl Jnl of Wine Business Res*, 20(2), pp. 171-194.

Jensen, M. and Meckling, W. (1976), Theory of the firm: managerial behavior, agency costs and capital structure, *Journal of Financial Economics*, Vol. 3, pp. 305-60

Jensen, M. (1986), Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review*, Vol. 76, pp. 323-9

Kuntluru, S., Muppani, V. and M. A. Ali Khan, (2008), Financial performance of foreign and domestic owned companies in India, *Journal of Asia-Pacific Business*, 9 (1), 28–54

Lang, Larry and René Stulz, (1994), Tobin's q, corporate diversification and firm performance, *Journal of Political Economy*, 102, 1248-1280

Leland, H.E. (1998), Agency costs, risk management and capital structure, *The Journal of Finance*, Vol. 53, pp. 1213-43

Lincoln, J.R., M.L., Gerlach, and C.L., Ahmadjian (1996), Reiretsu Networks and Corporate Performance in Japan, *American Sociological Review*, 61, pp. 67-88

Long, M. & Malitz, I. (1986), The Investment Financing Nexus: Some Empirical Evidence, *Midland Corporate Finance Journal*, 3

Peter MacKay and Gordon M. Phillips (2001), Is There an Optimal Industry Capital Structure? Working Paper In *National Bureau of Economic Research*, H 105 Massachusetts Avenue Cambridge, retrieved from: http://www.nber.org/papers/w9032.pdf on March 2016

Majumdar S. and Chhibber P. (1999), Capital structure and performance: Evidence from a Transition economy on an aspect of corporate governance, *Public Choice* (98), pp. 287-305

Margaritis D. and Psillaki M. (2010), Capital structure, equity ownership and firm Performance, *Journal of Banking & Finance* (34), pp. 621- 632

Margaritis D. and Psillaki M. (2007), Capital Structure and Firm Efficiency, *Journal of Business Finance & Accounting* (34), pp. 1447-1469

Michaelas, N., Chittenden, F. and Poutziouris, F. (1999), Financial policy and capital structure choice in UK SMEs: empirical evidence from company panel data, *Small Business Economics*, 12, pp. 113-30

Kebewar, Mazen (2014), The effect of debt on corporate profitability: Evidence from French service sector, Retrieved from: http://arxiv.org/abs/1301.0072 on March 2016

Modigliani, F. and Miller, M.H. (1963), Corporate income taxes and the cost of capital: a correction, *The American Economic Review*, 53(2), pp. 433-43

Mohammadzadeh, M., Rahimi, F., Rahimi, F., Aarabi, S. M., & Salamzadeh, J. (2013), The Effect of Capital Structure on the Profitability of Pharmaceutical Companies the Case of Iran, *Iranian Journal of Pharmaceutical Research* : IJPR, 12(3), 573–577

Myers, S.C. (1984), The capital structure puzzle, *Journal of Finance*, 39, pp. 575-92.

Myers, Stewart C.(2001), Capital Structure, *Journal of Economic Perspectives*, 15(2):81-102

Negash, M. (2001), Debt, Tax Shield and Bankruptcy Costs: Some Evidence from Johannesburg Stock Exchange, *Investment Analysis Journal*, 54(3), 114-128

Nunes P. J. M., Serrasqueiro Z. M. and Sequeira T. N. (2009), Profitability in Portuguese Service industries: a panel data approach, *The Service Industries Journal* (29), pp. 693-707

Akinlo, Olayinka and Asaolu, Taiwo (2012), Profitability and Leverage: Evidence from Nigerian Firms, *Global Journal of Business Research*, 6(1), pp. 17-25, 2012

Phillips, Paul A. and Sipahioglu, Mehmet A. (2004), Performance implications of capital structure: evidence from quoted UK organizations with hotel interests, *Service Industries Journal*, 24 (5). pp. 31-51

Raisa and Cristian (2015), Does Short Term Debt Affect Profitability? Evidence From The Romanian Listed Companies, *Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series*, Special Issue ECO-TREND 2015 – Performance, Competitiveness, Creativity

Rajan, R.G. and Zingales, L. (1995), What do we know about capital structure? Some evidence from international data, *Journal of Finance*, 50, pp. 1421-60

Rao N. V., Al-Yahyaee K. H. M. and Syed L. A. M. (2007), Capital structure and financial Performance: evidence from Oman, *Indian Journal of Economics and Business* (7), pp.1-14

Robb, Alicia and Robinson, David T. (2009), The Capital Structure Decisions of New Firms, Retrieved: http://dx.doi.org/10.2139/ssrn.1345895 on February 2016

Ross, Stephen A., (1977), The Determination of financial Structure: the Incentive - Signaling Approach, *Bell Journal of Economics* 8, 23-40

Ruland, W., Zhou, P. (2005), Debt Diversification and Valuation, *Review of Quantitative Finance and Accounting* 25, 277-291

Scherr FC, Hulburt HM (2001), The debt maturity structure of small firms, *Financ. Manage.*, 30: 85-111

Sheel (1994), Determinants of Capital Structure Choice and Empirics on Leverage Behavior: A Comparative Analysis of Hotel and Manufacturing Firms, 17(3) *Journal of Hospitality & Tourism Research*

Shyam-Sunder, L. and Myers, S. C., (1999), Testing Static Trade-off against Pecking Order Models of Capital Structure, *Journal of Financial Economics*, 51, 219–244

Titman, S. and Wessels, R. (1988), The determinants of capital structure choice, *The Journal of Finance*, 43, pp. 1-19

Wald, J.K. (1999), How firm characteristics affect capital structure: an international Comparison, *Journal of Financial Research*, 22(2), pp. 161-87

Weill L. (2008), Leverage and Corporate Performance: Does Institutional Environment Matter?, *Small Business Economics* (30), pp. 251-265

Zeitun R. and Tian G. (2007), Capital structure and corporate performance evidence from Jordan, *Australasian Accounting Business & Finance Journal* (1), pp. 40-53

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June 15th-17th

CLUSTERING AND PREDICTING ELECTRONIC COMMERCE SECURITY CONCERNS OF DEVELOPING COUNTRIES

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ABSTRACT

The increase in electronic commerce (e-commerce) activities especially in developed countries has been tremendous in recent years. The increase in developing countries has, however, been very slow. Researchers have attributed this to several obstacles, with security of transactions prominently featuring in the research outcomes. This paper leverages data mining techniques, specifically clustering (cluster analysis) and decision tree prediction to (1) discover clusters mostly associated with security of e-commerce in West Africa, (2) identify the most congruent variable as far as e-commerce transactions in West Africa is concerned, (3) detail the aspect of e-commerce security that is of major concern to users in the sub-region, and (4) present a predictive model for predicting customers with likely e-commerce payment/data security concerns.

Keywords: *electronic commerce, cluster analysis, k-means, e-commerce security, data mining, West Africa, decision trees*

JEL Classification: C38, L81

1 INTRODUCTION

The dawn of information technology has impacted tremendously on customer information management and the marketing activities of companies. The huge amount of data generated by companies today poses a great challenge, but also offers the opportunity for businesses to gain competitive advantage by extracting intelligence from data. In view of this, Shaw et al. (2001) posited that the opportunity created by the advent of the Internet has been both a blessing and a challenge. It is a blessing since businesses reach a wider coverage of customers and a challenge because the security and privacy of customers' data on electronic transactions need to be protected.

Electronic transactions are conducted in a variety of forms. Electronic commerce (e-commerce) is an Internet transaction platform for selling and buying of goods and services (Patel and Soni, 2013). E-commerce amalgamates and provides a common platform for various industries and web applications, customers and suppliers for economic activities in a global marketplace (Mann, 2000; Patel and Soni, 2013). Over the years, the growth of e-commerce and its economic potential in developing countries has been exponentially increasing with corresponding increases in revenues (eMarketer, 2014). E-commerce is one tool or medium whose potential is widely acknowledged as one of the most important liberalizing factors to transform developing economies and help them leap-frog into generating considerable revenues. Additionally, e-commerce is seen as an integrator of domestic and global markets and transcends borders and boundaries (Nabareseh and Osakwe, 2014a, Nah and Sid, 2002). To this end, e-commerce holds a high potential in adding value to businesses and consumers in developing countries (Nabareseh et al, 2014; Arnold and Quelch, 1998; Lituchy and Rail, 2000;

Kshetri, 2001; Annan, 2001). This notwithstanding, most developing country enterprises, especially in Africa, have not procured the benefits of this opportunity (Computer Economics, 2000; Nabareseh and Osakwe, 2014).

This paper surveys the perspective of consumers in five English speaking West African countries (Sierra Leone, Ghana, Nigeria, Liberia and The Gambia) on their understanding of and interest in security of e-commerce transactions. The paper uses the cluster analysis technique to classify these respondents into interest groups for targeted and purposeful rolling out of security measures in e-commerce. The paper also used decision tree analysis to create a model for predicting customers with higher e-commerce security concerns. The findings of this paper will feed into the enforcement of security in online transactions for economic integration of the sub-region.

2 BACKGROUND AND CHALLENGES

Researchers have put a number of factors forward as obstacles contributing to the slow pace of acceptability of e-commerce in Africa. These include security of transactions (Aljifri et al., 2003; Cronin, 1995; Beyda and Shaffer, 2000; Ford and Baum, 2000), absence of computer equipment (Atif, 2002; Kohavi, 2001; Lane and Bachmann, 1998), electricity supply challenges (Nabareseh et al, 2014b) and trust issues (Mukti, 2000; Rao, 2002), among others. Privacy, trust and security in e-commerce continue to be topical issues discussed by industry players. For example, confidential information of customers is often reported to be exchanged by businesses without prior notice to customers, thereby creating a data security concern (Aljifri et al., 2003). Data theft, unauthorized access to personal and identity theft also continue to remain major concerns of vendors and consumers in Africa (Castelfranchi and Tan, 2001; Keen et al., 1999: Akintola et al., 2011; Nabareseh and Osakwe, 2014; Okazaki, 2005, Nabareseh et al., 2015). Cronin (1995) sums up the challenges by stating that security, trust, privacy, censorship and eavesdropping are the main factors discouraging the embrace of e-commerce in Africa. The West Africa Security Council has also underscored data theft, Internet security and cybercrime as huge concerns inhibiting online business transactions, which as a result impede the realization of economic integration and regional trade in the sub-region (Olusegun, 2014).

Rao (2002) affirms that of the several challenges to the development of e-commerce in developing countries, trust remains one of the topmost concerns to many users. Rao (2002) explained that the growing mistrust of sending information over the Internet due to lack of certification and encrypted procedures has reduced the adoption of e-commerce activities by businesses and consumers in developing countries. Tan (2000) and Lane and Bachmann (1998) recommended that for e-commerce to succeed in Africa and other developing regions, the concept of trust in transactions must be emphasized.

The rest of the paper is organized in the following sections. Brief introduction of the concept of cluster analysis and decision trees are presented. The methodology used, including the mode of data collection and sample size, among others, is also explained. This is followed by presentation of results, analysis and conclusions.

3 CLUSTER ANALYSIS

According to Anderberg, (1973), cluster analysis is applied in identifying groups with similar characteristics existing in a data set. Clustering defines the intrinsic groups in an unstructured data set to make the set meaningful and useful. However, cluster analysis may be either useful or meaningful depending on the goal of the analysis (Sethi, 1971; Veldhius and Johnson, 1986; Jensen, 1971). It becomes meaningful when deployed in real life situations, but useful when

used as an initial point for further data analysis. In both cases, cluster analysis has played a pivotal role in the recognition of interesting patterns in many disciplines such as statistics, biology, commerce/business, psychology data mining and knowledge discovery, and many others.

Many authors have applied clustering algorithms in a variety of fields. It is applied in marketing to find customers with similar behavioral characteristics based on their purchasing record (Wagstaff et al., 2001), in biology to classify animals and plants (Hartigan and Wong, 1979; Kaufman and Rousseeuw, 2009), in insurance to identify groups of policy holders with risk factors (Kanungo et al., 2002), in cataloguing to order and group books in libraries (Steinbach et al., 2000) and many more. In the area of e-commerce, several applications of cluster analysis have been used. For example, Liang and Pei-Ching (2015) used cluster analysis to group Internet banking customers in Taiwan based on their perceptions of service quality. It was intended to help banks develop service products tailored to the clusters identified. Paulraj and Neelamegam (2014) used cluster analysis to improve business intelligence in an e-commerce setting, while Liu et al. (2015) employed cluster analysis in an online purchaser segmentation and promotion strategy in China.

There are many algorithms in clustering. The four most widely used algorithms are K-means, Fuzzy C-means, Hierarchical clustering and Mixture of Gaussians (MacQueen, 1967). The most used of these four is the K-means (MacQueen, 1967) algorithm, which is simpler to use for unsupervised learning. The algorithm minimizes an objective function as indicated in equation 1.

$$J = \sum_{j=1}^{k} \sum_{i=1}^{n} \left[x_i^j - c^j \right]^2 \quad (1)$$

where $\left[x_i^j - c^j \right]^2$ is the distance measure between the data point x_i^j and cluster center c^j. The objective function indicates the distance of *n* data points using the identified cluster centres. In the K-means algorithm, the simplest procedure is to classify a given data set into *k* number of clusters chosen a priori. Choosing the *k* has always been ambiguous because it depends largely on the data set, its distribution and the goal of the clustering. However, rule of thumb, the 'elbow method', the information criterion approach, the information theoretic approach and the silhouette method can be applied in choosing the *k.*

This paper used the K-Means clustering algorithm in identifying interesting patterns and groups for analysis in a data set on areas of security concerns on e-commerce transactions.

4 METHODOLOGY

The study collected data from the five English speaking West Africa countries (Sierra Leone, Ghana, Nigeria, Liberia and The Gambia) for the analysis. Business directories of the selected countries were used to identify and choose companies, social media for some respondents, and using contact persons in the respective countries to randomly select respondents for the survey. Respondents had varied knowledge in industries such as marketing, e-commerce website designing, retail and wholesale, industry, self-employed and many more. Questionnaire were forwarded to some of the respondents using their work emails taken from the directories and websites while others were contacted on social media or directly administered in the Country.

The random selection took into consideration various demographic backgrounds such as educational qualification, age, gender and occupation. One thousand two hundred and nineteen

(1,219) individuals responded to the questionnaire out of one thousand five hundred (1500) distributed. There was an eighty one percent (81%) responses rate. The questionnaire distribution per Country and corresponding response rate is as in Table 1 below.

Tab. 1 - Questionnaire distribution and response rate. Source: Authors'

Country	Questionnaire Received	No. Responded	Response Rate
Ghana	200	150	0.75
Liberia	450	352	0.78
Nigeria	500	408	0.82
Sierra Leone	150	143	0.95
The Gambia	200	166	0.83
TOTAL	**1,500**	**1,219**	**0.81**

The responses were combined and treated as a corpus for Anglophone West Africa. The demographics considered in the random sampling were gender, age, educational qualification, occupation, since these influence the perception of e-commerce security according to Liu et al., (2015). The other main variables were: whether the respondent has ever purchased items online, whether they had payment and data security concern, and the percentage of trust in online transactions in the respective countries. The various options in the variables used were coded as shown in Table 2. The data was collected through the use of a questionnaire (attached in appendix 1) designed and administered between August, 2015 and February, 2016. The RapidMiner data mining software, an open source data mining software, is used for the entire analysis.

Tab. 2 - Codes for alternatives in variables used. Source: Authors'

Variable	Alternative	Code
Gender	Female	0
	Male	1
Age group	16 to 25	1
	26 to 35	2
	36 to 45	3
	Above 45	4
Qualification	High school certificate/diploma	7
	Undergraduate	8
	Graduate	9
	Post-graduate	10
Occupation	Student	11
	Unemployed	12
	Self-employed	13
	Private sector worker	14
	Public sector worker	15
Purchase item online before	Yes	1

	No	2
Payment and data security	Yes	1
	No	2
Percentage of trust on online transactions	Above 57%	1
	42% to 57%	2
	26% to 41%	3
	10% to 25%	4
	Below 10%	5

As indicated earlier, this paper employs the k-means algorithm to cluster the data set into interesting groups for deployment. The number of clusters, *k*, generated is 4 for analysis. The four clusters have interesting patterns for analysis. The paper further presents the clusters in a filtered manner, hence makes it easier for prioritizing the cluster that need to be focused on to address the influence of security on e-commerce. A decision tree model is further presented for analysis of key e-commerce security variables identified using 'security concern' as predictor variable. The rest of the paper is arranged as in Figure 1.

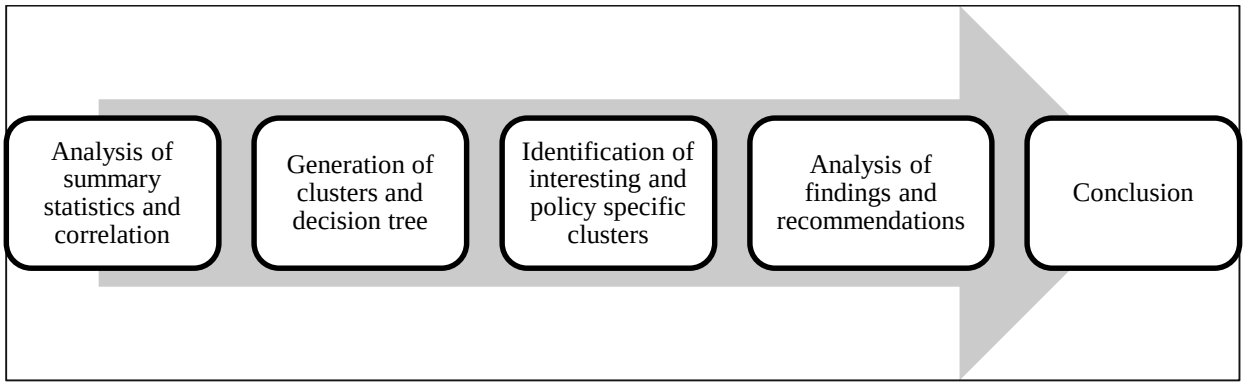

Fig. 1 - Framework for e-commerce security analysis. Source: Authors'

5 CLUSTER AND DECISION TREE MODELLING

5.1 Summary statistics

As indicated earlier, 1,219 people with divergent backgrounds and work experience in different sectors responded to the questionnaire from the five English speaking Anglophone West African countries. There were more males than females among the respondents. The reason for this may be because there are more males in corporate business and employment in these sub-Saharan Africa Countries. In Table 3 below, more individuals aged above 45 years answered the study. A greater number of individuals in this age group are well-experienced, own companies and offer employment. A lot of respondents have a graduate degree, majority work in the private sector and most had not purchased any item online, as seen in Figure 2 and Table 3. There is a negative response on online purchase history as in Table 3. A greater average of the respondents are concerned about security of payment and data transactions which has accounted for the below 10% trust on online transactions presented by respondents as indicated in Figure 2.

Tab. 3 - Summary statistics. Source: Authors'

Variable	**Alternatives**	**No. of responses**	**Percentages**

Gender	Male	727	59.62
	Female	492	40.38
Age group	16 to 25	227	18.61
	26 to 35	354	29.02
	36 to 45	208	17.03
	Above 45	431	35.33
Purchased item online before	Yes	569	46.69
	No	650	53.31
Payment and data security concern	Yes	911	74.76
	No	308	25.24

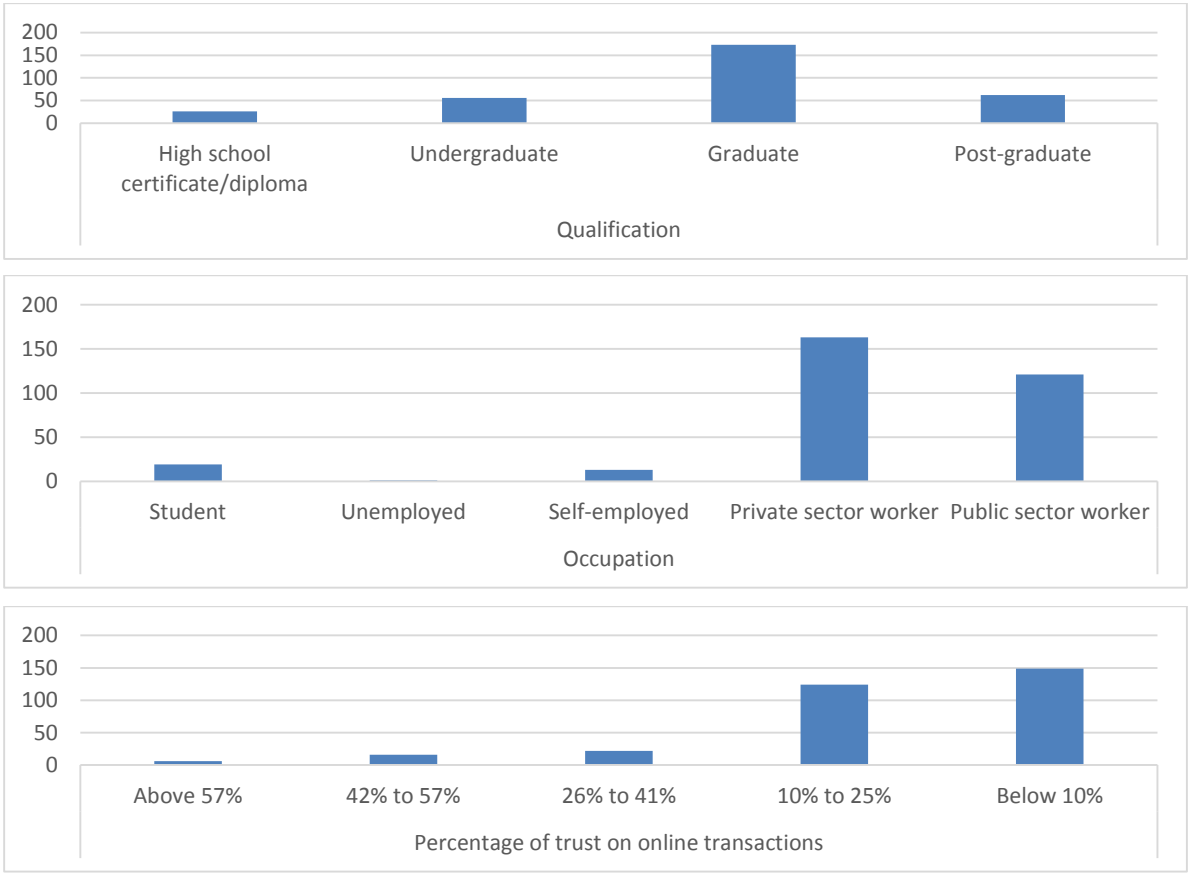

Fig. 2 - Summary statistics. Source: Authors'

5.2 Cluster generation and analysis

The k-means clustering was used for the cluster analysis. It helps to group various interest areas and concerns to allow for natural groups so that efforts can be channelled to make the fight against e-commerce insecurity and the promotion of the higher uptake of e-commerce more effective in the sub-region. The chosen *k* in the study was four (4). This means that there will be four groups/clusters in the study. The four (4) clusters (*k*) are identified by comparing each observations attribute values to the means of other observations to produce. The cluster model of the four clusters is presented in Table 4 below. Out of the 1,219 observations, cluster 2 has

the highest number observations of 765, followed by cluster 0, cluster 1 and cluster 3 in chronological order.

Tab. 4 - Clusters (*k*). Source: Authors'

Cluster	No of Items
0	223
1	154
2	765
3	77
Total	**1,219**

Results (means) are presented in the centroid table in Table 5 below. The analysis of the table is done by rounding the means to the nearest whole number to tally with the coding system used in Table 2. In analyzing Cluster 0 in Table 5, post-graduate respondents (10) who are public servants (15), and are above 45 years of age (4) have never purchased any item online before. In this cluster, the respondents have a data and payment security concern with a below 10% trust on online transactions.

Cluster 1 equally presents an interesting result. Most respondents in this cluster have much trust (42%–57%) in e-commerce/online transactions. Although respondents have payment and data security concerns, they have done some transactions online before, work in the private sector, age between 26–35 years and are graduates.

Self-employed graduates in cluster 2 (13.336), aged 36–45 (2.725) years have payment security concerns (1.276) and a below 10% trust (4.537) in online transactions. Respondents in this cluster have purchased items online before. Cluster 3 presents a further interesting result as seen in Table 5 and Figure 3. Females within the age group of 26–35 years, undergraduates and still students have between 10–25% trust on online transactions. This group of female respondents have purchased items online before and are concerned about payment and data security in their transactions.

Tab. 5 - Centroid table. Source: Authors'

Attribute	Cluster 0	Cluster 1	Cluster 2	Cluster 3
Gender	1.413	1.067	1.065	0.200
Age group	4.177	2.275	2.725	2.155
Qualification	10.282	9.100	9.241	8.250
Occupation	14.865	14.425	13.336	11.050
Purchase Item online before	1.706	1.325	1.356	1.450
Payment and data security concern	1.172	1.300	1.276	1.150
Percentage of trust on online transactions	5.375	2.300	4.537	4.050

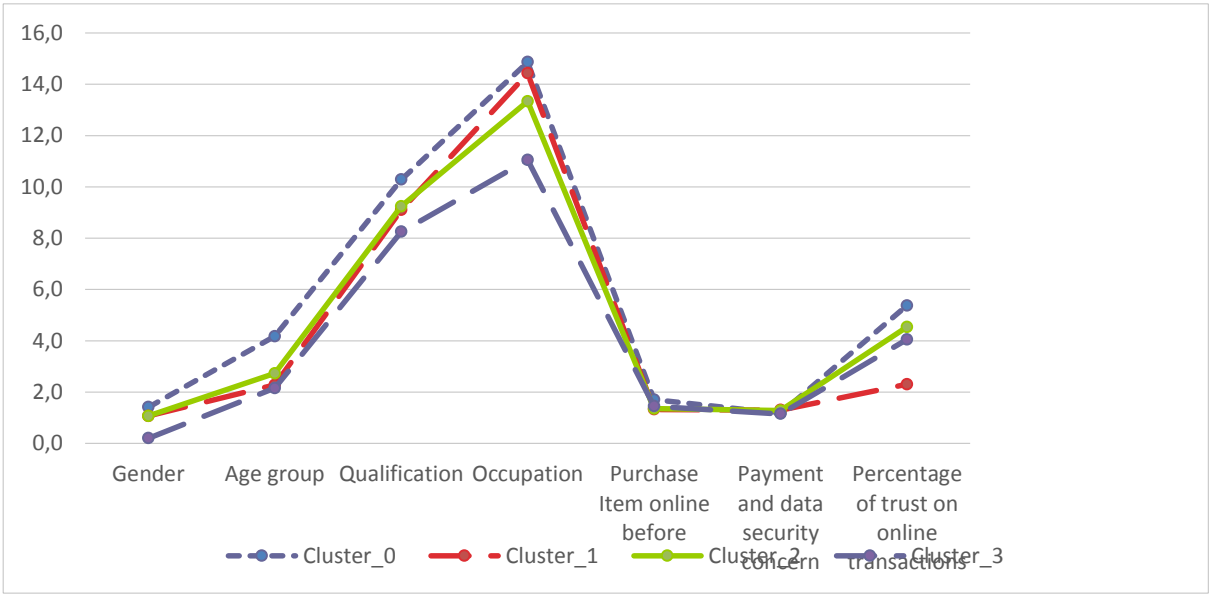

Fig. 3 - Cluster analysis plot. Source: Authors'

Interestingly, all the clusters have a concern in e-commerce security (payment and data security) in all the five surveyed countries in the sub-region. However, Cluster 0 would need much more concentration and attention to encourage online purchases and eliminate the huge mistrust on online transactions. This means that the sub-region must carefully tackle this concern or fear to increase the uptake of e-commerce across the sub-region. Trust in online transactions, age group, qualification, and payment/data security are variables more congruent with e-commerce transactions in the sub-region. Stakeholders would need to carefully consider these variables in whatever policies enacted for e-commerce. Businesses must carefully focus on these variables in building e-commerce websites and taking up online payments in their day-to-day transactions.

From the centroid table (Table 5), male respondents above 45 years with a post-graduate degree are primarily concerned about insecurity in online transactions. Such individuals have never even purchased any item online before primarily due to their conceived mind about insecurity of their transactions. As there is a growing number of post-graduates in the sub-region, and also owing to the point that most people in this category are in responsible, governmental and operational positions, a keen interest and concentration on these variables will be most ideal. It is important to mention that most presidents, ministers and other government appointees reside within these variables. The promulgation of a sub-regional decree on e-commerce, institution of security structures for e-commerce, creation of an enabling environment for cross-border delivery of goods and services, and the enforcement of tax regulations are in the ambit of residents of these variables. This category of e-commerce users must therefore be first convinced with security issues in other to help create a holistic embrace to e-commerce transactions in West Africa.

5.3 Decision tree modelling and prediction

The decision tree analysis is included in this study to identify the nodes (grey oval shape) or variables that stand out when trying to predict e-commerce payment/data security in the sub-region. It can be seen in Table 6 and Figure 4 that "purchase item online before" is the best predictor of whether potential e-commerce customers in the sub-region would have payment/data security concerns. If the person's response is "Yes" to "purchase item online before", then such a person has concern for payment/data security no matter the age or

percentage of trust. If however, the response is "No", the next predictor variable of Age group is used. With an age group of above 45 years, the percentage of trust variable becomes a very important predictor variable. From the tree, it is seen that those with a below 10% trust have a higher (100%) payment/data security concerns in e-commerce. This decision tree results corroborates the results in the cluster table explained above. This model can hence be used to predict customers within the sub-region who are likely to have payment/data security concerns in e-commerce transactions and hence not embrace online transactions.

Tab. 6 - Decision tree model. Source: Authors'

Purchase Item online before = No
| Age group = 16 to 25 years: Yes {Yes=39, No=0}
| Age group = 26 to 35 years: Yes {Yes=67, No=2}
| Age group = 36 to 45 years: Yes {Yes=32, No=1}
| Age group = Above 45 years
| | Percentage of trust on online transactions = 10% - 25%: No {Yes=1, No=1}
| | Percentage of trust on online transactions = 42% - 57%: Yes {Yes=3, No=0}
| | Percentage of trust on online transactions = Below 10%: Yes {Yes=2, No=0}
Purchase Item online before = Yes: Yes {Yes=93, No=76}

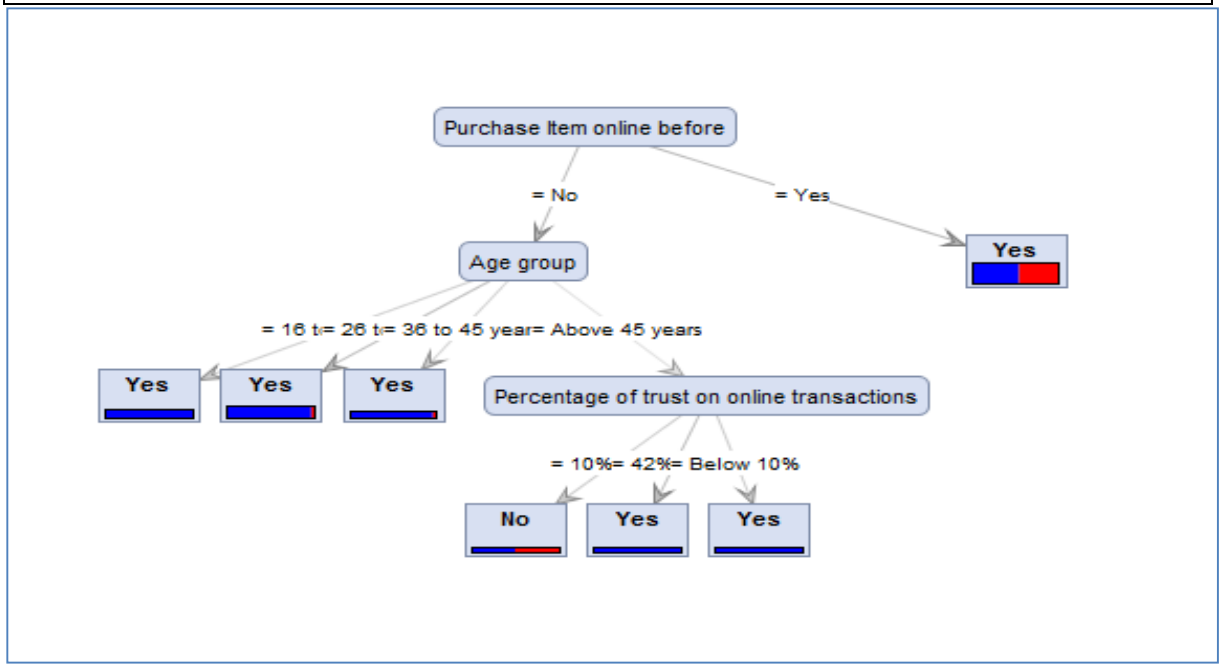

Fig. 4 - Decision tree model. Source: Authors'

6 CONCLUSION AND RECOMMENDATIONS

Free trade in the Economic Community of West African States (ECOWAS) bloc depends largely on vibrant risk-free e-commerce transactions transcending the borders and cultures of the countries. It is evident from the correlation, cluster and decision tree analysis above that payment and data security is a big concern in online transactions in the sub-region. Stakeholder collaboration, with a greater percentage of governmental involvement, is ideal to address the

various cluster concerns. The various countries studied (Anglophone West Africa) must primarily champion this since it will lead to closer business collaboration and expansion of business activities across the borders.

Businesses, online security experts and other corporate organizations can take an interest in cluster 0 in their quest to improve online transactions. To enhance e-commerce in these five developing West African countries, this cluster can serve as a focal point to identify the specific needs of the people in this cluster and address it accordingly.

Since there exists some trust in Cluster 1, stakeholders are recommended to find out from this group the reason for the trust and whether specific security measures are adapted in their place of work or home or whichever means e-commerce transactions are conducted through.

It is recommended that stakeholders investigate the specific concerns respondents in Cluster 2 encountered in their transactions resulting in the very low trust in e-commerce security. We also recommend stakeholders to identify, from this self-employed category, whether such security concerns are legislative, cultural or technological for specific and targeted responses.

It will be of much interest to include students and females in policies concerning e-commerce transactions and security, hence a closer look at this Cluster 3 is highly recommended to help elucidate deep concerns for policy formulation in the sub-region.

Companies must consciously strengthen e-commerce website security and offer training for users to be conscious about threats in online transactions. The clusters identified with the decision tree model can help companies locate potential customers and assist them in overcoming fears in security transactions. Businesses need to recall that expansion and free trade in the ECOWAS bloc is doable with an embrace to e-commerce while trust in payment/data online transaction remains high on the pedestal.

The paper presented a cluster analysis of respondents in five West African countries tailored on concern of security of transactions. A correlation mining analysis and a decision tree predictor analysis is also used to correlate variables and identify the best predictor variable for payment/data security concern. The findings of the paper can be used by companies in the e-commerce industry in the sub-region and for developing countries in general, ECOWAS and the African Union in designing remedies on security of e-commerce to enhance trade within the sub-region.

ACKNOWLEDGMENT

This work was supported by the Internal Grant Agency of Tomas Bata University in Zlin IGA/FaME/2016/019, IGA/FaME/2015/023 and IGA/FaME/2016/006.

REFERENCES

Akintola, K. G., Akinyede, R. O., & Agbonifo, C. O. (2011). Appraising Nigeria Readiness For Ecommerce Towards: Achieving Vision 20: 2020. *International Journal of Research and Reviews in Soft and Intelligent Computing, 9*(2), 331-340.

Aljifri, H. A., Pons, A., & Collins, D. (2003). Global e-commerce: a framework for understanding and overcoming the trust barrier. *Information Management & Computer Security, 11*(3), 130-138.

Anderberg, M.R. (1973). *Cluster analysis for applications* (No. OAS-TR-73-9). Office of the assistant for study support kirtland AFB n mex.

Annan, K. (2001). Development without borders. *Harvard International Review*, 23(2), 84.

Arnold, D. J., & Quelch, J. A. (1998). New strategies in emerging markets. *MIT Sloan Management Review*, *40*(1), 7.

Atif, Y. (2002). Building trust in e-commerce. *Internet Computing, IEEE* 6(1), 18-24.

Beyda, W.J. & Shaffer, S. (2000). *U.S. Patent No. 6,122,743*. Washington, DC: U.S. Patent and Trademark Office.

Castelfranchi, C. & Tan, Y.H. (Eds.) (2001). *Trust and deception in virtual societies*. Kluwer.

Computer Economics, (2000). The global economy is not so global, Internet and E-Business Strategies, 4(4), 1–3.

Cronin, G. (1995). Marketability and social implications of interactive TV and the information superhighway. *Professional Communication, IEEE Transactions*, 38(1), 24-32.

eMarketer, (2014). Global B2C Ecommerce Sales to Hit $1.5 Trillion This Year Driven by Growth in Emerging Markets. Available at: http://www.emarketer.com/Article/Global-B2C-Ecommerce-Sales-Hit-15-Trillion-This-Year-Driven-by-Growth-Emerging-Markets/1010575 (accessed on 8/12/2015).

Ford, W. & Baum, M.S. (2000). *Secure electronic commerce: building the infrastructure for digital signatures and encryption*. Prentice Hall PTR. C. E-commerce, WTO and developing countries. *The World Economy*, 23(8), 959-978.

Hartigan, J.A. & Wong, M.A. (1979). Algorithm AS 136: A k-means clustering algorithm. *Applied statistics*, 100-108.

Jensen, R.E. (1971). A cluster analysis study of financial performance of selected business firms. *Accounting Review*, 36-56.

Kanungo, T., Mount, D.M., Netanyahu, N.S., Piatko, C.D., Silverman, R. & Wu, A.Y. (2002). An efficient k-means clustering algorithm: Analysis and implementation. *Pattern Analysis and Machine Intelligence, IEEE Transactions*, 24(7), 881-892.

Kaufman, L. & Rousseeuw, P.J. (2009). *Finding groups in data: an introduction to cluster analysis* (Vol. 344). John Wiley & Sons.

Keen, P., Balance, G., Chan, S. & Schrump, S. (1999). *Electronic commerce relationships: Trust by design*. Prentice Hall PTR.

Kohavi, R. (2001). Mining e-commerce data: The good, the bad, and the ugly. In *Proceedings of the seventh ACM SIGKDD international conference on Knowledge discovery and data mining* (pp. 8-13). ACM.

Kshetri, N.B. (2001). Determinants of the locus of global e-commerce. *Electronic Markets*, 11(4), 250-257.

Lane, C. and Bachmann, R. (Eds.) (1998). *Trust within and between organizations: Conceptual issues and empirical applications*. Oxford University Press.

Liang, C. C., & Pei-Ching, W. (2015). Internet-banking customer analysis based on perceptions of service quality in Taiwan. *Total Quality Management & Business Excellence*, *26*(5-6), 550-568.

Lituchy, T. R., & Rail, A. (2000). Bed and breakfasts, small inns, and the Internet: The impact of technology on the globalization of small businesses. *Journal of International Marketing*, *8*(2), 86-97.

Liu, Y., Li, H., Peng, G., Lv, B., & Zhang, C. (2015). Online purchaser segmentation and promotion strategy selection: evidence from Chinese E-commerce market. *Annals of Operations Research*, *233*(1), 263-279.

MacQueen, J. (1967, June). Some methods for classification and analysis of multivariate observations. In *Proceedings of the fifth Berkeley symposium on mathematical statistics and probability* (Vol. 1, No. 14, pp. 281-297).

Mann, C.L. (2000). Electronic Commerce in Developing Countries. *Washington DC: Institute for International Economics. Working Paper*, (3).

Mukti, N. A. (2000). Barriers to putting businesses on the Internet in Malaysia. *The Electronic Journal of Information Systems in Developing Countries*, *2*.

Nabareseh, S., & Osakwe, C. N. (2014). Can business-to-Consumer electronic commerce be a game-changer in Anglophone West African countries? Insights from secondary data and consumers' perspectives. *World Applied Sciences Journal*, *30*(11), 1515-1525.

Nabareseh, S., Osakwe, C. N., Afful-Dadzie, E., Klímek, P., & Chovancová, M. (2014). Exploring roles of females in contemporary socio-politico-economic governance: An association rule approach. *Mediterranean Journal of Social Sciences*.

Nabareseh, S., Afful-Dadzie, E., & Klímek, P. (2015). Security on Electronic Transactions in Developing Countries: A Cluster and Decision Tree Mining Approach. In Proceedings of the 5th International Conference on IS Management and Evaluation 2015: ICIME 2015 (p. 85). Academic Conferences Limited.

Nah, F. F. H., & Davis, S. (2002). HCI research issues in e-commerce. *Journal of Electronic Commerce Research*, *3*(3), 98-113.

Okazaki, S. (2005). New perspectives on m-commerce research. *Journal of Electronic Commerce Research*, *6*(3), 160.

Olusegun, A.O. (2014) *West African countries look to adopt, coordinate cyberlaws.* Available at: http://www.pcadvisor.co.uk/news/internet/3508753/west-african-countries-look-to-adopt-coordinate-cyberlaws/ (accessed 03/12/2015).

Patel, T. & Soni, P. (2013). E-commerce in Developing Countries. *Oriental Journal of computer Science & Technology*, 6(3), 357 – 361.

Paulraj, P., & Neelamegam, A. (2014). Improving Business Intelligence Based on Frequent Itemsets Using k-Means Clustering Algorithm. In *Networks and Communications (NetCom2013)* (pp. 243-254). Springer International Publishing.

Rao, M. (2002). "*How real is the Internet market in developing nations?*" Available at: www.isoc.org/oti/articles/0401/rao.html (accessed 15/12/2015).

Sethi, S.P. (1971). Comparative cluster analysis for world markets. *Journal of Marketing Research* 348-354.

Shaw, M.J., Subramaniam, C., Tan, G.W. & Welge, M.E. (2001). Knowledge management and data mining for marketing. *Decision support systems*, 31(1), 127-137.

Steinbach, M., Karypis, G. & Kumar, V. (2000). A comparison of document clustering techniques. In *KDD workshop on text mining*, 400(1), 525-526.

Tan, W. T. Y. (2000). Toward a generic model of trust for electronic commerce. *International Journal of Electronic Commerce*, 5(2), 61-74,

Veldhuis, J.D. & Johnson, M.L. (1986). Cluster analysis: a simple, versatile, and robust algorithm for endocrine pulse detection. *The American Journal of Physiology* 250(4 Pt 1):E486-93.

Wagstaff, K., Cardie, C., Rogers, S. & Schrödl, S. (2001). Constrained k-means clustering with background knowledge. In *ICML* 1: 577-584.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

DOES BRAND VALUE INFLUENCE ATTITUDES TOWARDS CAREERS IN SHARED SERVICE COMPANIES? A STUDY OF STUDENTS IN THE CZECH REPUBLIC

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ABSTRACT

Business service centers represent a growing market in the Czech Republic with the emergence of new companies annually. A number of Fortune 500 companies have already established their centers in the Czech Republic. With the need to attract high-quality candidates, centers compete with each other through various attraction and retention schemes. Companies attract potential employees in many ways including brand development and value. Out of 1283 respondents, a correspondence analysis is carried out to ascertain the suitability of the variables for analysis. The t-test is adopted to determine the acceptability or otherwise of hypothesis stated in the paper. The findings portray that students in the Czech Republic who are very familiar with a company will be willing to work in that company. The results further indicate that the unawareness of a company does not show the non-willingness to work in such a company. Brand value also plays a pivotal role in the attitudes of students in the Czech Republic towards careers in the shared service companies, hence the higher the value, the higher the willingness.

Keywords: *shared service centers, careers, students, preferences, employer brand, Czech Republic*

JEL Classification: L84

1 INTRODUCTION

Many top multinational companies listed in Fortune 500 invest in business support centers (BSCs) in the Czech Republic due to convenient location, affordable office spaces, and low-cost educated workforce (CzechInvest, 2009, 2015a). Almost a third of the global most attractive destinations for business process outsourcing and shared service centers (SSCs) are located in Central and Eastern Europe (CEE). The capital city of the Czech Republic, Prague, in the report by Tholons holds 14th place, leaving behind Budapest in Hungary, Warsaw in Poland, Kolkata in India, among others (Tholons, 2015). The Association of Business Service Leaders (ABSL) in the Czech Republic estimated that in 2015 over 55,000 people worked in business services in the Czech Republic (Drygala et al., 2015). The growth rate of the industry in the Czech Republic is even higher than in India, which is by far one of the most popular outsourcing destinations globally (Stewart, 2015).

The expansion of the business services industry is confronted with the challenge of recruitment and attraction of talents to the centers. High-quality workforce establishes an important prerequisite for further growth of the centers and their profitability (Fersht et al., 2011; Marciniak, 2014). A number of industry-wide studies emphasize importance of recruitment in the centers. According to a recent report by the Shared Services and Outsourcing Network (SSON), evolving talent and skill sets is named as one of the top five mega-trends in the CEE shared services industry (SSON, 2015a). Business service centers are struggling to attract candidates with the relevant functional expertise and leadership skills to drive the growth of BSCs (SSON, 2015b).

The paper analyses the impact of corporate brand and employer ranking on attitudes of students to prospective employers. The paper further evaluates the impact of brand awareness on the willingness of University students to undertake job activities in the chosen shared service companies. The reason for this research and other literature discussions are indicated in section 1.1 and the sub-sections.

1.1 Employer branding and company exposure

Ambler & Barrow (1996) defined the employer brand in terms of benefits calling it "the package of functional, economic, and psychological benefits provided by employment, and identified with the employing company". According to Backhaus and Tikoo (2004), employer branding is a "firm's effort to promote, both within and outside, a clear view of what makes it different and desirable as an employer" (Backhaus & Tikoo, 2004). Organizations tend to focus their promotion efforts on creating strong brand awareness and captivating image for company products and corporate brands. Recently employer branding has become an important part of Human Resource (HR) operations (Barrow & Mosley, 2005).

Companies effectively use employer branding in their regular business practice (Ambler & Barrow, 1996; Franca & Pahor, 2012). A number of researchers and organizations try to measure the best employer in one country, region or industry through different methodologies. Studies differentiate between corporate and employer brand, suggesting that corporate brand is related to promotion of a specific product or company, emphasizing external qualities, such as competitive advantage, while employer brand is related to promotion of a company as an attractive employer (Franca & Pahor, 2012; Kunerth & Mosley, 2011; Lloyd, 2002).

Employer branding includes a range of activities aimed at the promotion of the firm to increase awareness about the company among talent pool. Cable & Turban (2003) assessed the degree to which advertising of its reputation and HR philosophies on job postings predict candidate perceptions. The authors concluded that building an employer brand should rather be a long-term activity than short-term. The authors also looked into "brand equity" perspective, suggesting that perception of reputation of an organization "act as a form of employment "brand" which will "add value to a job beyond a job itself" (Cable & Turban, 2003).

A significant body of research exists that investigates the factors that affect attractiveness of a particular organization to potential candidates, because job selection process is strongly affected by organizational attributes (Boswell et al., 2003; Montgomery & Ramus, 2011; Rynes & Barber, 1990). One of the main findings is that prospective recruits are more likely to look for a career with a company that has a good reputation (Adler & Ghiselli, 2015; Backhaus & Tikoo, 2004; McGuire et al., 1988; Preston & O'Bannon, 1997; Turban & Greening, 1997). The more prospective candidate can be assured of a good reputation of the organization, the more likely one will apply for a job at the organization. This finding suggests that the companies with a higher brand value will attract more candidates (Cable & Turban, 2003). A recent empirical study on employment trends in professional business services, posit that young graduates and students are attracted by the companies that offer many opportunities for professional development and training (Universum, 2015). In this case value of a company brand may play less significant role than the rank by employer brand since company brand does not reflect specifics of human resource practices of a given company.

Organizations have found that effective employer branding helps in attraction and retention of employees, creating competitive advantage in human resource practices (Backhaus & Tikoo, 2004). Qualified employees present important prerequisite to support business services industry growth, hence HR professionals use various tools to reach and attract the best candidates. Tools

such as job fairs, webinars, proper website and social media promotion, organization of common projects with universities among others are employed (Drygala et al., 2014). A brand of the company becomes an important asset in building awareness and reputation at the employment field as well as plays an important role in development of the promotion and attraction strategy (Edwards, 2010; Kucherov & Zavyalova, 2012).

1.1.1 Rationale behind the research scope

The proposed study focuses on the Czech Republic, which is a region with high density of service centers (Tholons, 2015). A business service sector is an important source of economic growth and a big employer in the region, which means that lack of skilled candidates creates limitations for industrial development (Rothwell et al., 2011). This research has never been conducted in the Czech Republic, hence findings are novel in the industry in this Country.

1.1.1.1 Target group

The structure of labor force coupled with the specific requirements to the candidates from the side of investing companies (including, very often, university or professional degree) makes students and young graduates a target audience for recruitment activities undertaken by shared services HR professionals.

The target group for research (university students) was selected based on the fact that:

1) In the Czech Republic 70% of the openings in the centers require university degree (CzechInvest, 2015b);
2) According to Association of Business Service Leaders in the Czech Republic (ABSL), many employees in shared service occupations combine their careers with university studies (Drygala et al., 2015);
3) Many centers, including IBM, SAP, and Accenture establish partnerships with universities in order to attract talent early (Drygala et al., 2014).

The job search literature recommends companies to develop a sound understanding of graduates' career expectations and to know what job and organizational characteristics impact their decisions during the job search process (Montgomery & Ramus, 2011).

1.1.1.2 Target companies

In order to design a list of SSC companies in the Czech Republic, two main sources were used; a list of official and supporting members of ABSL in the Czech Republic obtained from official website of the organization (ABSL, 2013) and the report of Business and Investment Development Agency CzechInvest (CzechInvest, 2015a).

As a control group for analysis of influence of corporate brand awareness on the choice of the shared service center, companies from the list of Top 100 Most Valuable Brands globally as of 2015 year (Branddirectory, 2015; Forbes, 2013) were first sieved. Out of these companies, those that operate in the target Country (Czech Republic) were further selected as indicated in Tab. 1. Additionally, InBev and Ebay were added to the list of analyzed companies based on their high ranking in the list of top 50 employers globally (the rest of the companies are also present in the list) (SyncForce+, n.d.).

Tab. 1 – Companies that operate SSCs in the Czech Republic by brand value as of 2015. Source: http://www.forbes.com/powerful-brands/list/#tab:rank

Rank	Company Name	Brand Value	Brand Revenue	Company Advertising

5	IBM	$49,8 B	$92,8 B	$1,3 B
17	ORACLE	$26,8 B	$38,8B	$79 M
28	SAP	$19,6 B	$21,1 B	-
44	Accenture	$12, 2B	$10,3 B	-
46	Siemens	$11,6 B	$91,6 B	-
50	Ebay	$11 B	$7,6 B	$1,3 B
91	ExxonMobil	$6,5 B	$364,8 B	-

2 METHODOLOGY

2.1 Research method description

Data for the study was collected from students of some public Universities in the Czech Republic. Questionnaire was developed using Google forms and consisted of multiple-choice and closed-ended questions. Questionnaires were distributed to respondents via students' emails which were obtained from the various student affairs offices. The respondents represent students of all grades as well as different study programs. To reach a larger response rate, the questionnaire was offered in both English and Czech language to make it easier for non-English speakers to comfortably respond to the survey. The surveying phase of the research took place between August – December 2015.

A total of 1,283 students (668 females and 615 males) from five state Czech Universities responded to the questionnaire out of a total of 1,500 students given a response rate of 86%. The list of questions and the survey design was based on the previous pilot study conducted in one of the universities to validate the questionnaire and test their reliability. Students responded to questions on awareness of shared service centers, call centers, and outsourcing and differences between these major types of business services. Further, students were provided with a list of the business service companies that operate in the Czech Republic with much attention on those ranked by brands. Students were asked to assess the level of awareness of these companies and their level of willingness to work in them.

Following literature review, the research questions to be answered in the study are:

RQ1: Does a brand of a company that operates a shared service center in the Czech Republic influence career decision?

RQ2: Does a higher corporate brand value of a company make it a more desirable employee?

RQ3: How does employer brand ranking affect willingness of students to start a career in the business services?

The proposed study focuses on assessing impact of awareness about a company as well as a brand value of the company on students' willingness to start a career. The paper also assesses differences in perceptions of companies that have established their centers in the Czech Republic by students of the Universities. The paper investigates the importance of a brand in job search process among Czech students. The following hypotheses are explored:

H1: Higher awareness in a company leads to higher willingness of students to work in the business service center

H2: Higher value of a corporate brand leads to higher students' willingness to start a career in the shared service center

Responses in the Czech language were translated back into English and merged with the responses in English. The data was cleaned for consistency as well as removing repetitions and missing responses. Using the Stata statistical analytical tool, the data was analyzed to produce results based on listed hypotheses and research questions.

3 RESULTS

Correspondence analysis is used in this paper to cross tabulate brands per the ranking quoted in Tab. 1 with the awareness and willingness to work in these companies based on data from respondents. Correspondence analysis is a statistical tool used to discover, explain and predict responses graphically (Yelland, 2010). The technique reveals the companies that respondents are aware of and willing to work in with a reasonable amount of certainty. The t and z test (two samples) is carried out to evaluate the hypothesis in line with the goal of the paper.

3.1 Correspondence analysis

In the contingency table (Tab. 2), the correspondence analysis produces a clear picture of data on respondents who are aware of a particular company and willing to work there. The results represent absolute number of respondents out of 1283 total respondents. Out of the 87% respondents who indicate that they are very familiar with Siemens as a company, only 16% out-rightly declare their willingness to work in the said company. In the same vein, 20% of respondents out of 89% who are very familiar with Ebay will work with the company out-rightly while 43% will not work with the company. Although 78% respondents have never heard of InBev, 37% of the respondents will likely/out-rightly work with the company. From the distribution in the contingency table, IBM is evenly spread in terms of willingness to work in the company. With the spread, 34% of respondents are not willing to work with the IBM, 32% may consider working with the company while 34% will effectively work with the company without further consideration. In the discussion section, the reasons for these differences and choices are clearly elaborated.

Tab 2. – Contingency table. Source: Developed by authors

Category	Awareness about the company				Willingness to work		
Company	Never heard before	Somewhat familiar	Familiar	Very familiar	No	Maybe	Yes
Accenture	849	124	0	310	698	439	146
Johnson & Johnson	277	114	75	817	562	503	218
ORACLE	384	139	31	729	613	416	254
ExxonMobil	539	120	71	243	655	406	222
SAP	585	117	74	507	621	474	188
Ebay	95	45	0	1143	550	471	262
InBev	1002	122	0	159	807	393	83
Siemens	163	9	0	1111	581	496	206
IBM	252	82	71	878	441	410	432

Testing the independence of rows and columns, Tab. 3 clearly presents a chi-square observed value greater than the critical value, hence the p-value of <0.0001 is less than the alpha value

of 0.05. The result portrays a non-linearity between the variables represented in the contingency table indicating that the rows and columns are significantly associated, hence correspondence analysis on the data and results can be relied upon and are valid.

Tab 3. – Test of independence between the rows and the columns. Source: Authors

Chi-square (Observed value)	4223.804
Chi-square (Critical value)	65.171
DF	48
p-value	< 0.0001
Alpha	0.05

Test interpretation:
H0: The rows and the columns of the table are independent.
Ha: There is a link between the rows and the columns of the table.
As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H_0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H0 while it is true is lower than 0.01%.

The quality of the analysis is determined by the eigenvalues and percentages of inertia with the scree plot generated in Tab. 4 and Fig. 1. The quality of the analysis is very high since the sum of the first two eigenvalues is close to 100. The sum of the first two eigenvalues adds up to 95% of total inertia, indicating that the results can be relied on. The value of the second eigenvalue of 0.022 decrees decreases variations in the analysis hence findings are valid.

Tab. 4. – Eigenvalues and percentages of inertia. Source: Authors

	F1	F2	F3	F4	F5	F6
Eigenvalue	0.155	0.022	0.005	0.002	0.001	0.000
Inertia (%)	83.379	11.822	2.876	1.027	0.768	0.128
Cumulative %	83.379	95.201	98.077	99.104	99.872	100.000

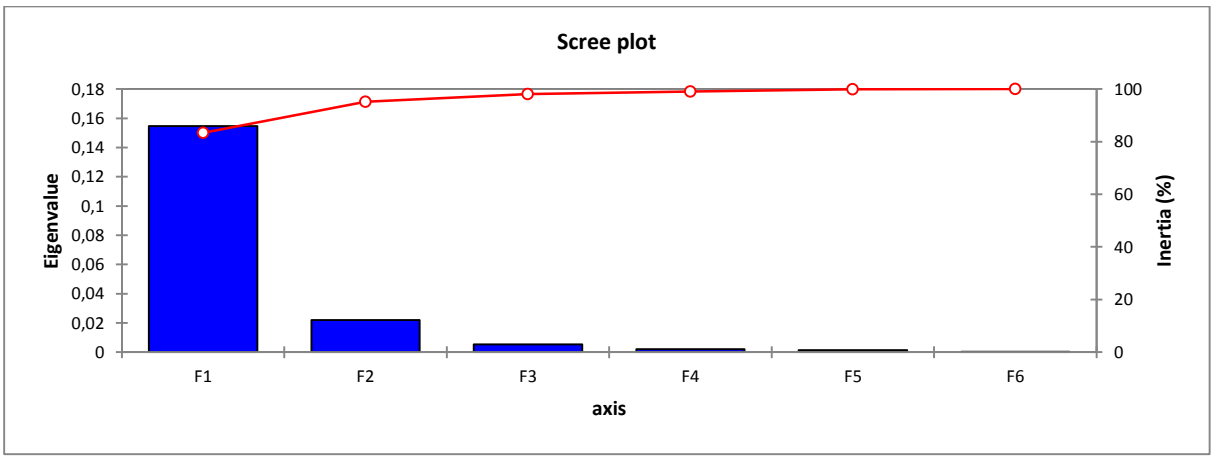

Fig. 1. – Scree plot. Source: Developed by authors

The French or symmetric plot in Fig. 2 spreads out both rows and column points to determine the similarity of profiles. More respondents are somewhat familiar with ExxonMobil since the points are almost superimposed. The symmetric plot further shows some respondents are willing to work with IBM with the closeness of the points. The distance between the row and column points produce inter row and column chi-square distances. With the spread and overlay of row and column points, analysis of hypothesis produced subsequently in this paper will directly reflect the intent of respondents.

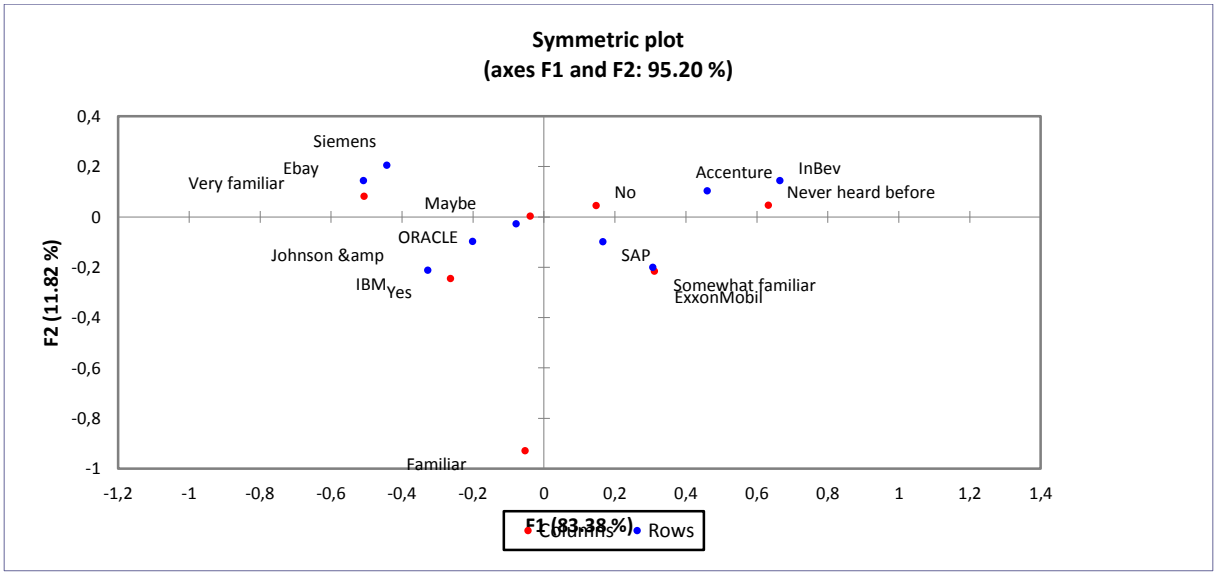

Fig. 2. – Symmetric plot. Source: Developed by authors

3.2 Hypothesis testing

The t-test is used in the analysis to determine significance of two independent groups. With the earlier analysis using the correspondence analysis, the data is highly valid for testing and the independence of the groups is ascertained.

3.2.1 Analysis of willingness to start a career vs company awareness

In Tab. 5, the t_{obt} (4.162) is more extreme than the t_{crit} (1.992) hence the H_0 which indicates that respondents who are very familiar with a company will not work with that company is rejected and the H_a accepted. With a degree of freedom *(df)* of 76, the t-distribution increases in normality.

Tab. 5. – Familiarity with a company and willingness to work. Source: Authors

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Very familiar	39	0	39	5.000	1143.000	391.179	394.676
Yes	39	0	39	31.000	432.000	121.051	92.402
Difference		270.128					
t (Observed value)		4.162					

|t| (Critical value)	1.992
DF	76
p-value (Two-tailed)	< 0.0001
Alpha	0.05

Test interpretation:
H_0: The difference between the means is equal to 0.
Ha: The difference between the means is different from 0.
As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H_0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H_0 while it is true is lower than 0.01%.

In testing whether respondents who have never heard of a company will not work with such a company, the t_{obt} (-24.692) is less extreme than the t_{crit} (-0.388) as seen in Tab. 6. With the p-value of 0.699 being greater than the alpha value of 0.05, the H_0 is accepted and H_a rejected. Hence it is not valid that respondents not being aware of a company will not work in such a company. The normality is high based on the *df*, hence the result is valid.

Tab. 6. – Non-familiarity with a company and non-willingness to work. Source: Authors

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Never heard before	39	0	39	95.000	1159.000	707.974	380.198
No	39	0	39	441.000	881.000	732.667	114.974

Difference	-24.692
t (Observed value)	-0.388
|t| (Critical value)	1.992
DF	76
p-value (Two-tailed)	0.699
Alpha	0.05

Test interpretation:
H_0: The difference between the means is equal to 0.
Ha: The difference between the means is different from 0.
As the computed p-value is greater than the significance level alpha=0.05, one cannot reject the null hypothesis H_0. The risk to reject the null hypothesis H_0 while it is true is 69.89%.

To therefore confirm whether it means that respondents not hearing of a company will invariably still respond positively to work with the company produce the results in Tab. 7. With the observed value exceeding the critical value, the p-value less than alpha and the *df* increasing

the normality of the t-distribution, the null hypothesis is rejected and the alternative hypothesis accepted. Thus, respondents who have never heard of a company will still, interestingly, declare full willingness to work for that company.

Tab. 7. – Non-familiarity with a company and willingness to work. Source: Authors

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Never heard before	39	0	39	95.000	1159.000	707.974	380.198
Yes	39	0	39	31.000	432.000	121.051	92.402

Difference	586.923
t (Observed value)	9.368
|t| (Critical value)	1.992
DF	76
p-value (Two-tailed)	< 0.0001
Alpha	0.05

Test interpretation:
H_0: The difference between the means is equal to 0.
Ha: The difference between the means is different from 0.
As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H_0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H_0 while it is true is lower than 0.01%.

3.2.2 Analysis of willingness to work based on the corporate brand value

Respondents per the results in Tab. 8 will be willing to work in a company based on the brand value of the company. Brand value hence plays a critical role in the image of a company and the willingness of potential employees highly relate to this value.

Tab. 8. – Brand value vs. willingness to work. Source: Authors

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Yes	9	0	9	83.000	432.000	223.444	95.675
Brand Value	7	0	7	6.500	49.800	19.643	14.878

Difference	203.802

t (Observed value)	5.542
|t| (Critical value)	2.145
DF	14
p-value (Two-tailed)	< 0.0001
Alpha	0.05

Test interpretation:
H_0: The difference between the means is equal to 0.
Ha: The difference between the means is different from 0.
As the computed p-value is lower than the significance level alpha=0.05, one should reject the null hypothesis H_0, and accept the alternative hypothesis Ha.
The risk to reject the null hypothesis H_0 while it is true is lower than 0.01%.

4 DISCUSSION OF FINDINGS

The results produce findings that contribute to the body of knowledge in academia and business on effectiveness of HR attraction activities. The use of the correspondence analysis tool details that the findings are of high quality and can be relied on. There is neutrality and independence of variables used and the findings have a minimum margin of error.

Based on the analysis of the hypothesis, respondents who are very familiar with a company will be willing to work in that company. It is also decreed in the hypothesis that the unawareness of a company does not signify the non-willingness to work in such a company. Companies must therefore increase the marketing of their brand image and cooperate with academic institutions to raise the level of students' awareness about the job opportunities in these centers. Business centers must also avail themselves for internships by students for higher brand awareness.

In narrowing down the analysis to individual companies based on awareness and willingness to work, it is discovered that respondents are not willing to work with Siemens and Ebay although they are very familiar with the companies. The non-interest comes out of respondents' indication of smaller wages, absence of job security, lack of opportunities for career progression and stress associated with the work. It is also noticed that the company does not market itself well especially to prospective employees in the universities. Siemens and Ebay must holistically design a marketing strategy to harness skilled labor from universities in the Czech Republic. The requirements, remuneration and other benefits of the companies should be made consciously available to these students to entice skilled employees as suggested by Universum (2015).

A greater number of respondents are not familiar or have never heard of InBev as a company. InBev needs to carry out an aggressive brand awareness survey to sell the company into the hearts and minds of students in the Czech Republic to reduce the over 78% ignorance level as an attractive employer. The company currently loses a variety of intellectuals who can help build their brand image and achieve set goals. It is worth mentioning that InBev is one of the highly ranked brands in the world and the company must work to reflect this in unknown Countries.

The even distribution of respondents in their willingness to work with IBM is of concern. With the level of awareness professed by respondents, a higher level of willingness to work with the

company was expected. IBM needs to investigate the reasons for a comparably low interest of students in the company. The firm needs to create a conscious effort to skew the even distribution to the positive willingness of most respondents in the Czech Republic to work in the company.

Brand value significantly determines the attitudes of students in the Czech Republic towards shared service companies per analyzed data and confirms the study of Cable & Turban (2003). The value of a brand projects the loyalty, awareness, familiarity and preference for a company. The higher the value of the brand in the shared service, the higher the level of association by respondents and students will avail themselves to work in such a company.

5 CONCLUSIONS

The paper used correspondence analysis to determine the suitability of variables employed in the research. T and z-distribution test was equally factored to analyze the hypotheses in drawing up the findings in the research and assessing normality. Questionnaire was developed to collect data from students in the Czech Republic for the paper. Out of 1500 respondents sampled, 1283 responded to the questionnaire resulting in a high response rate of 86%.

The findings of the paper validate the stance of Montgomery & Ramus (2011) and Cable & Turban (2003) in their assertion that the sound understanding of graduates on companies will increase the impact on their willingness for jobs in such companies. Companies must increase their presence in academic institutions, institute internship programmes as in the case of Accenture, IBM and SAP as indicated by Drygala et al. (2014). The job search literature recommends companies to develop a sound understanding of graduates' career expectations and to know what job and organizational characteristics impact their decisions during the job search process (Universum, 2015).

The findings of this paper are essentially useful to companies who have been identified and used in this research. The findings will feed into the marketing plans of the companies, the HR strategy and corporate branding strategies. Academic institutions can equally use the findings to strategize collaborative packages with companies to equip the knowledge of their students and increase their funding. The findings are not generalized for all countries since perception and interest vary in these cases and must be taken on case-by-case base.

ACKNOWLEDGMENT

This work was supported by the Internal Grant Agency of Tomas Bata University under the project Nos. IGA/FaME/2016/019, IGA/FaME/2015/023 and IGA/FaME/2016/007 as well as by Visegrad Fund under the grant No. 51500173.

REFERENCES

ABSL. (2013). ABSL - MEMBERS. Retrieved March 2, 2016, from http://www.absl.cz/members

Adler, H., & Ghiselli, R. (2015), The Importance of Compensation and Benefits on University Students' Perceptions of Organizations as Potential Employers, J*ournal of Management and Strategy,* 6(1), 1–9. http://doi.org/10.5430/jms.v6n1p1

Ambler, T., & Barrow, S. (1996), The Employer brand, *Journal of Brand Management*, 4(3), 185–206. http://doi.org/the application of brand management techniques to human resource management (HR). The context is set by defining the "Employer Brand" concept

and reviewing current HR concerns. Pilot qualitative research is reported with top executives of 27 UK companies,

Backhaus, K., & Tikoo, S. (2004). Conceptualizing and researching employer branding. *Career Development International*, 9(5), 501–517. http://doi.org/10.1108/13620430410550754

Barrow, S., & Mosley, R. (2005). The Employer Brand Bringing the Best of Brand Management to People at Work. Jou*rnal of Brand Management* (Vol. 4).

Boswell, W. R., Roehling, M. V., LePine, M. A., & Moynihan, L. M. (2003). Individual job-choice decisions and the impact of job attribute and recruitment practices: A longitudinal field study. *Human Resource Management*, 42(1), 23–37.

Branddirectory. (2015). Best Global Brands, Brand Profiles & Valuations of the World's Top Brands, Brand league tables. Retrieved March 2, 2016, from http://brandirectory.com/

Cable, D. M., & Turban, D. B. (2003). The Value of Organizational Reputation in the Recruitment Context: A Brand-Equity Perspective. *Journal of Applied Social Psychology*, 33(11), 2244–2266. http://doi.org/10.1111/j.1559-1816.2003.tb01883.x

CzechInvest. (2009). Business Support Services in the Czech Republic.

CzechInvest. (2015a). Business Support Services in the Czech Republic. Retrieved from http://www.czechinvest.org/data/files/bss-obalka-brozura-duben-2015-final-764-en.pdf;

CzechInvest. (2015b). Investment Climate in the Czech Republic. Retrieved from http://www.czechinvest.org/data/files/investment-climate-en-2015-53-en.pdf

Drygala, R., Appleton, J., Sattar, O., Zabloudil, R., & Polaskova, L. (2015). ABSL Report 2014-2015. Retrieved from http://www.absl.cz/docs/absl-report-2014-15.pdf

Drygala, R., Colantonio, A., Appleton, J., Sattar, O., Zabloudil, R., & Polaskova, L. (2014). ABSL 2014 - 2015. Retrieved from http://www.absl.cz/docs/absl-report-2014-15.pdf

Edwards, M. R. (2010). An integrative review of employer branding and OB theory. *Personnel Review*, 39(1), 5–23. http://doi.org/10.1108/00483481011012809

Fersht, P., Filippone, T., Aird, C., & Sappenfield, D. (2011). The evolution of global business services: enhancing the benefits of shared services and outsourcing. Retrieved from https://www.pwc.com/us/en/outsourcing-shared-services-centers/assets/hfs-report-pwc-developing-framework-global-services.pdf

Forbes. (2013). Pampers on the Forbes World's Most Valuable Brands List. Retrieved March 2, 2016, Retrieved from http://www.forbes.com/companies/pampers/

Franca, V., & Pahor, M. (2012). The Strength of the Employer Brand: Influences and Implications for Recruiting. *Journal of Marketing and Management*, 3(1), 78–122. http://doi.org/10.1017/CBO9781107415324.004

Kucherov, D., & Zavyalova, E. (2012). HRD practices and talent management in the companies with the employer brand. *European Journal of Training and Development*, 36(1), 86–104. http://doi.org/10.1108/03090591211192647

Kunerth, B., & Mosley, R. (2011). Applying employer brand management to employee engagement. S*trategic HR Review*, 10(3), 19–26. http://doi.org/10.1108/14754391111121874

Lloyd. (2002). Branding from the inside out. BRW, 24(10), 64–66.

Marciniak, R. (2014). Global Service Market Trends in Hungarian Shared Service Centers. In K. Julia, O. Ilan, & W. Leslie P (Eds.), Governing Sourcing Relationships. A Collection of Studies at the Country, Sector and Firm Level (pp. 175–190). Heidelberg; London; New York: Springer International Publishing. http://doi.org/10.1007/978-3-319-11367-8_11

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal*, 31, 854–72.

Montgomery, D. B., & Ramus, C. A. (2011). Calibrating MBA Job Preferences for the 21st Century. Academy of Management Learning & Education, 10(1), 9–26. Retrieved from http://amle.aom.org/content/10/1/9.full

Preston, L. E., & O'Bannon, D. P. (1997). The corporate social-financial performance relationship: a typology and analysis. Business and Society, 36(4), 419–29.

Rothwell, A. T., Herbert, I. P., & Seal, W. (2011). Shared service centers and professional employability. *Journal of Vocational Behavior*, 79(1), 241–252. http://doi.org/10.1016/j.jvb.2011.01.001

Rynes, S. L., & Barber, A. E. (1990). Applicant attraction strategies: An organizational perspective. *Academy of Management Review*, 15(2), 286–310. http://doi.org/10.5465/AMR.1990.4308158

Sson. (2015a). 5 Mega-trends that are disrupting service delivery. How are Central and Eastern Europe preparing for them? Retrieved from http://www.easterneuropesharedservices.com/media/1000498/46165.pdf

Sson. (2015b). Attract, Retain, and Lead: Talent Management in Central and Eastern Europe & The Baltics.

Stewart, P. (2015). Shared service centres in Central and Eastern Europe - Moving up the value curve.

SyncForce+. (n.d.). The World's Top 50 Most Attractive Employers - 2015 (Universum), ranking The Brands. Retrieved March 3, 2016, from http://www.rankingthebrands.com/The-Brand-Rankings.aspx?rankingID=87&nav=industry

Tholons. (2015). Tholons_Top_100_2016_Executive_Summary_and_Rankings.pdf. Retrieved March 15, 2016, Retrieved from: http://www.tholons.com/TholonsTop100/pdf/Tholons_Top_100_2016_Executive_Summary_and_Rankings.pdf

Turban, D. B., & Greening, D. W. (1997). Corporate social performance and organizational attractiveness to prospective employees. T*he Academy of Management Journal*, 40(3), 658–672. http://doi.org/http://dx.doi.org/10.2307/257057

Universum. (2015). Talent attraction in the professional services industry.

Yelland, P. M. (2010). An introduction to correspondence analysis. *The Mathematica Journal*, *12*, 1-23.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

MINING INTERESTINGNESS PATTERNS ON LEAN SIX SIGMA FOR PROCESS AND PRODUCT OPTIMISATION

Stephen Nabareseh, Vladyslav Vlasov, Petr Klímek and Felicita Chromjaková

ABSTRACT

The paper seeks to find from textual online data the frequent terms in news media on Lean Six Sigma (LSS), the areas and mode of application. The paper also purposes to identify the association between the eight kinds of waste in LSS against the frequent terms. This paper uses the web mining and text mining techniques of data mining to extract 1203 textual data from Google news for analysis. The R programming language web mining plugin is used for the web text extraction and analysis for frequent terms, correlation and association. The research identifies the key terms in LSS mainly used by companies, academia, researchers and other users of news media. Seven of the eight major kinds of waste in LSS were frequent in news media on google news. The paper also reveals the manner of online information contained in online featured on the internet on LSS. The paper assists online information seekers, industry players and policy formulators in tuning the concept along the goal for online news formulation and industrial adoption. The paper uses textual data from Google search engine, transforms and analyses the data by the use of the R data mining tool.

Keywords: *text mining, Lean Six Sigma (LSS), optimisation, web mining, operational strategy, six sigma*

JEL Classification: M11, C88

1 INTRODUCTION

Companies throughout the world have always been striving to enhance their operations to become more competitive and thus profitable. Nowadays globalisation and hard financial times force businesses to embrace every possible approach to improve their operations. One of such approaches is Lean Six Sigma (LSS). Much information on the topic circulates on the Internet in the form of research articles and online news publications attracting attention of students and practitioners. It is compelling to analyse the available information seeking for patterns and trends in the used terminology. Apart from the well-known relations within the theoretical base, the practical and terminology combinations in LSS is farfetched from online information users. The trending of waste as an integral part of LSS with the key elements of LSS has not been elicited.

The LSS methodology combines both lean manufacturing and six sigma to promote operational excellence in businesses (Walshe et al, 2010). Lean manufacturing deals with waste reduction and operational processes to create value with minimal work (Cucoranu et al, 2014). Six sigma on the other hand is a data-driven activity that leads to reduction in errors through the improvement of processes and variations in the processes (Koning et al., 2006; Karaszewski, 2006). Renowned global companies like IBM, Verizon and GE have adopted LSS practically for transformation, innovation, efficiency, increasing in growth and gaining competitive advantage. LSS technology runs across all departments in a company. Experts in LSS are awarded either champions, black, green or yellow belts according to their level of expertise (Harry et al, 2010). The interest in LSS by both manufacturing and service industries has

tremendously increased over the years. This has led to academic courses, online news articles and an increased academic research on LSS.

According to Cucoranu et al (2014), the key principles of LSS to pay attention on customers, valueing the processes in doing work, being efficient in workflow, remove waste in irrelevant processes, using data to reduce workflow variations, involve & equip workers and undertake work innovations.

Most users of LSS depend largely on online information for updates, trends and knowledge of LSS in its adaptation or execution. The pattern of reportage of these news articles on the technology will be handy for online information seekers of LSS to quickly identify the areas of concentration by companies using LSS, the salient terms, and the company and department with most benefits in using LSS. The Toyota Production System (TPS) is a well-connected system used for manufacturing by Toyota. The system intertwines manufacturing processes, logistics, suppliers and customers in a well designated manner for lean manufacturing (Näslund, 2008; Pepper & Spedding, 2010). The two cardinals of the TPS are continuous improvement and teamwork (Snee, 2010; Cucoranu, 2014).

The main objective of this paper is to identify patterns and trends in the reportage of LSS on news media. The paper further finds whether the nucleus of LSS is always reported and the frequency of the appearance of the types of waste. The paper also evaluates and correlates the terms in the corpus, finds association of terms to detect whether authors of news media are conversant with terms frequently applied in LSS. The paper is not set out to suggest ways of reducing the 8 kinds of waste nor suggest ways of improving production.

1.1 News media

The news media are media houses or companies that broadcast news items to a population or targeted audience. The news media used to is either print (newspapers, newsmagazines) or broadcast (radio and television) electronic. Of recent, the electronic or internet has been added to the bloc of news media outlets. The electronic or internet news consist of websites of news media outlets, social media, news blogs, and other internet news outlets (Reese at al., 2001). The internet has widened the channels of news circulation and ensured that a wider population have access to the news (Davis, 2011). With the advent of new technology, more software on news accessibility, online publishing and mobile news reportage has advanced the methods of news circulation. The public is increasingly resorting to online news that signifies a growing embrace to internet news.

Different components of news are throne unto the internet each second. Components of news ranges from politics, governance, economics, environment, education, health, technology, entertainment, among others. The value of news uploaded on the internet sometimes leaves much to be desired. Search queries on the internet help to retrieve news (Johnson et al., 2004; Hulth et al., 2009) on a specific subject and analyse it to identify the pattern, originality and truthfulness of the news item. Framing news and its analysis may be presented in a constructivist manner (Pan and Kosicki, 1993) aimed at examining news discourse on a particular subject matter on the internet for a period. The primary attention is to conceptualize the news texts in an empirical manner for analysis based on the objectives of the paper and tools used (Pan & Kosicki, 1993; Corley et al., 2010).

1.2 Lean six sigma

LSS is considered to be the latest approach to improvement both in industrial and service spheres (Snee, 2010). George (2002) defines LSS as a holistic continuous improvement

methodology that focuses on process performance and quality of outcomes. Business process usually consists of sub-processes and each of them involves more material and information flow. Snee (2010) argues that these flows between process possess non-value adding activities (wastes) that considerably affect the overall process performance as in Fig.1 below.

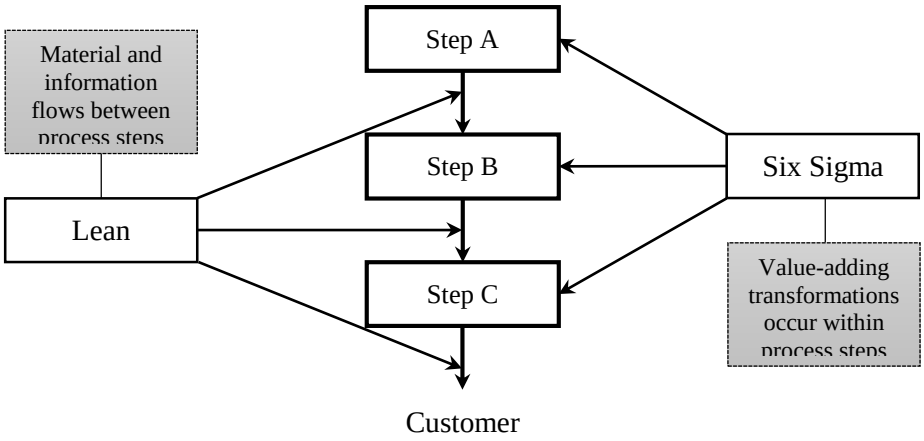

Fig. 1 - Opportunities for improvement. Source: Snee (2010)

The improvement potential of LSS is high compared to utilisation of Lean and Six Sigma in process efficiency and outputs quality or effectiveness (Chiarini and Vagnoni, 2014). LSS became immensely popular and widely used to reduce costs, increase efficiency and gain extra competitive advantages bringing more value to customers. LSS was initially designed for the manufacturing sector but has been embraced by government, educational institutions, healthcare, financial and other sectors (Enoch, 2013).

Based on the experience of an effective deployment of LSS, large companies get 1-2 percent return of sales per year whereas small and medium size companies tend to achieve 3-4 percent increase (Snee, 2004a; Snee, 2004b). Many companies, however, still tend to use either Lean or Six Sigma or both of them, but separately. According to Bendell (2006), this leads not only to an increased in the number of projects and resources, but also misunderstandings and conflicts between staff.

However, an efficient and effective application of LSS in every organisation is geered towards the reduction of the 8 kinds of waste; Non-utilized talent / expertise, Transportation, Inventory, Motion, Waiting, Extra / Over Processing, Defects / bad quality and Overproduction (Womack & Jones, 2010; Demeter & Matyusz, 2011). To reduce waste, organisations must exhibit a conscious attitude for value in terms of processes and quality of personnel (Laureani et al., 2010).

1.3 Text mining

According to Fieldman and Sanger (2006), text mining deals with analysing textual data using machine supported techniques. Analytical tools are used for information retrieval and extraction for analysis. Natural Language Processing and other data mining algorithms are applied in analysing textual data. Text mining is used to mine and analyse meaningful data for interestingness measures from unstructured data using statistical machine learning software (Tsantis and Castellani, 2001). In recent years, text mining has received a wider focus in research because of its application in multidisciplinary fields and the application of data mining tools. Text mining has been applied by authors in different disciplines. He et al (2013) applied text mining on using social media for competition in the pizza industry while Mostafa (2013)

used text mining on social networks to mine patterns for consumer brand sentiments. Also, He (2013) examined students' interaction online with live streams using text mining for trend detection, Huh et al (2013) applied text mining to discover trends to help moderate online health communities, Abdous et al (2012) used text mining to predict relations between online questions and final grade, Thorleuchter and Van den Poel (2012) predicted eCommerce success using text mining while Leong et al (2012) mined sentiments in SMS texts to evaluate teaching. Text mining largely depends on large textual data from news websites, HTML, academic research articles, reports and other general texts (Tsantis and Castellani, 2001; Liu et al., 2011).

2 METHODOLOGY

The R programming language web mining plugin is used to scrape online news articles on Lean Six Sigma (LSS). In all, 1,203 English text files from Google news on "Lean Six Sigma" were aggregated into the corpus for analysis. The scraping was done on 28th December, 2015. From the extraction to the discovery of interestingness patterns and trends, the paper has been guided by the steps shown in figure 2 below.

The following research questions were cardinal in exploring interestingness patterns and trends in the web news reportage on LSS.

1. What are the frequent terms that appear in news media on LSS?
2. How are the 8 kinds of waste in LSS associated with the frequent terms in the corpus?
3. How is the *Keyword* in LSS (waste) featured in the corpus and its association with the kinds of waste?
4. What are the online implications of the paper?

Step 1: Text Extraction

The web mining plugin in the R programming language was used to scrape web news from separate text files on "Lean Six Sigma" for analysis. The R packages used are *webmining plugin* and the *text mining package.* To remove repeated web news from the corpus, url matching and key words in topics were matched for similarities. When similarities are identified, content analysis is then applied on the particular articles to remove repeated news. The extractions were then merged into one document called the corpus for mining as seen in figure 2 below.

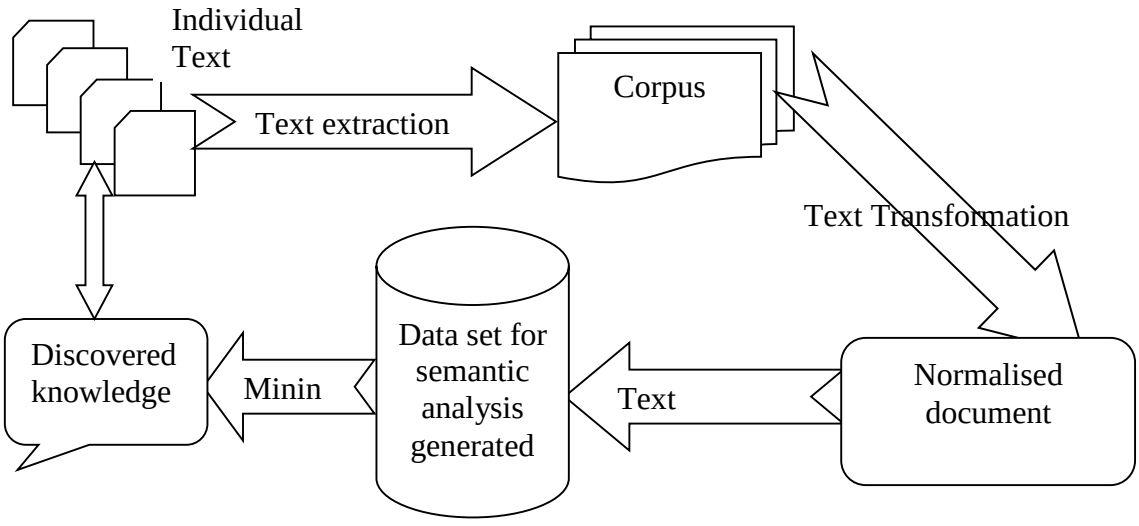

Fig. 2 - Text mining process for news media on LSS. Source: Authors'

Step 2: Text Transformation

In this step, the corpus is cleaned by removing punctuations, English stopwords, numbers and striping whitespaces within the text document (Thorleuchter et al, 2012). Upper case letters in the corpus were also converted to lower cases. Special html and xml characters were substituted for space. The next on the cleaning process was to tokenise the words (Feldman & Sanger, 2007; Thorleuchter et al, 2010; Weiss et al, 2010) where terms are reduced to those relevant for the research. Some phrases where substituted with their abbreviations especially *Lean Six Sigma* was replaced with *lss.* The text was then normalised and ready for analysis. The Vector Space Model (VSM) (Salton et al., 1975), was adapted in preparing the text for analysis.

Step 3: Text Analytics

The Document Term Matrix (DTM) (Salton et al., 1975) code was used to convert the text corpus into a matrix to get it set for semantic analysis and mining. A DTM is a matrix describing the frequency of terms in a corpus. The matrix assigns rows to documents and columns to the number of terms. The term frequency – inverse document frequency (*tf-idf*) was used in finding the frequent terms in the corpus. The term frequency (*tf*) determines the number of times a term *t* occurs in a document *d*. The term frequency is identified by using a frequency function to find a specific term within a document or corpus as seen in Eqn. 1.

$$tf(t,d) = \frac{f(t,\mathrm{d})}{\max\{f(w,\mathrm{D}) : w \hat{\mathrm{I}}\ d\}} \quad (1),$$

where *f* is frequency function, *t* is the term, *w* the terms in the corpus, *tf* is the term frequency and *D* is the corpus.

The inverse document frequency (*idf*) measures the worth of the document in the frequency. It determines the commonality of the terms in the corpus as explained in Eqn. 2 below.

$$idf(t,D) = \log \frac{N}{|\, d \in D : t \in d \,|} \quad (2),$$

where N is all documents in the corpus. The other symbols are as explained in equation 1 above.

To determine the weight of the term to appear in the *findFreqTerms* assigned in the DTM a combination of the term frequency and inverse document frequency is applied as in Eqn. 3 below.

$$tfidf(t,d,D) = tf(t,d) * idf(t,D) \quad (3).$$

The filtering of terms in *findFreqTerms* code is done based on the weight of the term in the corpus. Plugins such as *devtools, textir* and *RXKCD* were loaded in the R studio for text analytics.

Step 4: Mining

This step involved using the text mining techniques in the R statistical software to mine interesting terms and words in the corpus and their respective frequencies. The *Rgrahviz, RColorBrewer, wordcloud, snowballC* and *ggplot2* packages aided the mining and plotting of respective charts. Waste reduction is an integral part of LSS. LSS is associated with 8 kinds of waste according to literature (Womack & Jones, 2010; Dahlgaard & Dahlgaard-Park, 2006;

Demeter & Matyusz, 2011; Kumar et al., 2006; Laureani et al., 2010; Yu et al., 2009; Ballard, 2000) as shown in figure 3.

The association of the most frequent terms with the 8 kinds of waste was mined. In addition, correlation measures, signifying the strength of the relation between the most frequent words and the words of interest (kinds of waste), was extracted. These extractions were used to plot frequent terms and a wordcloud for analysis. The mining was also done along the lines of the research questions of this paper and discovered interesting knowledge on trends and patterns in the LSS reportage.

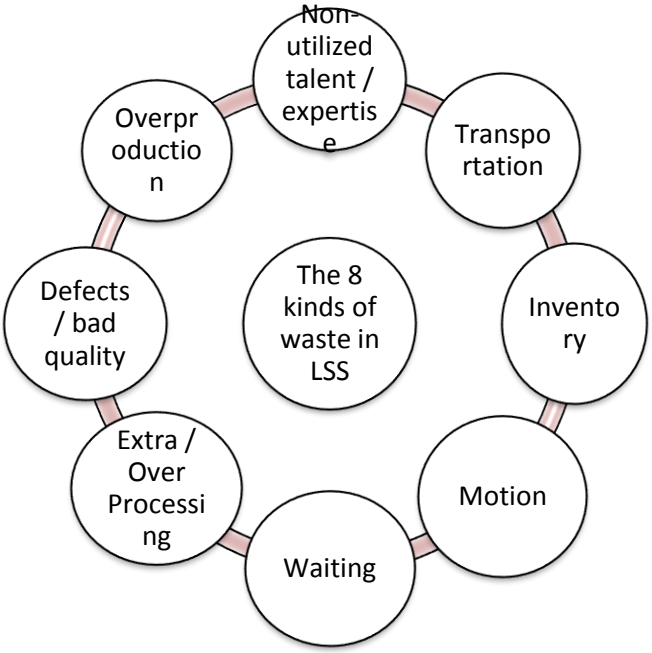

Fig. 3 - Kinds of LSS waste. Source: Authors'

3 RESEARCH RESULT

Interestingness patterns and trends were carved out from the corpus in the terms generated. The terms were organised under frequent patterns, correlation of frequent terms, association and wordcloud to depict and answer the research questions. The findings are discussed below:

i. Frequent patterns and terms

The table below presents terms in the corpus that appeared more than 300 times. The paper further explored the terms in response to research question 1 and took interest in identifying frequent terms that included the 8 kinds of waste of LSS. Interestingly, seven out of the eight terms were featured in the frequent term list produced as shown in table 1 below. The term "*over processing/extra processing"* did not appear in this group for a corpus of 1203 documents of web news extracted. The term still did not feature when the number of frequent terms was lowered to 100. It is interesting to investigate the reason why this term is absent in most news reportage on LSS.

Tab. 1 - Terms that appeared more than 300 times in the corpus. Source: Authors'

Belt	development	first	fiscal	Improvement
black	waiting	health	overproduction	Information
business	last	lean	lss	Just
community	make	management	million	New
company	president	process	program	Inventory
customer	defects	transportation	quality	People
Data	quarter	sigma	six	State
students	share	team	three	Technology
Time	two	training	work	University
motion	waste	year	processing	Expertise

Other frequent terms that appeared more than 300 times included development, technology, training, information, improvement among others as seen in table 1. These terms define LSS in various categories. The term *training* is a focal objective of organisations and institutions engaged in LSS in achieving the yellow, green or black belts. Adoption of *technology* for the improvement of information management in reducing waste is also key for organisations that have adopted LSS, hence the appearance of those words in the frequent term list.

When a further query was carried out on terms that appeared more than 500 times and their weights, the plot in figure 4 below showcases the terms. The most frequent from the figure is *"waste"* with over 3000 appearance in the corpus followed by *"management", "improvement", "lss"* among others in that order.

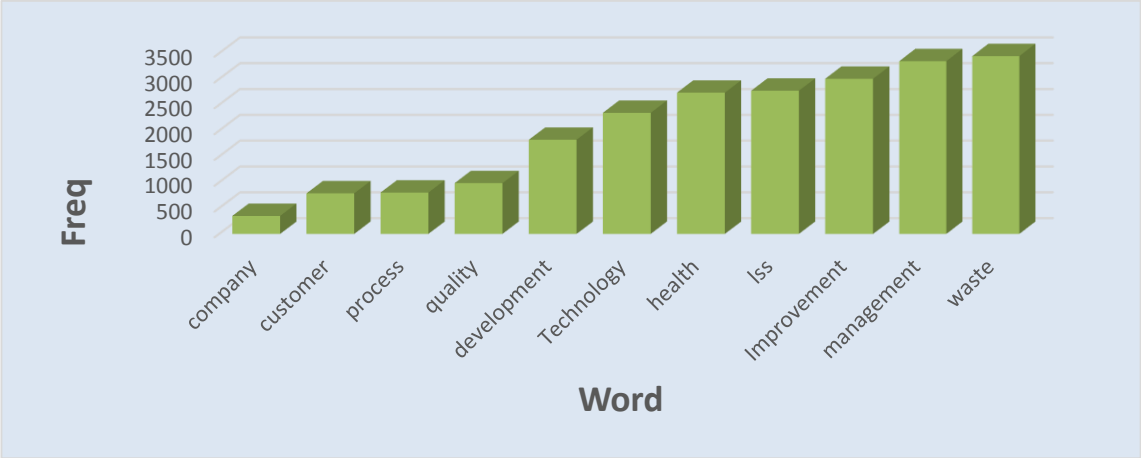

Fig. 4 - Frequency of word appearance. Source: Authors'

The least appeared in Figure 4 were *"company", "customer", process"* and *quality* which were below 1000 times. This may not indicate that the terms are not important, but signifies the regularity of use of these words in news media on LSS.

ii. Correlation of frequent terms

The top ten frequent terms were correlated to ascertain the magnitude of relationship between them. It was discovered that seven of the eight kinds of waste appeared in the top ten frequent terms as seen in table 2 below. The strongest correlated terms are *"inventory"* and *"overproduction"* with a 95% correlation. This signifies that the terms inventory and overproduction are very often mention alongside each other in news media on LSS. These two kinds of waste need to be carefully tackled by industry players since they surface more together.

Expertise and *defects* also produced a very strong correlation of 90% as observed in the table. The higher the expertise in a particular area, the lower the defects produced, hence waste is minimised.

Other strong correlations of 0.87, 0.89, and 0.88 also exist between *"waiting"* and *"management", "technology"* and *"overproduction",* and *"expertise"* and *"inventory"* respectively. The terms "improvement", "management" and "technology" appeared in the top ten and correlated significantly with the seven kinds of waste.

The corpus produced these correlated terms implying that the terms are strongly linked up when LSS is mentioned in news media per the articles extracted from google news. The lowest correlated terms were between "defects" and "waiting" (0.50), "transportation" and "overproduction" (0.51), and "expertise" and "waiting" (0.52) as seen in Table 2.

Tab. 2 - Correlation of frequent terms. Source: Authors'

	Improvement	management	overproduction	waiting	transportation	Inventory	defects	expertise	motion	Technology
Improvement	1									
management	0.82	1								
overproduction	0.78	0.76	1							
waiting	0.67	0.87	0.54	1						
transportation	0.76	0.81	0.51	0.63	1					
Inventory	0.62	0.64	0.95	0.81	0.74	1				
defects	0.75	0.70	0.83	0.50	0.69	0.71	1			
expertise	0.63	0.77	0.59	0.52	0.74	0.88	0.90	1		
motion	0.55	0.65	0.66	0.57	0.78	0.66	0.57	0.54	1	
Technology	0.74	0.63	0.89	0.93	0.84	0.67	0.76	0.77	0.64	1

iii. Association Mining

In using the *findAssocs* command, the paper explored the association of terms in the corpus. To respond to the second research question, the association of the seven kinds of waste that frequently appeared with other terms in the corpus were specifically mined. The weight of association signifies the strength of the relationship between terms. The very interesting associations have been itemised below for all the seven basic kinds of waste in LSS alongside

the associated frequent terms in the corpus and the weight of association. A positively strong relation signifies greater ties between the frequent terms and the particular kind of LSS waste.

For example, the term "nonvalue" is strongly associated with the term overproduction with a weight of 0.95. This signifies that in the corpus, where ever overproduction is mentioned, nonvalue is also mentioned along with it. Overproduction is considered to be a non-value added as it might lead to excessive stocks resulting in higher holding costs and problems with motion or transportation. Other interesting associated frequent terms with overproduction are seen in Table 3 below.

Waiting has a 0.90 weight of association with leadtime, expertise and employee are 0.79 associated, transportation is associated with deployment with a 0.87 weight while defects has a 0.84 associated weight with "leanmanagement". Table 3 below details the frequent terms and their associated kinds of waste with the weight of the associations.

Tab. 3 - Associated frequent terms with kinds of waste. Source: Authors'

Kinds of waste	Associated freq. terms	Weight
overproduction	employee	0.86
	obstacles	0.81
	waste	0.83
	areas expertise	0.70
	innovation	0.76
	delays	0.89
	nonvalue	0.95
waiting	techniques	0.80
	sustainable	0.74
	waste	0.75
	decentralisation	0.89
	leadtime	0.90
	operationalefficiency	0.76
expertise	override	0.67
	overcrowded	0.63
	revoked	0.58
transportation	employee	0.79
	defect	0.73
	deployment	0.87
	viability	0.66
	optimism	0.56
Inventory	correct	0.90
	delivering	0.81
	quick	0.76
	eliminate	0.85
motion	consolidation	0.81
	progress	0.76
	transport	0.89
defects	leanmanagement	0.84
	package	0.78
	prevention	0.81
	detect	0.80
waste	toyota	0.85
	eliminate	0.82
	sustainability	0.93
	overproduction	0.83
	lss	0.84

Being the bane of LSS and in response to research question three, an association of the word *"waste"* was mined with other frequent terms in the corpus. The results, as seen in Table 2, indicate that the term waste is strongly associated with one of the eight kinds of waste, *overproduction* by 0.83. Toyota is also seen to have an associated weight of 0.85 with waste resulting from the reason that waste concept is a part of Toyota Production System (TPS). The other frequent terms associated with waste from the corpus are *eliminate*, *sustainability* and *lss*. The association of waste with lss signify that the concept of Lean Six Sigma is very much linked to the elimination of waste in production and that is frequently reported in news media.

iv. Other trends of LSS in news media

Frequent terms and the magnitude of their appearance was graphed using the wordcloud plugin. A wordcloud indicates the frequency of appearance of terms in a corpus and the importance of such terms. The wordcloud in Figure 5 presents words that appeared frequently in the corpus and their prominence. Terms such as *lss, team, company, management, six, work, lean* and others prominently appear in the corpus and are closely related. This indicates that from the news media, these words are prominently and frequently used when LSS is discussed.

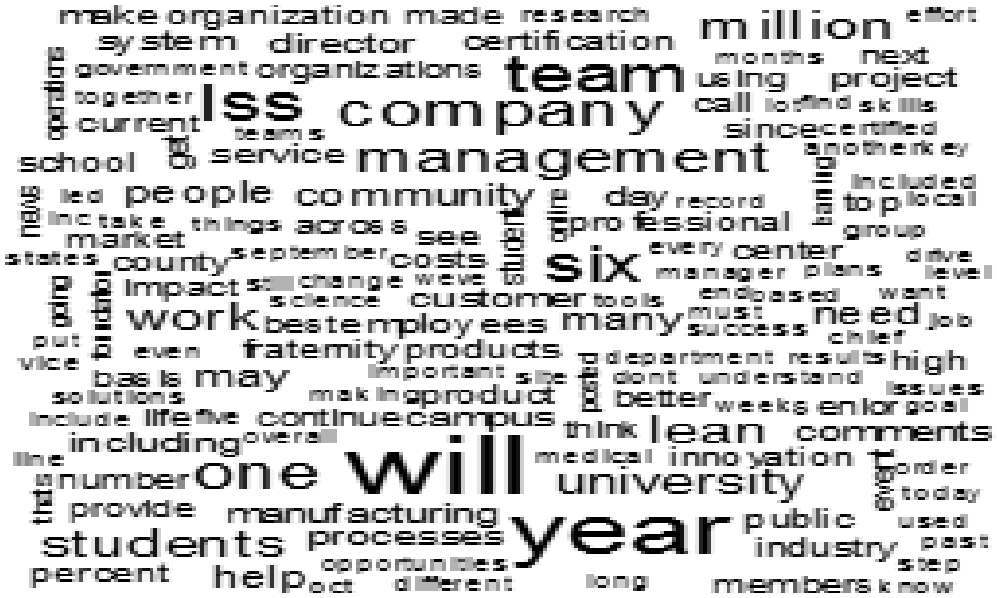

Fig. 5 – Word cloud of frequent terms. Source: Authors'

4 DISCUSSION

Based on the analysis of the results from the text mining, it was discovered that seven of the eight cardinal terms in LSS appeared in the corpus of 1203 news media articles from google news on LSS extracted. However, none of the eight kinds of waste in LSS appeared in the frequent words which appeared more than 3000 times in the corpus. Terms such as *health, lss, improvement, management* and *waste* appeared over 3000 times in the corpus. These terms are naturally frequently used the most in LSS documentation and reportage. The health sector currently embraces LSS and appears in the limelight on the discourse of the subject matter. Other words such as *development* and *technology* featured prominently.

The seven kinds of waste produced by the query of frequent words associated significantly with other frequent terms. Overproduction associated with nonvalue with a weight of 95% which was the highest in the corpus. Other high associations are between *waiting* and *leadtime*,

inventory and *correct* with a weight of 90% in both cases. There are stronger associated frequent terms in the corpus as indicated in Table 3 above. One objective of LSS is to reduce waste in the operations of a company in other to sustain the activities of the company and increase profit.

To ascertain the association of this key variable (waste) with the frequent terms, an interesting trend revealed sustainability as the highly associated frequent term with waste. The two terms are associated with a weight of 93%. This signifies that the two terms are constantly mentioned together in terms of LSS in news media. When there is overproduction and products are not bought, it leads to wastage. Out of the eight kinds of waste in LSS, overproduction associated prominently with waste with a weight of 83% while the others are below 50%.

5 CONCLUSION

The paper employed the text mining algorithm of data mining, using the R-programming language to discover interestingness patterns and trends, associations and correlations in terms and words used in news media in line with Lean Six Sigma for process and product optimization. Through text transformation, mining and analytics, interesting patterns were extracted from the corpus generated from 1203 web news from google news on LSS.

The paper paid much attention to the eight kinds of waste associated with lean management to identify how these terms appeared in the corpus and the strength of correlation with other words in the corpus. Based on the discussion, news media does not pay much attention on correlating the 8 kinds of waste of LSS. If the pivot of media reportage on LSS is not hinged on the cardinals of wastes, then process improvement will have no root. News reportage must also be keen on the association of relevant and industry accepted terms to relay news. Virtually absent in the frequent terms was the term *teamwork* as suggested by Snee, (2010) as one of the cardinals of TPS by Toyota. The presence of teamwork leads to process and continuous improvement, hence reducing waste.

The findings suggest how industry could pay keen attention to the eight kinds of waste based on their association and correlation for process and product optimization. The key indicators of LSS, being the eight kinds of waste, were correlated with other frequent terms in the corpus. The results further showed that the term *waste* is highly correlated with *lss, overproduction and sustainability*. These are terms often used in Lean, Six sigma or Lean Six Sigma discussions. Toyota Company was also revealed in the text as being highly and positively correlated with *waste.* Toyota is a company often upheld as the "father" of Lean, hence the high correlation with the main objective of LSS (reduction of waste) indicates that web news reportage recognizes the company in their write-ups.

The paper is useful in grabbing the concepts, terms and words associated with LSS for attention by industry players and online information users. It presents how the key concepts of LSS appear in news media for easy assessment by online information users and company exploration for process and product optimization. It also assist online information seekers, industry players and policy formulators in tuning the concept along the goal of adopting optimal processes for product innovation and waste reduction. Future research can analyse process improvement and optimization on companies that use LSS to eliminate waste by text mining their annual reports.

ACKNOWLEDGEMENT

This work was supported by Internal Grant Agency of Tomas Bata University IGA/FaME/2016/019, IGA/FaME/2015/023 and IGA/FaME/2014/007.

REFERENCES

Abdous, M. H., He, W., & Yen, C. J. (2012). Using data mining for predicting relationships between online question theme and final grade. *Educational Technology & Society*, *15*(3), 77-88.

Ballard, G. (2000, July). Positive vs negative iteration in design. In *Proceedings Eighth Annual Conference of the International Group for Lean Construction, IGLC-6, Brighton, UK* (pp. 17-19).

Bendell, T. (2006). A review and comparison of six sigma and the lean organisations. *The TQM magazine*, *18*(3), 255-262.

Chiarini, A., & Vagnoni, E. (2014). A proposed audit pattern for the shop-floor processes in TQM, Lean Six Sigma and ISO 9001 environments. *International Journal of Services and Operations Management*, *18*(2), 159-178.

Corley, C. D., Cook, D. J., Mikler, A. R., & Singh, K. P. (2010). Text and structural data mining of influenza mentions in web and social media. *International journal of environmental research and public health*, *7*(2), 596-615.

Cucoranu, I. C., Parwani, A. V., & Pantanowitz, L. (2014). *Lean Six Sigma. In Practical Informatics for Cytopathology (pp. 113-119)*. Springer New York.

Dahlgaard, J. J., & Mi Dahlgaard-Park, S. (2006). Lean production, six sigma quality, TQM and company culture. *The TQM magazine*, *18*(3), 263-281.

Davis, J. J. (2011). *Advertising research: Theory & practice*. Pearson Higher Ed.

Demeter, K., & Matyusz, Z. (2011). The impact of lean practices on inventory turnover. *International journal of production economics*, *133*(1), 154-163.

Enoch, O. K. (2013). Lean six sigma methodologies and organizational profitability: A review of manufacturing SMEs in nigeria. *American Journal of Industrial and Business Management*, *3*(06), 573.

Feldman, R., & Sanger, J. (2007). *The text mining handbook: advanced approaches in analyzing unstructured data*. Cambridge University Press.

George, M.L. (2002). Lean Six Sigma, Combining Six Sigma Quality with Lean Speed, McGraw-Hill, New York, NY.

Harry, M., Mann, P. S., De Hodgins, O. C., Hulbert, R. L., & Lacke, C. J. (2010). *The practitioner's guide to statistics and lean Six Sigma for process improvements*. John Wiley & Sons.

He, W. (2013). Examining students' online interaction in a live video streaming environment using data mining and text mining. *Computers in Human Behavior*, *29*(1), 90-102.

He, W., Zha, S., & Li, L. (2013). Social media competitive analysis and text mining: A case study in the pizza industry. *International Journal of Information Management*, *33*(3), 464-472.

Huh, J., Yetisgen-Yildiz, M., & Pratt, W. (2013). Text classification for assisting moderators in online health communities. *Journal of biomedical informatics*, *46*(6), 998-1005.

Hulth, A., Rydevik, G., & Linde, A. (2009). Web queries as a source for syndromic surveillance. *PloS one*, *4*(2), e4378.

Johnson, H. A., Wagner, M. M., Hogan, W. R., Chapman, W., Olszewski, R. T., Dowling, J., & Barnas, G. (2004). Analysis of Web access logs for surveillance of influenza. *Stud Health Technol Inform*, *107*(Pt 2), 1202-1206.

Karaszewski, R. (2006). Lean Six Sigma. *Problemy jakości, 38(8),* 4-9.

Koning, H., Verver, J. P., Heuvel, J., Bisgaard, S., & Does, R. J. (2006). Lean six sigma in healthcare. *Journal for Healthcare Quality, 28(2),* 4-11.

Kumar, M., Antony, J., Singh, R. K., Tiwari, M. K., & Perry, D. (2006). Implementing the Lean Sigma framework in an Indian SME: a case study. *Production Planning and Control*, *17*(4), 407-423.

Laureani, A., Antony, J., & Douglas, A. (2010). Lean six sigma in a call centre: a case study. *International Journal of Productivity and Performance Management*, *59*(8), 757-768.

Leong, C. K., Lee, Y. H., & Mak, W. K. (2012). Mining sentiments in SMS texts for teaching evaluation. *Expert Systems with Applications*, *39*(3), 2584-2589.

Liu, B., Cao, S. G., & He, W. (2011). Distributed data mining for e-business. *Information Technology and Management*, *12*(2), 67-79.

Mostafa, M. M. (2013). More than words: Social networks' text mining for consumer brand sentiments. *Expert Systems with Applications*, *40*(10), 4241-4251.

Näslund, D. (2008). Lean, six sigma and lean sigma: fads or real process improvement methods?. *Business Process Management Journal*, *14(3),* 269-287.

Pan, Z., & Kosicki, G. M. (1993). Framing analysis: An approach to news discourse. *Political communication*, *10*(1), 55-75.

Pepper, M. P. J., & Spedding, T. A. (2010). The evolution of lean Six Sigma. *International Journal of Quality & Reliability Management, 27(2),* 138-155.

Reese, S. D., Gandy Jr, O. H., Gandy Jr, O. H., & Grant, A. E. (Eds.). (2001). *Framing public life: Perspectives on media and our understanding of the social world*. Routledge.

Salton, G., Wong, A., & Yang, C. S. (1975). A vector space model for automatic indexing. *Communications of the ACM*, *18*(11), 613-620.

Snee, R. D. (2004a). Can Six Sigma boost your company's growth?. *harvard management update*, (June), 2-4.

Snee, R. D. (2004b). Six–Sigma: the evolution of 100 years of business improvement methodology. *International Journal of Six Sigma and Competitive Advantage*, *1*(1), 4-20.

Snee, R. D. (2010). Lean Six Sigma-getting better all the time. *International Journal of Lean Six Sigma*, *1*(1), 9-29.

Thorleuchter, D., & Van Den Poel, D. (2012). Predicting e-commerce company success by mining the text of its publicly-accessible website. *Expert Systems with Applications*, *39*(17), 13026-13034.

Thorleuchter, D., Van den Poel, D., & Prinzie, A. (2010). Mining ideas from textual information. *Expert Systems with Applications*, *37*(10), 7182-7188.

Tsantis, L., & Castellani, J. (2001). Enhancing learning environments through solution-based knowledge discovery tools: Forecasting for self-perpetuating systemic reform. *Journal of Special Education Technology*, *16*(4), 39.

Walshe, K., Harvey, G., & Jas, P. (Eds.). (2010). *Connecting knowledge and performance in public services: from knowing to doing*. Cambridge University Press.

Weiss, S. M., Indurkhya, N., Zhang, T., & Damerau, F. (2010). *Text mining: predictive methods for analyzing unstructured information*. Springer Science & Business Media.

Womack, J. P., & Jones, D. T. (2010). *Lean thinking: banish waste and create wealth in your corporation*. Simon and Schuster.

Yu, H., Tweed, T., Al-Hussein, M., & Nasseri, R. (2009). Development of lean model for house construction using value stream mapping. *Journal of construction engineering and management*, *135*(8), 782-790.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

NATIONAL COMPETITIVENESS OF JAPAN, KOREA AND VIETNAM ACCORDING TO GCI AND "ADJUSTED GCI"

Marta Nečadová

ABSTRACT

The term competitiveness is mostly associated with better firm's performance in competition with other firms. In macroeconomic context, this term began to be applied in the 1980s in connection with globalization and the change of the nature of international trade. The international competitiveness rankings can be seen as a way of evaluating countries' future economic potential and opportunities for further development and growth. The first objective of this article is to describe different/several approaches to firm level and nation level competitiveness from the managerial point of view. International competitiveness rankings differ in the representation of hard and soft data and in the importance (weight) attributed to both types of data during the calculation of the aggregate index. Since the informative value of soft data can be considered problematic, we will concentrate on identifying their advantages and disadvantages and, taking into account the role of soft data and the impact of the chosen weighting system, try to describe and explain the differences between the results obtained by using all the WEF indicators and the results derived from selected indicators only.

Keywords: *Firm Competitiveness, National Competitiveness, Global Competitiveness Report, Global Competitiveness Index*

JEL Classification: E20, F00, F6

1 INTRODUCTION

It is clear that individual measures of competitiveness do not capture all the elements of the concept. For measures to be considered useful, they have to specify the level of analysis (national, industry, firm or product) and consider competitive performance, its sustainability through the generation to competitive potential, and the management of the competitive process. While firm competitiveness (in the economic literature) is most commonly linked to the firm's productivity growth (measured as revenue per employee), the concept of national competitiveness - although the term "national competitiveness" is used frequently - does not have clear and uniform definition. According to P.J. Buckley, Ch. L. Pass and K. Prescott (1988) and others, it is necessary to differ between different levels of competitiveness and consider these connections:

1) competitiveness on firm and industry level includes both efficiency (reaching goals at the least possible cost) and effectiveness (choosing the right goals);

2) competitiveness is a relative concept in three aspects: relative to the situation of a different historical point of time, relative to an existing comparators, and relative to a well defined counter-factual position;

3) the role of trade performance in competitiveness should be evaluated sensitively and carefully – all market share measures suffer from the defect that they ignore margins and because they fail to consider imports, they cannot give objective insights into countries' balance of trade and economic strength. Measures which take into account the changing composition of exports and imports seem to be more sophisticated. The OECD Database TiVA, i.e.Trade in

Value Added (OECD, 2013), is very useful tool, which enables to identify the country's role in the foreign trade more precisely.

4) The efficiency and effectiveness of resources' use has to be defined with regard to the particular resource – the key role of management is emphasized on the industry level and the role of government as a policymaker and subject, who determines the institutional and environmental conditions for the exercise of effective management, is pointed out on national level.

The contribution of P.J. Buckley, Ch. L. Pass and K. Prescott (1988) to the competitiveness theory is their successful attempt to summarize the relevant measures of international competitiveness. They recommended to differentiate three dimensions (performance, potential, and management process) and four levels of analysis: country, industry, firm, and product. All aspects of competitiveness mentioned above are taken into account in the most famous international competitiveness rankings (the World Competitiveness Yearbook, the Global Competitiveness report). While competitiveness on the firm level is linked to firm performance, i.e. the firm's productivity growth (measured as revenue per employee), the concept of national competitiveness does not have clear and uniform definition and the results of international rankings are considered controversial above all due to their choice of indicators and the methodology of construction of the final competitiveness indicator.

The first aim of this paper is to briefly explain how we understand the term competitiveness on the firm level. The following part of our theoretical analysis of the concept "competitiveness" deals with the relations and assumptions which are important for the multidimensional measurement of competitiveness. In this part of the paper we focus on the controversial methodology of one of the most famous international competitiveness rankings – the Global Competitiveness Report (WEF, 2015).

1.1 Aims of the paper

In the analytical part of this paper, we will evaluate the competitiveness of Vietnam and two more developed Far East economies (Japan and Korea), using the results of the Global Competitiveness Report (GCR). The choice of countries was influenced by the level of development, which enters into the composite competitiveness index through the different weights of three subindices. Our aim is to analyse the impact of different weights (the system of weights is different for countries on the different level of development) on the overall evaluation. The second aim of this paper is to describe the impact of soft data on the overall ranking in the original GCI and in the "adjusted GCI".

1.2 Methodology

With the aim to eliminate the impact of different weighting systems on the overall ranking, we constructed two forms of "adjusted GCI". All indicators in the "adjusted GCI" have the same weight in comprehensive evaluation, because this index is calculated as arithmetic mean of country ranking in all indicators. The second "adjusted GCI" named "GCI 82" is calculated as arithmetic mean of country ranking only in indicators based on soft data. For the description of the strengths and weaknesses of national competitiveness, the results in particular pillars and indicators are used. The Dataset published by WEF is the source of input data. For analysis of strengths and weaknesses, methods of comparison and evaluation will be applied.

2 CONTROVERSIAL TERM "NATIONAL COMPETITIVENESS" THEORETICAL BACKGROUND

2.1 Definition of firm competitiveness as an assumption and issue for defining and measurement of national competitiveness

The discussion about one clear definition of the term national competitiveness can be considered "never ending story" without unambiguous generally accepted result. Some results of this discussion were summed up e.g. in Cho and Moon (2013), or Krugman (1996), in Czech economic literature e.g. in Klvačová and Malý (2008), Krpec and Hodulak (2013), or Nečadová and Soukup (2013). In this paper, we start the analysis of national competitiveness with respect to business (managerial) theories' attitude to the term "national competitiveness". From this point of view, the theory of "firm competitiveness" implicitly assumes that "competitiveness of nations" is not simply based on country-specific factors, but heavily influenced by firm-specific factors as well. The main argument of these theories is based on the assumption that national competitiveness stems from domestic firms, and therefore firm's specific factors leading to competitiveness should be identified. Business theory provides two basic concepts of competitiveness on the firm level: the market-based-view and the resource-based view. The market-based view points out the environmental factors of companies to explain competitive advantages and goes back to the structure-conduct-performance-hypothesis based on the ideas of industrial organization theory (Porter, M., 1990). This approach shows that the structure of a market has an influence on the firms and their conduct, which further leads to their different performances (Berger, T., 2008).

According to the resource-based view, firm-level competitiveness is based on successful utilization of internal resources. To gain competitive advantage, companies must ensure that their relevant resources are specific and cannot be easily imitated by their rivals. Table 1 summarizes the two different concepts explaining firm competitiveness and compares them to each other.

Tab. 1 – Comparison of Market-based view and Resource-based view.

Source: BERGER, T. (2008). Concepts of National Competitiveness. Journal of International Business and Economy. Vol. 9, No.1,pp. 91-111

Criteria	**Market-based view**	**Resource-based view**
Level of analysis	Industry (processes as a black box)	firm (environment as a black box)
Source of competitiveness	Product-related costs for differentiation advantages, existing products	Utilization of core competencies, ability to create future products
Factor of competitive advantage	Positioning of firm according to the market structure exogenous factors	Internal resources Endogenous factors
Time period	Short run	Long run
Context	Dynamic context	Static context (black box)
Factor mobility	Perfectly mobile, homogeneous	Immobile, heterogeneous

The aspects below are commonly mentioned as the key assumptions for the sustainability of firm competitiveness:

- Value – factors should increase a firm's efficiency, enable it to use the opportunity or to eliminate external threats, while creating value for customers and shareholders;
- Rare – only one firm or a few firms use these factors;
- Imperfectly substitutable;
- Costly to imitate (imitation) – the possibility of imitation depends primarily on the material (physical) uniqueness of the competitive advantage sources, capability to identify the sources, and economic difficulties of its acquisition.

Taking into account these conditions, we can clearly describe the difference between competitive and uncompetitive firms. Uncompetitive firm is not able to offer goods and services, which customers are willing to buy, and therefore fails to fulfil its financial obligations. Many analyses of firm competitiveness prefer using the firm performance indicators not only for the evaluation of the recent firm competitiveness but also for the prediction of the future firm competitiveness. For example, the analysis of Scholleova, Camska (2015), applying ROC curves and AuROC measures, tried to test whether the commonly used financial indicators have an impact on the competitiveness of firms in terms of economic value added (EVA).

2.2 Concepts of national competitiveness - specific and comprehensive attitudes to measurement

As Berger (2008) mentioned, two attitudes to evaluation of firm competitiveness mentioned in the headline of this subchapter are connected with the models of strategic management (i.e. a core competencies approach propagated by Prahalad and Hammel (1990) is one of the concepts under the resource-based view). The models of strategic management assume that managers are able to accurately adjust a company to enable it to be more competitive "like in a cockpit", but this is questioned by the organizational theorists, who still see this as a "command and control model of management". The managerial concepts of national competitiveness, which follow the above mentioned attitudes to firm competitiveness, are more or less focused on the performance indicators of the national economy. Berger (2008) deals with four concepts of national competitiveness which emphasize the performance indicators. These attitudes are briefly summarized in the Table 2.

Tab. 2– Four concepts of national competitiveness by T. Berger.

Source: BERGER, T. (2008). Concepts of National Competitiveness. Journal of International Business and Economy. Vol. 9, No.1, pp. 91-111, own processing

Concept of competitiveness	Basic characteristics of concept	Indicators
Ability to sell	Cost and trade performance orientation	*Price based competitiveness:* real exchange rate relative unit labour costs terms of trade

Concept of competitiveness	Basic characteristics of concept	Indicators
		Non price based competitiveness: a shift in export composition towards higher value added or high-technology products market shares in these products a current account surplus
Ability to Earn	Productivity and performance orientation	the level of GDP per capita the growth rate of GDP per capita
Ability to Adjust (on societal and business level)	Orientation on Innovation and flexibility	Indicators evaluating the ability to adjust political procedures as well as the whole economic system (societal level) Indicators assessing the ability to adjust via innovations and technological change (business level)
Ability to attract	The possibility to attract outside investments and financial and human capital	The level of FDI Indicators, which evaluate institutional conditions and the quality of national business environment from the potential foreign investor's point of view

The basic concepts underlying national competitiveness presented in the Table 2 have their shortcomings as they often look only at one characteristic of an economy and are therefore not able to catch the complexity of the term national competitiveness. In economic literature focused on this theme, it is possible to find many articles dealing with comprehensive attitudes to measurement of national competitiveness.

One of the most famous comprehensive approaches to national competitiveness is the Diamond model developed by M. Porter in his book entitled The Competitive Advantage of Nations (Porter, 1990). According to Cho and Moon (2013), Porter's diamond satisfies two prerequisites for a good competitiveness theory: 1) this theory is comprehensive enough to capture most of the important variables, such as natural resources and labour, 2) Porter's theory is dynamic enough to explain the changing nature of national competitiveness, which is not effectively captured by classical theories (absolute and comparative advantage principles). Porter's diamond satisfies these two necessary conditions by its dynamic aspect and by incorporating four competitiveness variables: Factor conditions, Demand conditions, Related and supporting industries, and Firms strategy, structure and rivalry. According to Porter, national competitiveness does not grow out of resource endowments or currency value, however, it can be created by a combination of strategic choices along the four determinants of the Diamond model.

The usual critical arguments of Porter's approach (e.g. Moon and Cho, 2013) are following:

- The model is not suitable for small economies because their domestic variables are limited;

- The geographical constituency of small economies must be based on different criteria
- International factors must be taken into account for appropriate assessment of national competitiveness in the conditions of globalization
- The single diamond does not distinguish human factors from physical factors; the roles of different groups of people (workers) are important for explaining the different stages of economic development (therefore Diamond model has limited applicability in explanation of dynamic changes of economies in less developed and developing countries)

According to Cho and Moon (2005, 2013), a nation's competitiveness is sometimes more meaningful among the nations endowed with similar comparative advantages competing in similar industries. Their critical attitude to the most famous international rankings (WEF and IMD reports) is grounded in the fact that these rankings apply different weights to the same or very similar variables. Cho and Moon (2013) claim that these reports do not have any strong theoretical background - they also admit that any weightage scheme can be arbitrary to some extent, but if a model is weighted in an arbitrary manner, it might produce entirely misleading results. The second main critical argument of Moon and Cho is connected with different representation of soft data in these rankings and with the subjectivity of these data obtained by experts' opinion.

Advantages and disadvantages of using soft data were summarized e.g. in Necadova (2015): "The advantage of soft data is their ability to show the 'perceived' competitiveness of a country. Soft data may not be encumbered by a time-lag and therefore allow the rating of those elements of competitiveness, which are otherwise difficult to measure – management practices, work relations, relationship towards the environment, quality of life, etc., but their comparability is negatively affected particularly by the following facts: 1) extent and depth of knowledge of the respondent – qualified manager (expert in a specific area) may not be able to assess all the monitored indicators 2) the quality of the rating is obviously affected by the size of the sample as well. The rule here is this: the smaller the number of respondents, the bigger the possibility of distortion, 3) the explanatory power of soft data is also reduced, because the respondents do not have the possibility to make a comparison with other countries."

According to Moon and Cho (2005, 2013), the lack of a rigorous theory is the main reason for the frequent changes of methodology of international rankings. Moon's and Cho's point of view is confirmed by the announced change of the WEF methodology, which is prepared for the new edition of the Global Competitiveness report 2016-17.

The above mentioned critical objections to the WEF methodology are the reasons for construction of the "adjusted GCI" in the following part of this paper and for thinking about the impact of soft data on the competitive position of chosen countries.

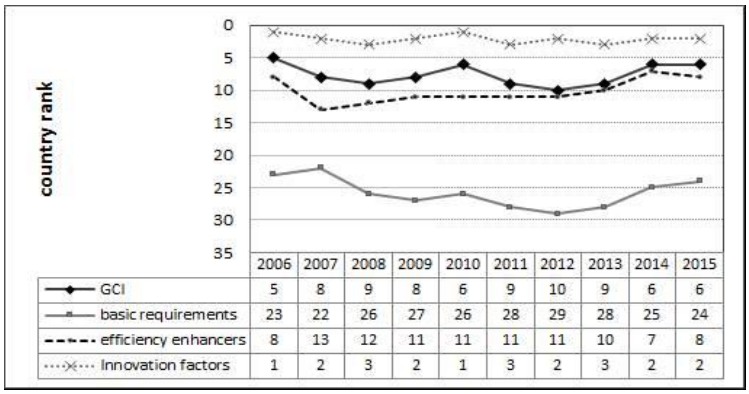
3 THE RESULTS OF JAPAN, KOREA AND VIETNAM ACCORDING TO THE GCI AND THE "ADJUSTED GCI"

3.1 Japanese competitiveness

According to the GCR, Japan is a big developed economy with excellent results in the innovation and sophistication factors, and with problematic performance in 3rd pillar Macroeconomic environment (121st rank among 140 countries) due to the negative government budget balance (7.7 % GDP, i.e.132nd rank among 140 countries) and the relatively large government debt (246.4 %GDP, i.e. 140th rank among 140 countries). In the last edition of the Global Competitiveness Report (GCR), Japan remains on the 6th place, registering slight

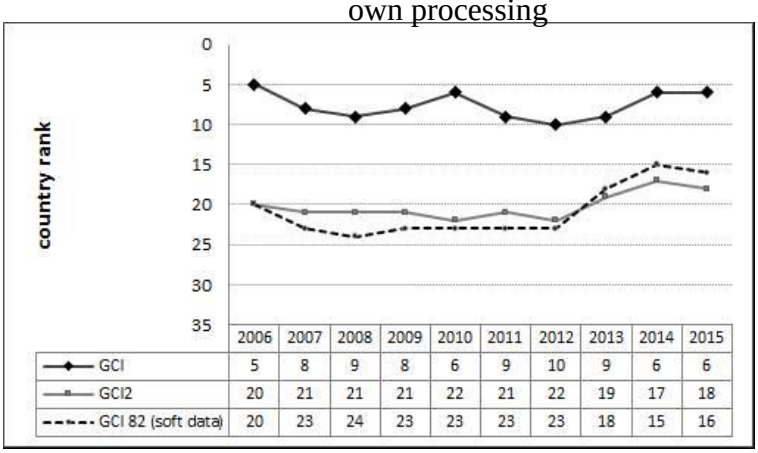
improvements in half of the pillars - most notably in the macroeconomic environment, thanks to the return of moderate inflation generated by the increase in the consumption tax. Japan benefits from excellent infrastructure and one of the world's healthiest workforce, with a life expectancy of over 80 years. The country performs well in the more complex areas of competitiveness: businesses are highly sophisticated (2nd), employing unique products and production processes (1st) with large control over international distribution (2nd) and benefit from the world's best local suppliers (1st). Similarly, high-quality research institutions (7th) and company spending on R&D (2nd), coupled with the excellent availability of scientists and engineers (3rd), contribute to the country's overall highly innovative environment (5th).

Japan's goods and financial markets have experienced a steady and gradual improvement over the past seven years, and are up to 11th and 19th place. In the future, it will be critical for the country to strengthen human capital (21st), where it lags behind many other advanced economies. According to the GCR 2015-16, Japan, for the first time, is not among the top 10 in on-the-job-training. Although labour market flexibility has improved overall (15th), it could be further raised by easing hiring and firing practices (123rd). A low share of female participation (83rd) shows that the country is failing to use its talent efficiently. Finally, the country remains an early and eager adopter of new technologies (13th) and boasts one of the highest penetration rates of smartphones (5th).



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	5	8	9	8	6	9	10	9	6	6
basic requirements	23	22	26	27	26	28	29	28	25	24
efficiency enhancers	8	13	12	11	11	11	11	10	7	8
Innovation factors	1	2	3	2	1	3	2	3	2	2

Fig. 1 – Changes in national competitiveness of Japan according to the GCI.
ource:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	5	8	9	8	6	9	10	9	6	6
GCI2	20	21	21	21	22	21	22	19	17	18
GCI 82 (soft data)	20	23	24	23	23	23	23	18	15	16

Fig. 2 – Comparison of the GCI and the "adjusted GCI"for Japan.
Source:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing

Figure 1 shows that the subindex of innovation and sophistication factors has a positive impact on the overall rank, whereas the subindex of basic requirements, primarily indicators of quality

of macroeconomic environment, has a negative impact on Japanese results in the whole period. Figure 2 proved that the WEF weighting system (Japan is a country in the innovation driven stage of development with these used weights: basic requirements: 20 %, efficiency enhancers: 50 %, innovation factors: 30 %) improves the overall result of Japan. It is evident that the position of Japan according to the "adjusted GCI" (we calculated our own index as an arithmetic average, therefore all particular indicators have the same weight) is worse because all indicators have the same weight.

Japanese weaknesses (see Figure 3 and our commentary in the previous text) are in the pillars and subindices with the lowest impact on the overall competitiveness, while Japanese strengths consists in the subindex of the innovation factors, which has the highest weight for countries in the innovation driven stage of development, and therefore these factors have bigger impact on the overall competitiveness.

Our "adjusted GCI" decreases the importance of the domestic market size. This indicator has a relatively large influence on the country's position due to its weight inside the group of the market size indicators (the weight of this indicator is 75 %), due to the weight of the 10th pillar in the subindex Efficiency enhancers, and finally due to the biggest weight of this subindex in the overall index (the weight of this subindex is 50 % for Japan). The better results of Japan according to the GCI 82 (soft data) after 2013 are determined by higher rate of positive changes in soft data compared with the changes in hard data.

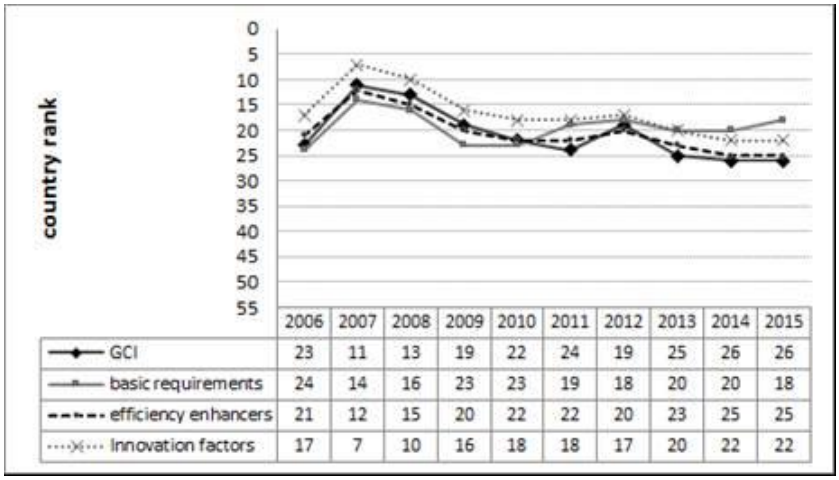
Ranking - GCI (weights of subindeces, GCR 2015-16)	Japan (20:50:30)			Korea (20:50:30)			Vietnam (58,9:35,8:5,3)		
	2006	2015	2006-15	2006	2015	2006-15	2006	2015	2006-15
Basic requirements	23. (5,5)	24. (5,5)	↘	24. (5,5)	18. (5,7)	↗	71. (4,3)	72. (4,5)	↘
1. Institutions	22. (5,0)	13. (5,5)	↗	42. (4,3)	69. (3,9)	↘	71. (3,6)	85. (3,7)	↘
2. Infrastructure	6. (6,2)	5. (6,2)	↗	23. (5,2)	13. (5,8)	↗	90. (2,6)	76. (3,8)	↗
3. Macroeconomic environment	82. (4,6)	121. (3,7)	↘	5. (6,2)	5. (6,6)	→	43. (5,3)	69. (4,7)	↘
4. Health and primary education	31. (6,3)	4. (6,7)	↗	34. (6,3)	23. (6,4)	↗	75. (5,8)	61. (5,9)	↗
Efficiency enhancers	8. (5,3)	8. (5,3)	→	21. (5,0)	25. (4,8)	↘	72. (3,8)	70. (4,0)	↗
5. Higher education and training	19. (5,4)	21. (5,4)	↘	21. (5,3)	23. (5,4)	↘	89. (3,3)	95. (3,8)	↘
6. Goods market efficiency	19. (5,2)	11. (5,2)	↗	28. (4,8)	26. (4,8)	↗	72. (3,9)	83. (4,2)	↘
7. Labor market efficiency	9. (5,2)	21. (4,8)	↘	47. (4,4)	83. (4,1)	↘	42. (4,4)	52. (4,4)	↘
8. Financial market development	33. (4,8)	19. (4,7)	↗	49. (4,4)	87. (3,6)	↘	92. (3,6)	84. (3,7)	↗
9. Technological readiness	18. (5,1)	19. (5,7)	↘	12. (5,4)	13. (5,6)	↘	83. (2,6)	92. (3,3)	↘
10. Market size	4. (6,1)	4. (6,1)	→	14. (5,5)	47. (4,5)	↘	28. (4,8)	33. (4,8)	↘
Innovation factors	1. (5,8)	2. (5,6)	↘	17. (4,9)	22. (4,8)	↘	74. (3,4)	88. (3,4)	↘
11. Business sophistication	2. (5,8)	2. (5,8)	→	23. (5,0)	26. (4,8)	↘	77. (3,7)	100. (3,6)	↘
12. Innovation	2. (5,8)	5. (5,5)	↘	14. (4,8)	19. (4,8)	↘	62. (3,2)	73. (3,2)	↘

Fig. 3– Strengths and weaknesses of Japanese, Korea's and Vietnamese competitiveness. Source:http://reports.weforum.org/global-competitiveness-report-2015-2016/,online 6.3.2016, own processing

3.2 Korea's competitiveness

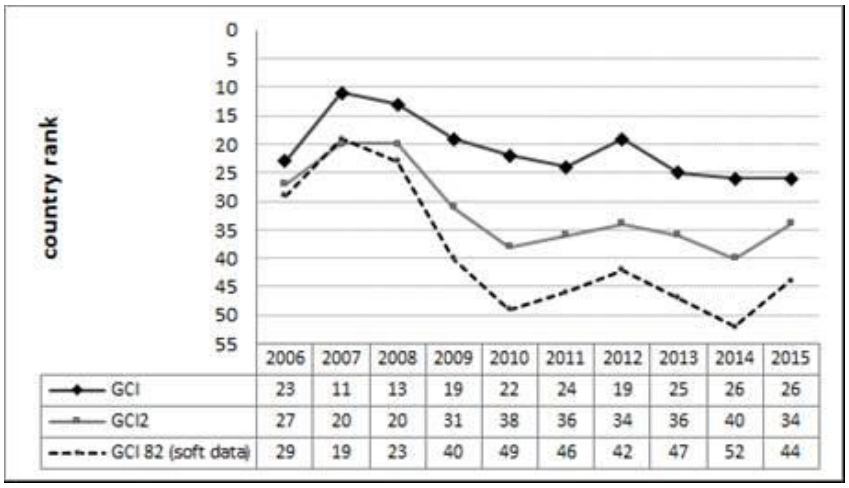
In the GCR 2015-16, the Republic of Korea remains on the 26th place. The WEF data suggest an improvement in institutions (69th, up 13 places), an area where Korea remains one of the poorest performers among advanced economies. This improvement in the quality of institutions is driven by improved property rights, more efficient legal system in challenging and settling disputes, and improved accountability of private institutions. However, policy instability remains a concern for doing business. The country registers improvements in the efficiency of the goods market (up seven places to 26th) and domestic competition (up eight places to 34th). Overall, Korea benefits from a stable macroeconomic environment (5th), sound infrastructure

(13th), and the highest enrolment rates in the world (1st). However, the quality of education (35th) is low compared to other advanced economies, and the highly inflexible labour market (121st) impedes allocation of workers to their most productive uses. According to the last GCR, restrictive labour relations rank as one of the most problematic factors for doing business in the country (132nd in indicator Cooperation in labour employer relations, 115th in indicator hiring and firing practises, 117th in Redundancy costs). The country's innovation potential (19th) is still high, but it has been gradually falling over the years. The financial market also continues to perform poorly (87th), as the access to finances across all modes remains difficult (119th in indicator Ease of access to loans, 113rd in indicator Soundness of banks).



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	23	11	13	19	22	24	19	25	26	26
basic requirements	24	14	16	23	23	19	18	20	20	18
efficiency enhancers	21	12	15	20	22	22	20	23	25	25
Innovation factors	17	7	10	16	18	18	17	20	22	22

Fig. 4 – Changes in national competitiveness of Korea Rep. according to the GCI.
Source:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	23	11	13	19	22	24	19	25	26	26
GCI2	27	20	20	31	38	36	34	36	40	34
GCI 82 (soft data)	29	19	23	40	49	46	42	47	52	44

Fig. 5 – Comparison of the GCI and the "adjusted GCI" for Korea Rep.
Source:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing

Figure 4 shows that the subindex of innovation and sophistication factors has had the most positive impact on the overall rank from 2006 to 2013, due to the higher pace of improvement of other countries; Korea's competitiveness is driven by the subindex of basic requirements.

Figure 5 proved that the WEF weighting system (Korea is a country in the innovation driven stage of development with these used weights: basic requirements: 20 %, efficiency enhancers: 50 %, innovation factors: 30 %) improves the overall result of Korea. It is clear that the position of Korea according to the "adjusted GCI" is worse due to the same weights for all indicators.

Korea's strengths (see Figure 3 and our commentary in the previous text) reside in the pillars and subindices with lower impact on the overall competitiveness. Korea's weaknesses lie in the subindex of efficient enhancers (the 7th and 8th pillars), which has the highest weight for countries in the innovation driven stage of development, and these factors therefore have bigger impact on the overall competitiveness.

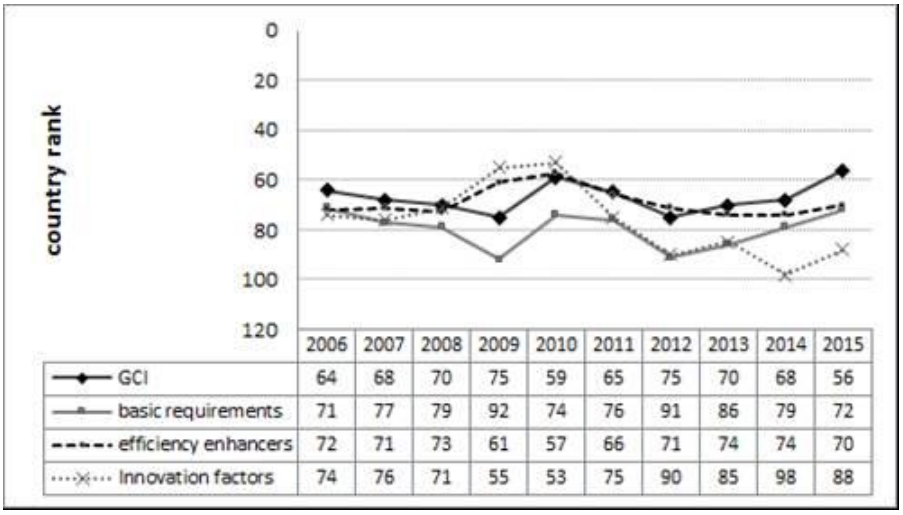
In the case of Korea, it is necessary to take into account the same fact as in the case of Japan - the "adjusted GCI" decreases the importance of indicator "domestic market size". The worse results of Korea in the GCI 82 (soft data) compared to the GCI and the "adjusted GCI" in the whole period are caused by elimination of positive impact of hard data on Korea's competitive performance.

3.2 Vietnamese competitiveness

According to the GCR 2015-2016, Vietnam ranked at the 56th place out 140 economies, up 12 places compared to the 2014-2015 period. Vietnamese better position in the overall index is based on better position in 10 pillars - particularly in the market size pillar, which had the highest score, ranked 33rd, followed by the labour market efficiency pillar (ranked 52nd). Low-ranked factors include institutions (85th), higher education and training (ranked 95th), financial market development (ranked 84th), technological readiness (ranked 92nd) and business sophistication (ranked 100th).

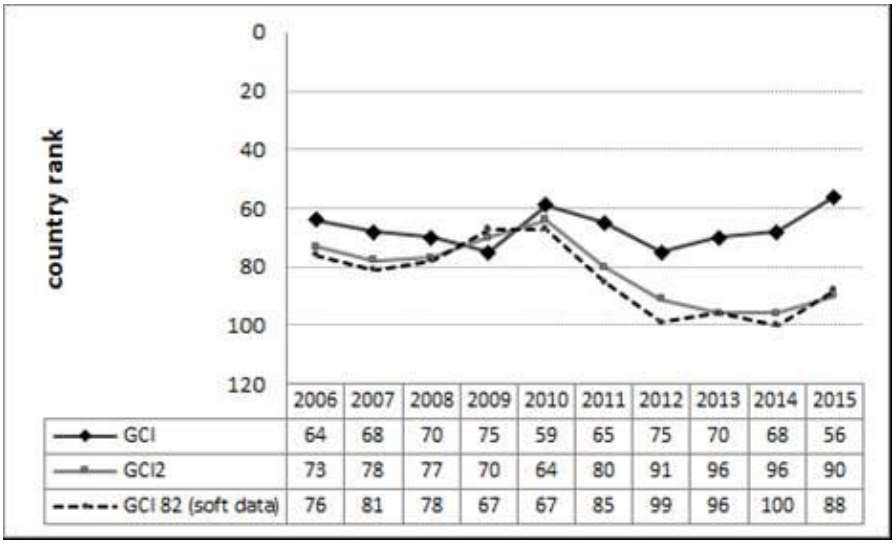
Infrastructure, strained by the rapid economic growth, remains a major challenge for the country despite some improvements in the recent years, with particular concerns about the quality of roads (93rd) and ports (76th). And although education appears to be satisfactory in terms of quality, enrolment rates at secondary and tertiary levels remain low (96th, and 87th for secondary and tertiary enrolments, respectively).

In order to further improve its competitiveness, Vietnam must also continue to strengthen its institutional environment. Strength of auditing and reporting standards (130th) and efficacy of corporate boards (127th) are perceived as burdensome, the quality of management school is perceived as low (113rd). Openness of Vietnamese firms to technology absorption is limited (121st), innovative performance is negatively influenced by quality scientific research institutions (95th) and low level of university and industry collaboration in the RaD (92nd). The country's technological readiness ranked 92th, meaning that the competitiveness of Vietnamese businesses can hardly improve in the immediate future.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	64	68	70	75	59	65	75	70	68	56
basic requirements	71	77	79	92	74	76	91	86	79	72
efficiency enhancers	72	71	73	61	57	66	71	74	74	70
Innovation factors	74	76	71	55	53	75	90	85	98	88

Fig. 6 – Changes in national competitiveness of Vietnam according to the GCI.
Source:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GCI	64	68	70	75	59	65	75	70	68	56
GCI2	73	78	77	70	64	80	91	96	96	90
GCI 82 (soft data)	76	81	78	67	67	85	99	96	100	88

Fig. 7– Comparison of the GCI and the "adjusted GCI" for Vietnam.
Source:http://reports.weforum.org/global-competitiveness-report-2015-2016, online 6.3.2016, own processing

As Figure 6 shows, the subindex of innovation and sophistication factors has had positive impact on the overall rank from 2008 to 2010, but due to the lowest weight of this subindex in computing the composite index, the country's position was influenced mainly by the worsening in the subindex of basic requirement. Due to the positive changes in this subindex after 2012, the overall position of Vietnam is better regardless the worse evaluation in the innovation indicators.

Figure 7 shows worse result of Vietnam according to the "adjusted GCI" and the GCI (82), except the GCI 2012. This exception is given by our weighting system (the same weights for all indicators), which means the smaller negative impact of basic requirements. Unlike Japan, it is impossible to claim that the WEF weighting system (Vietnam is a country in the first stage of development with these used weights in the last GCR: basic requirements: 58.9 %, efficiency

enhancers: 35.8 %, innovation factors: 5.3 %) improves the overall result of Vietnam for the whole period.

The positive impact of the WEF weighting system is remarkable from the GCR 2010 to the last edition. The higher decline of the "adjusted GCI" and the GCI (82) compared with the "original GCI" is influenced by the lower weight of basic indicators and the lower influence of the domestic market size on the overall evaluation.

Vietnamese strengths (see Figure 3 and our commentary in the previous text) reside in the pillars and subindices with higher impact on the overall competitiveness, Vietnamese weaknesses lie in all the subindices, but the worsening in the innovation factors is relativized by the lowest weight of this subindices in the "original GCI".

In the case of Vietnam, it is necessary take into account the same fact as in the cases of Japan and Korea - the adjusted GCI decreases the importance of the domestic market size. The worse results of Vietnam according to the GCI 82 (soft data) and the "adjusted GCI" in the whole period are given by the decrease of positive impact of hard data on Vietnamese competitive performance.

4 CONCLUSION

In every composite indicator analysis, the final index is the outcome of a number of choices: the framework (usually driven by theoretical models and experts' opinions), the indicators to be included, their normalization, the weights assigned to each indicator, and the aggregation method, among other elements. Some of these choices are subjective; others are driven by statistical analysis, mathematical simplicity, experts' opinions, or common practice.

Due to the critical objections to the role of soft data and the controversial methodology of the construction of the Global Competitiveness Index (the weighting system of groups of indicators is considered controversial), we decided to use the WEF dataset (WEF, 2015) and calculate our own "adjusted GCI". Our attitude assigned the same weight to all the indicators (index is the arithmetic mean of country's ranking in particular indicators) and the "GCI 82" (index is calculated as the arithmetic mean of country's ranking only in indicators based on soft data). Our aim was to analyse the impact of different weights (the system of weights is different for countries on the different level of development) on the overall evaluation.

The second aim was to describe the impact of soft data on the overall ranking in the "original GCI" and in the "adjusted GCI". Our analysis demonstrates the positive effect of the domestic market size on the country's ranking in the case of all three countries. This indicator has relatively large influence on the country's position due to its weight inside the group of the market size indicators (the weight of this indicator is 75 %), due to the weight of 10th pillar in the subindex Efficiency enhancers (17 %) and finally due to the biggest weight of this subindex in the overall index (the weight of this subindex is 50 % for Japan and Korea and 35,8 % for Vietnam). Japan's, Korea's, and Vietnam's competitiveness according to the "adjusted GCI" is mostly worse than their original ranking (GCI) due to the elimination of the WEF weighting system.

Due to the same weights for all the indicators, the impact of the indicator "country size" on the overall evaluation is smaller. The reason for the highest differences between the GCI and the "adjusted GCI" in the case of Japan is as follows: Japanese weaknesses (see Figure 3 and our commentary in the previous text) lie in the pillars and subindices with the lowest impact on the overall competitiveness, Japanese strengths consists in the subindex of the innovation factors,

which has the highest weight for countries in the innovation driven stage of development, and therefore these factors have bigger impact on the overall competitiveness.

Korea's strengths (see Figure 3) reside in the pillars and subindices with lower impact on the overall competitiveness, Korea's weaknesses (the 7th and 8th pillars) lie in the subindex of efficient enhancers with the highest weight for countries in the innovation driven stage of development - therefore, these factors have more negative impact on the overall competitiveness compared to Vietnam.

Vietnamese weaknesses lie in all the subindices, but the worsening in the evaluation of the innovation factors is relativized by the lowest weight of this subindices in the "original GCI". Comparison of the GCI, the "adjusted GCI", and the "GCI (82)" for Vietnam shows smaller difference between "adjusted indices", which could indicate that the WEF methodology (WEF weighting system) is more favourable to bigger countries.

ACKNOWLEDGMENT

This article is provided as one of the outputs of the research project of the Faculty of Business Administration IP 307055 "National and corporate competitiveness from the perspective of endogenous growth models".

REFERENCES:

Berger, T. (2008). Concepts of National Competitiveness. *Journal of International Business and Economy, 9*(1), 91-111.doi: http://www.i-jibe.org/achive/2008spring/5-Berger.pdf

Buckley, P. J., Pass, Ch. L., Prescott, K. (1988). Measurement of international competitiveness: a critical survey. *Journal of Marketing Management, 4*(2), 175-200. doi: 10.1080/0267257X.1988.9964068

Cho, D. S., & Moon, H. Ch. (2005) National Competitiveness: Implications for Different Groups and Strategies. *International Journal of Global Business and Competitiveness, 1*(1), pp. 1-11.

Cho, D. S. & Moon, H. Ch. (2013). International review of national competitiveness. A detailed analysis of sources and rankings. *Edward Elgar Publishing Limited.*

Krpec, O., Hodulák, V. (2013).Konkurenceschopnost národních ekonomik – kritická reflexe konceptu. *Politická ekonomie 61*(6), pp. 752-769.

Krugman, P.R. (1996). Making sense of the competitiveness debate. *Oxford Review of Economic Policy, 12*(3), pp.17–25.

Nečadová, M., Soukup, J. (2013). Kontroverzní pojem národní konkurenceschopnost a výsledky zemí V4 v mezinárodních žebříčcích konkurenceschopnosti (2007-2012). Politická ekonomie. 61(5), pp. 583-604. doi: http://www.vse.cz/polek/918

Nečadová, M. (2015). The Arguable Concept of National Competitiveness – Methodology of WEF and Results of Selected Countries in Global Competitiveness Report. *Proceedings of the 2nd International Conference on Finance and Economics, ICFE 2015 [CD]*. pp. 501–516.

Porter, M. E. (1990). *The competitive advantage of nations.* New York: Free Press.

Prahalad, C.K., Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review. (May-June)*, 79-91. doi: http://www.profrandes.com.br/wp-content/uploads/2013/03/Core-Competence-of-the-Corporation.pdf

OECD (2013). *Measuring Trade in Value Added: An OECD-WTO joint initiative.* OECD Publishing, Paris. doi: http://www.oecd.org/trade/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm#countries

Porter, M.E. (1990). The Competitive Advantage of Nations. New York: Free Press, MacMillan.

Scholleová, H., Čámská, D. (2015). Measurable assumptions innovative behaviour of firms - the area of financial assumptions. *In: Proceedings of The 25th International Business Information Management Association Conference*, May 7-8, 2015, Amsterdam, Netherlands, ISBN: 978-0-9860419-4-5

WEF (2015). *The Global Competitiveness Report 2015-16.* doi: http://reports.weforum.org/global-competitiveness-report-2015-2016/

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

EMPIRICAL RESEARCH OF THE EFFECT OF TERMS OF TRADE ON THE ECONOMIC GROWTH IN DEVELOPING COUNTRIES

Ngan Pham Thi

ABSTRACT

According to traditional economic theories, the improvement of terms of trade is likely to promote economic growth. This paper offers an empirical analysis of how the change of terms of trade is affecting economic growth based on the parallel panel data collected from 25 developing countries between 1980 and 2013. Finally, it draws the conclusion that the stimulation of deteriorated terms of trade on the economic growth of developing countries (which is to the contrary of traditional economic theories) is fading away along with the increase of economic growth and economic openness, and the frequent and dramatic change of terms of trade is harmful for economic growth.

Keywords: *terms of trade; economic growth; developing countries*

JEL Classification: F2

1 INTRODUCTION

With the deepening of globalized trade, the effect of terms of trade on the economic growth of all countries is an increasing concern among the public. According to the existing research result, terms of trade is also a very important factor to cause the difference in economic growth of all countries in addition to those of population and system (Barro and Sala-i-Martin, 1995). According to traditional theories, the improvement of terms of trade is likely to promote economic growth because improved terms of trade imply that certain amount of imports can be maintained by decreasing relevant amount of exports, thus enabling the release of more resources to produce products for domestic market. Such view is shared by researchers such as Barro (1996) and Broda(2004).

However, some developing countries are actually facing the challenge of increasingly deteriorated terms of trade intertwined with fast economic growth. From 1980 to 2013, China's terms of trade index fell 38.02% while actual GDP (at constant price of US dollar in 2000, hereafter the same) almost rose by 20 times. During this period, China's productivity grew steadily by 8% annually while the terms of trade of Brazil and South Africa rose 83.74% and 21.98% respectively and their actual GDP just tripled. Researchers ascribed the contradiction between those empirical facts and traditional theories to (1) international capital flow: Calvo et al.(2004) argued that the deterioration of terms of trade may result in break-off of capital flow, rise of interest rate and different effect on the economy of both creditor and debtor countries when international capital flow is taken into account. The deterioration of terms of trade of a creditor country may result in rise of the total revenue of securities measured by its domestic products, thus raising the reserve and revenue and reducing loans of the country（ Turnovsky,1991; (2) constraints of resources: many researchers found that the resource-rich developing countries where the improvement of terms of trade are causing significantly adverse impact on economic growth often face the challenge of "Resources Curse" because the countries which largely depend on resources export are more likely to suffer unreasonable

decisions on consumption and savings （Deaton,1999）, corruption （Sala-i-Martin and Subramanian，2003） and inefficient system(Kwasi，2011); (3) insufficient employment: Sen(1998)argued that traditional Keynesian theory draws the conclusion that deterioration of terms of trade is harmful for economic growth because it is assumed in the model that economy is running with sufficient employment. After taking insufficient employment into account in Keynesian model, he found that the deterioration of terms of trade is likely to enhance productivity by guiding resources flow to the non-trading sectors and the sectors competing with imports of a country.

The findings of the existing research show that the relationship between the change of terms of trade and economic growth of developing countries is still a controversial issue among academicians and the economy is more vulnerable to impact of terms of trade in developing countries than in developed ones. Therefore, this paper provides an empirical analysis of how terms of trade are affecting economic growth based on the panel data collected from 24 developing countries between 1980 and 2013, taking into account the characteristics of import and export trade of developing countries and different levels of impact posed by terms of trade on economic growth under the circumstances of different economic development and openness level.

2 THEORETIC MODEL

In order to analyze how terms of trade are affecting economic growth under uncertain conditions, a stochastic growth model is hereby established by reference to Mendoza(1997). In this small open economy, consumers consume imported products to optimize the level of effectiveness as shown by the utility function below:

$$\mathrm{U(C)} = E\left[\sum_{t=0}^{\infty} \beta^t \frac{C_t^{1-\gamma}}{1-\gamma}\right] \qquad \gamma > 0, 0 < \beta < 1 \tag{1}$$

Where C_t is the consumption of imports; β is discount rate; ϒ is risk index. The production function is the linear function of capital inputs and it is assumed that the consumables with zero depreciation rate of capital inputs have a stochastic output return in each period. In a fully competitive international trade market, the relative price change of imports and exports is stochastically distributed and no consumers can effectively predict the impact of terms of trade. Therefore, consumers optimize the level of effectiveness based on the inter-temporal resource constraints as shown below:

$$A_{t-1} \leq R_t(A_t - P_t) \tag{2}$$

Where $A_t$is the benefit stock (A>0) measured by exports; R_t *is* the total return of domestic savings; P_t is the ratio of import price to export price determined by world trade market, which is equal to the reciprocal of terms of trade. t, $P_t$is known in each period while $R_t$andP_{t+1} are unknown. Competitive equilibriumis defined asthe optimized effectiveness function（1） under constraint condition (2), hence the Euler equation satisfying the requirement of optimization:

$$(C_t) = \beta \mathrm{E}[\frac{R_t P_t}{P_{t+1}} U'(C_{t+1})] \tag{3}$$

The closed-form solution of the model can be obtained by dynamic programming:

$$C_t^* = \lambda(\frac{A_t}{P_t}) \tag{4}$$

$$A_{t+1}^* = (1-\lambda)(R_t A_t) \tag{5}$$

Where $\lambda = [1-\beta^{\frac{1}{\lambda}}[E(s_t^{1-\lambda})]^{1/\lambda}]$, $s_t = \frac{R_t P_t}{P_{t+1}}$ (6)

Where $s_t$is the actual interest rate measured by imports and s_t *is* subject to normal distribution of logarithm, i.e. $\ln(s_t) \sim iid(\mu,\sigma^2)$, hence the mean value of s_t: $\mu_t = \exp(\mu+\sigma^2/2)$, and variance:

$\sigma^2 = \mu_s^2 \exp(\sigma^2 - 1)$. When equilibrium (4) and (5) and $s_t$statistical characteristics are given, consumption growth can be expressed as:

$$\frac{C_{t+1}}{C_t} = (\phi - \lambda)s_t \quad (7)$$

The logarithmic difference of consumption is taken as $c_t = \ln(C_t)$-$\ln(C_{t-1})$, and $\ln(s_t)$ =The logarithmic difference of consumption is taken as $c_t = \ln(C_t)$-$\ln(C_{t-1})$, and $\ln(s_t) = \mu + \varepsilon_t$, where ε_t *is the* deviation of t period interest rate from mean value, hence the following formula:

$$\Delta c_t = \frac{1}{\Upsilon}[\ln(\beta)+\ln(\mu_s)] - (1-\Upsilon)+1]\frac{\sigma^2}{2}+\varepsilon_{t-1} \quad (8)$$

Where Δc is the growth rate of consumption; the first two items on the right are the trend terms of Δc_t; Error term $\varepsilon_{t-1}$is periodic component, hence the following conclusion:

(1)- The effect of terms of trade may be positive or negative depending on the following constant terms: time preference $(1/\beta - 1)$, inter-temporal substitution elasticity Υ, mean value of actual interest rate μ_s and the variance of terms of trade volatility σ^2.

(2)- In case of inter-temporal substitutability $\Upsilon<2$ ($\Upsilon>2$), the rise (or fall) of terms of trade volatility σ^2 will bring down (or raise) the growth of output, that is, when the risk preference is low enough, the rise of volatility of terms of trade will lower the growth of output.

3 EMPIRICAL TEST

3.1 Model Assumption

The result of the preceding theoretic model analysis shows that the effect of terms of trade on economic growth is ambiguous and uncertain. Therefore, this section is aimed at empirical test of the output effect of the terms of trade change in developing countries. The effect of terms of trade on the structural part of output is analyzed in this section with the difference of the effect under the circumstances of different development and openness levels taken into account. The empirical model is set as the two equations shown below:

$$y_{it}=\alpha_0+\alpha_1 \mathrm{TOD}_{it}+\alpha_2 f\mathrm{TOD}_{it}+\alpha_3 d\mathrm{CAP}_{it}+\alpha_4 \mathrm{OPE}_{it}+\mu_t+v_i+\varepsilon_{it} \quad (9)$$

$$y_{it}=\beta_0+\beta_1 TOD_{it}\beta_2 fTOD_{it}+\beta_3 TOD_{it}*pGDP_{it} +\beta_4 TOD_{it}*dCAP_{it}+\beta_5 TOD_{it}*OPE_{it}+\eta_i+\lambda_i+\vartheta_{it} \quad (10)$$

Where the explanatory variabley_{it} is GDP, which reflects the consumer expenditure($CONS_{it}$), government expenditure(GOV_{it}), total per capita capital (CAP_{it}), export (EXP_{it}) and import (IMP_{it}). The explanatory variables are index of terms of trade (TOD_{it}), volatility of terms of trade ($f\mathrm{TOD}_{it}$) and the control variables are financial development level $d\mathrm{CAP}_{it}$and openness level OPE_{it}. To take into account the difference of the effect of terms of trade on economic growth under the circumstances of different development and openness level, index of terms of trade and volatility of terms of trade ($f\mathrm{TOD}_{it}$) are introduced into equation (10). The control variable is the cross term of financial development level $d\mathrm{k}_{it}$and openness levelOPE_{it}.

1.1 3.2 Data sources and statement

This paper is written with reference to the parallel panel data collected from 25 developing countries between 1980 and 2013, including Bangladesh, Bolivia, Botswana, Brazil, Cameroon, China, Dominica, Egypt, Salvador, India, Jordan, Kenya, Lesotho, Malaysia, Mauritius, Mexico, Namibia, Nicaragua, Paraguay, Rwanda, Senegal, South Africa, Thailand, Tunisia and Zambia. All the data are derived from the development index database of the World Bank, of which GDP_{it}、$pGDP_{it}$、$CONS_{it}$、GOV_{it}、CAP_{it}、EXP_{it} and IMP_{it} are the nominal variables measured by the constant price of US dollar in 2000 and TOD_{it} is the ratio of each country's export unit value index to import unit value index based on the period of 2000. $d\mathrm{k}_{it}$ is the ratio of the creditor's right of private sectors to broad money, which is used to measure the financial development level of country i. OPE_{it} is the ratio of total import and export to GDP_{it}, which is used to reflect the openness level of country i. In addition, GARCH (1,1) is used in this paper to predict the volatility of terms of trade $f\mathrm{TOD}_{it}$. The statistic description of each variable after taking logarithm is listed in Table 1.

Tab. 1 - Descriptive statistics of the samples. Source: World Bank

Variables	Implication	MV	SD	Min.	Max.
TOD	Index of terms of trade	4.645	0.262	3.684	5.746
GDP	GDP	23.682	1.973	19.763	28.883
pGDP	Per capita GDP	7.096	0.925	4.926	8.756
CONS	Consumer expenditure	23.347	1.892	19.932	27.592
GOV	Gov. expenditure	27.714	1.926	18.061	26.925
CAP	Gross capital formation	22.126	2.065	17.453	28.168
EXP	Export	22.315	1.923	17.626	28.339
IMP	Import	22.534	1.786	18.602	27.723
dCAP	Financial DVLP level	3.742	0.162	2.315	5.201
OPE	Openness	3.902	0.165	2.286	5.263

3.3 Regression analysis

Impact of terms of trade on output: test result of equation (9)

The multiple regression analysis of parallel panel data is used in this section to test how the change of terms of trade is affecting economic growth. The Hausman test results of all models have rejected the original assumption that stochastic effect model and fixed effect model coefficients are not systematically different when choosing between stochastic effect model and fixed effect model. Therefore, fixed effect model is more suitable for the test. Fixed effect model and hybrid OLS model are chosen based on F test. The test result suggests that the individual effect of panel data should be taken into account. Therefore, fixed effect model should be chosen. The estimated results of each model obtained after dealing with the heteroscedasticity that may exist in the panel data and the issues related to sequence and interface are shown in Table 2. All the estimated results in this paper are obtained by Stata12.0.

According to the estimated results of the model, the improvement and dramatic volatility of a developing country's terms of trade may result in decrease of output. The estimated results of GDP model shows that the effect of the terms of trade TOD on output is significantly different from that of 0 at the significance level of 1%, and the rise (or fall) of 1% of terms of trade must

result in 0.37% of export decrease (increase). Unlike the perceptions in traditional economic theories, the actual result in this paper suggests that the deterioration of terms of trade has instead promoted the economic growth of developing countries. It is argued in this paper that the impact of deteriorated terms of trade on output is caused by (1) income effect, i.e. the deterioration of terms of trade results in decrease of income from the same amount of exports;

(2)- The effect of substituting domestic goods for imports, i.e. the deterioration of terms of trade or the fall of relative ex-warehouse price will shift consumers' attention from imports to domestic goods, thus increasing revenue from trade. Now, most developing countries focus on the export of primary goods that have higher substitution elasticity. The deterioration of terms of trade implies that export commodities are more competitive in price to increase exports. The deterioration of terms of trade may promote economic growth when such substitution effect is significant and greater than income effect.

In consistency with the result 2 obtained by theoretic model, the elasticity coefficient of output in response to volatility of terms of trade $f\mathrm{TOD}_{it}$ is negative. To be exact, the rise (or fall)of volatility of terms of trade by 1% will decrease (or increase) GDP by 0.03% and consumers expenditures (CONS), government expenditures (GOV), gross capital formation (CAP), export (EXP) and import (IMP) will fall (or rise) 0.035%, 0.035%, 0.022%, 0.066% and 0.072% respectively. Therefore, import and export are more sensitive to volatility of terms of trade.

Tab. 2 - Impact of terms of trade on output. Source: computational authors from research data

Variables	GDP	CONS	GOV	CAP	EXP	IMP
TOD	-0.158*** (-3.58)	-0.092 (-1.608)	0.016 (-0.238)	-0.087 (-1.242)	-0.376*** (-4.44)	0.012 (0.07)
fTOD	-0.034*** (-2.961)	-0.033*** (-3.191)	-0.033*** (-2.282)	-0.024* (-1.781)	-0.06*** (-3.39)	-0.07*** (-4.00)
fCAP	0.668*** (6.35)	0.645*** (6.77)	0.662*** (7.62)	0.834*** (6.98)	0.780*** (6.26)	0.767*** (5.88)
OPE	0.32*** (5.19)	0.33*** (4.90)	0.24*** (4.69)	0.40*** (5.80)	0.99*** (8.59)	0.91*** (8.89)
CONS	20.53*** (67.82)	19.89*** (74.96)	18.10*** (62.22)	17.71*** (31.79)	17.03*** (30.38)	15.80*** (29.84)
Hausman test	69.78***	60.99***	53.21***	56.99***	61.76***	59.19***
F test	660.59***	402.97***	598.36***	377.86***	289.08***	229.89***
R2	0.44	0.34	0.4	0.39	0.5	0.5
N	800	800	800	800	800	800

Note: (1) *means significant below 10% (p<0.1), ** means significant below 5% (p<0.05), *** means significant below 1% (p<0.01) ;

The impact of terms of trade on output under the circumstances of different economic development levels is taken into account:

The test result of equation (10). To take into account the difference of the effect of terms of trade on output under the circumstances of different economic development levels, the cross term of terms of trade and per capital output, and the cross term of financial development level and trade openness are introduced into the models in this section. Similarly, fixed effect model should be chosen to estimate the result based on the results of Hausman test and F test. According to the estimated results of the models, R2 of each model rise significantly after introduction of cross term. R2 of output (GDP), consumers expenditures (CONS), government expenditures (GOV), gross capital formation (CAP), export (EXP) and import (IMP) rise from 0.44, 0.34, 0.40, 0.39, 0.50 and 0.50 to 0.83, 0.59, 0.69, 0.66, 0.74 and 0.69 respectively. Similar to the results of the preceding equation (9), the elasticity coefficient of such output (GDP) and its main components in response to volatility of terms of trade $f\mathrm{TOD}_{it}$ is negative, and the coefficient level is not so different from the estimated results of the models in equation (9), where import and export are more sensitive to volatility of terms of trade. Unlike the previously estimated results, the coefficient terms of trade TOD becomes significant in the estimated results of all the models in the new equation. And the elasticity coefficients of consumer expenditures (CONS), government expenditures (GOV), gross capital formation (CAP), export (EXP) and import (IMP) in response to terms of trade TOD are negative. This suggests that the deterioration of terms of trade has increased export income, thus stimulating consumers' expenditures, government expenditures, investment and import. However, with the deepening of economic development and openness, such stimulation is fading away due to:

(1)- The effect of terms of trade on output under the circumstances of different development levels. In the estimated result of GDP model, the coefficient of terms of trade TOD is negative while the coefficients of the cross items of terms of trade TOD and per capita output pGDP, and terms of trade TOD and financial development level dCAP are positive. This suggests that the economic development and improvement of terms of trade of a country may retard the decline of and even stimulate output when its economic development reaches certain degree and terms of trade are improved. The improvement of terms of trade or appropriate rise of export price of relatively developed countries may not reduce their exports because they are often those which are less likely to be substituted and may, therefore, raise output, and the exports of less developed countries are often primary products which are more likely to be substituted and the rise of export price will reduce the competitiveness of their exports to impede their export and output.

Tab.3 - The impact of terms of trade on output under the circumstance of economic development. Source: computational authors from research data

Variables	GDP	CONS	GOV	CAP	EXP	IMP
TOD	-1.95***	-1.78***	-1.57***	-2.16***	-3.08***	-2.46***
	(-55.61)	(-28.52)	(-27.21)	(-27.45)	(-21.36)	(-15.37)
fTOD	-0.03***	-0.03***	-0.03***	-0.02***	-0.05***	-0.07***
	(-4.60)	(-4.80)	(-3.71)	(-2.60)	(-5.03)	(-6.02)
fTOD*pGDP	0.26***	0.23***	0.22***	0.27***	0.33***	0.29***
	(27.18)	(23.21)	(21.52)	(15.54)	(10.84)	(9.37)
TOD*dCAP	0.02**	0.03***	0.04***	0.05***	0.10***	0.03*
	(2.26)	(2.44)	(5.02)	(3.46)	(2.99)	(1.75)

TOD*OPE	0.03***	0.04***	0.02***	0.05**	0.16***	0.15***
	(4.78)	(3.88)	(3.26)	(5.19)	(9.02)	(9.46)
CONS	23.20***	22.61***	20.59***	21.21***	22.26***	20.82***
	(135.52)	(123.80)	(120.61)	(59.75)	(85.33)	(57.98)
Hausman test	72.00***	64.44***	48.69***	58.83***	68.32***	53.99***
F test	1829.14***	567.07***	957.59***	603.31***	466.58***	327.86***
R2	0.83	0.59	0.69	0.66	0.74	0.69
N	800	800	800	800	800	800

(2)- The effect of terms of trade on output under the circumstances of different openness. In the estimated result of GDP model, the coefficient of the cross term of terms of trade TOD and openness OPE is positive. This suggests that the effect of terms of trade on economy is weakening with the increase of openness but its power remains uncompromised in general. This seems to be contrary to intuitive expectation because we normally think that the increase of openness will intensify the effect of the terms of trade on economy but the estimated result in the model suggests that the increase of openness has instead reduced the effect of the change of terms of trade on output and other explanatory variables. A country's economy may be less sensitive to the change of terms of trade because it may keep balance between supply and demand of imports and exports in world market with the increase of its openness to the outside world. In contrast, the economy of the developing countries which have taken initial step into world market with limited openness is more vulnerable to the impact of terms of trade.

4 CONCLUSION AND POLICY IMPLICATION

This paper offers an empirical analysis of how the change of terms of trade in developing countries is affecting economic growth based on the parallel panel data collected from 25 countries between 1980 and 2013. The result suggests that the deterioration of terms of trade has promoted economic growth of developing countries. In addition to international capital flow, resource constraints and insufficient employment in urban sectors, most developing countries focus on selling primary products and labor-intensive products which have lower substitution elasticity to world market has worsened terms of trade and enhanced their competitiveness in export price, thus resulting in export expansion and economic growth. However, with the deepening economic development and openness, the effect of terms of trade on economy is fading away and the dramatic and frequent change of terms of trade may adversely impact economic growth. The result of above research has provided important policy implications for promotion of sustainable economic development of developing countries as follows:

In the near future, developing countries should engage in international trade division based on comparative advantages. First, they should bring into their comparative advantages to meet the demand of market. The abundant labor and natural resources are still the comparative advantages of developing countries today. Developing countries should bring into full play their comparative advantages to reasonably combine resources at all levels and facilitate the rise of their domestic productivity by exporting lower grade resources which have comparative advantages in exchange for the higher grade resources in which they are short of advantages. Second, they should try to promote scale economies effect. Developing countries should maximize scale economies effect depending on socialized operation to standardize the production of labor-intensive products and enhance productivity. Third, they should make full

use of their rare factors to create their unique comparative advantages. Developing countries should tap their resources advantages of rare factors (such as oil resources, mineral resources and service trade) and turn them into the core competitiveness of their export trade.

In the long run, developing countries should actively foster Endogenous comparative advantages to avoid immiserizing growth. First, they should speed up technology upgrading and product innovation. Low-end products have limited space to exist in world market and the competition in their price will become increasingly harsh as more developing countries are engaged in globalized trade. Developing countries should continue to enhance the competitiveness of their exports by human capital accumulation, technology introduction, technology transformation and independent innovation. Second, they should increase the export categories and expand market share for export trade. Fixed export categories and over-concentrated export market will result in continuous deterioration of terms of trade which is very vulnerable to the impact of external economies. Developing countries should gradually stave off the growth mode that merely depends on expansion of quantity, actively enlarge product categories for export and expand foreign trade market. Third, they should properly choose key businesses to lead to optimization of business structure. They should strengthen the leadership of the production sectors that have high elasticity of demand, high productivity and significant product correlation based on consolidation of their existing comparative advantages. The government authorities should provide appropriate policy support and favorable regulatory mechanism for those sectors to gradually develop into the leading industries that have dynamic comparative advantages to achieve long-term trade benefits.

REFERENCES

Stephen J. Turnovsky, (1991), Tariffs and sectoral adjustments in an open economy, *Journal of Economic Dynamics and Control* 15, 53-89.

Barro, R.J. and Sala-i-Martin, X., （1995） Economic Growth, McGraw-Hill, Cambridge, MA.

Barro, R.J., （1996）Determinants of Economic Growth: A Cross-Country Empirical Study, *NBER Working Paper*, 5698.

Enrique G. Mendoza., (1997) Terms-of-trade uncertainty and economic growth, *Journal of Development Economics* 54, 323–356.

Amartya Sen.,(1998) Mortality as an Indicator of Economic Success and Failure, *The Economic Journal* 108, 1-25.

Maizels, D.A., （2000）The Manufactures Terms of Trade of Developing Countries with the United States, *QEH Working Paper Series*, 36.

Calvo, G.A., Izquierdo, A. and Mejia, L., （2004）On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects, *NBER Working Paper*, 10520.

Blattman, C., Hwang, J. and Wiliamson, J.G., （2007, Winners and Losers in the Commodity Lottery: The Impact of Terms of Trade on Growth and Volatility in the Periphery 1870-1939, *Journal of Development Economics* 82, 156-179.

Broda, C., （2004）Terms of Trade and Exchange Rate Regimes in Developing Countries, *Journal of International Economics* 63, 31-58.

Kwasi, A., （2011）Terms of Trade and Growth of Resource Economies: A Tale of Two Countries, *WIDER Working Papers*, 28.

Aquino, Juan Carlos & Espino, Freddy (2013) Terms of Trade and Current Account Fluctuations: a Vector Autoregression Approach, *Cepal Review* No.110

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

STUDIES OF FACTORS AFFECTING RISK ASSESSMENT OF MATERIAL MISSTATEMENT IN THE AUDITED FINANCIAL STATEMENTS

Ngo Thi Kieu Trang

ABSTRACT

Risk assessment of material misstatement is an important decision in the audited financial statements now. Therefore, the author performed the study of factors affecting the risk assessment of material misstatement. The study helps auditors to have reference to the risks assessment of material misstatement. At the same time the research results also help businesses take measures to remedy internal problems in order to limit the risks of material misstatement. The author uses expert interviewing method and multivariate analysis (factor analysis, correlation analysis, and regression analysis) to obtain the results. There are two factors that affect the risk assessment of material misstatement: (1) Business' controlled environment, and (2) Business' process of risk assessment. Other factors do not affect to the risk assessment of material misstatement.

Keywords: *Risk assessment of material misstatement, expert interviewing method, multivariate analysis, factor analysis, correlation analysis, and regression analysis, and controlled environment.*

JEL Classification: M42

1 INTRODUCTION

Audited financial statement for companies listing on stock market is one of the important tasks contributing to the transparency in all business activities, detecting and preventing illegal activities, creating investor's confidence, helping allocate social resources efficiently, and showing the important role of auditing on the financial market.

Manager's awareness of the auditing issues as well as auditing standards is limited. Therefore, naturally, risk assessment tools in financial statements for companies become more and more necessary to identify risks (Spathis, 2002). Assessed risks of material misstatement in the audit report help to identify serious flaws that should be considered carefully to avoid making wrong decisions.

Due to increasing competitions among audit firms, the audit firms must reduce the auditing fare to attract customers. Thereby, auditors might not fully implement the audit procedures and limiting the risk assessment of material misstatement in audited financial statements. Furthermore, all audit companies must issues audited report on the March 30th, that deadline places auditors under a time pressure, and they might ignore easily some risk assessments of material misstatement and releasing the audited financial statements.

Economy market risks: Because the domestic economy in particular and the international economy in general are difficult, for example: Sale revenue falling, slow good consumption, higher interest rate, rising input cost... This led to companies listed on the stock market not to meet their outlined plans; even some companies fall down into loss-marking status. Those companies might do fraud activities to release "nice" financial statements for illegal purposes.

For those financial statements, audit company will get much more difficulty to find out the fraud activities, although implementing fully audit procedures and standards.

According to Agrawal (2005), Brown.J (2010), the wave of accounting scandals recently appeared in the international financial community has raised the quality of financial reporting issues. Some big companies had serious fraud in auditing like Enron accounting, WorldCom, Marconi, Parmalat, etc. The difficult situation reduces investor's confidence to the financial statements and audit reports.

According to Karamanou.I (2005), Beekes.W (2006), Firth.M (2007), Petra.S (2007), the disclosure of financial information and accounting data dishonestly sets out the need to strengthen the quality of audited financial information and focused on risk assessment of material misstatement when performing audit. In Vietnam, the crisis occurred at BachTuyet Cotton Joint Stock Company (2008) and Vinashin Corporation (2010) were examples of fraud and negligence in the audit of financial statements because auditors did not focus on risk assessment of material misstatement in the audited financial statements.

The detection of irregularities in the financial statements using the normal audit procedures has been a daunting task for auditors (Dikmen, 2010; Porter & Cameron, 1987; Coderre, 1999). Thereby, there are some audit firms, conducting an audit of financial statements, can not release a good assessment of risk in the audit report. The introduction of methods to find out the internal control system, the business environment has not been fully implemented. Therefore, the auditors assess and draw conclusions based on subjective experience. In order to evaluating objectively the risk of errors in the audit report, the auditors also need to understand the internal control of the business.

The Ministry of Finance issued audit standards 315 (VSA 315) identify and assess risks of material misstatement through understanding of the audited units and the environment. However, the auditors still face many difficulties in applying for auditing the financial statements of companies listed on Vietnam stock market.

There have been prior studies on the issue of risk assessment of material misstatement in the audited financial statements. However, according to the author, in Vietnam, there has been no study about the factors that affect risk of material misstatement in all three periods of the audit process: audit planning, audit implementing, and the audit concluding. Also there has been no study about assessing the impact of risk of material misstatement during an audit performance. Beyond the study, the author puts forward a solution to help auditors to identify and assess risks of material misstatement more quickly and accurately for each audit performance.

Aware of the importance of risk assessment of material misstatement, the author has chosen the name: "Studies of factors affecting risk assessment of material misstatement in the audited financial statements".

2 OVERVIEW OF THEORY

The author presents the theory of risk and material misstatement in the financial statements of the enterprise

Risk:

According to traditional, the risk is a bad luck, the damage, loss, dangerous, unexpected happens. That is the loss of property, or the actual profit decreased than expected profits. In addition, the risk is also known as the uncertainty unwanted happens in the course of business, the enterprise's production adversely impact the survival and growth of a business. In summary

in this view, the risk is the damage, loss, danger or integrity factors relating to difficult or dangerous uncertainties can happen to people.

According to the modernist, the risk is the uncertainty can be measured, both positive and negative. Risks can bring to the losses, human losses but can also bring benefits, opportunities. If you research on the risks carefully, people can completely avoid risk, limited the negative risks.

The book named "International Insurance - Principles and Practice" by the Royal Academy, published in 1993 had gathered a number of views on risks such as: "Risk is the possibility of an incident; Risk is an unpredictable situation, a tendency to lead to the actual results differ from anticipated results; Risk is a combination of risk; Risk is uncertainty about the losses; Risk is the possibility of loss."

According to above views, the book also mentioned about the bad things, could happen in the future. The term "ability" and "not unpredictable" have been used for the purpose of indicating a certain degree of uncertainty is a doubt due to the above offers. Thus, the point of view has been refers to negative consequences due to one of or more of the different causes triggers.

The risks implied an incident that nobody wants. However, each different sector has own certain risk.

The area of audit risk was very interesting. Audit risk is the ability of auditors and audit firm offering audit opinion on the subject unwarranted audited.

Vietnam Auditing Standards No. 400, "Risk Assessments and Internal Control" has put forward the concept of audit risk: "Risk is that auditor and audit company express an opinion received inappropriate remarks when audited financial statements still contain material misstatements. Audit risk consists of three parts: the potential risks; controlled risks, and detected risks "(Auditing Standards No. 400). The concept shows that an audit risk consists of 3 categories: the potential risks; controlled risks, and detected risks. However, according to the audit standards Vietnam, the concept of risk only refers to the misstatement, does not mention to fraud activities.

Materiality:

In the field of accounting, the materiality is one of the important principles. The principle of "materiality" points out that the lack of information or inaccurate information can significantly distort the financial statements, which affect to the decision of the used information.

Materiality in the audit is a concept about the importance of accounting information. In that case, inaccurate information will seriously affect to decisions of people those who refer information.

According to the Vietnam Auditing Standards No. 320 also defines the materiality: Information is considered material means that if the lack of information or lack of accuracy of the information that will affect the decisions of users' financial statements. Materiality levels depending on the importance and nature of the information or the errors are evaluated in specific circumstances. Materiality level is a threshold, a split rather than the content of the information required. The materiality of the information must be considered both in terms of quantitative and qualitative "(Accounting Standards No. 320)

Materiality assessment of the following:

When evaluating the materiality level through two steps:

Step 1: Estimate the materiality initial level throughout the financial statements as the auditor

to establish materiality levels acceptable plan meant to make mistakes at this level of fraud is permissible receive

Step 2: Distribution of materiality for each item means that the flaws can be ignored.

Conclusions: The level of materiality is a threshold, a dividing point rather than the content of the information required. Materiality level is the maximum amount that can be accepted by the information on the financial statements.

Risk of material misstatement

According to the Vietnam Auditing Standards No. 315: The risk of material misstatement is assessed on two levels: (1) Financial statements, (2) databases of the group transactions, account balances and information disclosures.

+ The risks of material misstatement at the financial statement level are the risks widely affecting many items on the financial statements, and having the potential to affect multiple databases. These risks can be detected with specific databases in the group transactions, account balance information or explanations. These risks represent situations that may increase the risks of material misstatement at the level of databases. Risks at the level of the financial statements can arise from defects in the control environment. For example, the lack of integrity of the board of directors may seriously affect the accuracy of financial statements.

+ Assessing risks of material misstatement at the level databases: The assessment is used for groups of transactions, account balances, disclosures of information. As this will directly support the identification of content, timing and extent of audit procedures followed at the level of databases. The auditor may conclude that the identified risks more diffuse impact on the overall financial report and photos potential effects to multiple databases.

3 METHODOLOGY

3.1 Develop research models

Risk assessment compared misstatement learn in two ways: (1) Provision Beneish model to assess the possibility of a material misstatement in the financial statements of the business; (2) Risk assessment errors based financial reporting internal controls now along with the experience of the auditor.

(1) The model is divided into two groups Beneish: a group of variables to help identify fraud and other groups reflecting the fraudulent motives. The model is described as follows:

$$M_i = \beta * X_i + \varepsilon$$

Inside:

Mi: Yes misstatement or not

Xi is expressed through eight independent variables (explanatory variables):

DSRI: The trade receivables compared to sales

GMI: The gross profit rate

AQI: asset quality index

SGI: The sales revenue growth

DEPI: The depreciation rates

SGAI: The cost of sales and business management

LVGI: financial leverage index

TATA: The variable accruals accruals compared to total assets

Apply patterns with environmental Beneish Vietnam, Nguyen Cong Phuong and Nguyen Tran Nguyen Tran has done research with 30 companies with material misstatements in the financial statements audited in 2012 by the discovery and publication. Research results indicate the model predicts the probability of 53.33% right with the ability to detect material misstatements in the financial statements of the company. Thus, the pattern of Beneish can be used as a support tool for the auditor to assess the risks of material misstatement in the financial statements. In addition, the model can also be the authorities used to check if there is suspicion of fraud by the company even if the financial statements of these companies have been audited. (Nguyen Cong Phuong and Nguyen Tran Nguyen Tran, 2014).

Assessing risks of material misstatement in the financial statements audited by the Ministry of Finance guidelines through audit standards such as Auditing Standards No. 200 overall objective of auditors and auditing enterprises when accounting audit performed in accordance with auditing standards in Vietnam. Auditing Standards No. 240 - Responsibilities of Auditors concerning fraud in the process of auditing the financial statements, audit standards 260 - Exchange Administrator problems with the audited units, auditing standards 265- Talking about the deficiencies in internal control with the Board of management and directors audit unit, VSA300- planning audit financial statements, VSA315- Identify and evaluate risks of material misstatement through understanding of the audited units of the unit and the environment, critical 320- level in planning and implementing the audit. In the framework of his study authors conducted qualitative research by interviewing experts. Experts interview process to make the risk assessment factors have misstatement as follows:

Interviews with experts in the field of audit (mainly the auditors of independent audit firms, professionals as lecturers audit). Make a list of about 20 auditors and faculty appointments at the same time direct interviews or via telephone. During the interview process, notes the author conducted a full and recording the views of experts on aspects interview. Interview taken last information theoretical information saturation (Figure 2). Interview each person, each person will get some general information than other professionals. Interview until consecutive 3 people do not give new information compared to the previous ones, it is considered the point of saturation of information. Now stop interviewing and filtering the information obtained from the interviewees. Can be generalized by the following:

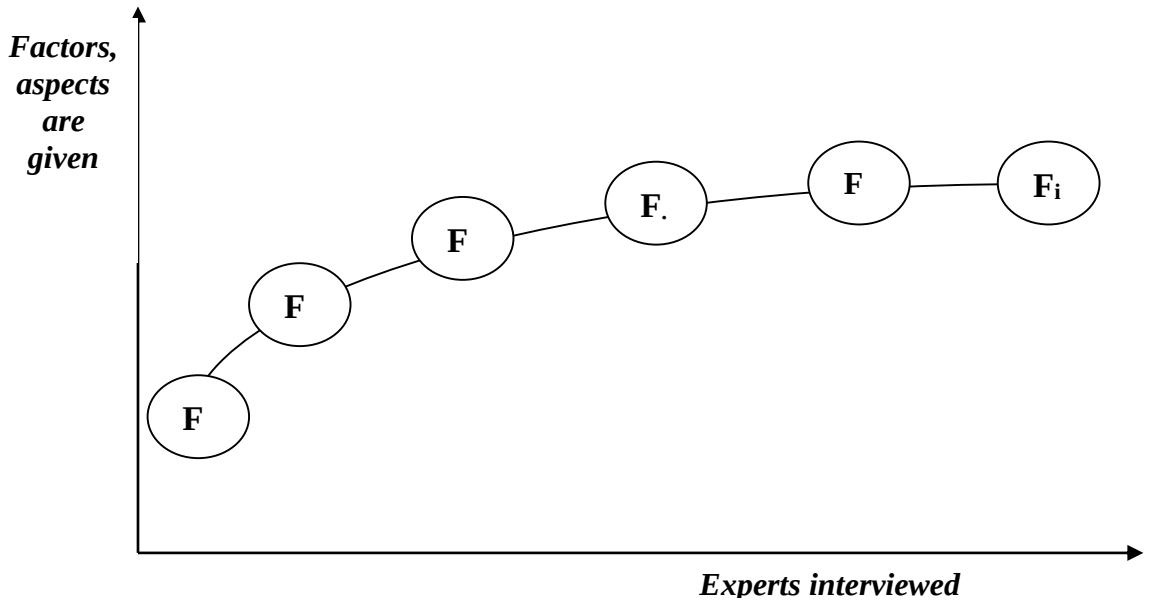

Fig. 1- Method expert interview Source from Nguyen Dinh Tho (2011)

Once finished, proceed to filter information obtained from experts and formed out of the same factors aspects (observed variables of each factor). Results interviewed experts and based on audit standards, the authors synthesized and made 7 major factor leading to the assessment of material misstatement of financial statement audit of listed companies including :(1) control environment; (2) Review of business risks; (3) control activities; (4) Monitoring and control; (5) The audit plan; (6) business strategy of the company; (7) Corporate Branding.

3.2 Method of analysis

Design Scale: This is a quantitative research, so the measurement scale for each factor is the line scale or rate scale. 5-point Likert scale was selected to measure every aspect of factors. In the 5-point Likert scale, according to the author, the first point means disagreement and fifth point means agreement.

Selecting Sample: It is dufficult to have a general study on all auditors in a company listed on the stock market. So researchers use sample survey method. So the author choose the sample size according to the minimum rules to ensure the reliability of the study. The determination of the sample size is different among researchers. According to Hair and colleguages (2006), the minimum sample size for quantitative studies is 100. For research use regression analysis, Fidell Tabenick (2007) introduted a formula: n> = 50 + 8p. Where n is the sample size, p is the number of independent variables. For the study, authors used rules of Hair sampling and colleagues (2006) with a minimum of 100 samples.

Research data after being cleaned will be analyzed with the help of SPSS software to analyze the following steps:

Check the reliability of the scale

The elements are formed from three or more different questions to ensure the initial conditions to form factor initially assumed. To check the reliability of this scale factors we use Cronbach`s Alpha coefficients to measure the confidence level synthesis (Suanders et al, 2007) and total variable correlations to examine the relationship among indicators in each factor. Criteria for assessing a reliable scale in research is a minimum ratio of 0.6 Cronbach`s Alpha(Hoang Trong

Nguyen Mong Ngoc Chu),the correlation coefficient with a minimum total variable 0.3 (Nunnally and Burstein, 1994).

Factor analysis

Analysis of factors that will help discover authors shortened set at a more latent variables from a set of observed variables. Standards for conducting analysis explored factors KMO minimum coefficient of 0.5, with p-Bartlett test smaller value of 0.05, the minimum coefficient loading factor of 0.5, equal to the minimum variance of 50% , eigenvalue minimum value equal to 1 (see conditions factor analysis discovered in chapter 4). Due to technical analysis did not explore the factors considered relationships distinguish between dependent variable and independent variables (Hoang Trong Nguyen Mong Ngoc Chu, 2008)[20] that only considers the relationship between all the variables included in the analysis. So we will conduct analysis to explore factors independent variables and the dependent variable separately. Factor extraction method is the method of Principal Component with Varimax rotation to obtain the smallest number of factors.

Regression Analysis

To test these hypotheses regression analysis methods to be used. Method of regressions between dependent variables (risk assessment of material misstatement) and the independent variables in the model using the method of total least squares (OLS).

4 FINDINGS

4.1 The test results credibility scale

Test results show that external factors control activity only achieve credibility with 4 observed variables AC1, AC2, AC3, AC4. AC5 variable factors are excluded from the correlation coefficient variations due to the smaller total 0.3 Other factors are achieved credibility with the observed variables initial hypothesis (Cronbach's alpha greater than 0.6 and are correlated variables total are greater than 0.3

Tab. 1 - The test results credibility scale. Source: Result from SPSS and collection of the author

Factor	**Observed variables**	**Cronbach's Alpha**	**Corrected Item-Total Correlation correlation coefficient**
Environment control	CE1	0.868	0.687
	CE2		0.726
	CE3		0.683
	CE4		0.789
Risk assessment of business	RA1	0.847	0.781
	RA2		0.752
	RA3		0.629
	RA4		0.584
Control activities	AC1	0.937	0.796
	AC2		0.843

Factor	Observed variables	Cronbach's Alpha	Corrected Item-Total Correlation correlation coefficient
	AC3		0.832
	AC4		0.952
	AC5 (reject)		-
Monitoring of control	MO1	0.807	0.634
	MO2		0.701
	MO3		0.617
	MO4		0.549
Audit plan	APE1	0.871	0.719
	APE 2		0.672
	APE 3		0.804
	APE 4		0.707
The strategy of the company	ST1	0.851	0.621
	ST2		0.612
	ST3		0.776
	ST4		0.763
Branding elements	TR1	0.713	0.520
	TR2		0.431
	TR3		0.492
	TR4		0.609
Risk assessment has misstatement	R1	0.844	0.733
	R2		0.748
	R3		0.846
	R4		0.445

4.2 The results of factor analysis

Results of implementation of factor analysis with 5 independent variables and sort out the observed variables have a smaller load factor of 0.5 giving the following results:

The analytical results show that the coefficient of KMO = 0690> 0.5, with p-testing Batlett value by 0.000 <0.05 (table 2), equal to 69.56% of variance> 50% (Table 2), the load factor is greater more than 0.5, the observed variables form factor 6 table 2). Such standards using exploring factor analysis are consistent with research data collection.

Tab. 2 - Analysis results for discovering independent variable factor. Source: Result from SPSS and collection of the author

	Component					
	1	**2**	**3**	**4**	**5**	**6**
MO1		.762				
AC4		.754				
AC2		.744				
MO3		.730				
MO2		.726				
AC3		.704				
MO4		.701				
AC5		.549				
APE3			.885			
APE1			.829			
APE4			.791			
APE2			.766			
CE2				.846		
CE4				.836		
CE1				.814		
CE3				.749		
ST3					.896	
ST4					.849	
ST2					.768	
ST1					.758	
RA1						.876
RA2						.870
RA3						.770
RA4						.737
TR4						.820
TR1						.746
TR3						.710
TR2						.635
Hệ số KMO			0.690			

	Component				
1	**2**	**3**	**4**	**5**	**6**
p-value (Barlett test)		0.000			
Total Variance Explained		69.56			

Explore factor analysis for the dependent variable

The analytical results show that the coefficient of KMO = 0.773> 0.5, with p-testing Batlett value by 0.000 <0.05 (table 3), equal to 69.69% of variance> 50% (Table 3), the load factor is greater more than 0.5, the observed variables 1 shape factor (table 3). Such standards using exploring factor analysis are consistent with research data collection.

Tab.3 - Analysis results for exploring the dependent variable factor. Source: Result from SPSS and collection of the author

	System load factor
R3	0.929
R2	0.879
R1	0.875
R4	0.622
KMO ratio	**0.773**
p-value (Barlett test)	**0.000**
Total Variance Explained	**69.69%**

After obtaining the factors to be explored, the authors evaluated to strike new relationships between factors through analysis of correlation and regression analysis

4.3 Regression Analysis

The author conducted Regression with all manner of variables Enter (taken at the same time all the variables in the model) obtained the following results:

Tab.4 - The regression results. Source: Result from SPSS and collection of the author

	Not standardized coefficients	**Standardized coefficients**	**Statistical t**	**p-value**	**Statistics multicollinearity**
	Beta	Beta			VIF Coefficient
(Constant)	6.132		9.203	.000	
CE	-.511	-.559	-7.235	.000	1.259
RA	-.244	-.259	-3.639	.000	1.065
APE	-.040	-.049	-.635	.527	1.280
ST	.042	.042	.588	.557	1.084
TR	-.132	-.108	-1.510	.134	1.077

ACMO	-.106	-.082	-1.172	.243	1.040
R^2 Correction					0.402
p-value Inspection F					0.000

With the p-value variable value greater than 0.05 (APE, ST, TR and CAMO) shows that these factors had no impact on the assessment of risks of material misstatement. Two factors CE and RA have an impact on the risk assessment has misstatement (p-value is less than 0.05).

Corrected by 0.402 R2 shows model explained 40.2% change risk assessment has misstatement through the factors in the model

5 DISCUSSION

On the results of the regression analysis showed that the assessment of the risks of material misstatement of the auditor only depends on two factors: (1) controlled environment and (2) risk assessment in the enterprise.

Environmental control system in enterprises will make the risks of material misstatement decreases. The employees understand their job responsibilities within the company as well as the information circulated within the company always fond of integrity or ethics will reduce the critical flaws. Aware of the responsibility of helping job performance (Chaudhry., Sohail & Riaz, 2013). Along with close supervision from superiors to employees also regulate or fix errors promptly bring business efficiency better jobs lead to material misstatements in the course of work of employees (Shy ., Tram & Hara, 2006).

Risk assessment in business can help the company provision is the worst case possible to be able to grind out the settlement occurs. The development of reliable targets have also feasible to reduce production scenarios leading to unwanted risks can result in significant financial statements of the company. Internal audit system in the company is set to help better control of financial statements, the auditor can review the situation of the financial statements on a regular basis to minimize the critical nature of errors.

In the hightly competitive environment of auditing, the gap between the Big 4 group and other groups is gradually narrowing. The auditors who assess the risks of material misstatement are no longer affected by personal factors; professional factors are considered more important. Therefore, the brand of the business seem not affect the decision of the auditor. Thus, the study indicated that business branding elements do not have an impact on the risk assessment of material misstatement, and it also demonstrated a part of this trend.

Business strategy has no impact on the assessment of the risks of material misstatement, which shows that the company seems to have put the best possible strategy for financial activities. But there is no way for the auditor to know whether the company carried out the implementation or did nothing. The auditor can not assess completely the business strategy, so that business strategy does not seem to lie in the aspect of reference in assessing risks of material misstatement.

The audit plan has also no impact on the risk assessment of material misstatement. This appears that the business as well as the auditing company implement in a fixed period. Morever, the implementation is maintained so long ago that the audit planning building does not get any difficulty.

The controlling and monitoring the companies listing on the stock market must be organized in

a professional manner (the companies already havebeen listed on the exchanges). Therefore, the organization of supervision and control of a listed company must be a critical activity and being strictly implemented.

6 CONCLUSION

Through expert interviews, the author gained 6 hypothesis factors have an impact on the risk assessment there tron misstatement of financial statements of the enterprise. After using the statistical method of analysis, the results showed that only two factors that have a real impact to assess risks of material misstatement: (1) controlled environment and (2) risk reviewing in business. Controlled environment of goods will now limit the assessed risk of material misstatement. Also the assessment of risk in the business is done regularly will also help the company better control of risks in the course of operation; this also makes limiting the risks of material misstatement.

Acknowledgments

The author would like to thank the organizers of international conferences in 2016 ICFE has created an opportunity for me to participate published his study. We would also like to thank to all of you at the National Economics University has supported this research I carried out in the best way.

REFERENCES:

Nguyen Cong Phuong and Nguyen Tran Nguyen Tran. (2014), model predictions Beneish material misstatement in the financial statements, and Development Economics, 206, 54-60.

Nguyen Dinh Tho. (2011), *Method of science research in business*, Labour – Social

Vietnam Auditing Standards (315)

Vietnam Auditing Standards (320)

Vietnam Auditing Standards (400)

Hoang Trong & Chu Ngoc Nguyen Mong. (2008), *Analysis of research data with SPSS - 2 episodes*, Hong Duc Publishing.

Agrawal, A., Chadha,S. (2005), Corporate governance and accounting scandals, *Journal of Law and Economics*, 48, 371-406

Beekes.W., B. P. (2006), The Link between Earnings and Timeliness, Earnings Conservatism and Board Composition: Evidence from the UK, Corporate Governance: An International Review, 12, 14-59.

Brown. J. F. D. O. M. (2010), Auditor Independence and Earnings Quality: Evidence for Market Discipline vs. Sarbanes-Oxley Proscriptions, *American Law and Economics Review*, 12 (1), 39-68

Coderre, G.D. (1999), *Fraud Detection. Using Data Analysis Techniques to Detect Fraud*, Global Audit Publications, Vancover.

Chaudhry, M.S., Sohail, F &Riaz, N. (2013), Impact of Employee Relation on Employee Performance in Hospitality Industry of Pakistan, *Entrepreneurship and Innovation Management Journal*, 1(1), 60-72

Dikmen, B. (2010), The Detection of Earnings Manipulation: The Three Phase Cutting Plane Algorithm using Mathematical Programming, *Journal of Forecasting*, 29(5), 442-466

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. & Tatham, R.L. (2006) *Multivariate Data Analysis* 6th ed, Upper Saddle River NJ, Prentice –Hall. Gerbing & Anderson

Karamanou.I., V. N. (2005), The Association between Corporate Boards, Audit Committees, and Management Earnings Forecasts: An Empirical Analysis, *Journal of Accounting Research*, 43 (3), 453 - 486.

Nunally & Bernstein (1994), *Psychometric Theory*, 3ed, McGraw – Hill, New York

Petra.S. (2007), The Effects of Corporate Governance on the Informativeness of Earnings, *Economics of Governance*, 8, 129 -152.

Porter, B., & Cameron, A. (1987), Company fraud – what price the auditor?, *Accountant's Journal*, 44-7

Royal Academy (1993) *International Insurance - Principles and Practice.*

Suanders, M., Lewis, P., & Thornhill, A. (2007), *Research method for business students*, England: Pearson Education Limited, Edinburgh Gate, Harlow, Essex CM202 JE.

Spathis, C. (2002), Detecting False Financial Statements Using Published Data: Some Evidence From Greece, *Managerial Auditing Journal*, 17(4), 179-191.

Firth.M., F. P., Rui.O., (2007), Ownership, two-tier Board Structure, and the Informativeness of Earnings: Evidence from China, *Journal of Accounting and Public Policy*, 26 (4), 463-496.

Tabacknick & Fidell (2007), *Using Multivariate statistics*, 5th ed, Boston; Pearson Education

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

CONSUMER AFFINITY TOWARD FOREIGN COUNTRIES: A REVIEW AND QUALITATIVE RESEARCH IN VIETNAM MARKET

Ngoc Thi Minh Nguyen, Viet Quoc Cao

ABSTRACT

The main aim of the research is to test and expand the construct of consumer affinity. The context of consumer affinity which captures positive personal attitudes toward a particular foreign country has recently been introduced in international business. Although consumer affinity has been well researched in marketing and customer behavior literature, there are some inconsistent findings related to this construct. In this study, the authors review consumer affinity theoretical foundation, test and expand its constructs developed in the literature via conducting a qualitative study in Vietnam. The findings indicate twelve dimensions of consumer affinity construct. Accordingly, the authors propose a more generalized construct in comparison with previous studies. The authors then generate a series of propositions in a research model describing the relationship network of consumer affinity, general positive dispositions, macro country image, and product quality judgment to purchasing behavior.

Keywords: *Consumer Affinity, Macro Country Image, Product Judgment, Purchasing Behavior*

JEL Classification: M16, M31

1 INTRODUCTION

It is observed that there is a relationship between consumer attitudes toward a foreign country and consumer responses toward products imported from that country. For example, the power of love to South Korea called "the phenomenon of K-pop" among Asian youths led them to consume Korean foods, cosmetics, electronics, and tourism (Wongtada et al., 2012); or Chinese consumers refused to buy Japan's products due to economic and war conflict between two countries (Klein, Ettenson, & Morris, 1998).

In international business generally, the topic of personal dispositions and their impact on consumer behavior has drawn attention for many years. Indeed, both academic researchers and business managers have been trying to explain consumer attitudes and their consequent choice to either domestic or foreign products. Authors worldwide have constructed these dispositions and empirically tested their impact on consumers' behavioral consequences, including perceived risks, buying intentions and real purchase actions. Among them, there are lots of research focusing on negative attitudes, such as ethnocentrism (Shimp & Sharma, 1987); consumer animosity (Klein et al., 1998), (Wang, He, & Li, 2013), and economic nationalism (Fernández-Ferrín, Bande-Vilela, Klein, & del Río-Araújo, 2015). On the other hand, a few authors are interested in positive attitudes, including cosmopolitanism (Cleveland & Laroche, 2007), consumer affinity (Oberecker, Riefler, & Diamantopoulos, 2008), and global identity (Bartikowski & Walsh, 2015). Bartsch, Riefler, & Diamantopoulos, (2015) in the comprehensive review summarized that nineteen different constructs capturing positive consumer dispositions were developed during the period from 1951 to 2015 and fifty-six

relevant studies were published in twenty-two A, A* ranking journals over the last 15 years. Taking two different sides of personal attitudes into consideration, Bartsch et al., (2015) pointed out that constructs describing negative dispositions toward foreign countries and their products are "*conceptually well-developed",* in comparison, several positive dispositions face "*a lack of clear conceptual development and/or problematic measurement validation"* (Bartsch et al., 2015, p 3&4). One of the mentioned above positive dispositions is consumer affinity.

Consumer affinity was defined as "*feelings of liking and fondness for specific foreign countries"* (Nes, Yelkur, & Silkoset, 2014, p1). Relevant literature shows multiple operationalizations of the same construct of consumer affinity. It is notable that such operationalizations have been developed on different conceptual domain. Indeed, three previous studies built up consumer affinity construct based on emotion (Oberecker et al., 2008), (Oberecker & Diamantopoulos, 2011), and (Asseraf & Shoham, 2016), while two other studies considered this concept on country image foundation (Wongtada et al., 2012), (Nes et al., 2014). "*Multiple operationalizations do become a problem in that they create confusion when the same construct label is used but the conceptual domain of the construct is different in each case*" (Bartsch et al., 2015, p 14). Furthermore, some research findings of consumer affinity have only been concluded in highly developed markets that need to be examined and confirmed in other markets.

Based on the literature gap, this research aims to test consumer affinity concept built up recently throughout conducting a qualitative study in Vietnam. Our primary purpose is testing the construct of consumer affinity and then proposing a research model on the relationship network between consumer affinity and consumer buying behavior.

The following parts of this paper are as below: literature review of consumer affinity background, methodology, research results, and finally, propositions of a research model.

2 LITERATURE REVIEW

The term "consumer affinity" was firstly included in a segmentation model by (Jaffe & Nebenzahl, 2006). However, authors neither presented a formal conceptual definition of consumer affinity nor empirically tested that model. Then, Oberecker et al., (2008) explored the concept in social identity theory (Tajfel, 1982). The authors defined consumer affinity as "*a feeling of liking, sympathy, and even attachment toward a specific foreign country that has become an in-group as a result of the consumer's direct personal experience and/or normative exposure and that positively affects the consumer's decision making associated with products and services originating from the affinity country*"(p 26). They also concluded seven underlining sources of consumer affinity, including macro drivers (lifestyle, scenery, culture, and politics and economics) and micro drivers (stay abroad, travel, and contact). The research results of Oberecker et al., (2008) were a base for Asseraf & Shoham, (2016) to formalize their consumer affinity construct when testing a full relationship among the attitudinal constructs. In particular, authors listed out fourteen items categorized into four consumer affinity dimensions, including lifestyle, scenery, culture, and contact.

In accordance with Oberecker et al., (2008), Oberecker & Diamantopoulos, (2011) conceptualized consumer affinity as a purely affective emotion. Indeed, two components of consumer affinity construct from their conclusion consist of sympathy and attachment which are two different levels of strength of feelings. Sympathy captures low positive affect, and attachment capture higher positive affect.

The most recent studies provided new insights into consumer affinity that differs from emotion-based constructs built up by the mentioned above authors. Conducting a variety of quantitative

and qualitative tests in the Thai market, Wongtada et al., (2012) provided a consumer affinity construct of several dimensions comprising of people, business, and education. From the perspective of Bartsch et al., (2015), these constructs were based cognitive assessments of country image. Furthermore, Nes et al., (2014) argued that positive feelings are cemented with cognitive appraisals, and such assessments have to be done in the connection of factors related to affinity countries. Therefore, the authors developed different dimensions and measures of consumer affinity construct through qualitative and quantitative studies. These dimensions are culture/landscape, music/entertainment, people, and politics.

Tab. 1 -- Definition and construct of consumer affinity

Authors	Definition	Dimensions	Items	Countries
Oberecker et al., (2008)	Consumer affinity is "*a feeling of liking, sympathy, and even attachment toward a specific foreign country that has become an in-group as a result of the consumer's direct personal experience and/or normative exposure and that positively affects the consumer's decision making associated with products and services originating from the affinity country".*	N/A Sources/bases of consumer affinity**:** Macro drivers (lifestyle, scenery, culture, and politics and economics) Micro drivers (stay abroad, travel, and contact)	N/A	Austria, Belgium
Oberecker & Diamantopoulos, (2011)	N/A	Sympathy Attachment	7 items	Austria
Wongtada et al., (2012)	N/A	People affinity Business affinity Education affinity	9 items	Thailand
Nes et al., (2014)	*"Consumer affinity is a feeling of liking and fondness for a specific foreign country regarding its culture and landscape and/or its music and entertainment, the people and their lifestyle, and its governmental policies"*	Affinity Culture/landscape Music/entertainment People Politics	19 items	USA, Norway
Asseraf & Shoham, (2016)	N/A	Lifestyle Scenery Culture Contact	14 items	Italy and Arab-Israelis

In conclusion, a close look at the theoretical background of consumer affinity provides us with an overall literature picture of this construct. It is clear that various studies in the past have resulted in different dimensions of the same construct label, and such differences in construct dimensions have come from differences in conceptual domain. Based on conceptual domain

consideration, we can divide construct dimensions into two groups: (i) construct dimensions measure consumer affinity as an affective base (Oberecker et al., 2008), (Oberecker & Diamantopoulos, 2011), and (Asseraf & Shoham, 2016); (ii) construct dimensions measure consumer affinity as a cognitive foundation (Wongtada et al., 2012), and (Nes et al., 2014). Bartsch et al., (2015) concluded such differences are problematic because they create confusion. Thus, it is necessary to test the consumer affinity construct for further investigation of the relationship between consumer affinity and buying behavior.

Lazarus (1982) introduced the cognitive appraisal of emotions theory which has been a theoretical foundation for many researchers in consumer behavior field. According to the theory, when events occur to individuals, they make some evaluation of those events and these beliefs guide the different emotional response, which consequently lead to different coping behaviors. Nes et al., (2014) argued that in the case of consumer affinity, the cognitive appraisal of events has to be connected with dimensions of the target affinity country. Grounded on Lazarus' theory, we suppose that the construct of consumer affinity should be taken into cognitive considerations (same as (Wongtada et al., 2012), and (Nes et al., 2014)). Therefore, our research will base on consumer affinity construct developed by those authors to explore new factors via a qualitative study.

3 METHODOLOGY

This research followed the Straussian's grounded theory approach which requires a fundamental theory to lead the research (Heath & Cowley, 2004); (Heath, 2006); (Saunders, Lewis, & Thornhill, 2009). In our research, the fundamental theory is cognitive appraisal of emotions theory. In particular, we used qualitative methodology with in-depth interview technique which was similar to Wongtada et al., (2012), and Nes et al., (2014) in developing consumer affinity constructs. We announced and recruited interviewees on our public Facebook web pages. Fifteen people have agreed to attend our interviews. We called and met eleven respondents at either meeting room at our University or in a coffee house in some cases. We listed twenty-five countries and asked them: which countries do you like/have an affinity? And why? We also asked them their hobbies and some description about themselves. The most important question in semi – structured questionnaire is why they like their chosen countries.

With the question which countries do you like? We found the most frequently referred to affinity countries in Vietnam sample were Singapore, Australia, the US, Japan, and Thailand (see Table 2)

Tab. 2 – Affinity Countries

Affinity Countries – keywords (frequency): UK (4); Netherland (4); France (3); Norway (2); Russia (2); Switzerland (2); Denmark (1); Germany (1); Italia (1); the US (6); Cuba (1); Brazil (1); Australia (7); New Zealand (1); South Africa (1); China (7); Singapore (8); Japan (5); Thailand (5); Cambodia (2); Arab (2); Republic of Turkey (2); Philippines (2); Korea (2); Hong Kong (2); Malaysia (1); Israel (1); Vatican (1)

After recording the interviews, we transcribed them into text and analyzed the contents through the software QSRNVivo 8. We coded the contents of the key answers by themes and identified related keywords, and then we classified these keywords into different categories. These jobs were done by two independent researchers in our group. Differences in classifying process between two researchers were then mutually discussed until no disagreement. The categories are presented in the following part.

4 RESULTS AND DISCUSSIONS

4.1 Business Environment Affinity

We named the category of business environment affinity in consideration with the findings of Wongtada et al., (2012). Vietnamese interviewees were fond of a country because they think that there is an open business environment or lots of business opportunities for people in that country, e.g., "*There are lots of business opportunities in Australia*" (ID10, male, 25 years old, a business owner). They had a positive evaluation of the finance – banking system such as modern, transparency, e.g., "*I want to visit Singapore because of its finance system*" (ID3, female, 21 years old, a junior student)). And they admired a free market economy in which the private enterprises play an important role.

In comparison with business affinity dimension proposed by Wongtada et al., (2012), we found differences in answers between Thai and Vietnamese respondents, e.g., Thai consumers thought about business leader, leading companies, and the competition of the enterprises in an affinitive country. It is notable that we did not find any dimension related to business environment or relevant items in the consumer affinity construct of Nes et al., (2014).

Tab. 3 – Business Environment Affinity

Keywords (frequency): business environment (2); business opportunities (1); business policies (1); finance - banking system (5); market economy (2); income (1); labor (1);

4.2 People Affinity

The positive attitudes toward a particular foreign country can be derived from fond feelings to its citizens (Oberecker et al., (2008); Wongtada et al., (2012); Nes et al., (2014); Asseraf & Shoham, (2016)). Consistent with the literature, a variety of keywords related to "people" was mentioned in our study result, and this theme seems to the most frequent affinity reason. Keywords capturing mentality and personality traits are kind, friendly, polite, nice, sincere, likable, generous, intelligent, motivated, disciplined etc. Furthermore, our respondents also appreciated the way of living in the affinity country (same as Nes et al., (2014). There surprisingly were; however, six times respondents stated about the freedom of people living in affinity country which could not be found in the literature review. For example, they expressed "*Jews are free,[…]personal freedom is highly placed*" (ID10, male, 25 years old, a business owner), "*I like the freedom of American people*" (ID11, female, 26 years old, a real estate broker).

Tab. 4 – People Affinity

Keywords (frequency): critical thinking (1); freely, freedom (6); happy, peace (5); intelligent, motivated (4); innovative, innovation (2); kind, friendly, polite, nice, sincere, likable, generous (24); lifestyle (4); not discrimination (1); personality (2); people (8); romantic (1); straightforward, disciplined (4); spirit, high spirit (9); way of working, way of thinking, way of living (8)

4.3 Nature/landscape Affinity

Oberecker et al., (2008) described scenery as one of the bases of consumer affinity, Nes et al., (2014) mentioned nature and landscape in their construct scales. Regarding our study, several keywords related to nature/landscape were expressed by Vietnamese respondents. When talking about the affinity country, they often linked to nature, landscape, famous destinations,

attractions, scenery and climate of that given country. Notably, some placed "clean environment" as a keyword for affinity feelings (e.g.: "*Singapore is very spotless, with beautiful places*" (ID5, male, 22 years old, a senior student)).

Tab. 5 - Nature/landscape Affinity

Keywords (frequency): atmosphere (2); beautiful, landscape, scenery, picturesque (12); beauty of nature (1); biosphere (1); clean, clean environment (2); climate (1); famous destinations, attractions, outdoor places (9); geographical location (2); natural condition (1); nature (4); sky (1); wild (1)

4.4 Culture Affinity

Most authors who are interested in consumer affinity concept have listed out "culture" as a key point for affinity disposition. Similarly, our respondents mentioned a variety of keywords of "culture" theme such as "*Japan's culture is traditional and well conserved*" (ID7, female, 33 years old, a lecturer), "*The culture of China is very special*" (ID3, female, 21 years old, a junior student). (see Table 6)

Regarding this theme, we divided keywords into 6 sub-categories including religion, education, history, food, art/architecture, and language.

4.4.1 Religion

Keywords mentioned are religion, spiritual religion, and mysterious religion (e.g., "*Vatican is the religion center of the world*" (ID10, male, 25 years old, a business owner). We did not find any related items in the affinity construct scales in literature.

Tab. 6 - Culture – Religion Affinity

Culture - keywords (frequency): cultural cross (1); culture (28); festival (2); literature (1)
Religion - keywords (frequency): mysterious religion (1); religion (2); spiritual religion (1)

4.4.2 Education, history, food, art/architecture, and language

When asked about country affinity, some respondents mentioned the theme of "education" as one of the reasons why they like that country. Detail keywords mentioned are education, educational environment, study, good education, and top quality of education. We found the similarity of the dimension of "education affinity" in the research of Wongtada et al., (2012) which was conducted to Thai subjects. However, our respondents did not mention further details such as "well educated" or the education of country affinity "stresses the importance of analytical thinking instead of merely memorizing information" like education affinity scales of Wongtada et al., (2012).

While the sub-category named "education" appears only in affinity scales of Wongtada et al., (2012), the rest sub-categories are found in the research of Nes et al., (2014). Some statements from our interviews are: "*I'm impressed by the education of France"* (ID9, male, 30 years old, a lecturer), "*China has a traditional history and culture"* (ID11, female, 26 years old, a real estate broker), "*Singapore food is very delicious"* (ID5, male, 22 years old, a senior student), "*Russian language is forceful and its pronunciation is very active"* (ID6, male, 22 years old, a senior student).

Tab. 7 - Education, history, food, art/architecture, and language

Education - keywords (frequency): education (2); educational environment (3); good education (1); study (2); top quality of education (1)
History - keywords (frequency): developmental history (1); history (9); great nation (5)
Food/cuisine - keywords (frequency): cuisine (5); food (2); good food (1)
Art/architecture - keywords (frequency): architectural buildings (4); architecture (6); building (1); temple (1); zoo (1)
Language - keywords (frequency): language (2); nice language (1); voice (1)

4.5 Music/Entertainment Affinity

Our study reveals that many interviewees like a particular country because of their positive feelings about the music and entertainment of the mentioned country. Indeed, we found keywords related to this theme such as sport, fashion, film, music band, music, and entertainment symbol. This idea is supported by the result of Nes et al., (2014).

With respect to this theme, interviews made statements such as "*My idol music band is in Korea*" (ID2, female, 22 years old, a senior student), "*I like listening Russian traditional music song*" (ID6, male, 22 years old, a senior student)

Tab. 8 - Music/Entertainment Affinity

Keywords (frequency): entertainment symbol (1); fashion (2); film (1); music (1); music band (1); sport (3)

4.6 Politics Affinity

A political system of a country is also one of the main factors influencing personal affinity toward that country. Nes et al., (2014) suggested three items that belong to politics scales (country's government policies, country's political system, and the admirable role of the country in world politics). Respondents when mentioning about the politics of a country used key words like country leaders, vision of country leader, policies, their admiration and being fond of the political system (e.g., "*One of unique factors about England is its political system*" (ID1, male, 22 years old, a senior student), "*Australia government promulgates good policies that I can make an investment there*" (ID10, male, 25 years old, a business owner)

Tab. 9 - Politics Affinity

Keywords (frequency): country leader, vision of country leader (2); admire/liking political system (6); policies (4)

Proposed Research Model

Having results from the qualitative study in Vietnam, we then worked on the proposed research model capturing the relationship between consumer affinity toward a specific foreign country and consumer behavior toward that country's product.

Consumer affinity

Based on qualitative evidences from Vietnam market, our first proposition is to introduce a generalized construct of consumer affinity which has twelve dimensions, including business environment affinity, people affinity, nature/landscape affinity, culture affinity, religion affinity, education affinity, history affinity, food/cuisine affinity, art/architecture affinity, language affinity, music/entertainment affinity, and politics affinity.

Macro country image

When we asked why the respondents like their affinity countries, we found that they have evaluated those countries through lots of criteria such as the level of economic development, the level of technological research, and standard of living. Some statements in our interviews are: "*I admire Switzerland because of its top position in Europe*" (ID9, male, 30 years old, a lecturer), "*I'm impressed by the development and wealth of Singapore*" (ID1, male, 22 years old, senior student), "*When talking about USA, I immediately think of its advanced technology*" (ID8, male, 28 years old, a lecturer) (see Table 10).

Tab. 10 – Macro Country Image

Keywords (frequency): level of economic development (20); good welfare system (2); level of industrialization (1); level of technological research (5); democratic political system (12); rich - poor (2); standard of living (3).

The criteria above are similar to the construct of "macro country image" proposed and tested by Pappu, Quester, & Cooksey, (2007). The concept of macro country image was firstly introduced under the term of country image. Martin & Eroglu, (1993) defined country image as "*the total of all descriptive, inferential and informational beliefs one has about a particular country."*(p193). "Macro country image" was distinguished from "product country image" in which its definition was "*the total of beliefs one has about the products of a given country*" (Nagashima, 1970, p68).

Gilliam & Voss, (2013) supposed that when researchers propose a new construct, they have to evaluate the content validity in a nomological network to prove the difference. However, previous studies in the process of developing the consumer affinity construct had ignored the role of macro country image in such nomological network. Indeed, the authors just compared consumer affinity to product country image. Oberecker et al., (2008) concluded that country affinity and product country image were two distinguished constructs.

In short, early researchers did not mention about differences between the construct of macro image country and the construct of consumer affinity. Thus, our second proposition relates to the presence of macro image country to test the content validity and discriminant validity of variables.

Product quality judgment

Previous studies proved that product country image plays a mediating role in the relationship between consumer affinity and purchasing behavior (Nes et al., 2014). Product country image has the same content to product quality judgment. The results of Asseraf & Shoham, (2016) and Wongtada et al., (2012) indicated that consumer affinity has a positive effect on product quality judgment and purchasing behavior. Thus, our third proposed hypothesis is a mediating role for the product quality judgment.

Internationalism, cosmopolitanism, and cultural pluralism

When we asked respondents about their hobbies, we found that they have characteristics in consumption which can be related to internationalism, cosmopolitanism, and cultural pluralism. Internationalism is suggested by (Kosterman & Feshbach, 1989), its construct mentions people's attitudes toward other nations. Cosmopolitanism refers to "*a specific set of qualities held by certain individuals, including a willingness to engage with the other (i.e., different cultures), and a level of competence towards alien culture(s)[…] and cosmopolitans want to immerse themselves in other cultures, and have the necessary skills to do so*" (Cleveland & Laroche, 2007, p4). Cultural pluralism refers to people who are interested in learning about other cultures, love to talk or traveling to other countries (Demangeot & Sankaran, 2012). We found some qualitative evidence showed the cultural pluralism of Vietnamese consumer, e.g., "*my hobby is traveling around the world*" (ID5, male, 22 years old, a senior student)

"*I like communicating with new people*" (ID2, female, 22 years old, a senior student)

"*My hobbies include traveling, reading books, and interacting with new people to study new things*" (ID10, male, 25 years old, a business owner)

In summary, we suggest the fourth proposition related to a moderator role of internationalism, cosmopolitanism, and cultural pluralism. Our proposed research model is presented in Figure 1 below:

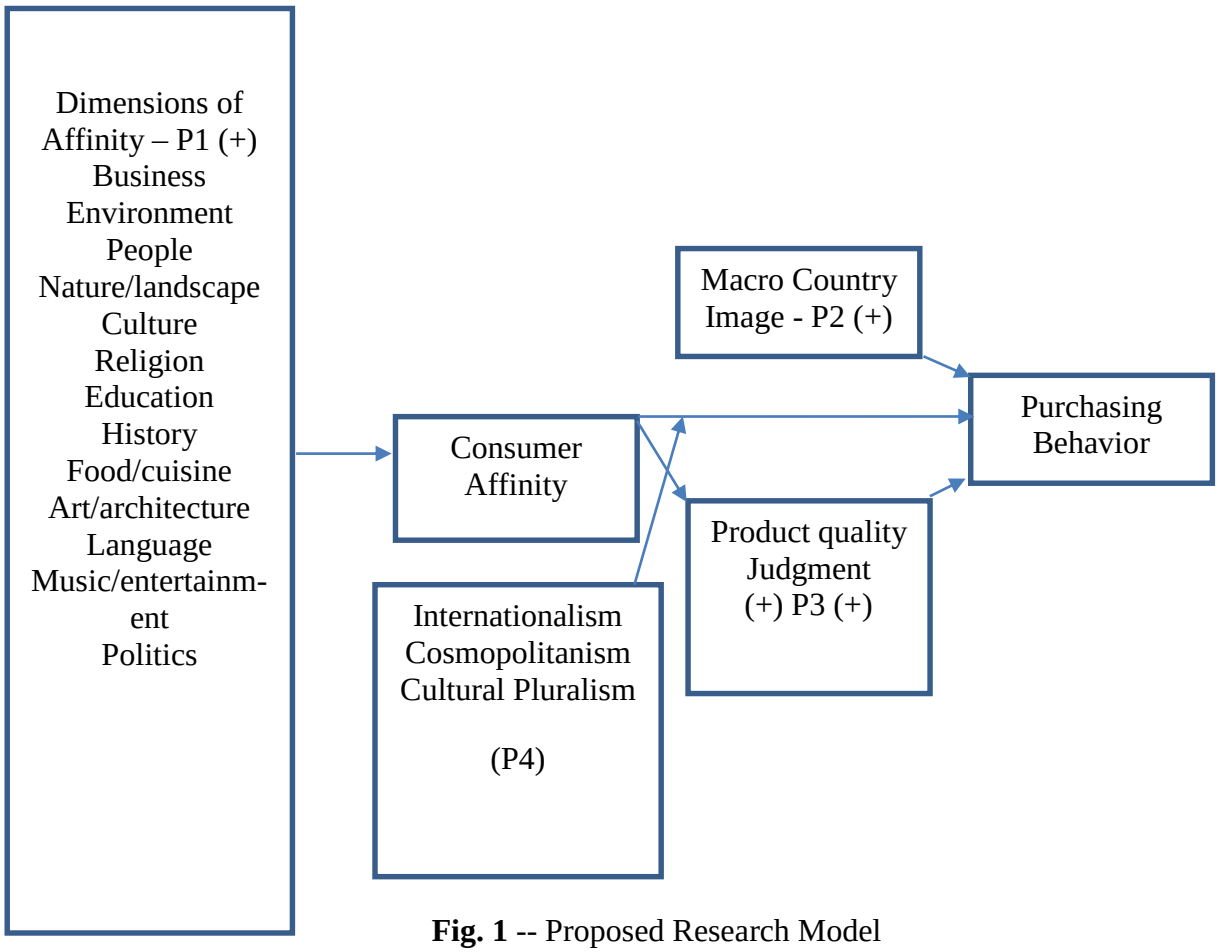

Fig. 1 -- Proposed Research Model

5 CONCLUSION

This research focused on "consumer affinity" – one of the positive attitudes toward foreign countries that have recently been introduced in international marketing literature. Based on the cognitive foundation driving from cognitive appraisal of emotions theory of Lazarus (1982), we conducted a qualitative research through in-depth interviews to test the content validity of consumer affinity construct. Our findings indicated twelve dimensions composed of business environment, people, nature/landscape, culture, religion, education, history, food/cuisine, art/architecture, language, music/entertainment, and politics. We then generated a proposed research model that captured the relationship network between consumer affinity and purchasing behavioral consequences.

The job of testing consumer affinity construct is a necessary step to determine a proposed research model in new context. However, we do need a/some quantitative techniques to do testing its measurements. For example, exploratory factor analysis (EFA) via confirm factor analysis (CFA) should be used to examine the validities of constructs. Then, the proposed research model should be tested with structural equation modeling (SEM). In the limitation of our knowledge, we just introduce some moderator and mediator variables, future research should be thinking of lots of latent factors.

REFERENCES

Asseraf, Y., & Shoham, A. (2016). The " Tug of War " Model of Foreign Product Purchases. *European Journal of Marketing*, *50*(3/4), 1–40. doi:10.1108/EJM-12-2012-0702

Bartikowski, B., & Walsh, G. (2015). Attitude toward cultural diversity : A test of identity-related antecedents and purchasing consequences. *Journal of Business Research*, *68*(3), 526–533. doi:10.1016/j.jbusres.2014.09.010

Bartsch, F., Riefler, P., & Diamantopoulos, A. (2015). A taxonomy and review of positive consumer dispositions toward foreign countries and globalization. *Journal of International Marketing*, *43*(December), jim.15.0021. doi:10.1509/jim.15.0021

Cleveland, M., & Laroche, M. (2007). Acculturation to the global consumer culture: Scale development and research paradigm. *Journal of Business Research*, *60*(3), 249–259. doi:10.1016/j.jbusres.2006.11.006

Demangeot, C., & Sankaran, K. (2012). Cultural pluralism: Uncovering consumption patterns in a multicultural environment. *Journal of Marketing Management*, *28*(July), 760–783. doi:10.1080/0267257X.2012.698635

Fernández-Ferrín, P., Bande-Vilela, B., Klein, J. G., & del Río-Araújo, M. L. (2015). Consumer ethnocentrism and consumer animosity: antecedents and consequences. *International Journal of Emerging Markets*, *10*(1), 73–88. doi:10.1108/IJOEM-11-2011-0102

Gilliam, D. a., & Voss, K. (2013). A proposed procedure for construct definition in marketing. *European Journal of Marketing*, *47*(1/2), 5–26. doi:10.1108/03090561311285439

Heath, H. (2006). Exploring the influences and use of the literature during a grounded theory study. *Journal of Research in Nursing*, *11*(6), 519–528. doi:10.1177/1744987106069338

Heath, H., & Cowley, S. (2004). Developing a grounded theory approach: A comparison of Glaser and Strauss. *International Journal of Nursing Studies*, *41*(2), 141–150. doi:10.1016/S0020-7489(03)00113-5

Jaffe, E. D., & Nebenzahl, I. D. (2006). *National image & competitive advantage: the theory and practice of place branding* (2nd ed.). Copenhagen: Herndon, VA : Copenhagen Business School Press.

Klein, J. G., Ettenson, R., & Morris, M. D. (1998). The Animosity Model of Foreign Product Purchase: An Empirical Test in the People's Republic of China. *Journal of Marketing*, *62*(1), 89–100. doi:10.2307/1251805

Kosterman, R., & Feshbach, S. (1989). Toward a Measure of Patriotic and Nationalistic Attitudes. *Political Psychology*, *10*(2), 257–274. doi:10.2307/3791647

Lazarus, R. S. (1982). Thoughts on the Relations Between Emotion and Cognition. *American Psychologist*, *37*(9), 1019–1024. doi:10.1037/0003-066X.37.9.1019

Martin, I. M., & Eroglu, S. (1993). Measuring a multi-dimensional construct: Country image. *Journal of Business Research*, *28*(3), 191–210. doi:10.1016/0148-2963(93)90047-S

Nagashima, A. (1970). A Comparison of Japanese and U. S. Attitudes toward Foreign Products. *Journal of Marketing*, *34*(1), 68. doi:10.2307/1250298

Nes, E. B., Yelkur, R., & Silkoset, R. (2014). Consumer affinity for foreign countries: Construct development, buying behavior consequences and animosity contrasts. *International Business Review*, *23*(4), 774–784. doi:10.1016/j.ibusrev.2013.11.009

Oberecker, E. M., & Diamantopoulos, A. (2011). Consumers' Emotional Bonds with Foreign Countries: Does Consumer Affinity Affect Behavioral Intentions? *Journal of International Marketing*, *19*(2), 45–72. doi:10.1509/jimk.19.2.45

Oberecker, E. M., Riefler, P., & Diamantopoulos, A. (2008). The Consumer Affinity Construct: Conceptualization, Qualitative Investigation, and Research Agenda. *Journal of International Marketing*, *16*(3), 23–56. doi:10.1509/jimk.16.3.23

Pappu, R., Quester, P. G., & Cooksey, R. W. (2007). Country image and consumer-based brand equity: relationships and implications for international marketing. *Journal of International Business Studies*, *38*(5), 726–745. doi:10.1057/palgrave.jibs.8400293

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (5th ed.). Harlow: Prentice Hall.

Shimp, T., & Sharma, S. (1987). Consumer ethnocentrism: construction and validation of the CETSCALE. *Journal of Marketing Research*, *XXIV*(August), 280 – 289. Retrieved from http://www.jstor.org/stable/3151638

Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, *33*(1), 1–39. doi:0066-4308/82/0201-0001

Wang, W., He, H., & Li, Y. (2013). Animosity and willingness to buy foreign products: moderating factors in decision-making of Chinese consumers. *Asia Pacific Business Review*, *19*(1), 32–52. doi:10.1080/13602381.2011.640133

Wongtada, N., Rice, G., & Bandyopadhyay, S. (2012). Developing and Validating AFFINITY: A New Scale to Measure Consumer Affinity toward Foreign Countries. *Journal of International Consumer Marketing*, *24*(3), 147–167. doi:10.1080/08961530.2012.682037

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

BUILDING MODEL TO FORECAST FOR BUSINESS BANKRUPTCY OF CONSTRUCTION - REAL ESTATE CORPORATIONS IN VIETNAM

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ABSTRACT

The construction of bankruptcy forecasting models help corporations have a useful tool to detect early warning signs of the risk of exhausting financial risks. Since then, there will be measures to manage, supervise and timely prevention to avoid the worst situations can occur, it is bankruptcy. In this study, the Z- score model of Professor Edward Altman was selected as a theoretical basis. Simultaneously, research methods which were used in this study are a combination of traditional analytical method and Multiple Discriminant Analysis method (MDA). The end result of this study is: building predictive models for bankruptcy with a dependent variable and six independent variables. This model is consistent with Vietnam's economy in general and specifically for the construction – real estate corporations in Vietnam.

Keywords: *Exhausting finance, Bankruptcy forecasting model, Z-score model, the construction – real estate sector, Multiple Discriminant Analysis method (MDA).*

JEL Classification: G31, E22, J23

1 INTRODUCTION

Vietnam enterprise system in general and the construction business - in particular real estate, despite of the size, bankruptcy causes consequence relating to many of investors, business partner, thousands of workers in the way of Domino effect. In another hand, nowadays only a handful of studies on the issue of forecasting bankruptcy in scope in Vietnam through the application of bankruptcy forecasting models in the US (Z-score or Zeta) and there are none of studies focus just on particularly Vietnam's economy, especially for businesses in the field of construction – real estate. Other side, applying the model to forecast bankruptcy it is all using US data so that if it apply for Vietnam economy can cause mistakes. Because America is a develop country while Vietnam is a developing country and emerging market. From the above analysis shows: This study is one of the first steps to fill the gaps in the array forecasts for businesses bankrupt construction industry - real estate in Vietnam in particular and Vietnam's economy in general. Since then, there will be measures to manage, supervise and timely prevention to avoid the worst situations can occur and also enhance the financial position for business in Vietnam economy.

2 LITERATURE REVIEW

The detection performance of the company and financial difficulties is a special theme has been analyzed along with financial ratios. Before developing quantitative measures of the performance in the company, the representatives was established to provide quality pricing information for the credit guarantee of particular merchants. (For example, the precursor of Dun & Bradstreet (1976), Inc that was took placed in 1894 in Cincinnati, Ohio, for providing a tool

of investigating about independent credit). Synthesizing official studies related to the omen of business failure more apparent than it was in the 1930s.

One of the classic works in the area of ratio analysis and bankruptcy classification was performed by Beaver (1967). In a real sense, his univariate analysis of a number of bankruptcy predictors set the stage for the multivariate attempts, by this author and others which followed. Beaver found that a number of indicators could discriminate between matched samples of failed and no failed firms for as long as five years prior to failure. He questioned the use of multivariate analysis, although a discussant recommended attempting this procedure. The Z-Score model did just that. A subsequent study by Deakin (1972) utilized the same 14 variables that Beaver analyzed, but he applied them within a series of multivariate discriminant models.

Recently some studies such as Shumway (2001) and Campbell, Hilscher, and Szilagyi (2008), hereinafter CHS, construct more accurate models by combining both accounting and market information. In order to develop new investment strategies many studies have been conducted on corporate bankruptcy and its implication for asset pricing. The results have been puzzling with some studies (e.g. Dichev (1998); Griffin and Lemmon (2002); Campbell et al. (2008), and Agarwal and Taffler (2008b)) finding a negative association between distress risk and equity returns, while others (e.g. Vassalou and Xing (2004)) reported a positive relation.

The aforementioned studies imply a definite potential of ratios as predictors of bankruptcy. In general, ratios measuring profitability, liquidity, and solvency prevailed as the most significant indicators. The order of their importance is not clear since almost every study cited a different ratio as being the most effective indication of impending problems.

Although these works established certain important generalizations regarding the performance and trends of particular measurements, the adaptation of the results for assessing bankruptcy potential of firms, both theoretically and practically, is questionable. In almost every case, the methodology was essentially univariate in nature and emphasis was placed on individual signals of impending problems. Ratio analysis presented in this fashion is susceptible to faulty interpretation and is potentially confusing. For instance, a firm with a poor profitability and/or solvency record may be regarded as a potential bankrupt. However, because of its above average liquidity, the situation may not be considered serious. The potential ambiguity as to the relative performance of several firms is clearly evident. The crux of the shortcomings inherent in any univariate analysis lies therein. An appropriate extension of the previously cited studies, therefore, is to build upon their findings and to combine several measures into a meaningful predictive model. In so doing, the highlights of ratio analysis as an analytical technique will be emphasized rather than downgraded. The questions are (1) which ratios are most important in detecting bankruptcy potential, (2) what weights should be attached to those selected ratios, and (3) how should the weights is objectively established.

3 MATERIALS AND METHODS

3.1 Sample selection and analyzed data

The number of sample is 173 companies in construction – real estate which were listed in Vietnam stock exchange. With this sample, the authors had been analyzed to divided it into 2 groups: Group 0 represent to the group of distressed company (had been bankrupted or bankrupting) and the other is group 1 represent to the group of the companies were still in existence at the time of the analysis (financial situation has been relatively stable). The period for this research had been five years, from 2009 to 2013. Data were collected from the annual financial statements and historical price data of the stock market of the company.

3.2 Variable Selection

The variation is mainly the traditional financial ratios, taken from the financial statements at the end of each fiscal year. The author tried to find and choose the most common characteristic variables to assess and forecast more accurately. The following procedures are utilized:

- ***X_1 = Working Capital / Total Assets - WC/TA:***

The working capital/total assets ratio, frequently found in studies of corporate problems, is a measure of the net liquid assets of the firm relative to the total capitalization. Working capital is defined as the difference between current assets and current liabilities. Liquidity and size characteristics are explicitly considered. Ordinarily, a firm experiencing consistent operating losses will have shrinking current assets in relation to total assets. Of the three liquidity ratios evaluated, this one proved to be the most valuable. Two other liquidity ratios tested were the current ratio and the quick ratio. There were found to be less helpful and subject to perverse trends for some failing firms.

- ***X_2 = Retained Earnings / Total Assets –RE/ TA:***

Retained earnings are the account which reports the total amount of reinvested earnings and/or losses of a firm over its entire life. The account is also referred to as earned surplus. It should be noted that the retained earnings account is subject to "manipulation" via corporate quasi-reorganizations and stock dividend declarations. While these occurrences are not evident in this study, it is conceivable that a bias would be created by a substantial reorganization or stock dividend and appropriate readjustments should be made to the accounts.

This measure of cumulative profitability over time is what I referred to earlier as a "new" ratio. The age of a firm is implicitly considered in this ratio. For example, a relatively young firm will probably show a low RE/TA ratio because it has not had time to build up its cumulative profits. Therefore, it may be argued that the young firm is somewhat discriminated against in this analysis, and its chance of being classified as bankrupt is relatively higher than that of another older firm, ceteris paribus. But, this is precisely the situation in the real world. The incidence of failure is much higher in a firm's earlier years. In 1993, approximately 50% of all firms that failed did so in the first five years of their existence (Dun & Bradstreet, 1994).

In addition, the RE/TA ratio measures the leverage of a firm. Those firms with high RE, relative to TA, have financed their assets through retention of profits and have not utilized as much debt.

- ***X_3 = Earnings Before Interests and Taxes / Total Assets – EBIT/TA:***

This ratio is a measure of the true productivity of the firm's assets, independent of any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, this ratio appears to be particularly appropriate for studies dealing with corporate failure. Furthermore, insolvency in a bankrupt sense occurs when the total liabilities exceed a fair valuation of the firm's assets with value determined by the earning power of the assets. As we will show, this ratio continually outperforms other profitability measures, including cash flow.

- ***X_4 = Market Value of Equity / Book Value of Total Liabilities – MVE / TL:***

Equity is measured by the combined market value of all shares of stock, preferred and common, while liabilities include both current and long term. The measure shows how much the firm's assets can decline in value (measured by market value of equity plus debt) before the liabilities exceed the assets and the firm becomes insolvent. For example, a company with a market value of its equity of $1,000 and debt of $500 could experience a two-thirds drop in asset value before

insolvency. However, the same firm with $250 equity will be insolvent if assets drop only one-third in value. This ratio adds a market value dimension which most other failure studies did not consider. The reciprocal of X4 is a slightly modified version of one of the variables used effectively by Fisher (1959) in a study of corporate bond yield-spread differentials. It also appears to be a more effective predictor of bankruptcy than a similar, more commonly used ratio; net worth/total debt (book values). At a later point, we will substitute the book value of net worth for the market value in order to derive a discriminant function for privately held firms (Z') and for non-manufacturers (Z").

More recent models, such as the KMV approach, are essentially based on the market value of equity and its volatility. The equity market value serves as a proxy for the firm's asset values.

- ***X_5 = Sales / Total Assets – S / TA:***

The capital-turnover ratio is a standard financial ratio illustrating the sales generating ability of the firm's assets. It is one measure of management's capacity in dealing with competitive conditions. This final ratio is quite important because it is the least significant ratio on an individual basis. In fact, based on the univariate statistical significance test, it would not have appeared at all. However, because of its unique relationship to other variables in the model, the sales/total assets ratio ranks second in its contribution to the overall discriminating ability of the model. Still, there is a wide variation among industries in asset turnover, and we will specify an alternative model (Z"), without X5at a later point.

- ***Capital coefficient: X6 = EB/TC:***

Compared with the Z-score model of Professor Altman, the author added X6 variables into model by the data collection process have detected group asymmetrical features of enterprise information. That mean, some companies have low turnover, negative profit while the market value of a shares was very high (much higher than the par value shares). This is no reasonable because the market value does not reflect or less accurately reflect the true value of that business. Therefore, the author suggests adding variables to the model X6 will fill less vulnerability to this inconsequential matter.

3.3 Research Methodology

Traditional Ratio Analysis

Traditional Ratio Analysis used to handle raw data and initial classification sample group (Beaver, 1967). The company subgroups at risk of bankruptcy or not is approximate and based on the following criteria:

- Retained earnings; earnings before interest and taxes: positive or negative.
- The quick ratio: being compared with 0.5
- The current payment: being compared with the 1
- The market value of the shares over the years: the change movements (up or down).
- Debt Ratio = Total Debt / Total capital: high or low or inadequate.

Discriminant Analysis (MDA)

After careful consideration of the nature of the problem and of the purpose of this analysis, the author chose multiple discriminant analysis (MDA) as the appropriate statistical technique. Although not as popular as regression analysis, MDA has been utilized in a variety of disciplines since its first application in the 1930's. During those earlier years, MDA was used

mainly in the biological and behavioral sciences. In recent years, this technique has become increasingly popular in the practical business world as well as in academia Altman, et.al. (1981) discusses discriminant analysis in-depth and reviews several financial application areas.

MDA is a statistical technique used to classify an observation into one of several a priori groupings dependent upon the observation's individual characteristics. It is used primarily to classify and/or make predictions in problems where the dependent variable appears in qualitative form, for example, male or female, bankrupt or non-bankrupt. Therefore, the first step is to establish explicit group classifications. The number of original groups can be two or more. After the groups are established, data are collected for the objects in the groups; MDA in its most simple form attempts to derive a linear combination of these characteristics which "best" discriminates between the groups. The MDA technique has the advantage of considering an entire profile of characteristics common to the relevant firms, as well as the interaction of these properties. A univariate study, on the other hand, can only consider the measurements used for group assignments one at a time.

Discriminant Analysis

The discriminant function, of the form D = V1X1 + V2X2 +...+ VnXn + a (1) transforms the individual variable values to a single discriminant score, or D value, which is then used to classify the object where:

V1, V2, . . . Vn = discriminant coefficients, and

X1, X2, . . . Xn = independent variables

a: constant number

V1, V2, ..., Vn: the separate coefficients of the model, known as the slope of the equation (1). When running the model according to the selected data will get the coefficients V1, V2, ..., Vn corresponds to the variables X1, X2, ..., Xn. Once you have the results of the model it is necessary to test the fit of the model to verify the phenomenon of self-correlation between the variables or not and reliability of this model is how to take things necessary adjustments.

3.4 Research models

Multiple discriminant models is designed in line with Vietnam's economy

The author chooses the method of multivariate linear analysis combined analysis of multiple linear discriminants (MDA: multiple discriminant Analysis). Finding out the relationship between the variables and figure out the critical value of the group companies at risk of bankruptcy and thereby make the appropriate linear models to calculate the predicted values for bankruptcy for companies which are listed on the Vietnam stock market.

Multivariate linear equations:

V1 + V2 D = X1 + X2 + X3 V3 V4 V5 X4 + X5 + X6 V6

Where D: overall index (the critical value)

Vi (i = 1.6: the correlation coefficient, the slope

Xi (i = 1, 6): Variable independent, explanatory variables

4 RESULTS AND DISCUSSION

In multiple discriminant analysis, to try to predict a group of the same nature we first check whether there is any difference between the groups on each independent variable using average data results and classification analysis of variance. Statistical table "Group Statistics table" and "Equality of group means clustering Tests table" provided this information. If the difference is not significant groups could not perform the next step analysis.

Tab.1 - Group Statistics. Source: The author calculated

Classification		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
Bankrupt Group	X1 = WC/TA	.055292	.1782452	93	93.000
	X2 = RE/TA	-.031490	.1452813	93	93.000
	X3 = EBIT/TA	.016600	.0901758	93	93.000
	X4 = MVE/TL	.304788	.9419026	93	93.000
	X5 = S/TA	.517206	.3958594	93	93.000
	X6 = BE/TC	.233362	.1381230	93	93.000
Non-bankrupt group	X1 = WC/TA	.295489	.2005500	80	80.000
	X2 = RE/TA	.009003	.1277702	80	80.000
	X3 = EBIT/TA	.052625	.0729880	80	80.000
	X4 = MVE/TL	.911949	1.2162546	80	80.000
	X5 = S/TA	.790639	.9214156	80	80.000
	X6 = BE/TC	.509856	.1491952	80	80.000
Total	X1 = WC/TA	.166366	.2233669	173	173.000
	X2 = RE/TA	-.012765	.1385561	173	173.000
	X3 = EBIT/TA	.033259	.0843849	173	173.000
	X4 = MVE/TL	.585556	1.1163093	173	173.000
	X5 = S/TA	.643649	.7017573	173	173.000
	X6 = BE/TC	.361221	.1988542	173	173.000

Tab.2 - Test of equality of group means. Source: The author calculated

	Wilks' Lambda	F	df1	df2	Sig.
X1 = WC / TA	.711	69.550	1	171	.000
X2 = RE / TA	.979	3.731	1	171	.055
X3 = EBIT / TA	.954	8.164	1	171	.005
X4 = MVE / TL	.926	13.659	1	171	.000
X5 = S / TA	.962	6.747	1	171	.010
X6 = BE / TC	.517	160.006	1	171	.000

Looking at Table 4.1 we see the average values of the variables in the two groups are at risk of bankruptcy and bankruptcy groups differ not quite clear. Another concern is the standard deviation of the variables. Looking at the breakdown we see the standard deviation of the variables is almost quite suitable for each variable in each group. Only two variables are X4 = MVE / TL related to the market value of equity and variable X5 = S / TA related to the company's net sales have relatively high standard deviation than the standard deviation of other variables and distinguish very clearly between the two groups. Bankruptcy group standard deviation (Sd) of variable X4 is 1.22 higher than the risk of bankruptcy group is 0.94. This is also true if the company fell into financial exhaustion, the market value is much lower than the normal operating company, still stable. Bankruptcy group standard deviation (Sd) of variable X5 is 0.92 higher than the risk of bankruptcy group is 0:39. This is true to reality when the company fell into financial exhaustion often have much lower turnover than the normal operating company, is stable. Besides, the author also found that the median value of the variables in group companies at risk of bankruptcy, is always lower than the median value of the variables in the group companies are not bankrupt.

Basing on table 4.2 we can notice the statistical meaning of the model, it said not only the F but also the probability of variable much quite high, p=Sig goes from 5% to 10%. Since then, the author comes to the consequence: regression model is really meaningful.

To test the correlation between the variables, the author has made the covariance matrix “The Pooled Within-Group Matrices” and MDA by using “log determinants” and “Box’s M tables”

In the test of covariance, the author made a theory said that the same covariance for each groups. But in MDA, the main theory said that covariance matrix is equivalent. From the table 4.3 we can go to the result that X2 and X3 have the correlation: 0.703, X4 and X6 is 0.609. The reason is X2 and X3 have the same score of revenue, net income (the same denominator: total assets, and the numerator is quite equivalent). X4 and X6 variables remaining the same as forecast indicators of equity (the denominator is the total liabilities, while the numerator is similar); X4, the use of market values to equity, while the X6 to use the book value of equity.

Tab.3 - Pooled within – group matrices. Source: The author calculated

		X1 = WC / TA	X2 = RE / TA	X3 = EBIT / TA	X4 = MVE / TL	X5 = S / TA	X6 = BE / TC
Correlation	X1=WC/TA	1.000	.153	-.108	.102	-.149	.184
	X2=RE/TA	.153	1.000	.703	.075	.090	.026
	X3=EBIT/TA	-.108	.703	1.000	.156	.254	-.184
	X4=MVE/TL	.102	.075	.156	1.000	-.040	.609
	X5=S/TA	-.149	.090	.254	-.040	1.000	-.157
	X6=BE/TC	.184	.026	-.184	.609	-.157	1.000

Box's M test the theory of the covariance matrix is the same between the groups by the depending on of variables. The author hopes to find out this result is not making a real meaning to see the theory can remain. With this theory, logarithmic function was similar distinction. Tested by Box's M, the author searched M do not mean to present the same thing and the lack of significant differences. In this case the value distinction appears to be equivalent and Box's M value was 150.679 with F = 6905 is statistically significant at p = Sig = 0.000 (Table 4.4 and 4.5).

Tab.4 - Log determinants. Source: The author calculated.

Classification	Rank	Log Determinant
Bankrupt	6	-20.658
Non-bankrupt	6	-17.758
Pooled within-groups	6	-18.437

Tab.5 - Test results. Source: The author calculated

Box's M		150.679
F	Approx.	6.905
	df1	21
	df2	102549.835
	Sig.	.000

The meaning of dependent variables basing on table 4.6 (Eigenvalues table: Explaining value). This value supports the information to discriminant equation. Number of functional quantities of discriminant equation is the number of groups minus 1. The author used two groups are "non-

bankruptcy" and "bankruptcy" therefore a functional quantity is presented (Function = 1). Correlation is the most consistent correlation between predicted and discriminant. This function provides an index for the entire model and that model is interpreted as the proportion of explained variance (R^2). The results in Table 4.6 and figures explain the correlation is 0.823 which means that the selection of variables in the explained model 67.7% (0.843^2) the outcome is at risk of bankruptcy or non-bankruptcy.

Tab.6 - Eigenvalues table. Source: The author calculated.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.099[a]	100.0	100.0	.823

Corresponding to figure out the meaning of the explanatory variables, discriminant function as a result we found some unexplained variations by performing inspection "Wilks' lambda". Table 4.7: "Wilks' lambda table" indicates the level of significance of the discriminant function. Inspection results with a high level of significance (p = sig = 0.000) and provides the ratio of the total of unexplained-variables. This coefficient contrast to the squared correlation coefficient (R2) and this number is 0,323 and equivalent to 32,3% of unexplained-variables.

Tab.7 - Wilks' Lambda. Source: The author calculated.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.323	189.998	6	.000

The result of model

The result of model without using structural analysis correlation matrix between the variables is in Table 4.8. With this result shows the slope of multiple discriminant functions or a percentage of variables in multiple discriminant equation. It is like a beta of equation linear regression. This provides the key indicators for each forecast.

Tab.8 - Standardized Canonical Discriminant Function Coefficients.
Source: The author calculated.

	Function
	1
X1 = WC / TA	.513
X2 = RE / TA	-.621
X3 = EBIT / TA	.921
X4 = MVE / TL	-.681
X5 = S / TA	.197
X6 = BE / TC	1.205

Combined with the analysis of the matrix structure for the relationship between the variables, table 4.9 provides another way to find out the relationship of these critical forecasts and it can be seen as structural similarities form. Many studies use correlation matrix structure because it is considered more accurately standardized coefficient of multiple discriminant function (Standardized canonical discriminant function coefficients). Matrix structure table shows the correlation of each variable with each discriminant function.

Tab.9 - Structure matrix. Source: The author calculated

	Function
	1
X6 = BE / TC	.668
X1 = WC / TA	.440
X4 = MVE / TL	.195
X3 = EBIT / TA	.151
X5 = S / TA	.137
X2 = RE / TA	.102

Combined with structural correlation matrix of variables and discriminant coefficient of linear model coefficients multi discriminant were found in Table 4.10, this factor creates discriminant function. It can perform the function of the linear regression equation. The author had to find the following equation:

Tab.10 - Canonical Discriminant Function Coefficients. Source: The author calculated.

	Function
	1
X1 = WC / TA	2.715
X2 = RE / TA	-4.520
X3 = EBIT / TA	11.139
X4 = MVE / TL	-.632
X5 = S / TA	.285
X6 = BE / TC	8.406
(Constant)	-3.729

The final discriminant function is as follows:

$D = 2{,}715\ X_1 + (-4{,}520)\ X_2 + 11{,}139\ X_3 + (-0{,}632)\ X_4 + 0{,}285\ X_5 + 8{,}406\ X_6 + (-3{,}729)$

Where: D: overall index (*)

X_1 = Working capital/Total assets (WC / TA)

X_2 = Retained earnings/Total assets (RE / TA)

X_3 = Earnings before interest and taxes/Total assets (EBIT / TA)

X_4 = Market value equity/Book value of total liabilities (MVE / TD)

X_5 = Sales/Total assets (S / TA)

X_6 = Earnings before interest and taxes/Total capital (EB / TC)

The final result was found in table 4.11 "Group centroid tale" to describe for many conditions of each groups; using the average of predictor variables. Average group called the critical value. The statistical table 4.11 for the results of companies at risk of bankruptcy with average values (-1.336), while the average value for the company is non-bankruptcy group is 1.553.

Tab.11 - Functions at group centroids. Source: The author calculated.

Classification	Function
	1
Bankruptcy	-1.336
Non-bankruptcy	1.553

So that the D score has the scope (-1,336; 1,553)

- If $D \geq 1{,}553$: The companies are classified as non-bankrupt
- If $-1{,}336 < D < 1{,}553$: The companies are classified as bankrupt
- If $D \leq -1{,}336$: The companies are at the risk space.

If the equation (*) was written again and eliminate constant in calculating predictive value will be a new model as follows:

$$\mathbf{D = 2{,}715\ X_1 + (-4{,}520)\ X_2 + 11{,}139\ X_3 + (-0{,}632)\ X_4 + 0{,}285\ X_5 + 8{,}406\ X_6}$$

So that the D score has the scope (2,393; 5,282)

- If $D \geq 5{,}282$: The companies are classified as non-bankrupt.
- If $2{,}393 < D < 5{,}282$: The companies are classified as bankrupt.
- If $D \leq 2{,}393$: The companies are at the risk space.

To test the model, the author would replace variable X1 to X6 by the value from financial ratios of the company and figure out the result D-score. Since then, D-score with 2 thresholds: 2,393 and 5,282 predicting the companies have the risk at bankruptcy or non-bankruptcy in the near future.

5 CONCLUSION

Finding the financial situation of enterprises through the analysis of the real value of the financial ratios of the company, it made several factors combined, which have yet to see the links between these factors; otherwise every researcher can choose different indicators to analyze. To limit underestimated or missed some necessary criteria, the author choses to build a model and forecasting techniques through MDA to seek out a more general index which is based on financial ratios. The result is a pattern found evaluates the financial situation, bankruptcy prediction model through D-score. By this D-score, almost the people who join in the economy could calculate and evaluate the financial statement. D-score model was applied just for the companies in the field of construction – real estate in Vietnam. However, in the near future, the author would try harder to find more independent variables which more explained

for the result of D-score, providing more reliable results for the forecast model, and also developing another model for the industry in the economy of Vietnam.

REFERENCES

Agarwal, V. and Taffler, R. J. (2008b). Does Financial Distress Risk Drive the Momentum Anomaly. *Financial management,* Vol. 37, No. 3, p. 461-484.

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The journal of finance*, *23*(4), 589-609.

Altman, E. I. (2000). Predicting financial distress of companies: revisiting the Z-score and ZETA models. *Stern School of Business, New York University*, 9-12.

Agresti, A. (1996). *Categorical data analysis* (Vol. 996). New York: John Wiley & Sons.

Beaver W. (1967). Financial ratios as preditors of failure. Empirical research in accounting: Selected studies. Journal of Accounting research. V. supplement

Campbell, J. Y., Hilscher, J. and Szilagyi, J. (2008). In Search of Distress Risk. *Journal of Finance,* Vo. 63, No. 6, p. 2899-2939.

Deakin, E. B. (1972). A discriminant analysis of predictors of business failure. *Journal of accounting Research*, 167-179.

Dichev, I. D. (1998). Is the Risk of Bankruptcy a Systematic Risk? *Journal of Finance*, Vol. 53, No. 3, p. 1131-1147.

Dun & Bradstreet (1976). The failure record (New York)

Griffin, J. and Lemmon, L. (2002). Book-to-Market Equity, Distress Risk, and Stock Returns. *Journal of Finance,* Vol. 57, No. 5, p. 2317-2336.

Shumway, T. (2001). Forecasting Bankruptcy More Accurately: A Simple Hazard Model. *Journal of Business*, Vol. 74, No. 1, p. 101-124.

Vassalou, M., and Xing, Y. (2004). Default Risk in Equity Returns. *Journal of Finance*, Vol. 59, No. 2, p. 831-868.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE IMPACT OF E-LEARNING TOWARDS SMALL AND MEDIUM SIZED ENTERPRISE IN VIETNAM

Phuoc Dai Huu Nguyen, Rajnai Zoltán, Binh Thai Dang

ABSTRACT

Small and medium-sized enterprises (SMEs) play an essential role in the economy of Vietnam. The process of globalization offers many opportunities for businesses in Vietnam; however, Vietnamese enterprises, especially SMEs also face some difficulties such as the competitiveness of SMEs in the market, the lack of technological innovation, the challenge of shortage of high-quality human resources, employee management, and the like. The boosting of Internet technology creates a new decade to meet the need for human learning. One of the most innovative ways of spreading education resources all over the world is through e-learning (Tao et al, 2006). E-learning is viewed as a tool that presents potential revolution in learning and offers high – quality and cost-effectiveness in training. In particular, e-system involves the participation of instructors, learners, workers and employers who use the internet and websites to facilitate and update their work. The primary advantages of e-learning consist of learning anytime and anywhere by accessing to the Internet, cost reductions, flexibility and more effectiveness. The aim of this study is to explore the potential role of e-learning in SMEs as a novel way of boosting the development in employees and managers 'skills.

Keywords: *E-learning, e-system, impact of e-learning, online learning, small organization, SMEs.*

JEL Classification: D20, I25, O20.

1 INTRODUCTION

1.1 E-leaning as a service

E-learning refers to the use of telecommunication technology in delivering information and providing learning resources in colleges and other aspects of life. Moreover, e-learning may become a greater potential source of online learning in developing countries than does it in developed countries because of the urgent need of education to stimulate the development (Kwofie Benjamin and Henten Anders, 2011). With the advent of internet, e-learning is increasingly expanded and becomes an essential tool for training people not only at school but also in many workplaces or institutions for three reasons. Firstly, e-learning offers a various forms of information including sounds, videos, texts and the like. Secondly, it creates a storage place over a long period of time and enables the access from a long distance. Thirdly, e-learning can make employers delighted about a greater degree of flexibility in the way work or any learning tasks is organized/ delivered (Paul Pocatilu et al, 2009). As such, workers can apply their knowledge from training to daily work more effectively. Employers and employees also can perceive that e-learning is the best way to narrow the gap between home-based business and office work, or between at-the-office work and learning.

1.2 SMEs in Vietnam

SMEs have large numbers in Vietnam's economy, they participate actively and have a very important role in the economy of Vietnam. SMEs have the ability to adapt quickly to market, easily in innovation, flexibility to changes in customer and market. At the same time, SMEs

support large enterprises in the process of production and business. Success factors of SMEs are management capacity, the ability to rapidly innovate, creativity, quality of goods and services, strategic development and an indispensable element which is the capital.

Tab.1- SME Conditions in East and Southeast Asia in 2012,
Source: Asian Development Bank (Shinokazi, 2012) http://www.adb.org/

	Number of Enterprises (% of total)	**Number of Employees (% of total)**	**Contribution to GDP (%)**
East Asia			
Japan	99,7	69,4	47,7
Korea	99,9	87,7	47,6
China	99	75	58,5
Southeast Asia			
Brunei	98,4	58	22
Cambodia	98,5	-	85
Indonesia	99,9	97	56,5
Lao PDR	99,8	83	6 to 9
Malaysia	99,2	59	31,9
Myanmar	92	-	-
Philippines	99,6	63,2	35,7
Singapore	99,4	62,3	46,3
Thailand	99,8	78,2	36,7
Vietnam	97,4	77,3	26

Like other countries around the world, SMEs have an important role in the economy of Vietnam. First, SMEs in Vietnam have large numbers. On average, from 2000 to 2012, SMEs accounted for 96.8% of total enterprises in Vietnam. The result is that from 2000 to 2012, the number of SMEs in Vietnam increased, if there is about 39897 SMEs in 2000 but in 2012, there is about 341,664 SMEs. SMEs use more labor (77.3% of the total labor in 2012), specifically low-level workers. SMEs participate in many sectors, many components of the economy of Vietnam, especially they have an important role in the economic development of the region, help to narrow the development gap between rural and urban. Besides, SMEs have been great potential to promote the development of the economy. According to research by Asian Development Bank (Shinokazi, 2012), SMEs contribute about 26% of the total GDP of Vietnam in 2012.

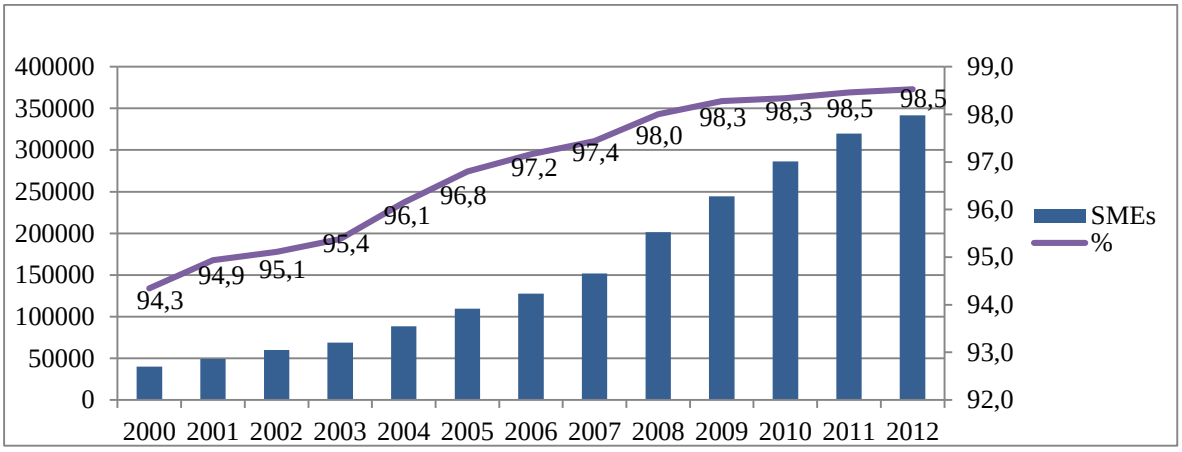

Fig.1- The number of SMEs and the proportion of SMEs to total enterprises in Vietnam from 2000 – 2012**, s**ource: http://www.gso.gov.vn and own elaboration.

In summary, with the quick change in many types of working environment, especially in SMEs, workers need to improve their skills in working with high technology in order to meet the growing of the process of globalization in Viet Nam in specific and in the world in general. E-learning is the best option to any firms, organizations or SMEs looking for improving the workers 'skills and their capacity.

2 LITERATURE REVIEW

2.1 E-learning definition

There are various terms in relation to online studying such as e-learning, distance learning, network learning, Internet learning, distributed learning, virtual learning, computer–based learning, and web – based learning (Ally et al, 2004; Bates et al, 2005). These terms indicate that the knowledge and materials (texts, images, videos, E-books, etc.) are transferred through the computer network to the e-learners. Otherwise, there are three ways to classify e-learning's models like synchronous, asynchronous and blended learning. First of all, synchronous training involves the online activities between teachers, instructors, and learners or employees at the same time via virtual platform such as chat rooms and/or videoconference. In particular, synchronous training offers facilities to the participants to communicate to the mentor or the others via the internet directly (Algahtani et al, 2011). Secondly, according to Almosa and Almubarak, (2005) asynchronous mode also allows the instructors and learners discuss as well as among themselves over the internet on his or her own face without live interaction at the same moment with the instructors by using some tools as e-mail and threat discussion. In this method, workers are able to take advantage in learning at a time that suits them; however, they cannot get immediate feedback from the instructors or other co-workers. Thirdly, blended learning is the combination of synchronous and asynchronous training. Zeitoun (2008) and Algahtani (2011) claim that this method combined online and traditional learning; therefore, the course material is shared by traditional way and e-learning method. Moreover, it is good for maximize independent study; as a consequence, students can work at their own pace, ensuring they have completed their programs before moving forward their studies.

2.2 Advantages

E-learning offers several advantages for learners and instructors. These are described below.

According to Wagner and Al (2008), e-learning makes an opportunity for interactivity between learning and teaching activity during the courses. Through this virtual environment, it will

eliminate the fear of talking to the others learners. Moreover, they will have more motivation to express knowledge and respect the different point of views.

Virtual environment for learning allows the learners or employees have the individual support and suitable schedules for them as well as the others (Tao et al. 2006). This enhances high interaction and collaboration level between the teachers or the instructors and peers than the traditional method.

E-learning environment supports available content for re-use (Kwofie Benjamin et al, 2011). The resource of the e-system such as curriculum, materials are developed and stored in digital forms. These contents are accessible for further study or research for many individuals at the same time. Moreover, they can be improved the content over time.

Otherwise, e-system compensates for the inadequacy of academic teaching staffs as well as the IT technicians, coordinators and inadequacy of learning resources like books, references accommodation, etc.(Wagner et al, 2008; Kwofie Benjamin et al, 2011). Indeed, some companies have a situation where teaching and learning activities become ineffective as a result of large numbers of employees. Therefore, this method can facilitate the companies, factories absorb more workers in order to enhance the training activities.

E-learning system can reduce the cost for both employees and implementers (Shinozaki, S, 2012), (Kwofie Benjamin et al, 2011). There are many different learning packages and products as computer-based training materials or online learning management system. The learners can choose the products and packages that are suitable with their available funds. On the other hand, for the implementers, when the company recruited employees, the human-resource division must train them in order to know what they can operate the applications. This procedure is repeated many times in a year, and it also takes a lot of time and money. Otherwise, the firms need to have high initial investment in deploying each machine for the employee's data storage. E-learning technology brings many advantages to enhance the teaching and learning method.

2.3 Disadvantages

E-learning also has its drawbacks. They include internet dependency and unsuitable for all fields. Firstly, e-learning is based on Internet communication technology; thus, it depends on Internet connection. The learners are required to have a good Internet connection with high bandwidth to download the materials from the courses and upload their tasks in time. Moreover, learners need technical skills to work with e-system. Secondly, some scientific fields that comprise practical part cannot be trained through e-learning.

2.4 Is e-learning vital for organizations?

E-learning delivers knowledge through electronic information and virtual environment. This delivery method is bridging the gap between work and learning (Paul Pocatilu et al, 2009). In fact, workers can integrate their learned-knowledge from the training into work more effectively. With regard to this electronically supported-learning, e-learning allows workers to diminish the distance between workplace and home, as a result of immediate access to updated information and learn new things. Significantly, with the information technology boom, people can reduce the travel expenses and time-consuming. Indeed, employees can focus on the knowledge that they really need through multi-devices such as smart phones or tablets, thereby, allowing them to take online courses whenever they need. Furthermore, the managers can design, upload and share a course during a few hours with their employees.

2.5 Social support (support from family and workplace)

Some research indicated that social support is the most important factor influencing on giving up and retention (Kwofie Benjamin et al, 2011). Time supporting or help from family, friends and employers can play an important role in students 'success when they use e-system. The learners won't have gained their degrees without emotional support for their relatives, friends and their colleagues. In overall, social support facilitate learners' learning online (Kim Munich, 2014).

3 RESEARCH METHODOLOGY

For this study, on-line survey was used to investigate employees' opinions about using / applying e-learning in their own learning. On-line survey has been initiated and circulated (via Google form) among employees in Vietnam. The online quantitative survey consists of 24 questions on required fields. Because of the quantity of elements, our database cannot be considered representative of the population as whole workers.

Methodology

This study mainly focuses on the impacts of e-learning for employees and employers in SMEs of Vietnam. Based on the purpose and research questions, hypotheses are formulated at the beginning. In our sample, 152 Vietnamese employees in SMEs filled out the online questionnaire, expressing their opinions of the e-learning system under investigation.

Hypothesis:

H1: The demand for studying e-learning does not depend on working status not only for full-time employees but also for part-time employees.

H2: In the process of working and improving study level, e-learning is an efficient and cost saving method for employees in SMEs in Vietnam.

H3: Web material is an important resource in the learning process by e-learning method for workers in SMEs in Vietnam.

We presented the hypotheses of our research as well as the methods that were applied to test the hypotheses. Moreover, it is used to analyze the impact of e-learning towards to workers and managers for SMEs.

In this research, the authors used Chi-Square test method in order to evaluate the correlation of the variables' hypotheses in tab. 2, tab. 3, tab. 4 in respectively. Moreover, regarding to this method, its results are strong evidence, meaningful.

4 RESEARCH RESULTS

Based on hypotheses, type of variables, the purpose of testing, type of data, and the like, the authors selected appropriate methodology for testing (Chi-Square test). These hypotheses were tested with 0.05 level of significance and were analyzed using SPSS. All hypotheses were tested and specific results presented below.

4.1 Testing hypothesis H1

H_0: The demand for studying e-learning does not depend on working status (full-time or part-time)

H_A: The demand for studying e-learning depends on working status (full-time or part-time)

Tab. 2- Chi-Square test for **H1**. Source: own data

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.856[a]	3	.277
Likelihood Ratio	3.932	3	.269
Linear-by-Linear Association	.144	1	.705
N of Valid Cases	152		

From the table 2, the authors observed that Chi-Square = 3.856 and its corresponding P value is 0.277 > 0.05; so we accept hypothesis **H_0**: the demand for studying e-learning does not depend on working status, and we reject hypothesis **H_A**.

4.2 Testing hypothesis H2

H_0: In the process of working and improving studying level, e-learning is not an efficient and cost saving method for employees in SMEs in Vietnam.

H_A: In the process of working and improving studying level, e-learning is an efficient and cost saving method for employees in SMEs in Vietnam.

In order to determine whether e-learning is an efficient and cost saving method for employees in SMEs in Vietnam, Chi-Square test was applied.

Tab.3: Chi-Square test for **H2**. Source: own data

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.700[a]	3	.021
Likelihood Ratio	9.532	3	.023
Linear-by-Linear Association	5.148	1	.023
N of Valid Cases	152		

From the [table 3], the authors can observe that Chi-Square = 9.700 and its corresponding P value is 0.021 < 0.05, so we accept hypothesis **H_A**: In the process of working and improving studying level, e-learning is an efficient and cost saving method for employees in SMEs in Vietnam.

4.3 Testing hypothesis H3

H_0: Web material is not important resource in the learning process by e-learning method for workers in SMEs in Vietnam.

H_A: Web material is an important resource in the learning process by e-learning method for workers in SMEs in Vietnam.

In order to determine whether web material is an important resource in the learning process by e-learning method for workers in SMEs in Vietnam, Chi-Square test was applied.

Tab.4- Chi-Square Test for **H3.** Source: own data

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.771[a]	3	.032
Likelihood Ratio	10.483	3	.015
Linear-by-Linear Association	8.581	1	.003
N of Valid Cases	152		

From the [table 4], the authors can observe that Chi-Square = 8.771 and its corresponding P value is 0.032 < 0.05, so we accept hypothesis **H_A**: Web material is an important resource in the learning process by e-learning method for workers in SMEs in Vietnam.

5 CONCLUSION

E-learning can be seen as an effective way which far outweighs the traditional teaching method. Moreover, it helps facilitate learners and instructors in business environment. Besides, e-learning is both vital and useful tool to help training workers, owners or managers themselves in various ways. The survey results of the impact of e-learning towards small and medium-sized enterprise showed that e-learning method is significant for Vietnamese employees during their training. Furthermore, in this research, we found that in Vietnamese workers not only for their full-time employees but also for part-time workers extremely need e-learning during their training program. In addition, e-learning is an efficient and cost-effective method for employees in SMEs in Vietnam. In the other hand, among the e-learning materials, web materials are valuable for their own research regardless of their working status. Although this research indicates the effectiveness of e-learning for SMEs only, there are some limitations. Therefore, there is a real need for more research into the role of e-learning environment which instructors and workers can rely on. The researchers believe that e-learning will become more popular in the future in order to make more profit not only for SMEs but also for big organizations.

REFERENCES

A.W (Tony) Bates, (2005). Technology, E-learning and Distance Education, 2nd Edition, ISBN: 0-203-46377-3.

Algahtani, A.F. (2011). Evaluating the effectiveness of the e-learning experience in some Universities in Saudi Arabia from male students 'perceptions, Durham these s, Durham University.

Ally, M. (2004). Theory and Practice of Online Learning, Foundations of Educational theory for online learning. In T. Anderson & F. Elloumi (Eds.), Athabasca University & Creative Commons, pp.3-31

Atteeq Ahmad and Mohammed Ahmed Elhossiny, (2012). E-learning and Security Threats, *IJCSNS International Journal of Computer Science and Network security*, 12(14):1-4, ISSN: 1738-7906

Bates, A. W. (2005). Distance education in a dual mode higher education institution: A Canadian case study [electronic version]. Centre for distance education, Korean National open-university, Available: http://www. Tonybates.ca/papers/KNOUpaper.htm.

David C. Howell, (2011). Chi-square test: analysis of contingency tables, International Encyclopedia of Statistical Science, pp 250-252, Available: https://www.uvm.edu/~dhowell/methods7/Supplements/ChiSquareTests.pdf

Evans, C. and Fan, P.F. (2002). Lifelong learning through the virtual university, Campus-Wide Information Systems, 19(4), Available: http://www.emeraldinsight.com/1065-0741.htm, ISSN: 1065-0741

Gunasekar Kumar and Anirudh Chelikani, Stelzer, M. & Vogelzangs I. (2000). Isolation and Motivation in Online and Distance Learning Courses, Available: http://projects.edte.utwente.nl/ism/online95/campus/library/online94/chap8/chap8.htm

Hye-jin Kim, (2013). E-learning Privacy and Security Requirements, *Journal of Security Engineering*, 10(5):591-600, ISSN: 1738-7531 JSE

John O'Donoghue, (2004). A comparison of the advantages and disadvantages of IT based education and the implications upon students, *Interactive Educational Multimedia*, 9:63-76

Kim Munich, Thompson Rivers University, (2014). Social support for online learning: perspectives of nursing students, *International Journal of E-learning and distance education*, 29(2).

Kwofie, Benjamin; Henten, Anders, (2011). The advantages and challenges of e-learning implementation, WCES-2011 3rd world conference on Education Sciences, Bahcesehir University, Istanbul, Turkey.

Nicole Legault, (2014). Getting start with E-learning, Available: https://community.articulate.com/series/getting-started/articles/what-is-e-learning

Oye David, Mazleena Salleh and Noorminshah Iahad, (2012). The impact of e-learning in workplace: focus on organizations and healthcare environments, International Arab *Journal of e-technology*, 2(4).

Paul Pocatilu, Felician Alecu and Marius Vetrici, (2009). Using Cloud Computing for E-learning systems, Recent advances on Data networks, communications, computers, Romania, page 54-59. ISSN: 1790-5109

Richard Mobbs, (2003). Disadvantages of E-learning, Available: http://www.le.ac.uk/users/rjm1/etutor/elearning/disadvofelearning.html

Sajjad Hashemi and Seyyed Yasser Hashemi, (2013). Cloud computing for E-learning with more emphasis on Security Issues, *International Journal of Computer*, Electrical, Automation, Control and Information Engineering, 7(9):1-6

Shinozaki, S, (2012), A new regime of SME finance in emerging Asia: Empowering growth–oriented SMEs to build resilient national Economies, Asian Development Bank 2012

Tao, Y.H., Yeh, C.R., and Sun, S. I. (2006). Improving training needs assessment processes via the Internet: system design and qualitative study. *Internet research*, 16(4), 427-49

Taylor, R. W. (2002). Pros and cons of online learning – a faculty perspective, *Journal of European Industrial Training*, Available: http://www.emeraldinsight.com/0309-0590.htm

Valentina Arkorful and Nelly Abaidoo, (2014).The role of e-learning, the advantages and disadvantages of its adoption in Higher education, *International Journal of Education and Research*, 2(12):1-14, ISSN: 2201-6333(print) and 2201-6740 (online)

Wagner, N., Hassanein, K., & Head, M., (2008).Who is responsible for e-learning success in higher education? A stakeholders'analysis, Educational technology & society, 11(3), 26-36, ISSN: 1436-4522 (online) and 1176-3647 (print).

Wang, A. Y & Newlin, Michael. H., (2001). Online Lectures: Benefits for the virtual classroom. *The Journal (Technological Horizons In Education)*, 29(1), Available: https://www.questia.com/library/journal/1G1-77842896/online-lectures-benefits-for-the-virtual-classroom.

Zhang, D., Zhou, L., Brlggs, R. and Nunamaker, J. (2006).Instructional video in E-learning: Assessing the impact of interactive video on learning effectiveness, Science direct, Information & Management, 43(1): 15-27.

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Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

DETERMINANTS OF THE INITIAL START-UP SIZES OF NEW FIRMS IN HO CHI MINH CITY

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ABSTRACT

The objective of this research is to examine the factors determining the initial size of startup firms and, based on the research result, to offer some policy recommendations to encourage increasing the start-up size of new firms. The keys findings from the quantitative analysis of data drawn from 9,977 firms collected randomly are: (i) the positive effects of "year of start-up", "type of firm", "number of registered industries", "contributed capital of organization", "number of founders", and a range of characteristics of the firm's executive person such as "age of the executive person" or "contributed capital of the executive person" to the firm's initial start-up size; and (ii) the negative effect of "number of female founders" in the firm's initial start-up size. The research does not detect any impact of "gender of the executive person", "nationality of the executive person", and "permanent residence of the executive person" on the firm's initial start-up size.

Key words: start-up size, initial start-up size, firms.

JEL classification: L2

1 INTRODUCTION

The global economic situation has remained vulnerable as a consequence of the 2008 global financial crisis. It was a crisis which also had a significant impact on Vietnam's economy. According to the Ministry of Planning and Investment, Vietnam (2013), the number of bankrupt enterprises increased sharply following the 2008 event. Specifically, there were 53,922 enterprises that entered bankruptcy or which temporarily paused their business operation in 2011, 54,261 in 2012, and about 55,000 in 2013. However, in the same time period, there were many startup firms established to exploit new business opportunities. These comprised 77,548 startup firms in 2011, 69,874 ones in 2012, and about 72,000 in 2013.

Because of differences in the ways in which they establish themselves, firms have different abilities to overcome difficulties at the beginning of their existence and as they grow in the future. The larger the firms, the more they are able to survive. Research supports this argument: e.g. Evans (1989), Dunne et al. (1994), Mata and Portugal (1994), Audretsch (1995), Audretsch and Mahmood (1995), Audretsch et al. (1999) Caves (1998), Fotopoulos and Louri (2000), Segarra et al. (2002), or Geroski et al. (2003). The learning model developed by Jovanovic (1982) and Pakes and Ericson (1998) points out that the survival of a firm is positively affected by the firm's initial start-up size.

According to Melillo (2012), despite the important role of initial size on survival, few studies have tried to explore the determinants of a firm's initial size. This is for two reasons: (i) the complexity of the concept of initial size being viewed as a one-dimensional construct and not as a strategic choice. (ii) challenges in methodology and data collection. Melillo (2012) argues that there are three keys reasons explaining why empirical research into what determines a firm's initial size is challenging:

"*First, it requires pre-entry data on founder's characteristics (e.g. past work experience); second, it involves multiple levels of analysis, namely industry, firm, and individual; third, it requires empirical models that account for the potential bias arising from the fact that we only observe size when entry occurs*" (Melillo, 2012).

Thus, one of the many essential elements in a firm's survival is to increase the firm's initial start-up size. The purpose of the research reported here is to discover what factors affect a firm's initial start-up size in Vietnam in general and in Ho Chi Minh city in particular. On the basis of its findings, the research then proposes policy solutions for increasing initial start-up size thus helping firms to survive better.

The structure of this paper consists of ther following sections: prior literature in the next section, methodology and data collection in the third section; data analysis in the fourth section, and a conclusion as well as policy implications in the final section.

2 LITERATURE REVIEW

2.1 Theory on the initial size of a firm

Based on the learning model of Jovanovic (1982), at the time of starting up a firm, investors are uncertain about the firm's performance in the future and they decide to enter into a market with the size of a firm based on belief in their own ability. Through their business operations, they observe their business results, obtain experience, and learn from what is happening. They will then adjust their plans accordingly. If they see that the results are bad (costs are high and they seem unsuccessful) they will withdraw from the market early. So, according to Jovanovic (1982), a firm's initial start-up size is related to a belief in the investors' future confidence in the future. If investors are optimistic about the future, they will set up the firm with large size and vice versa.

The theory of industrial organization suggests that new players enter the market at a sub-optimal level; hence, they have to face the disadvantages of labor or management costs, and these cause difficulties for their suvival. Some overcome these obstacles; otherwise, some exit. The highlights of research into the determinants of a firm's initial start-up size are derived from industrial theory. The theory describes characteristics at the industrial level (Arauzo-Carod & Segarra-Blasco, 2008; Mata & Machado, 1996). Especially, some factors, such as minimum efficient scale, market concentration, industry scale, industry competition, industry barriers, market imperfections (restrictions on access to resources), and industry growth affect a firm's initial start-up size.

Other studies exploit the characteristics at the individual level as having impact on the startup size such as experience, financial constraints, or human capital (education, age, gender, skills.) of entrepreneurs.

Creating a new firm always includes an investment commitment. If this investment fails, typically it can not be recovered. On the other hand, there are always hidden or 'sunken' costs that are incurred while setting up a new firm. According to Dixit & Pindyck (1994), opportunity cost always occurs in unreasonable invesment expenditure because of losing profit from other oppotunities. Opportunity costs increase when investment generates uncertainty about future profits. The selection of ability (scale) is optimal when the expected net present value generated by a marginal unit of ability is equal to the sum of the unit cost. Hence, if firms encounter a large uncertainty level, firms will restrict investment in order to avoid risk leading to losses (Pindyck, 1993).

2.2 Entry barriers and determinants of a firm's initial start-up size

2.2.1 Barriers to Market Entry

In the theory of competition, entry barrier issues are often regarded as obstacles that firms cope with when they wish to enter into a certain market. These obstacles may come from government rules, tax policy, or advertising costs. According to Bain (1956), an entry barrier is anything that permits incumbents to earn above-normal profits without attracting entry. In particular, an entry barrier is the set of economics of scale, product differentiation, and absolute cost advantages that allow incumbent firms to earn economic profits in the long run. Stigler (1968) objected to Bain's definition and considered that economies of scale were not entry barriers. He defined entry barriers as a production cost which must be borne by an entrant but not by an incumbent. Fisher (1979) provided a more extended meaning of *barrier to entry*: *"A barrier to entry exists when entry would be socially beneficial but is somehow prevented"*. Carlton and Perloff (1994) defined a short-run entry barrier as anything that prevents an entrepreneur from instantly setting up a new firm. A longrun barrier to entry is a cost that a new entrant must bear but incumbents do not (or have not had to) bear. According to the work of *"Competitive Strategy: Techniques for Analyzing Industries and Competitors"* (Porter, 1980), there are six entry barriers, These include economies of scale, product differentiation, capital requirement, transfer costs, ability to penetrate existing distribution channels, and government policies. In most of the later studies, the barriers are often divided into two categories: (i) structural markets and (ii) strategic competition. The OECD (2005) added sunk costs as a third entry barrier. Meanwhile, Musiolik (2012) added the law barrier as a third entry barrier.

2.2.2 Determinants of a firm's initial start-up size

Barriers: Entry barriers not only affect entry decisions but a firm's initial start-up size. However, not all barrier factors affect start-up size, and only those which impact on size will be examined here. These factors could be labor costs, minimum efficient scale, industry concentration and competition, advertisements, technical requirements, or sources of financing. Arauzo-Carod and Segarra-Blasco (2008), when examining factors determining start-up size in Spain, identified a number of factors related to entry barriers in their research model. They concluded that the factors of minimum efficient scale, industry concentration and competition, R&D costs would impact positively on start-up size.

Industry characteristics: Industry growth is an indicator of business opportunities and is a factor influencing the decision of investors to enter the market. Mata and Machado (1996), Görg et al (2000), Görg and Strobl (2002), and Arauzo-Carod and Segarra-Blasco (2008) found firms tend to increase in initial startup size to take advantage of profit opportunities in high growth industries. Similarly, industry size impacts positively on initial startup size. If industry size is larger, opportunity for earning profits and increases in competition will be higher. Therefore startup firms need appropriate size to successfully participate in the market.

Minimum efficient scale: Minimum efficient scale is the lowest point where a firm can produce such that its long run average costs are minimized. If a firm enters the industry requiring a large minimum efficient scale, firms will tend to increase in initial startup size (Mata, 1996, and Gottschalk et al, 2009)

Labour costs: Labour costs are a barrier preventing a firm's entry into new markets. Before firms make the decision to attempt to break into a market, they think that entry at high cost will impose cost management and, therefore, put the firm's survival at risk. As a consequence, if the industry that they enter into has large labour costs, firms will decide to try breaking into these markets in a small way. Mata and Machado (1996), and Arauzo-Carod and Segarra-Blasco

(2008) have found emprical evidence of the impact of labour costs on a firm's initial startup size

Founder characteristics: Geroski (1995) found that initial startup size can vary within a particular industry. This suggests that a variety of factors such as founder characteristics certainly affect initial startup size. Some factors related to founder ability include education, experience, business knowledege or age. High education and business knowledege help founders have the ability to understand much more about markets, investment, as well as management. And this causes them to confidently establish companies on a larger scale at startup time. Mata (1996), Capelleras et al. (2004), and Gottschalk et al. (2009) find empirical evidence of the impact of education and market understanding on deciding initial startup size.

Age of founders is also considered as their experience of life will influence entry startup size. In particular, the higher the age, the higher the accumulation of experience, knowledge, and assets and these will encourage entry into a market on a larger scale. However, to a certain extent, older people often do not prefer risk and are more likely to trade security for low profit levels when deciding to enter a market. Gottschalk et al (2009) found a positive linear relationship between age of founder and startup size, while other authors such as Bruderl and Preisendorfer (2000) found the squared founder age of the founder has a negative influence on initial scale of entry.

The financial capacity of founders also significantly affects the decision to establish a firm. Strong financial capacity will ensure a source of available capital and will assist the firm to overcome liquidity risks in the beginning. Holtz-Eakin et al (1994), Hvide and Moen (2010), and Evans and Jovanovic (1989) agree that if founders have good personal financial conditions (including cash, property that can be converted into cash, borrowing capacity), initial startup size is larger and vice versa. Fjaerli and Iancu (2012) also agree with the above argument and further conclude that the income of founders before entering a market also positively influences initial startup size.

Another demographic factor related to the gender of the founder also affects startup size but this is rarely examined. According to some researchers, if the founder is female, startup size is usually smaller than if the founder is male. However, the results of some empirical studies show various contradictory results. For instance, Burke et al (2012) find no effect of these factors but Coad et al (2012) found a positive impact when the founder is male.

Type of entry: Type of entry relates to entry type. This includes some characteristics as a founder is also a manager, a startup firm is established by an organization and is considered as its subsidiary, an organization is one of shareholders of startup firm, startup firm is only established by individuals, or it is reset up after previous failures.

Once a firm is established, if a founder is also a manager, she or he will want to operate company in the most optimal scale possible and this can lead the founder to decisions on smaller initial size in order to save costs, avoid risks, and accumulate more experience before expanding a business. Melillo et al. (2013) found evidence that according to the method described above, founders tended to establish their initial firms at a smaller size and they would expand the size afterwards.

A firm established by a group will take advantage of capital, management ability and market knowledge. Therefore, this type of firm tends to expand to a larger size than a firm established by a single individual. Gottschalk et al (2009) found the positive effect of this on startup size when he examined a firm's initial startup size in Germany. Besides, if firms have at least one member of its founders succeeding in his or her previous business, the startup size will be larger

(Gottschalk et al, 2009, and Colombo at el, 2004). Some authors added foreign ownership in their works. Taymaz and Koksal (2006) considered this factor as one of the main determinants of a firm's initial startup size. They detected 90% of foreign firms are established with a larger size than the domestic firms.

Entry strategy: Entry strategy relates to the method of entering through planned methods of delivering goods or services to a market and distributing them there. Firms can use a number of ways of entering such as taking advantage of niche markets, merger and acquisition, new technology or franchise. There is little research about the effect of an entry strategy on a firm's initial startup size. Gottschalk et al (2009) concluded that if firms entered into a market with new technology, firms would be established with a larger size.

Location: Some theoretical studies in the field of economic geography such as Krugman (1991), Fujita and Krugman (2003), and Gilbert (2004) have emphasized the importance of geography distribution to the form of firm business. And Audretschy and Tamvada (2010) found empirical evidence of the influence of geographic locations on startup size.

Financial constraints: Financial constraints can be considered as barriers to startup firms. The financial constraints relate to factors such as financing from borrowing or from capital contribution of various types of shareholders (state, organization, individual, or foreigner). Colombo and Grilli (2005) found that if firms obtained capital contribution of organization or its parent company, the size would be larger whereas loans from banks had not any effect on startup size. Du and Girma (2009) when analyzing startup firms in China reached the remarkable conclusion that startup firms would have a larger size if they were financed through bank loans, the capital contribution of foreigners or the state.

3 METHODOLOGY AND DATA

3.1 Methodology

This study uses the quantitative method with OLS regression of the model described in equation, in which **i) Dependent variable** is the initial startup size of a new firm, measured with charter capital (million VND). **ii) Independent variables** are those related to industry characteristics, the firm's executive person's characteristics, types of entry, financial constraints, and entry strategy as follows:

Industry characteristics is a variable in a number of registered industries such as an indicator of business opportunities. It is a factor influencing the decision of investors to enter the market. This paper uses a number of fourth level industries (4 – digits) classified by VSIC which firms register according to the General Statistics Office of Vietnam. When firms register to operate in various industries, it means that firms operate in various business and their start-up sizes are different.

A Firm's executive person's characteristics indicate variables such as i) the number of founders in the firm: If firms have multiple founding members, the firms will have more sources of financing. Hence, their startup size will be larger; ii) The number of female founders in firm: This variable considers the role of women in business. Normally, women do not prefer risk so they tend to contribute less capital; iii) Age of executive persons: This variable implies experience, market knowledge; iv) Gender of executive persons: This variable is a dummy one, taking value 1 if male, otherwise taking value 0; v) Permanent residence of executive persons: This is a dummy variable taking 0 if the permanent residence of executive person is not registered in Ho Chi Minh city, taking 1 otherwise; vi) Nationality of executive person: This is

a dummy variable taking 1 if the nationality of executive person is Vietnamese, taking 0 conversely.

Type of entry includes variables such as type of firm: It includes four dummy sub-variables: Private company; Limited company with only one member; Limited company having more than two members (founders); and Joint-stock company. These firms are classified according to Vietnamese enterprise law.

Financial constraints includes variables, including variables of the contributed capital of the executive person measured with the contributed capital of the executive person in the charter capital of the company. If an executive person contributes more capital, this encourages other founding members to also contribute more capital. However, up to a certain limit, when the shares of the executive person are too large, this is an indicator that the executive person is dominant so that other members tend to contribute less capital in order to avoid moral hazard from the executive person. So this variable contains two sub-variables: (i) contributed capital of an executive person and (ii) the contributed capital of an executive person square.

Entry strategy including i) Year of establishment: This is a dummy variable including three sub-variables: establishment in 2010, 2011, and 2012. This dummy variable is used to compare a firm's initial startup size through these years. The overall state of the economy has long been indicated as an importance force driving firms to increase or decrease their sizes, so year dummies allow for the possible influence of the business cycle on the firms' start-up sizes. ii) Contributed capital of organization: This is a dummy variable, taking value 1 if a firm has capital contributions from an organization, otherwise taking the value 0.

3.2 Study data

The data of the study are drawn from a database of a firm's level. Data are samples gathered from startup firms in Ho Chi Minh city. This is secondary data retrieved from the database at the Statistical Department of Ho Chi Minh City. Information about variables is collected from new startup firms. The data were gathered in 3 years: 2010, 2011 and 2012. The number of firms randomly drawn in the sample are 9,977 firms.

4 RESULT ANALYSIS AND DISCUSSION

4.1 Descriptive statistics.

Tab.1 - Descriptive statistics of quantitative variables in regression model. Source: Authors' calculations

Variables	N	Min	Max	Mean	Std. D
Registered capital	9977	.05	1447.73	7.9772	55.63
Number of registered industries	9977	1.00	34.00	12.2142	8.85
Number of founders	9977	1.00	16.00	1.9024	1.11
Number of female founders	9977	.00	9.00	.6122	.71
Age of the executive person	9920	18.00	65.00	35.0338	8.77
Contributed capital of the executive person	9976	.00	1404.00	3.9717	35.34

Table 1 shows the average amount of registered capital that a firm contributes is 7.9772 (billion VND) while the average contributed capital of the executive person is 3.9717 (billion VND), accounting for 49.78 % in sum of the registered capital. The number of registered industries at the fourth level (4 – digit) are on average 12.2. The number of founders are average of 2

members per firm. This figure represents quite a low value.. The number of female founders is low, accounting for 32.18% of founders. The average age of the executive person is 35 years old. It can be said that this age is quite ideal for running a company. But, this may be due to the fact that starting a business has not gained momentum in younger generations in HMC. Despite a lower age and less experience, this circle has more passion, creativity and ability to boom in business.

Correlation analysis do not show any close relationship between the independent variables in the model when the correlation value of most of these variables does not exceed 20%, but variable of "Number of female founders" correlated at 40.4% with variables "Number of founders", this suggests that it's careful to analysis of the regression model when placing two variables in the same regression model. Meanwhile, the dependent variable (registered capital) correlates very closely with "Contributed capital of the executive person" at 68.5%.

4.2 Regression result analysis

Because of multi-collinearity, the research suggest two models (see in table 2). Table 2 shows the regression result after fixing the multi-collinearity. Both two models are statistically significant overall because of the Fisher test value having Sig (F) > 0.05. Based on R^2 statistics, model 1 explains 34.2% variation of the dependent while model 2 explains approximately 50% of the variation.

Tab.2- Regression result. Source: Authors' calculations

No	**Variables**		**Model 1**	**Model 2**
			β	***β***
1	*Year 2010*		4.911***	
2	*Year 2011*		2.201**	
3	*Joint-stock company*		17.081***	
4	*Limited company (Singer member)*		6.109**	
5	*Limited company (more than two members)*		4.907*	
6	*Gender of the executive person*		-2.250*	
7	*Nationality of the executive person*		-10.969	
8	*Number of female founders*		-2.789***	
9	*Square of contributed capital of the executive person*		.001***	
10	*Age of the executive person*		.320***	.1092**
11	*Permanent residence of executive person*		.511	.900
12	*Number of founders*		1.876***	.757**
13	*Contributed capital of organization*			61.449***
14	*Number of registered industries*			.265***
15	*Contributed capital of the executive person*			1.055***
R^2			.342	.499
Sig(F)			.000	.000
Kolmogorov-Smirnov test		*Statistic*	.395	.428
		Sig.	.000	.000
White test		*Obs*R-squared*	1036.901	876.4256
		Prob. Chi-Square(73)	0.000	0.000

Note: *(***): Significant at 1%, (**) Significant at 5%, (*) Significant at 10%*

Variables of Private company and year 2012 are reference ones

Next, testing the normal distribution of residual with the Kolmogorov-Smirnov test indicates that both models have non-normal distribution of residual when level significant of this Kolmogorov – Smirnov statistics gains 0.000 and less than 0.05. Consequently, we reject Ho (Ho: residuals have a normal distribution). This leads to testing of the homogeneity of variance in two models. We use White's test for testing the homogeneity of variance and this test is described in Table 2 above. White's test results indicate that variance of residuals is not homogeneous (Heteroskedasticity) in two models. So we must settle the heteroskedasticity of residuals by the method of weighted least square regression. The regression to correct heteroskedasticity does not change the R square and regression coefficients but changes the statistical significance of regression coefficients. The results are shown Table 3 below:

Tab.3 - Regression result. Source: Authors' calculations

No	**Variables**	**Model 1**		**Model 2**	
		β unstandardized	*Partial correlation*	*β unstandardized*	*Partial correlation*
1	*Year 2010*	4.911***	.046		
2	*Year 2011*	2.201***	. 019		
3	*Joint-stock company*	17.081***	.052		
4	*Limited company (one member)*	6.109***	.024		
5	*Limited company (more than two members)*	4.907***	.018		
6	*Gender of the executive person*	-2.250	-.018		
7	*Nationality of the executive person*	-10.969	-.014		
8	*Number of female founders*	-2.789**	-.031		
9	*Square of contributed capital of the executive person*	.001***	.575		
10	*Age of the executive person*	.320***	.059	.1092**	024
11	*Permanent residence of executive person*	.511	.005	.900	.011
12	*Number of founders*	1.876***	.027	.757*	.015
13	*Contributed capital of organization*			61.449***	.248
14	*Number of registered industries*			.265***	.064
15	*Contributed capital of the executive person*			1.055***	.690
R^2		**.342**		**.499**	
Sig(F)		**.000**		**.000**	

Note: (***): Significant at 1%, (**) Significant at 5%, (*) Significant at 10%

Variables of private companies and year 2012 are reference ones

The analysis of variables in two regressions is explained as follows:

(i) Industry characteristics are proxied by *Number of registered industries*

The number of registered industries is based on the number of sectors at level 4 in VISC that firms register. Theoretically, when companies increase registered sectors, firms will tend to run multi-businesses related to the main business so that the initial registered capital can be increased to match the contemplated scale in the future. The regression results show that when a firm increases a registered sector, initial registered capital will increase on average by 0.265 billion VND. This result is consistent with studies of Mata and Machado (1996), Görg and et al (2000), Görg and Strobl (2002), and Arauzo-Carod and Segarra-Blasco (2008).

Considered from a positive angle, increasing the number of sectors leads to registered capital; consequently, it can assist startup firms minimize the risk of bankruptcy. However, from the opposite angle, registering so many sectors may lead firms to distribute resources over sectors that are not related to the main sectors. Hence, firms will fall into inefficiency in the future.

(ii) Executive person characteristics

Number of founders: Regression results in Table 3 show the positive influence of the number of founders on the firm's startup size. If there is an increase in the member of founders, the amount of registered capital will increase approximately 1,876 billion VND in model 1 and 0.757 billion VND in the second model. These results are consistent with the results of Gottschalk et al (2009). Normally, increase in the number of founders may help firms obtain more capital investment and firms thus enjoy more benefits in their management structures and processes due to the diversity of professional knowledge as well as the managerial knowledge of founders.

Number of female founders: The number of female founders has a negative effect on the dependent established. When this variable increases, then the registered capital will decrease. In Vietnam, women are less involved in business operations and they are also less acceptable of risk. Consequently, they will consider capital contributions very carefully. The result is consistent with Coad et al (2013). Increasing the number of female founders will decrease the registered capital and reduces the viability of a startup firm. But, from an alternate standpoint, having more female founders will make the company less risky due to carefulness, detail and less acceptance of risk by a woman founder.

Age of the executive person: Age is a factor related to accumulating experience and the resources of the executive person. Thereby, it affects the initial establishment size. The regression results showed a positive correlation between age and the firm startup size. If the age increases one year, the initial scale will increase. This result supports studies by Becker (1975) and Colombo and et al (2004). However, considered as an overall impact of age on the firm's startup size, it shows quite a low effect when partial correlation coefficients are only 5.9% (model 1) and 2.4% (model 2). The three variables remaining (*Gender of the executive person, Permanent residence of the executive person, Nationality of the executive person)* do not show any impact on a firm's startup size.

(iii) Type of entry

The impact level of the types of firms on the initial start-up size is respectively joint-stock company, one member limited company, limited company having more than two members, and private company. The initial registered capital in joint-stock company has an average of 17,081 billion VND higher than a private company, 10,872 billion VND higher than a one member limited company, and 12,072 billion VND higher than a limited company having more than

two members. This results from the number of founders in joint-stock companies being larger than the remainder.

However, it is not true in the type of limited company when the average of the registered capital of a one member limited company is higher than in a limited company having more than two members. In Vietnam, when a founder chooses a one member limited company to startup, he or she wants to control the company on the whole and cannot if he or she adds a company. In addition, a lot of business organizations prefer to contribute capital to one member limited companies for the reason indicated above.

Obviously, joint-stock companies and one member limited companies have a higher survival rate than the two types that remain. However, joint-stock companies experience more risk in respect of management when companies have to confront inconsistencies in the views of the management and company control. This, then, is the weakness of Vietnamese founders.

One thing to note is that partial correlation coefficients of three variables are very low, 5.2% to joint-stock company, 2.4% to single member limited companies, and 1.8% to limited companies having more than two members. They indicate the very low effect of these variables on the firm's startup size.

(iv) Financial constraints

The capacity of the executive person's contribution expresses the strength of individual finance and demonstrates commitment to the company of the executive person. However, it can appear to exert a crowding-out effect when the executive person's contribution becomes too large. It means that other founders will not want to contribute more and may even decrease their contribution, since they know they have no right to decide on the dominant business activities. However, the regression results show positive effect of two variables "*Contributed capital of executive person"* and "*Square of contributed capital of executive person"* on the firms' startup size. Two reasons may explain this phenomenon: First, the average of the executive person's capital (3,971 billion VND) is approximately 50% of the average of the total registered capital (7,977 billion VND). Legally, with this amount, the executive person may veto every decision of the Board. And, if the amount reaches 65%, the executive person has a right to decide on all the business activities of the company. Consequently, it is very risky for other founders if this happens. In order to prevent this circumstance, others tend to constrain the capital contribution rate of each member or decide to contribute more capital to restrain the power of the executive person. Second, based on business practices in Vietnam, the founder contributing more capital will often be the executive person and he or she has practical market knowledge. When the executive person decides to contribute more capital, this is a symbol of his or her confidence in the success of the company in the future. This may stimulate other members to contribute more capital. This variable plays the most important role in the variation of initial start-up size when partial correlation coefficient gains 69%, ranking first in the total of independent variables.

(v) Entry strategy

Year of establishment: The startup firms in the sample are extracted from three years: 2010, 2011, and 2012. In these years, Vietnam macro-economy tended to worsen over time. Observing the regression results, the average of the amount of registered capital in 2010 is higher than 2.710 billion VND and 4.911 billion VND respectively compared to the average of the amount of registered capital in 2011 and 2012. The amount of registered capital tends to decrease due to macroeconomic conditions.

Based on the macroeconomic situation in Vietnam, there are two possible reasons to explain the downward trend of registered capital: First, the economy has not prospered in a long time

reducing the real income of people. This affects the accumulation of financial resources by those who want to start a business. It is very difficult for them to enter into the market with larger capital over time. Second, the decline of the macro-economy causes the market size to be impaired. Hence, it does not stimulate a startup firm to raise registered capital. The effect of these variables on the variation of the dependent is very low when the partial correlation coefficients are 4.6% (2010), 1.9% (2011).

Contributed capital of organization: Some studies such as Colombo and Grilli (2005) showed that if startup firms achieve a capital contribution from an organization or from a parent company, their initial capital will be higher. The regression results show similarities to that conclusion. Firms with contributed capital of organization have a registered capital of more than 61,449 billion compared to others.

This is relatively easy to understand because the organizations have experience in a specific market and in management; they operate their business stably and earn a certain profit. When they expand business through establishing a new firm, they will use available resources (capital, human resources, for example) to occupy opportunities in the market. Additionally, since they have a lot of experience in the market and in management, it will assist them avoid many of the risks in operating a new firm. Thus, they are ready to set up a new firm of a large size. As analyzed above, when expanding business, the organization prefers to use a type of single limited companies as it is easier to manage and control instead of using other types of firm. The partial correlation coefficient of this variable is rather high, 24.8%, ranked second. This shows quite a strong effect of this variable on the variation of the dependent.

5 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The research used the data of 9,977 firms collected from HCMC Department of Planning and Investment through the registration of firm start-ups in 3 years: 2010, 2011 and 2012. Data are randomly drawn from the master data of the HCMC Department of Planning and Investment. The study used quantitative analysis with statistical analysis and ordinary least squares (OLS) regression analysis to find out the determinants of firms' initial start-up size in HCMC. The analysis results showed as follows: The variables such as "Year of establishment", "Number of registered industries", "Type of firm", "Number of founders", and "Contributed capital of organization" have positive impact to a firm's initial start-up size. Similarly, several factors belong to characteristics of the managers such as "Age of the executive person" and "contributed capital of the executive person" also have a positive effect on start-up size. One factor negatively impacting on a firm's start-up size is "Number of female founders". There are three variables having no influence on the firm's initial start-up size, including: "Gender of the executive person", "Nationality of the executive person", and "Permanent residence of the executive person".

5.2 Recommendations of policy

To the Vietnamese Government

Based on the results of the year in which a firm was created, analysis has shown that stable economic conditions will stimulate an increase in the number of start-up firms and the average of these firms' start-up size. Therefore, the government needs to provide a useful solution to stabilize and to grow the Vietnamese economy to help increase the number of start-up firms and the average of the start-ups' size as well.

Regarding the number of firm start-ups and their initial start-up size, our report recommends that the government should warn potential entrepreneurs not to focus too much on fields that have many registered firms. This will help a new, startup firm avoid intensive competition in sectors and reduce the risk of bankruptcy. For example, from 2009 to 2012, the number of firms created mainly focused on three sectors: (i) Wholesale and retail; Repair of cars, motorcycles, and motor vehicles; (ii) Construction; and (iii) Manufacturing. However, in recent times, the Vietnamese/HMC construction sector has been declining due to the poor condition of the real estate market and the construction market. Such a situation appears to lead to more bankrupt startup firms. Similarly, in that time, a firm's initial start-up size focused on three sectors: (i) Real estate activities), (ii) Financial, banking and insurance activities, and (iii) Mining. These sectors have been declining due to the decline of the overall Vietnamese economic situation Thus, it is necessary for the government to give orientation and recommendations to the registration of startup firms in Ho Chi Minh City in particular and in Vietnam generally to help firms avoid the risk of bankruptcy due to the decline of the economy and the concentration of too many resources in some sectors, especially non-priority sectors and industries in decline. Based on these results, the government can provide the list of the sectors that should be encouraged to develop in the future in order to focus policies' priorities on this list. This will support economic development in the right way.

The more sectors registered by firms, the more a firm's initial start-up size increase. This aims for business diversification in the first period. Thus, it is necessary for the government to simulate firm registering in multi-sectors to extend business operations in the future. It is clearly important to encourage firms to participate and expand their business operations to increase investment opportunities and a firm's operational size.

Based on the results of the regression analysis, the more capital contributed by the executive person, the larger is the start-up's size. Thus, it is necessary for the government to provide policies to stimulate an increase in the contribution of the executive person; for example: initial loans for entrepreneurs will encourage them to establish startup firms of a larger size. This will contribute more to the process of economic development of the country through creating income, jobs, products and service.

To firms and entrepreneurs

Currently, choosing a business type of limited liability company (single member or more than two members) to startup is most considered by entrepreneurs. Therefore, entrepreneurs should carefully consider to choose the form of a startup in accordance with its business operation to provide the most efficiency.

It is necessary to consider an increase in the members of a start-up's founders so as to increase the size of the firm and to enhance the efficiency of the firm.

The executive person should consider age when creating a firm. The average age of the executive person is 35, and the older the executive person, the larger the firm's start-up size. This is due to accumulation of capital resources over time. It is, therefore, important to encourage the executive person to contribute more capital to achieve a larger sized firm.

5.3 Limitations

Research has found a number of factors affecting a firm's initial start-up size in HCMC. However, the research has several limitations as follows: i) due to secondary data collected, a firm's initial start-up size is the registration size of the entrepreneur, not the actual disbursement size of the entrepreneur when firms go into operation. ii) In addition, the research only focuses on the factors on the business registration certificate of the firm. Other factors that can affect

the firm's initial start-up size have not been considered. This area could be the next direction of research.

REFERENCES

Audretsch, D.B. (1995), Innovation and Industry Evolution. The MIT Press.

Audretsch, D.B., Mahmood, T. (1995), New firm survival: New results using a hazard function. *Review of Economics and Statistics* 77, pp. 97-103.

Audretsch, D.; E. Santarelli, and M. Vivarelli (1999) Start-up size and industrial dynamics: some evidence from Italian manufacturing, *International Journal of Industrial Organization*, 17, 965-983

Audretschy, D.B., Tamvada, J.P. (2010), The Distribution of Firm Start-Up Size Across Geographic Space. Max Planck Institute of Economics.

Arauzo-Carod, J-M., Segarra-Blasco, A. (2008), The Determinants of Entry are not Independent of Start-up Size: Some evidence from Spanish manufacturing. *Review of Industrial Organization*, 27 (2), pp. 147- 65.

Bain, J.S., (1956), Barriers to New Competition. Cambridge: Harvard University Press.

Becker, G.S. (1975), Human Capital. 2nd ed., Chicago.

Bruderl, J.&, Preisendorfer, P. (2000), Fast growing businesses: empirical evidence from a German study. *International Journal of Sociology*, Vol. 30, No 3, pp. 45-70.

Burke, A., Millán, J. M., Román, C. & Stel, A. V. (2012), Start-Up Size Strategy: Risk Management and Performance. Scientific Analysis of Entrepreneurship and SMEs.

Cabral, L. (1995), Sunk Costs, Firm Size and Firm Growth. *The Journal of Industrial Economics*, Vol. 43, No. 2, pp. 161-172.

Capelleras, J.L., Mole, K.F. & Greene, F.J. (2004), Start-up size and subsequent growth: English and Spanish business compared. *CSME working paper* no.83.

Carlton, D. & Perloff. J (1994), *Modern Industrial Organization*.

Caves, R.E. (1998), Industrial Organization and new findings on the turnover and mobility of firms. *Journal of Economic Literature*, Vol. 36, pp. 1947 – 82.

Coad, A., Frankish, J., Nightingale, P., Roberts, R. & Storey, D. (2013), Business Experience and Start-up Size: Buying More Lottery Tickets Next Time Around?. University of Sussex and Barclay's Bank and the Future, Papers *in Regional Science*, 2003, 83 (1), pp. 139– 64.

Colombo, M.G., Delmastro, M. & Grilli, L. (2004), Entrepreneurs' Human Capital and the Start-up Size of New Technology-Based Firms. *International Journal of Industrial Organization*, 22, 8-9, pp. 1183-1211.

Colombo, M.G., Grilli, L. (2005). Start-up size: The role of external financing. *Economics letters* 88, p. 243-250.

Dixit, A.K., Pindyck, R.S. (1994), Investment under uncertainty. Princeton University Press.

Du, J., Girma, S. (2009), Finance and Firm Start-up Size: Quantile Regression Evidence from China. Research Paper. Industrial Economics at the University of Nottingham Business School.

Dunne, P., Hughes,A. (1994), Age, Size, Growth and Survival: UK companies in the 1980s. *Journal of Industrial Economics*, 42 (2), pp. 115- 40.

Evans, D. S., Jovanovic, B. (1989), An estimated model of entrepreneurial choice under Liquidity Constraints. *Journal of Political Economy* 97, pp. 808–27.

Fisher, F (1979), Diagnosing Monopoly,‖ 19 Quarterly *Review of Economics and Business* 23.

Fjærli, E., Iancu, D. (2012), Entrepreneurs' initial wealth, start-up size and growth, *Journées Louis-André Gérard-Varet*, June 18th-19th, 2012

Fotopoulos, G., Louri, H. (2000), Location and survival of new entry. *Small Business Economics*, 14, pp. 311 – 21.

Fujita, M., & Krugman, P. (2003), The New Economic Geography: Past, Present and the Future. Papers in Regional Science, 2003, 83 (1), pp. 139 - 64.

Geroski, P.; S. Lazarova; G. Urga, and C.F. Walters (2003) Are Differences in Firm Size Transitory or Permanent?, *Journal Applied Economics*, 18, 47-59.

Geroski, P. A. (1995), What do we know about entry?. *International Journal of Industrial Organization* 13, pp. 421-440.

Gilbert, B. A. (2004), The Implications of Geographic Cluster Locations for New Venture Performance. PhD dissertation, Indiana University 2004.

Gorg, H., Strobl, E.(2002), Multinational Companies and Entrant Start-up Size: evidence from Quantile Regressions. *Review of Industrial Organization*, 20, pp. 15 – 31.

Gorg, H., Strobl, E. & Ruane, F. (2000), Determinants of firm start-up size: an application of Quantile Regression for Ireland. *Small Business Economics*, 14, pp. 211-22.

Gottschalk, S., Müller, K. & Niefert, M. (2009), Entry Strategies, Founder's Human Capital and Start- Up Size. Centre for European Economic Research (ZEW), Mannheim, Germany.

Holtz-Eakin, D., Joulfaian, D. & Rosen, H.S. (1994), Entrepreneurial Decisions and Liquidity Constraints. *Rand Journal of Economics* 25, pp. 334–47.

Hvide, H. K., Møen, J. (2010), Lean and Hungry or Fat and Content ? Entrepreneurs' Wealth and Start-Up Performance. *Management Science* 2010 56, pp. 1242 - 58

Jovanovic, B. (1982), Selection and Evolution of Industry. *Econometrica,* Vol. 50, No.3, pp. 649 – 70.

Krugman, P. (1991), Increasing Returns and Economic Geography. *Journal of Political Economy*, 1991, 99 (3), pp. 483– 99.

McAfee, R.P., Mialon. H, & Williams. M, (2004), What Is a Barrier to Entry? *American Economic Review*, Papers and Proceedings 461, 463, available at http://userwww.service.emory.edu/~hmialon/B2E.pdf

Mata, J. (1996), Markets, Entrepreneurs and the size of new firms. *Economic letters*, 52, pp. 89 – 94.

Mata, J., Machado, J. (1996), Firm start-up size: A conditional quantile approach. *European Economic Review* 40, pp.1305 - 23.

Mata, J., Portugal, P. (1994), Life duration of new firms. *Journal of Industrial Economics* 42, pp. 227- 45.

Melillo, F. (2012), Selection Effects in Entrepreneurship. Retrieved from: http://eprints.luiss.it/1086/

Melillo, F., Folta, T. B., Purdue, Delmar, F., Lund (2013), What Determines the Initial Size of New Ventures? 35th DRUID Celebration Conference 2013, Barcelona, Spain, June 17-19.

Musiolik, T. (2012), The Global Player: How to Become "the Logistics Company for the World. Diplomica Verlag.

OECD (2005), Barriers to Entry. Directorate for financial and firm affairs competition committee.

Pakes, A. and R. Ericson (1998) Empirical Implications of Alternative Models of Firm Dynamics, *Journal of Economic Theory*, 79, 1-45.

Pindyck, R. S. (1993), A note on competitive investment under uncertainty. *American Economic Review* 83, pp. 273 – 7.

Porter, M.E. (1980), *Competitive Strategy: Techniques for Analyzing Industries and Competitors.* Newyork Free Press.

Segarra, A.; J.M. Arauzo; M. Manjón and M. Martín (2002) Demografía industrial convergencia regional en España, Papeles de Economía Española, 93, 65-78.

Taymaz, E., Koksal, M.Y. (2006), *Entrepreneurship, start-up size and selection: why do small entrepreneurs fail?.* Piacenza Seminar, October 11, 2006.

Stigler, G. *(1968),* The Organization of Industry. Chicago, IL: University of Chicago Press.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

TAX POLICY CHANGES AND EARNINGS MANAGEMENT: THE CASE OF VIETNAM

Nguyen Van Huong

ABSTRACT

This paper investigates whether companies listed on the Ho Chi Minh City Stock Exchange (HSX) and Ha Noi Stock Exchange (HNX) engage in earnings management to minimize the amount of income tax payable, as enterprise income tax law amendments in 2013 allowed rate reduction from 25 percent to 22 percent in 2014, and to 20 percent in 2016. The study used discretionary accruals (DA) to measure the earning management of the companies, and applied the T-Test to check the level the earning management of companies between 2013 and 2014 . Additionally, multiple regression methods are used to explore other causes leading to the adjusted earnings of the company besides minimizing the amount of income tax payable. This research has found evidence of companies in Vietnam engaged in earning management to minimize the amount of income tax payable in the year before the enterprise income tax rates were reduced. This research also indicates that companies grow assets as a result of earning management. Interestingly, in the year before the tax reduction, the study finds there is no association between company size, margin pressure, as well as the company's debt ratio and earning management.

Keywords: *Tax policy changes, earnings management, discretionary accruals, grow assets.*

JEL Classification: G20

1 INTRODUCTION

Previous researches indicate that there is a significant relationship between changes in income tax rates and earnings management. Some authors pointed out that one of the main reasons companies manage earnings is to reduce the amount of income tax payable (Boynton et al, 1992; Guenther, 1994; Desai and Dharmapala, 2005; Chen et al, 2007; Yamashita and Otogawa, 2008; Suwardi, 2013; Mulyadi et al, 2013; Omer, 2002). Moreover, there are many determinants of earnings management such as: business management, tax planning, income pressure, leverage, size of company, etc. (Dechow et al, 1995; Xie et al, 2003; Liu and Lu, 2007; Cohen and Zarowin, 2010).

In 2013, the Vietnamese National Assembly amended the enterprise income tax regulations, including the reduction of income tax rates from 25 percent in 2013 to 22 percent in 2014 and 2015, and to 20 percent in 2016. These changes raised the question of whether companies listed in Ho Chi Minh City Stock Exchange (HSX), and Hanoi Stock Exchange (HNX) would engage in earnings management by adjusting their profit report similar to companies in the United States, Indonesia, or Malaysia? To answer this question, we explore whether or not companies listed in the stock exchanges in Ho Chi Minh City and Hanoi adjusted to minimal profits tax payable amount. Simultaneously, we also have to explore the relationship among the earning pressures, the great increase assets, company size, debt level and earnings management before effective income tax reduction.

2 LITERATURE REVIEW AND HYPHOTHESIS DEVELOPMENT

2.1 The earnings management

According to Healy and Wahlen (1999), earnings management occurs when business managers or accountants use the rating in the financial statements and the transactions. That may change the structure of the financial statements or deceive the third parties whom are related to the basic activities of the company or affect the outcome of the contract based on reported accounting data. First, there are many studies that explore the components of earning which the companies have announced, as: Healy (1985); DeAngelo (1986), Jones (1991), Dechow et al (1995). For example, Graham et al (1962) mentioned the importance of the present profits, which helped predict the future profitability of the company, despite recent studies showed evidence that investors made some mistakes when using the profit information in the income statement in order to predict the future income (Bernard and Thomas 1990; Maines and Hand 1996). These studies have refered to earnings management as companies' accounting ploys to gain favorable tax payable. Specifically, Healy (1985) used total accruals to measure earnings management. Total accruals are the difference between net earnings and cash flow from operating activities.

Some researchers tried to distinguish between discretionary accruals and the non-discretionary accruals. These two concepts, the discretionary accruals, and the non-discretionary accruals were identified in these studies. The non-discretionary accruals is the income recognized on an accrual accounting standards, while the discretionary accrual is the income recognized on an accrual governance policy of the manager. Schipper (1989) suggested separating the discretionary accruals from total accruals. Then, Jones (1991) gave the model determining discretionary accruals. Next, Dechow et al (1995) modified the model developed by Jones (1991), and used discretionary accruals in determining the type of earnings management.

Previous studies provided experimental evidence about earnings management in response to the tax changes in several countries such as U.S., Japan, Indonesia, and Malaysia. The results of these studies show that companies employ earnings management to minimize the profit tax payable amount. First, Guenther (1994) provided evidence of the administration of earnings management in the U.S. in response to changes to enterprise tax rate in 1986 from 46 percent to 34 percent. The study shows that there is a decline in the number accrual the year before income tax rate reduction became effective.

Suwardi (2013) made similar observation in Indonesia where the enterprise income tax law was enacted in 2008 with an income tax rate reduction from 30 percent in 2008 to 28 percent in 2009, and 25 percent in 2010. Suwardi's research indicated that the accrual in the year before the tax reduction would decline because the managers intended to make a profit from the tax savings. The research provided evidence that Indonesian companies managed earnings through lower accrual. The research also pointed out that the decline of accrual would be greater for large companies and that the owner managed companies at a higher level. The decline in accrual will be lower for those companies with high debt level. At the same time, Mulyadi et al (2013) found a significant interaction between changes in income tax rates and earnings management, through the use of discretionary accruals. Interestingly, the company also found the margin pressure was related to the corporation earnings management in Indonesia.

For managerial purposes, the managers can distort profit on financial statements, if managers have the opportunity to do so (Watts & Zimmerman, 1986). One of the conditions for managers to increase the earning management is to respond to economic pressure and institution (Schipper, 1989). Once there is a change in tax policy, then manager will engage in earnings management in order to maximize the profit enterprise value and minimize the amount of tax

payable. In 2013, Vietnamese enterprise income tax law was amended that from 2014 the tax rate is 22 percent and by 2016 will be 20 percent tax, while the tax rate in 2013 was still 25 percent. The event may be a condition for listed companies in HSX and HNX engage in earnings management to reduce the amount of income tax payable. If the managers use the accounting accrual to defer taxable income, then the discretionary accruals of the year preceding the tax year will be the negative (Yamashita and Otogawa, 2007; Mulyadi et al, 2013). To determine whether companies listed in HSX and HNX have engaged in earnings management, this study will focus on the following hypotheses:

H1**:** The discretionary accruals (DA) is negative in the year before the enterprise income tax rate's effective reduction.

On the other hand, to assess the level of the earnings management in the two years: in 2013 (the year prior to the effective tax rate reduction) and 2014 (the year when the income tax rate reduction effect), I examine the following hypothesis:

H2: There is a difference between the earnings management in 2013 and 2014.

Besides, the study mention some other cases leading to earnings management as alternative hypotheses for the earnings management for tax purposes, as follows:

2.2 Earnings pressures

According to the Shareholders theory of Friedman (1970), the goal of business is to make a profit. If a business cannot generate profit, it will not be a long term business. Thus, the question is whether companies may be under too much pressure that they must engage in earnings management by increasing profits adjusted and decreasing tax payable. The authors expect that the pressure of profit will be opposed to the discretionary accruals (DA). From this question, additional research hypotheses follow.

H3: There is a negative relationship between the earnings pressures and the earnings management

2.3 The growth of assets

Loebbecke et al (1989), Bell et al (1991) articulated a concept that the increase in assets is related to the ability to adjust the company financial statements. If the company business is profitable, but a decrease in assets shows the ability of the company to decrease profits, thereby affects the amount of tax payable. So, the research hypothesis is formulated as following:

H4**:** There is a positive relationship between the growth of assets and the earnings management.

2.4 Size

Watts and Zimmerman (1978), and Guenther (1994) indicated that the larger companies will be more flexible in the recognition of expenses. So those companies are most likely to perform accounting methods to undermine the profits on financial statements. Scholes and Wolfson (1992), said that large companies with more experience about tax will have many ways to get the incentives from lower tax rates. Therefore, we expect the company size would act in the same way with earnings management for tax purposes. So following hypotheses are:

H5**:** There is a negative relationship between the company size and the earnings management.

2.5 Debt

Duke and Hunt (1990), Press and Weintrop (1990), and Dichev and Skinner (2002) showed the positive of the financial leverage with retained earnings. Therefore, for those companies with high debt ratios, they are bound more closely with the creditors. Therefore, it is less likely that they can defer taxable income option to reduce the company's profits. Then, we can check scrabble theoretical connection between the debt ratios and the earnings management of the company:

H6: There is a positive relationship between the debt ratio and the earnings management.

3 RESEARCH METHODOLOGY

This paper studies the relationship between the change of income tax rate and earnings management practices of listed companies in HSX and HNX. The study design describes the influence of tax policy changes, margin pressure, the great increase assets, company size, debt level to the corporate earnings management.

This paper uses some discretionary accruals (DA) to measure the earnings management of listed companies in Vietnam. It is similar to (Dechow et al. 1995; Mulyadi et al, 2013 ...). To calculate discretionary accruals (DA), we followed the modified Jones model abnormal accruals (Dechow et al. 1995):

$$TA_{i,t} = NI_{i,t} - CFO_{i,t.} \quad (1).$$

$$TA_{i,t} = NDA_{i,t}\, t + DA_{i,t} \quad (2).$$

$$TAi,t / Ai,t\text{-}1 = \alpha\,(1/Ai,t\text{-}1) + \beta 1\,(\Delta REVi,t - \Delta RECi,t)/Ai,t\text{-}1 + \beta 2\,(PPEi,t/Ai,t\text{-}1) + \varepsilon \quad (3).$$

After determining α, β1, β2 in the model (3), in conjunction with equation (2), the discretionary accruals (DA) for each year under Dechow et al (1995) model can be calculated as following:

$$DA_{i,t} = TAi,t /Ai,t\text{-}1 - (\alpha(1/Ai,t\text{-}1) + \beta 1(\Delta REVi,t - \Delta RECi,t)/Ai,t\text{-}1 + \beta 2(PPEi,t/Ai,t\text{-}1)) \quad (4).$$

where, etc:

- $TA_{i,t}$: Total accruals of i-corporation at t-time.
- $DA_{i,t}$: Discretionary accrual of i-corporation at t-time
- $NDA_{i,t}$: Nondiscretionary accrual of i-corporation at t-time;
- $NI_{i,t}$: Net icome of i-corporation at t-time.
- $CFO_{i,t}$: Operation cash flow of i-corporation at t-time.
- $A_{i,\,t}$: Total assets of i-corporation at t-time.
- $\Delta REV_{i,t}$: Revenue difference of i-corporation at t-time and t-1-time.
- $\Delta REC_{i,t}$: Receivables difference of i-corporation at t-time and t-1-time
- $PPE_{i,t}$: Total of property, plant and equipment of i-corporation at t-time.

After calculating the discretionary accrual (DA) in 2013 (the year before income tax rate to decrease) and the discretionary accrual (DA) in 2014 (the year the income tax rates now in effect correction), a comparison between discretionary accrual (DA) of two-year accreditation with T Test to test the H1 hypothesis was performed.

To test H3, H4, H5 and H6 hypothesis, research model is designed as following:

$$DA_{i,t} = \alpha + \beta 1\, EP_{i,t} + \beta 2 GROW_{i,t} + \beta_3 DEB_{i,t} + \beta_4 SIZE_{i,t} + \varepsilon \quad (5).$$

where, etc:

- $EP_{i,t}$: Earnings pressure of i-corporation at t-time, $EP_{i,t} = (NI_{i,t} - NI_{i,t-1})/ A_{i,t-1}$.
- $GROW_{i,t}$: The percentage change in total assets for the two years ending t and t-1.

- $DEB_{i,t}$: Debt ratios of i corporation in t year, calculated as liabilities at t year end divided by total assets as at the end of t year.
- $SIZE_{i,t}$: i-corporation size in year t, this variable is calculated by Ln(assets).

Samples used for this study

To conduct this study, we collected financial statements in 2013, and 2014 of all companies listed on the HSX, and the HNX. All this data is collected from the Ho Chi Minh City Stock Exchange, and Ha Noi Stock Exchange. Then those companies whose profits after tax are negative on financial reports and business units in the financial sector were removed from the study sample. The results obtained were about 1,050 annual financial reports for two years 2013 and 2014, meaning there are 525 listed companies that have been collected financial reports of the years 2013 and 2014.

4 ANALYZE THE RESULTS

Tab. 1 - Results H1 hypothesis testing. Source: Author calculated from the collected data

variable	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
DA2013	-5.365	524	.000	-.033	-.046	-.021
DA2014	.555	524	.579	.006	-.016	.029

Results of testing H1 hypothesis in Tab. 1 show that: With 1 percent significance level, DA 2013 has significant differences with 0, which means DA2013 is negative (-0.033). This is evidence of earnings management practices. This shows that in 2013, the year before income tax rate effective correction, there is a meaningful relationship between the reduction of income tax rates and the earnings management of listed companies in HSX and HNX of Vietnam to minimize the amount of income tax payable. This result parallels with Guenther's research (1994) in the US, and Otogawa Yamashita (2007) in Japan, and Mulyadi et al (2013) in Indonesia. Results Table 1 also shows when the reduction in tax rates was in effect in 2014, the DA2014 was 0.006, and there is no other difference to 0 with 1 percent significance level. Besides, it shows there is no evidence of the earnings management of listed companies in a tax rate reduction effect (2014).

T- Test Results Tab. 2 shows significant differences between DA2013 and DA2014. This indicates that in 2013, the year before the effective tax rate reduction, the companies listed in HSX and HNX of Vietnam tended to decrease more profits than in 2014. It is understandable because most of the adjusted profit was made in 2013. So managers did not tend to decrease profits in 2014.

Tab. 2 - Results difference Testing. Source: Author calculated from the collected data

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
DA	Equal variances assumed	8.055	0.005	-3.036	1048	.002	-.0397	.0131	-.0654	-.0140
	Equal variances not assumed			-3.036	805.248	.002	-.0397	.0131	-.0654	-.0140

The results in Tab. 3 show that in 2013, the year before the effective tax rate reduction, the growth of the asset has the same speed with the discretionary accruals' (DA2013). The listed companies have profits, but the decline of assets is the sign that the company has adjusted profit to pay the minimum tax. Results also show there is no evidence that the pressure on profitability, debt ratio, and the size of the company influence the company's administration in the following year after income tax rates were reduced. It is easy to recognize because in order to maximize corporate value by minimizing the amount of income tax payable, reducing the amount of income tax payable should be in the priority list than other factors.

Tab. 3 - Results H3, H4, H5 and H6 hypothesis testing**.** Source: Author calculated from the collected data

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	-.160	.110		-1.452	.147
	GROW	.109	.013	.353	8.385	.000
	EP	-.055	.097	-.024	-.568	.571
	SIZE	.004	.004	.046	1.020	.308
	DEB	-.005	.029	-.007	-.156	.876

a. Dependent Variable: DA2013 R 0,351 R^2: 0,123

5 CONCLUSION

This paper has found some evidence of earnings management practices among listed companies in both HSX and HNX in 2013—the year before the effective income tax rate reduction in order to reduce the tax payable. Evidence of the existence of the earnings management is that the discretionary accrual of 2013 (DA2013) was negative. These findings can provide the contribution to the investors in Vietnamese capital market, because investors can understand the firm's opportunistic behaviors to their financial reporting. While looking for evidence of earnings management for tax purposes, this research also finds that the growth of assets is associated with earnings management. However, it cannot find any evidence in regards to the connection among the pressure of profits, debt ratios, company size and corporations' earnings management.

At the time of this study, the listed companies had no financial figures reported for the year 2015. Therefore, this study does not project whether corporation will engage in earnings management practices for tax purposes in 2015 in anticipation of 2016 tax rate reduction. Of course, this presents many research opportunities in the future.

REFERENCES

Bell, T. B., Szykowny, S., & Willingham, J. J. (1991). Assessing the likelihood of fraudulent financial reporting: A cascaded logit approach. Working paper, KPMG, Peat Marwick, Montvale, NJ.

Bernard, V., & Thomas, J. (1990). Evidence that stock prices do not fully reflect the implications of current earnings for future earnings. *Journal of Accounting and Economics, 13*, 305-340. doi:10.1016/0165-4101(90)90008-R

Boynton, E. C., Dobbins, S. B., & Plesko, A. G. (1992). Earnings management and the corporate alternative minimum tax. *Journal Of Accounting Research, 30*, 131-53. doi: 10.2307/2491198

Chen, H. L., Dhaliwal, S. D., & Trombley, A. M. (2007). The impact of earnings management and tax planning on the information content of earnings. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1028808.

Cohen, D. A., & Zarowin, P. (2010). Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics, 50*(1), 2-19. doi:10.1016/j.jacceco.2010.01.002

Cook, A. K., Huston, R.G., & Omer, C.T. (2008). Earnings management through effective tax rates: The effects of tax planning investment and the Sarbanes-Oxley Act of 2002. *Contemporary Accounting Research, 25*(2), 447 – 471. doi:10.2139/ssrn.897749

DeAngelo, L. (1986). Management buyouts of public stockholders. *The Accounting Review, 61*(3), 400-420.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review, 30*(2), 193-225.

Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics, 79*(1), 145-179. doi:10.2139/ssrn.532702

Dichev, I. D., & Skinner, D. J. (2002). Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research, 40*(4): 1091-1123. doi:10.2139/ssrn.275174

Duke, J. C., & Hunt, H. G. (1990). An empirical examination of debt covenant restrictions and accounting-related debt proxies. *Journal of Accounting and Economics, 12*(1-3), 45-63. doi:10.1016/0165-4101(90)90041-2

Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine*, September 13, 122-126.

Graham, B., Dodd, D., & Cottle, S. (1962). Security analysis: Principles and techniques. New York, NY.

Graham, J. (1996). Debt and the marginal tax rate. *Journal of Financial Economics,* 41(1), 41-74. doi:10.1016/0304-405X(95)00857-B

Gramlich, J. (1991). The effect of the alternative minimum tax book income adjustment on accrual decisions. *Journal of the American Taxation Association*, *13*(1), Spring, 36-56.

Guenther, D. A.(1994). Earnings management in response to corporate tax rate changes: Evidence from the 1986 tax reform act. *The Accounting Review*, *69*(1), 230-243.

Healy, P. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, *7*(1-3), 85-107. doi:10.1016/0165-4101(85)90029-1

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, *13*(4), 365-383. doi:10.2308/acch.1999.13.4.365

Jones, J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, *29*(2), 193-228. doi:10.2307/2491047

Liu, Q., & Lu, Z. J. (2007). Corporate governance and earnings management in the Chinese listed companies: A tunneling perspective. *Journal of Corporate Finance*, *13*(5), 881-906. doi:10.1016/j.jcorpfin.2007.07.003

Loebbecke, J. K., Eining, M. M., & Willingham, J. J. (1989). Auditors' experience with material irregularities: Frequency, nature, and detectability, auditing: *A Journal of Practice and Theory*, *9*(Fall), 1-28.

Maines, L. A., & Hand, J. R. M. (1996). Individuals' perceptions and misperceptions of the time series properties of quarterly earnings. *The Accounting Review*, *71*(July), 317-336.

Mulyadi, S. M., Yunita, A., & Yanny, L. (2013). Analysis of corporate income tax rate changes and earnings management. *Beykent University Journal of Social Science, 6*(2),138- 143.

Omer, T., Molloy, K., & Ziebart, D. (1993). An investigation of the firm size - effective tax rate relation in the 1980s. *Journal of Accounting, Auditing, and Finance, 8*, 167-182.

Press, E. G., & Weintrop, J. B.(1990). Accounting-based constraints in public and private debt agreements:Their association with leverage and impact on accounting choice. *Journal of Accounting and Economics,12*(1-3),65-95. doi:10.1016/0165-4101(90)90042-3

Scholes, M. S., Wilson, G. P., & Wolfson, M. A. (1992). Firm's response to anticipated reductions in tax rates: The tax reform act of 1986. *Journal of Accounting Research, 30*(Supplement), 161-185.

Sloan, R. (1996). Do stock process fully reflect information in accruals and cash flows about future earnings? *The Accounting Review*, *71*(3), 289-315.

Suwardi. E. (2013). Income tax rate and earnings managemen of firms listed on the Indonesian Stock Exchange. *journal of Business and Policy Research*, *8*(1),78-89.

Vietnam National Assembly. (2013). Law No. 32/2013 / QH13- Law amending and supplementing some articles of the corporate income tax law.

Watts, R. L., & Zimmerman, J. L. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review*, *53*(January),112-34.

Watts, R., & Zimmerman, J. (1986). Positive accounting theory. Englewood Cliffs, NJ: Prentice-Hall.

Xie, B., Davidson, W. N., & Dadalt, P. J. (2003). Earnings management and corporate governance: The role of the board and the audit committee. *Journal of Corporate Finance*, *9*(3), 295-316. doi:10.1016/S0929-1199(02)00006-8

Yamashita, H., & Otogawa, K. (2008). Do Japanese firms manage earnings in response to tax rate reductions in the late 1990s. *The Journal of Management Accounting*,*16*(1),41-59.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

WORKING CAPITAL REQUIREMENTS AND FIRM PERFORMANCE - EVIDENCE FROM FIRMS LISTED ON THE VIETNAMESE STOCK MARKET

Nhung Thi Tuyet Nguyen , Loan Thi Bich Nguyen

ABSTRACT

The paper contributes to current literature on working capital management and its effect on firm's profitability on three main manners. First, the results indicate that firm-specific factors, including leverage, total asset growth, firm's size, operating cash flow, gross profit margin, tangible fixed asset and Tobin'Q, have a positive relationship with firm's working capital and ROE. Second, the study provides strong evidence that firm's management always attempts to maximize the efficiency of working capital in order to improve firm's performance. Third, firm's management tends to increase working capital beyond its optimal level. The paper additionally indicates that total asset growth, firm's size, and Tobin'Q have a relationship with both working capital and ROE, which have not reported in previous studies.

Keywords: *working capital, profitability*

JEL classifications: G30, G32, G33

1 INTRODUCTION

Since firstly proposed by Smith (1980), the relationship between working capital requirements and firm performance has been widely accepted and given great attention in academic research. Smith (1980) argues that working capital management has a significant impact on a firm's profitability and risk, and thus its value. Specifically, a low investment in working capital may result in a relatively higher return and higher risk. Whereas, a high investment in working capital is associated with a lower return and risk.

Motivated by such an important implication, literature focusing on working capital management and firm performance has been expanded in two different directions. First, studies such as Jose et al. (1996), Shin and Soenen (1998), Wang (2002), Deloof (2003), Garcia-Teruel and Martinez-Solano (2007), and Hill et al. (2010) consistently report a linear relationship between a firm's investment in working capital and its profitability. Particularly, they conclude that a firm that chooses to invest less in working capital will have a higher profitability. However, studies of Tong (2008) and Banos-Caballero et al. (2012), among other studies, provide strong evidence indicating that the relationship between working capital and a firm's profitability cannot be fully represented by a linear relationship, but a non-linearity relationship. The inconsistency of opinions has attracted considerable empirical analysis, and serves as the primary motivation of our research.

Motivated by the studies of Tong (2008) and Banos-Cabllero (2012), this paper aims to contribute to the current literature in two ways. First, the paper provides further evidence of the non-linear linkage between working capital management and a firm's performance in Vietnam. To our best knowledge, this is the only paper to analyze how the working capital selected by firms affects their performance. Second, by detecting the non-linear relationship between working capital and firm's performance, we provide the answer of whether firms have reached

their optimal working capital level which maximizes their profitability. Hence, the inferences of this study expectedly offer practical implications to Vietnamese firms' management in selecting their level of investment on working capital and maximize their profitability.

The remainder of this paper is organized as follows. Section two briefly provides a literature review of the theoretical relationship between working capital management and firm performance. Section three describes the data and methodology utilized while empirical findings are focused in section four. Section five provides a conclusion.

2 LITERATURE REVIEW

Working capital management (WCM) has been widely accepted as one of the most important issues in organization. According to Nobanee and Al Hajjar (2009), an efficiency of working capital management is laid on the principle of shortening the debt collections period and delaying the short-term payment. This will allow the firms to minimize the risk of having insufficient funds to pay for short-term liabilities, and hence reduce the risk. However, this high level of working capital will correspondingly decrease firm profitability. On the other hand, investing less in working capital will increase the profits as well as the associated risk. This trade-off between profitability and risk is the most vital issue to working capital management. Therefore, an appropriate evaluation of working capital and identification of its basic elements can help managers to maintain a balance between liquidity and profitability, which results in a more efficient and effective business operation (Falope and Ajilore, 2009).

Various studies have analyzed the relationship of WCM and firm profitability in various markets. The results are mixed, but a majority of studies have found a negative relationship between WCM and firm profitability. Besides, most of the studies examine the impact of working capital on firm profitability also search for a linkage between firm profitability and a range of firm-specific factors. For example, a recent study of Gul et al. (2013) detected the influence of working capital on performance of SMEs in Pakistan during the period from 2006 to 2012. Using return on assets and cash conversion cycle as a measurement for firm profitability and working capital respective, they found that number of days account payable, growth, and firm size have positive relationship with firm profitability. Whereas, number of days account receivable, number of day's inventory, working capital and debit ratio have negative relationships with profitability. Similarly, other studies on this issues have included more or less number of firm-specific factors in their studies such as dividend pay ratio (Oladipupo and Okafor, 2013), current asset turnover and current asset ratio (Akoto et al., 2013), market share (Hill et al., 2010), CEO ownership (Tong , 2008) etc,. Regarding the factors included in the testing model, those studies consistently exhibit a negative relationship between firm working capital and its profitability.

It is interesting to note that, the negative impact of a firm's working capital on profitability is detected by a linear regression model in most of these studies. However, there are more studies that have provided evidence to reject this linear relationship. Deloof (2003) argues that higher working capital levels enable firms to improve their sales and attain higher discounts for early payments, and thus may increase their value. Alternatively, Kieschnick et al. (2011) state that higher working capital levels require capital which may cause additional financing costs, and consequently increases a firm's probability of bankrupt. Combining these positive and negative working capital effects, Baños-Caballero et al. (2012, 2014) suggest that the linkage between investments in working capital and firm profitability is better described by a non-linear relationship, particularly an inverted U-shape. Particularly, Baños-Caballero et al. (2012) utilize a data panel of non-financial Spanish SMEs for the period from 2002 to 2007, and found that there is a non-monotonic relationship between working capital level and firm profitability. This

also indicates that SMEs have an optimal working capital level that maximizes their profitability. Baños-Caballero et al. (2014) use similar methodology to their previous paper. However, net trade cycle is used as a proxy of working capital. The findings provide strong support for an inverted U-shaped relationship between investment in working capital and firm performance for a sample of non-financial UK companies.

3 METHODOLOGY AND DATA

3.1 Methodology

Hsiao (1985) argues that firms are heterogeneous, and there are always factors that might affect their performance that are hard to measure and capture in our testing model. Hence, it is more appropriate to use panel data to remove the risk of creating biased results. We also eliminate the individual effect of firms by taking first differences, and use the instrumental variable estimation method to avoid the problem of endogeneity. We also employ the two-step GMM estimator suggested by Arellano and Bond (1991) in order to increase the model efficiency.

Tab.1 – Definition, notation and measurement of Variables. Soure: own processing

Notation	Definition	Measurement
ROE	Profitability	(Net sales – Costs of goods – Selling and administration costs)/Equity
WCR	Working capital requirements	= [(cash and equivalents + marketable securities + inventories + accounts receivables) – accounts payables]/Total asssets
LEV	Leverage	Total debt/Total assets
GRTA	Total assets growth	(Total $asset_t$- Total $asset_{t-1}$)/ Total $asset_{t-1}$
SIZES	Size' firm	Natural log of net sales
GPM	Gross profit margin	(Net sales – cost of goods sold) /Net sales
TANGF	Tangible fixed assets	Tangible fixed assets/Total assets
OCF	Operating cash flow	(Net sales – Cost of goods – Selling and administration costs + Fixed asset depreciation)/ Total asset
TOBIN'Q	TOBIN' Q	The market value of equity minus the book value of equity plus the book value of assets, divided by the book value of assets

Given the methodology above, to investigate the relationship between WCR and firm performance, the study is divided into two stages. In the first stage, we regress the firm's profitability against a proxy of working capital and its square term to capture the non-linear relation. Since previous studies find support for profitability determination, we also control for leverage, total asset growth, firm size, gross profit margin, tangible fixed assets, operating cash flow and Tobin'Q. Unlike previous studies such as Hill et al. (2010), Garcia-Teruel et al. (2008), Banos-Caballero et al. (2010) which employ log(asset) as a proxy of firm size and growth of sales as a proxy of firm growth, our study measures firm size and firm growth by using log(sales) and growth of assets, respectively. Definition, notation, and measurement of each variable are disclosed in Tab.1. Our models are as below:

$$WCR = \alpha_0 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF \quad (1a)$$

$$WCR = \alpha_0 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF + \beta_7 TOBINQ \quad (1b)$$

$$ROE = \alpha_0 + \gamma_1 WCR + \gamma_2 WCR^2 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF \quad (2a)$$

$$ROE = \alpha_0 + \gamma_1 WCR + \gamma_2 WCR^2 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF + \beta_7 TOBINQ \quad (2b)$$

It is noted that the quadratic relation suggested in Equation (2a) and (2b) exhibits a breakpoint that can be obtained by taking first differentiation of the ROE variable with respect to the WCR variable and making this derivative equal to 0. By solving this equation, we obtain the value of this breakpoint is $\gamma 1/2\gamma 2$. To verify our hypothesis that there is an inverted U-shaped relationship between working capital and firm profitability, the breakpoint must be a maximum, or meaning that the second partial derivate of the ROE with respect to the WCR variable $\gamma 2$ must be negative. In summary, a negative $\gamma 2$ will indicate that firms reach its optimal working capital level at which they maximize their performance.

In the second stage, we adapt the methodology suggested by Tong (2008) by defining a deviation variable (DEV) which is the absolute value of the residuals estimated from Equ.(1a) and (1b). Equ.(3a) and (3b) are constructed based on Equ.(2a) and (2b), but are simultaneously added DEV variable and eliminated WCR and WCR2. Based on these models, a negative relation between deviations from optimal WCR and ROE only exists if $\lambda_1 < 0$.

$$ROE = \alpha_0 + \lambda_1 DEV + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF \quad (3a)$$

$$ROE = \alpha_0 + \lambda_1 DEV + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF + \beta_7 TOBINQ \quad (3b)$$

To test whether deviations on either side of optimal WCR reduce ROE, we construct an interaction term, Deviation Above-optimal dummy (AO.DEV). AO.DEV is assigned value of 1 for positive residuals and otherwise. If $\lambda_1 < 0$ and $\lambda_1 + \lambda_2 < 0$ in the following Equ. (4a) and (4b), both above-optimal and below-optimal deviations have a negative impact on ROE. If $\lambda_1 < 0$ and $\lambda_1 + \lambda_2 > 0$ in Equ.(4a) and (4b), a negative impact of Above-optimal deviations on ROE can be confirmed and firm can improve its performance by increasing WCR beyond the optimal WCR which is estimated in Equ. (2a) and (2b).

$$ROE = \alpha_0 + \lambda_1 DEV + \lambda_2 AO.DEV * DEV + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF + \beta_7 TOBINQ \quad (4a)$$

$$ROE = \alpha_0 + \lambda_1 DEV + \lambda_2 AO.DEV * DEV + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF \quad (4b)$$

To investigate the non-linear relationship between working capital and ROE, we estimate the following models:

$$ROE = \alpha_0 + \gamma_1 WCR + \gamma_2 WCR^2 + \phi_1 AO.DEV * WCR + \phi_2 AO.DEV * WCR^2 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF \quad (5a)$$

$$ROE = \alpha_0 + \gamma_1 WCR + \gamma_2 WCR^2 + \phi_1 AO.DEV * WCR + \phi_2 AO.DEV * WCR^2 + \beta_1 LEV + \beta_2 GRTA + \beta_3 SIZES + \beta_4 GPM + \beta_5 TANGF + \beta_6 OCF + \beta_6 TOBINQ \quad (5b)$$

All dependent and independent variables are as previously defined. By construction, the expression $-\gamma 1/2\gamma 2$ measures the optimal ROE of working capital requirements.

3.2 Data

To empirically investigating on the relationship between WCR and firm performance, we conducted necessary data from annual reports of 614 companies listed on Ho Chi Minh and Ha Noi stock exchanges during the period from 2006 to 2013. Since the total asset growth variable is computed by (Total assett- Total assett-1)/Total assett-1, data in 2006 is eliminated. It is noted that annual financial data extracted for each company is ranging from 2 to 7 years. Total observations employed in this study are 3,170 firm-years. Firms operating in finance and banking industry is eliminated from our samples. Firms which are terminated its listing on stock market during studied period are also removed.

4 EMPIRICAL RESULTS

4.1 Descriptive statistic

Tab.2 and Tab.3 provides summary statistics and the correlations of all variables used in our study, respectively. According to Tab.2, firms listed in both stock exchanges have employed a relatively high level of leverage, with the average level at 51% and the maximum at 97%. Besides, firms appear to hold high investment in working capital, with the average level at 45%. Tab.3 shows that there is always a positive correlation between ROE and other variables, with the correlation coefficient ranging from 0.10 to 0.33. The correlations amongst independent variables are low, exception for the correlation between WCR and TANGF at -0.51.

Tab. 2 - Descriptive Statistic. Source: Authors' calculation

	ROE	WCR	LEV	GRTA	SIZES	GPM	TANGF	TOBINQ	CFO
Mean	0.19	0.45	0.51	0.19	26.55	0.19	0.20	1.12	0.08
Median	0.18	0.47	0.54	0.10	26.57	0.16	0.14	0.95	0.10
Maximum	1.23	1.00	0.97	6.06	31.85	4.03	0.98	20.92	3.29
Minimum	(2.68)	(0.11)	0.00	(0.88)	19.20	(3.85)	0.00	0.26	(25.71)
Std. Dev.	0.20	0.21	0.22	0.42	1.53	0.20	0.19	0.76	0.89
Skewness	(2.20)	(0.13)	(0.27)	5.18	(0.19)	(2.97)	1.48	9.22	(22.99)
Kurtosis	34.66	2.38	2.14	50.44	3.56	141.01	4.96	174.04	599.70
Observations	3,170	3,170	3,170	3,170	3,170	3,170	3,170	3,170	3,170

Tab. 3 - Correlation matrix. Source: Authors' calculation

	ROE	WCR	LEV	GRTA	SIZES	GPM	TANGF	TOBINQ
WCR	0.10							
LEV	0.21	0.11						
GRTA	0.14	(0.03)	0.06					
SIZES	0.33	0.04	0.34	0.09				
GPM	0.23	(0.12)	(0.23)	0.08	(0.10)			
TANGF	0.11	(0.51)	0.00	(0.11)	0.06	0.07		
TOBINQ	0.17	(0.01)	(0.15)	0.27	0.07	0.17	(0.02)	
CFO	0.21	(0.02)	(0.02)	0.06	0.17	0.39	0.10	0.07

4.2 Empirical Results

Tab.4 presents the estimated results for Equ.(1a) and (1b). The results from the two equations consistently show that leverage, firm size, operating cash flow, and Tobin'Q are positively associated to firm working capital requirement. Conversely, total asset growth, gross profit margin, and tangible fixed assets have a negative relationship with working capital requirement. The negative and positive relationships are strongly confirmed with significant coefficients at 1% level, except for the firm size and Tobin'Q.

Tab.5 discloses the regressive results for Equ.(2a) and (2b). The coefficient γ_2 from the two equations is negative and statistically significant at 1% level. This indicates that there is a non-linear relationship between firm performance and its working capital. The negative coefficient γ_2, as discussed above, additionally implies that firms aim to maximize their working capital level in order to improve their performance. Besides, the addition of Tobin'Q variable in Equ.(2b), which also exhibits a significant positive coefficient at 1% level, have increased the adjusted R^2 from 0.2549 in Equ.(2a) to 0.2659 in Equ.(2b). This provides strong support that firm performance is not only affected by factors proxies for recent growth, but also factors proxies for future growth. It is because when investors have a positive view on the firm performance, the firms are likely to experience rapid growth in the future. Leora et al. (2004) argues that firms with good growth opportunities will need more external financing in order to support the firm promising growth. It is believed that Tobin'Q is a good measurement of listed firm's growth opportunities. A higher level of Tobin'Q will allow a firm to access a lower financing cost from external trade credit. As a result, the company will easily increase its profitability, and simultaneously increase its working capital. In other words, firm with better growth opportunities will have a higher working capital.

Tab. 4 - Estimation results of WCR. Source: Authors' calculations.

Variables	WCR (1a)	t-stat.	WCR (1b)	t-stat.
Intercept	0.4170***	7.16	0.4195***	7.20
LEV	0.0842***	5.33	0.0889***	5.56
TANGF	-0.5865***	(34.69)	-0.5865***	(34.70)
GRTA	-0.0460***	(6.06)	-0.0496***	(6.32)
SIZES	0.0049**	2.17	0.0044*	1.96
GPM	-0.0748***	(4.29)	-0.0788***	(4.48)
CFO	0.0138***	3.52	0.0140***	3.56
TOBINQ			0.0078*	1.77
R-squared	0.2901		0.2906	

(***), (**), (*) indicate statistical significance at the 1%, 5%, 10% levels, respectively.

By comparing Tab.3 and Tab.4, we observe that the positive sign of firm-specific factors coefficients remains unchanged. This provides further evidence that absolute of residuals estimated from Equ.(2a) and (2b) has significantly decreased the ROE in both Equ.(3a) and (3b). Therefore, it is reasonable to conclude that firm's management always strives to reduce the absolute of residuals to 0.

The results for Equ.(3a) and (3b) are disclosed in Tab.6. We found that the coefficients of the absolute value of the residuals variable in both equations are negative and statistically significant at 5% and 1%, respectively. It implies that deviations on either side of optimal ROE reduce firm.

Tab. 5 - Estimation results of WCR and firm performance relation. Source: Authors' calculations.

Variables	ROE (2a)	t-stat.	ROE (2b)	t-stat.
Intercept	-1.0125***	(17.86)	-1.0019***	(17.80)
WCR	0.3941***	6.98	0.3927***	7.01
WCR^2	-0.2201***	(3.65)	-0.2227***	(3.72)
LEV	0.1551***	9.98	0.1732***	11.08
TANGF	0.2022***	10.49	0.2002***	10.47
GRTA	0.0535***	7.26	0.0396***	5.23
SIZES	0.0336***	15.21	0.0319***	14.45
GPM	0.2773***	16.35	0.2621***	15.44
CFO	0.0081**	2.13	0.0088**	2.32
TOBINQ			0.0294***	6.94
Adjusted R-squared	0.2549		0.2659	

(**), (***) indicate statistical significance at the 1%, 5% levels, respectively.

Tab.6 - Estimation results of deviations from optimal WCR and ROE relation.

Source: Authors' calculations.

Variables	ROE(3a)	t-stat.	ROE(3b)	t-stat.
Intercept	-0.8941***	(15.20)	-0.8812***	(15.10)
DEV	-0.0763**	(2.51)	-0.0846***	(2.81)
LEV	0.1626***	10.44	0.1813***	11.57
TANGF	0.0656***	3.74	0.0643***	3.70
GRTA	0.0446***	5.96	0.0303***	3.94
SIZES	0.0353***	15.73	0.0334***	14.92
GPM	0.2602***	15.08	0.2448***	14.18
CFO	0.0110***	2.84	0.0117***	3.03
TOBINQ			0.0309***	7.17
Adjusted R-squared	0.2222		0.2347	

(***), (**) indicate statistical significance at the 1%, 5% levels, respectively.

Value the results strongly support the hypothesis that the relationship between firm working capital and profitability follows the trade-off theory. Particularly, firm's managers always strive to effectively exploit working capital to improve firm's performance. However, they all find it difficult to choose between a low working capital investment, which are attached with a lower financing cost and higher liquidity problem, and higher working capital investment, which are attached with a higher financing cost and lower liquidity problem.

Tab.7 - Estimation results of deviations from optimal WCR and ROE relation.

Source: Authors' calculations.

Variables	ROE(4a)	t-stat.	ROE(4b)	t-stat.
Intercept	-0.9309***	(16.11)	-0.9171***	(15.98)
DEV	-0.1875***	(5.98)	-0.1925***	(6.18)
DEV*AO.DEV	0.3994***	11.22	0.3890***	11.00
LEV	0.1622***	10.62	0.1808***	11.76
TANGF	0.0814***	4.72	0.0797***	4.66
GRTA	0.0442***	6.02	0.0299***	3.96
SIZES	0.0361***	16.41	0.0342***	15.56
GPM	0.2570***	15.18	0.2417***	14.27
CFO	0.0111***	2.92	0.0117***	3.10
TOBINQ			0.0308***	7.27
F-test (p-value)		0.000	0.000	
Adjusted R-squared	0.2518		0.2627	

(***) indicates statistical significance at the 1% level.

Tab.8 – Estimated results for Equ.(5a) and (5b). Source: Authors' calculations.

Variables	ROE (5a)	t-stat.	ROE (5b)	t-stat.
Intercept	-1.0401***	(18.20)	-1.0284***	(18.11)
WCR	0.7066***	6.23	0.6888***	6.12
WCR*AO.DEV	-0.1884**	(2.28)	-0.1775**	(2.16)
WCR^2	-1.0067***	(5.21)	-0.9671***	(5.06)
WCR^2*AO.DEV	0.6443***	3.66	0.6083***	3.49
LEV	0.1668***	10.71	0.1846***	11.77
TANGF	0.1733***	8.04	0.1728***	8.07
GRTA	0.0493***	6.69	0.0359***	4.73
SIZES	0.0342***	15.50	0.0325***	14.73
GPM	0.2741***	16.21	0.2595***	15.32
CFO	0.0087**	2.31	0.0094**	2.48
TOBINQ			0.0291***	6.90
F1 (p-value)	0.000		0.000	
F2 (p-value)	0.000		0.000	
Adjusted R-squared	0.2629		0.2730	

(**), (***) indicate statistical significance at the 1%, 5% levels, respectively

Tab.7 shows a regression results for Equ.(4a) and (4b) with the addition of interaction terms. In the Equ.(4a), we find that the coefficient λ_1 is negative at -0.1875, and the sum of (λ_1+ λ_2) is positive at 0.2119. An F-test reveals that the sum of these two coefficients (λ_1+ λ_2=0) is significant at 1% level. The results provide strong evidence that firm managers always attempt to maximize the efficiency of working capital investment. They also tend to increase the working capital at the level which is beyond to the optimal working capital level in order to enhance the efficiency of working capital. However, it is interesting that the managers are likely to increase the working capital in the right hand size, which also increases the value of ROE.

Tab.8 presents the testing results for the relationship between the actual working capital and the residuals of working capital estimated from Equ.(5a) and (5b). The results indicate that there is a non-linear relationship between ROE and working capital as reported in previous studies. The F-statistic is significant at 1%, hence rejecting the hypothesis of (γ_1+ϕ_1)=0 (F1 p-value) and (γ_2+ϕ_2) =0 (F2 p-value) in Equ.(5a) and (5b). Additionally, a negative ratio of (γ_1+ϕ_1)/(γ_2+ϕ_2) indicates the existence of concave relationship between WCR and ROE.

5 CONCLUSIONS

The study provides empirical evidence on the non-linear relationship between firm's working capital and its profitability in Vietnamese market during the period from 2007 to 2013. The paper uses panel data model and employ the GMM method of estimation and the two-stage methodology suggested by Tong (2008). The results indicate that there is an inverted U-shaped relationship between working capital requirement and firm's profitability. By adding the absolute value of residuals and interaction terms into the models, we found that firm's management always wants to maximize the efficiency of working capital to improve its profitability.

REFERENCES

Arellano, M., & Bond, S. (1991). Some test of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economics Studies*, 58, 277–297.

Banos-Caballero, S., Garcia-Teruel, P. J., & Martı´nez-Solano, P. (2010). Working capital management in SMEs. *Accounting and Finance*, 50, 511–527.

Carbó, S., Rodríguez, F., Udell, G. (2009). Bank market power and SME financing constraints. *Review of Finance*, 13, 309-340.

Chiou, J. R., Cheng, L., Wu, H.W. (2006). The determinants of working capital management. *Journal of American Academy of Business*, 10, 149-155.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms?. *Journal of Business, Finance and Accounting*, 30, 573–587.

Demirguc-Kunt, A., Maksimovic, V. (1998). Law, finance, and firm growth. *Journal of Finance*, 53, 2107-2137.

Garcia-Teruel, P. J., & Martinez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of Managerial Finance*, 3, 164–177.

Ghosh, A., Moon, D. (2010). Corporate debt financing and earnings quality. *Journal of Business Finance & Accounting*, 37, 538-559.

Hill, M. D., Kelly, G., & Highfield, M. J. (2010). Net operating working capital behaviour: A first look. *Financial Management*, 39, 783–805.

Hsiao, C. (1985). Benefits and limitations of panel data. *Econometrics Review*, 4, 121–174.

Jose, M. L., Lancaster, C., & Stevens, J. L. (1996). Corporate return and cash conversion cycle. *Journal of Economics and Finance*, 20, 33–46.

Kieschnick, R., LaPlante, M., & Moussawi, R. (2009). Working capital management, access to financing, and firm value. Working Paper. SSRN: http://ssrn.com/abstract=1431165.

Leora F. Klapper, Inessa Love (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, 10, 703-728

Myers, S.C., (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5, 147- 175.

Nobanee H., Al Hajjar M. (2009). A Note on Working Capital Management and Corporate Profitability of Japanese Firms, Working Paper. SSRN: http://ssrn.com/sol3/papers.cfm?_abstract_id=1433243

Peel, M., Wilson, N. (1996). Working capital and financial management practices in the small firm sector. *International Small Business Journal*, 14, 52-68.

Scholtens, B. (1999). Analytical issues in external financing alternatives for SBEs. *Small Business Economics*, 12, 137–148.

Shin, H. H., & Soenen, L. (1998). Efficiency of working capital and corporate profitability. *Financial Practice and Education*, 8, 37–45.

Shin, H. H., & Soenen, L. (1998). Efficiency of working capital and corporate profitability. *Financial Practice and Education*, 8, 37–45.

Smith, K., (1980). Profitability versus liquidity tradeoffs in working capital management. In K. V. Smith (Ed.), Readings on the management of working capital (pp. 549–562). West Publishing Company.

Tong, Z., (2008). Deviations from optimal CEO ownership and firm value. *Journal of Banking & Finance*, 32, 2462– 2470.

Walker, D., (1989). Financing the small firm. *Small Business Economics*, 1, 285–296.

Wang, Y. J., (2002). Liquidity management, operating performance, and corporate value: Evidence from Japan and Taiwan. *Journal of Multinational Financial Management*, 12, 159–169

Whited, T. M., (1992). Debt, liquidity constraints, and corporate investment: Evidence from panel data. *Journal of Finance*, 47, 1425–1460.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

OLDER WORKERS: DO THEY KNOW THEIR WORKING POTENTIAL?

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ABSTRACT

Statistical data on worker´s 50+ unemployment along with demographic age structure forecast of workforce in the labour market show, that group of workers 50+ makes growing macro-economic and also social problem. Our research is based on assumption that it is possible and necessary to find a solution at the level of micro-economic. With regard to traditional concept of personnel management, workers 50+ are not perceived as a group that represents an interesting work potential for a company. They are seen as a specific group requiring special treatment of personnel management, focused on preparing on retirement (often early retirement) of these workers. But in terms of qualification and motivation, this group can represent a significant potential of knowledge, skills and abilities, if we use specific procedures of personnel management, diversity management. Our research finds out that workers 50+ are aware of their working potential and its influence on the results and success of the organization. They also recognise several conditions for its appreciation in the company. Knowing these attitudes of older workers might help HR professionals when preparing measures specifically aimed at the inclusion of the working potential of this important employees group as part of human resource management activities.

Keywords: *human resource management, competitiveness, workers 50+, working potential, knowledge management, quality of life, socially responsible management*

JEL Classification: M12

1 INTRODUCTION

Topic of older workers has currently become useful in practice. Knowledge and skills, as important aspects of older workers' qualifications, represent a large part of their work potential. Thanks to years of practice and personal experience, workers over the age of 50 generally possess such knowledge and skills which are crucial to the development and success of any company. Machines can be bought, factories may be built and money can be borrowed from banks. But, with people and their knowledge it is not so easy. However, human resource management strategies focusing on older workers as well as retention and development of their knowledge and skills are rarely used. The company either does not identify this potential at all (because it is not considered important), or its efforts are insufficient and unsystematic.

There still tend to be stereotypical beliefs about older workers that emphasize health and social aspects. These stereotypes often prevent organizations from making good use of older workers and cause them to prefer younger counterparts.

This paper is based on a positive view of workers age 50 + and their work potential (created mainly by knowledge and skills), which is still often overlooked and undervalued by organizations. Together with projections of demographic trends, companies should consider world-wide the challenge of knowledge management among workers age 50+.

The presented research aims to find out how workers 50+ perceive their work potential and conditions for its application in the organization. What these workers think about the suggested characteristics of their potential as well as the proposed conditions for its application – how much do they agree with them? Do their abilities, skills and knowledge (work potential) positively influence the results and success of the entire organization? And does their company devote necessary attention to them and appreciation of their potential? The research is part of an ongoing study investigating older workers' potential.

2 THEORETICAL BACKGROUND

Knowledge management literature has currently reached the point of acknowledging the importance of people management themes (Afiouni, 2007). These two fields of human resource management and knowledge management are still somehow disconnected. Not enough attention has been paid to human capital and its role in the competitive advantage of business in today's knowledge economy. People management perspectives have yet to be fully developed, and the knowledge management literature has made only partial and limited use of human resource management concepts and frameworks. Although knowledge management is typically defined as a holistic combination of measures for managing people, processes, and technology, the explicit integration of human resource management into knowledge management initiatives is seldom examined. Personnel issues are now arguably regarded as the key factor most likely to affect the outcome of knowledge management initiatives. The idea is that the success of any knowledge management initiative is likely to be critically dependent on having suitably motivated people taking an active role in the process (Robertson et al, 2000).

Concerning the labour force structure, evidence shows that the populations of developed countries are aging rapidly due to decreased birth rates and longer life spans (Dychtwald et al., 2006). In the past, predictions about aging issues were overshadowed by the more immediate issues of racial, ethnic, and gender changes in the workforce that needed to be confronted by organizations. Now is the time to meet the challenges of the aging of the workforce with the same vigour with which those other challenges were met.

It is expected that in the next decades the number of elderly people will rise significantly relative to the number of working age (dependency rate). By 2050, there will be only two people of working age (15-64) to support one person age 65 or over in the OECD area. These trends are evident in all OECD countries (Stam, 2009). The main temporary economic consequence of ageing seems to be a loss of productivity as a consequence of a loss of capabilities related to the large scale retirement of the baby-boomers combined with a shortage of younger workers to fill the void (Kaye et al., 2008). This temporary consequence of ageing is often referred to as brain drain or talent gap (Arnone, 2006). Whereas brain drain mainly refers to the large scale retirements of the baby boomers, talent gap mainly refers to the shortage of younger workers that follows the large scale retirements.

As employees in organizations progress with age, they acquire a set of knowledge that is customized to the firms' operations, structure and culture. Such knowledge can hardly be copied or replaced when an older employee leaves the organization (Stevens 2010). However, from an organizational perspective, the main problem seems to be that organizations do not know how to make sense of the potential of the older employee. According to the majority of managers, ageing will predominantly have negative consequences (Ebrahimi et al., 2008): costs will increase, willingness to change will decrease, absenteeism will increase and productivity will decrease.

As a consequence of the assumption that older employees are less productive, managers also assume that training older workers yields a poor return-on-investment (Kaye et al. 2008) and therefore mainly focus on the further development of their young potentials. Age negatively affects the variables that lead towards participation in training and development (Streb et al., 2008). Older workers tend to be offered training at a much lower rate than younger ones (Cully et al., 2000; Wrenn et al., 2004).

Even though managers may think that older workers will depart from the organization within a few years, evidence shows that older workers are likely to stay with the organisation longer than younger people, who expect to change jobs every three years or so (Spiezia, 2002).

The negative stereotypes (Patrickson at al., 2011) are unfounded, since increasing evidence shows that older workers are just as adaptable and innovative as younger ones, yet stereotypes influence perceptions, and perceptions influence behaviour. Hence, there is a need for managers to inform themselves about up-to-date reliable evidence, otherwise they may not be getting the most out of their older employees.

However, emphasis also in recruitment and retention (Parry et al., 2009) is put on the younger generation with early retirement still being seen as the norm by many managers and employees as a result of the employment policies of the 1980s. Despite the research evidence revealing that many older workers want to continue working up to and past the present statutory retirement age, the media message continues to be that people are being "forced" to work longer against their will creating a negative perception of extending working life. There is a need for more positive messages about extended working lives which promote the concepts of choice and flexibility for workers of all ages. Flexible working (Parry et al., 2009) is relatively widespread generally, but many organisations still do not provide flexible working for older workers, flexible retirement or phased retirement.

The older employee may wish to remain within the organisation but perform a different role, possibly a completely different one, possibly to work on time-limited projects. Many older workers might have achieved all that they want to in their careers and are not particularly interested in climbing up the corporate ladder. However, people can work into very advanced ages, as long as the work is interesting and under circumstances within their control (Patrickson et al., 2011).

3 METHODS

For the purpose of this research, a quantitative approach method was used, i. e., a questionnaire, the aim of which was to map the attitudes of workers over aged 50+ with regard to identification of characteristics of their working potential and possible measures (conditions) to evaluate the working potential of workers aged 50+.

The research questions were formed on the basis of literary review, analysis and evaluation of obtained knowledge.

- Does the work abilities, skills and knowledge (working potential) of the workers aged 50+ positively affect the results and success of the whole company (organization)?
- Does your company devote necessary attention to the workers aged 50+?
- Is it possible to identify the characteristics of the working potential of workers aged 50+ with regard to their strong and weak points in relation to their professional knowledge, skills and abilities?

- Is it possible to set specific measures for personal management in the organization of work, and working conditions, in the area of development of skills and in the area of motivation focused on assessment (use of) work potential of workers aged 50+?

To answer the research questions, a quantitative research focused on collection, processing and evaluation of empirical data from a selected group of organizations was prepared. A questionnaire for workers older than 50 years was created for the collection of research data. The questionnaire included items focused on four areas of data: identification of working potential of workers 50+, specification of conditions to evaluate the workers 50+ working potential, evaluation of current personal management in relation to workers 50+ and basic identification data of the respondent.

The data were collected in two forms, by completing the questionnaire by pencil-paper method, filling in an electronic form of the questionnaire. We assumed that each organization will have available data from 10 questionnaires by workers 50+. The research collection for data collection to answer the research questions and compilation of methodology was made by 25 randomly selected organizations and companies from the Czech Republic. We obtained research data from 185 respondents. This represents a return rate of questionnaires at 74%.

The selected organizations and companies were predominantly (95%) greater, more than 250 employees. The companies and multinational organizations (55%) slightly prevailed against the national ones. Regarding the industry, they are represented by engineering, automotive, chemical and consumer goods industry, banking, public administration and services. Respondents in individual companies were randomly selected according to a fixed structure. During data collection we worked together with personnel department workers in the individual organizations.

The arithmetic average (AA) of evaluation in each item of the questionnaire was calculated for data processing. This enabled us to analyse and interpret the findings in relation to identification of characteristics of work potential of workers 50+ and to determine specific measures for personnel management. There were four response options to each question: strongly agree, tend to agree, tend to disagree, strongly disagree. The answers had values of 1 – 4 which contributed to evaluation of individual questions. Concerning the evaluation of respondents' answers, the range was adjusted so that the answer "strongly agree" had a value of arithmetic average 1 – 1.50, the answer "rather agree" had a value of arithmetic average 1.51 – 2.50, the answer "rather disagree" had a value of arithmetic average 2,51 – 3,50 and answer "strongly disagree" had a value of arithmetic average 3.51 – 4.

4 RESULTS AND DISCUSSION

At the beginning of the questionnaire there were questions evaluating the importance of working potential of workers 50+ for an organization (company) and the interest of the organization (company) in using of (appreciation) of this potential.

Workers 50+ strongly agree (AA 1,45) that their working potential (knowledge, skills and abilities) positively influences the results and success of the organization (company). They also rather agree (AA 2,17) that their organization devotes the necessary attention to them.

4.1 Identification of working potential of workers 50+

Data are arranged according to the arithmetic average (AA) presented by workers 50+on individual characteristics.

According to the workers 50+ themselves they are characterized as follows.

Workers 50+ **strongly agree** (AA 1 – 1,50) that:

- are reliable,
- are willing to share their knowledge,
- have a good relationship with an organization (company), are loyal.

Workers 50+ **rather agree** (AA 1,51 – 2,50) that:

- demonstrate commitment and interest in the job,
- can adapt to technological changes,
- use their intuition for solving difficult tasks,
- can work with computer in order to fulfil required tasks,
- have ability to analyse problems in broader context,
- easy to handle crisis situations,
- are willing to work overtime,
- are willing to educate themselves further,
- are willing to commute,
- are willing to accept less attractive jobs,
- have knowledge, experience (know-how) valuable for organization (company),
- have contacts that are important for good performance of their work,
- are satisfied with management style of their supervisor,
- have necessary language skills to perform their work profession,
- have above-average idea of their remuneration,
- are willing to work in shifts.

Workers 50+ **rather disagree** (AA 2,51 – 3,50) that:

- tend to stereotypes and choose their own proven solutions,
- have a need of further work (career) procedure,
- current health condition affects their performance,
- are willing to work part-time,
- have lower self-confidence,
- their knowledge and skills are outdated,
- are willing to relocate for work.

From this survey we can conclude that highly consistent and more consistent attitudes of workers age 50+ are related to behavioural characteristics, which confirms the value of working potential, which could be for the enterprise (organization) very beneficial. Behavioural characteristics, to which workers 50+ express rather disapproving attitude can be seen as

negative prejudice associated with evaluating the work potential of workers age 50+. It means, that workers 50+ are attitudinal orientated to reject the validity of these prejudices and to put in work their full working potential. The exceptions are two items where workers 50+ refuse behavioral characteristics that the company would probably evaluated positively. Totally disagree with the fact that they would be interested to work part-time (this is likely to be associated with lower financial evaluation) and totally disagree with the fact that they would like to move for work (this is likely to be associated with strong social ties to the place where they live). The above findings confirm that according to the attitudinal orientation of workers 50+ makes sense to examine the measures which company can (and should) do in order to gain working potential of workers 50+ for achieving goals of the company.

4.2 Conditions for appreciation of work potential of workers50+

Data are arranged according to the arithmetic average (AA) presented by the workers 50+ on individual measures.

What could help, according to workers 50+, to make use of their working potential?

Workers 50+ **strongly agree** that the following measures could help to use their potential (AA 1 – 1,50):

- job certainty

Workers 50+ **rather agree** that the following measures could help to make great use of their working potential (AA 1,51 – 2,50):

- employee benefits aimed at workers 50+ (health and social services, etc.),
- training course – new findings and trends,
- financial compensation for transfer of knowledge (initial training, technical documentation, manuals, etc.),
- health care program of a company for workers 50+,
- education (training courses) for workers 50+,
- company courses aimed at information technology,
- individual approach of a direct supervisor,
- change in management attitude to workers 50+,
- flexible working hours,
- company language courses,
- adjustment of working conditions (workload, ergonomic adjustments of a workplace),
- changes in work content focused on knowledge sharing (assisting, mentoring, etc.),
- club of workers 50+ and former employees of a company,
- work position as an advisor, consultant, committee work,
- flexibility of working places (e.g. home office, teleworking).

Workers 50+ **rather disagree** with the fact that the following measures can help to make use of their working potential (AA 2,51 – 3,50):

- participation in presentations, representation of a company,

- part-time work (job sharing).

From this survey we can conclude that highly consistent and more consistent attitudes of workers age group 50+ are related to conditions that the company could relatively easily create. Company should make a decision that workers 50+ are one of the groups for diversity management in the context of company human resources management. These measures are aimed into three areas: organization of work, skill development and motivation (reward). Implementation of appropriate measures in these areas would workers 50+ perceive very positively and it could be for the company (organization) very beneficial, because the company will have it available yet for up to 15 years. That means that it could be a very conceptual and effective long-term measure to support the development of enterprise competitiveness.

Working conditions, to which workers 50+ express rather disapproving attitude, can be seen rather not very significant. It is not interesting for them to work part-time or job share (it is probably associated with the notion of lower financial evaluation). If it was an appropriate compensation addressed this question, it is likely that their attitudes were consistent (see the positive evaluation of the flexibility of working time and flexible jobs in the previous section). Workers 50+ rather disagrees also with the fact that they would like to participate in the presentation and representation of the company. This approach orientation is rather surprising and possibly linked with a vague idea about what form these activities should be. In the conditions that 50+ workers evaluate positively, however, are activities that are close to the presentation and representation of the company (job counsellor, consultant, member of the committee, a member of the club of workers 50+). That means, workers 50+ are positively oriented to such activities and it would be possible to find a form that would be interesting and inspiring for them. It would be helpful to make better use of working potential that will be available for company for a period of up to 15 years.

5 CONCLUSION

The paper presents the results of research that focuses on the identification of working potential of workers 50+ and conditions for evaluation (use) of this potential as a source for the development and competitiveness of the company. The research stresses older workers' perception of their working potential and conditions for evaluation (use). These findings may be relevant for the search of specific personnel management procedures, which are focused on creating conditions for the company to be able to evaluate (use) the working potential of older workers 50+. In view of demographic development of society, not only for us but also in the international environment, the topic of multigenerational workplace and inclusion of older workers is very current and perspective topic.

In this paper we processed results of the evaluation of data obtained from respondents in a group of workers 50+. Evaluation of data from this group of respondents (P50+) enable us to identify individual components of working potential workers 50+ and conditions for its use so as perceived by workers 50+. These conclusions help us to implement measures aimed specifically at the evaluation of the working potential of workers 50+.

The conclusions of our research are consistent with the findings of other surveys, the opinions and attitudes of workers 50+ about themselves are important (Cappelli, 2010; Parry 2009, 2011, Ilmarinen, 2012). For adoption of a specific approach to personnel management in relation to the group of older workers 50+ is very important the opinion and attitude not only of HR managers themselves, but also opinions and attitudes of workers 50+ themselves, who work together with other workers. HR professionals should be holders of changes in personnel management focused on the evaluation of the work potential of workers 50+. But own opinions

and attitudes of workers 50+ and prejudices of the other (younger) colleagues also can have a significant impact on the success of this change (Ilmarinen, 2012; Patricson, 2011 Calo, 2008).

In the future, our research will continue processing and interpretation of research data from three other group of respondents, i.e. managers, HR professional, and other workers (workers 50-), with a focus on knowledge management in relation to workers 50+. Special attention will be paid to the interpretation of research data and the conclusions with respect to the sharing and preservation of knowledge among workers 50+ in relation to the preservation of know-how and development of the intellectual capital of the company (organization).

Authors of this article are thankful to the Internal Grant Agency of FaME TBU No. IGA/FaME/2016/001.

REFERENCES

Afiouni, F. (2007). Human Resource Management and Knowledge Management: A Road Map Toward Improving Organizational Performance, *Journal of American Academy of Business*, 11(2), 124-130.

Calo, T. J. (2008). Talent Management in the Era of the Aging Workforce: The Critical Role of Knowledge Transfer. *Public Personnel Management*, 37(4), 403-416. Available at: http://search.proquest.com.proxy.k.utb.cz/docview/215944987?accountid=15518

Cappelli, P., Novelli, W., & Lammlein, S. (2010). Managing the Older Worker: How to Prepare for the New Organizational Order. Boston, Mass.: *Harvard Business Review Press*.

Cully, M., Vandenheuvel A., Curtain R. & Wooden M. (2000). Participation in, and Barriers to, Training: the Experience of Older Adults. *Australasian Journal on Ageing*, 19(4), 172-179.

Dychtwald, K., Erikson, T.J. & Morison, R. (2006). Workforce Crisis: How to Beat the Coming shortage of Skills and Talent, Harvard Business School Press, Boston.

Ebrahimi, M., Saives A. & Holford D.W. (2008) Qualified Ageing Workers in the Knowledge Management Process of High-tech Businesses: Lessons from the Leading Edge. *Journal of Knowledge Management*, 12(2), 124-140.

Ilmarinen, J. (2012). Podpora aktivního stárnutí na pracovišti. Available at: http://osha.europa.eu/cs/publications/articles/promoting-active-ageing-in-the-workplace

Kaye, B. & Cohen J. (2008). Safeguarding the Intellectual Capital of Baby Boomers. Training & Development, 62(4), 30-33.

Parry, E. & Tyson S. (2009). Organizational Reactions to UK Age Discrimination Legislation, *Employee Relations*, 31(5), 471-488.

Parry, E. & Harris, L. (2011). The Employment Relations Challenges of an Ageing Workforce. ACAS. Available at: http://www.acas.org.uk/media/pdf/e/p/The_Employment_Relations_Challenges_of_an_Ageing_Workforce.pdf

Patrickson, M. & Ranzijn, R. (2011). Workforce Ageing: the Challenges for 21st Century management. *International Journal of Organisational Behaviour*, 10(4), 729-739.

Roberstson, M. & O'Malley H.G. (2000). Knowledge Management Practices within a Knowledge-Intensive Firm: the Significance of the People Management Dimension", *Journal of European Industrial Training*, 24(2), 241-253.

Spiezia, V. (2002). The Greying Population: A Wasted Human Capital or just a Social Liability?, *International Labour Review*, 141(1), 71-113.

Stam, Ch. (2010). Knowledge and the Ageing Employee: a Research Agenda. Paper read at 2nd *European conference on intellectual capital*, Lisbon, Portugal, March.

Stevens, R.H. (2010). Managing Human Capital: How to Use Knowledge Management to Transfer Knowledge in Today's Multi-generational Workforce. *International Business Research*, 3(3), 77-83.

Streb, Ch., Voelpel S.C. & Leibold M. (2008). Managing the Aging Workforce: Status quo and Implications for the Advancement of Theory and Practice. *European Management Journal*, 26(1), 1-11.

Wrenn, K.A. & Mauer T.J. (2004). Beliefs About Older Workers' Learning and Development Behaviour in Relation to Beliefs About Malleability of Skills, Age-Related Decline, and Control. *Journal of Applied Social Psychology*, 34(2), 223-242.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

A STUDY ON THE FACTORS AFFECTING CUSTOMERS' SATISFACTION WITH LOGISTICS SERVICES: AN EMPIRICAL SURVEY IN DA NANG CITY, VIETNAM

Phan Thanh Hai, Mai Thi Thuong

ABSTRACT

This study has been conducted to measure factors that influence customers' satisfaction with some Da Nang logistics companies. A survey sample consists of 204 customers, who use the logistics services of Da Nang logistics companies in recent times. It is evident from result that service capability of the staff, the facilities at the unit, empathy and the ability to meet customer demand is the key factor to the positive decision pleased use of logistics in Da Nang logistics companies. Most interviews in recent years. Based on the research findings, several implications are proposed for enhancing customer satisfaction with the service quality in the near future.

Keywords: *Da Nang logistics companies, quality service, customer, satisfaction.*

JEL Classification : D12, M10, L91.

1 INTRODUCTION

Logistics are now considered as one of the industry's leading service economy, growing at high speed for various types of diversity attracts many subjects participatory contributes to the enormous benefits in economic - society. In Vietnam in general and the Central Coast province in particular, many transport enterprises were was born in recent years not only brought larger source of revenue to the economy, create jobs, develop infrastructure but also means that promoting and creating incentives for the units and enterprises in other careers with local development in Da Nang City, Viet Nam.

During its operation, Da Nang logistics companies always paying special attention to the diversification of forms, incessantly further improve the quality of various services to serve customers both domestic and foreign. In addition to services such as transport, the use of other services such as delivery service, warehousing and other support ... have been formed logistics services groups breakthrough about rank and provide turnover large companies in recent times. This service consists of many steps from receipting goods, transporting, warehousing, proceduring customs and other paperwork, consulting customer, packaging, marking notation, transportating goods or other services related to the goods; play a very important role to create and develop the brand of the unit compared with competitors in the same sector.

2 LITERATURE REVIEW

2.1 Service and service quality

Service is a special economic goods, intangible products not like apart from other tangible goods. The researchers have different views about the services, this study introduces a number of concepts cited used by many different researchers as follow:

- According to Zeithaml and Britner (2000) service is an act, process, how to do a certain job in order to create value for customers to use to satisfy the needs and expectations

of customers. According to Oliveira (2009), the services are economic activities create value and provide benefits to customers in a specific time and a specific place as a result of a change in desire, or on behalf recipient (using) services. According to Kotler & Armstrong (1999), is the active services or benefits that businesses can offer to customers to establish, strengthen and extend the relations and long-term cooperation with customers. According to Oliveira (2009), a service and identifiable intangible assessed only when combined with other functions is the production process and the tangible product.

- Service quality is the degree of difference between the expectations of consumers of services and their awareness of the results of service (Parasuraman, 1988). Quality of service is not formed from a variety of different factors. We can say it is a concept that many aspects. Parasuraman and his colleagues (1985) offer a quality aspect of services including (1) the trust; (2) ability to respond; (3) ability to serve; (4) access (access), (5) politeness (courtesy), (6) communication, (7) credibility , (8) security; (9) customer knowledge; and (10) tangibles. From 10 This aspect of the study withdrawn next 5 main factors (eg Parasuraman et al, 1988, 1991) the quality of the service include:

(1) The reliability: Demonstrating the ability to perform appropriate services and the initial timely. ***(2) The Responsiveness:*** Demonstrating the desire and willingness of service personnel provide timely service to customers. ***(3) The Assurance:*** The professionalism of staff serving ***(4) The empathy:*** Expressing concern for customer staff ***(5) Tangibles :*** Costume, appearance of staff and equipment in service service..

Thus can see that the quality of service is a concept that covers many aspects, it is a general indicator of the different factors. In different areas it services as measured by various factors.

2.2 Customer Satisfaction

Customer satisfaction is the emotional state for products and services used to use (Spreng et al., 1996). Customer satisfaction is the extent of the status of a person feeling derived from comparing the results obtained from the consumption of the product / service to his expectations (Kotler, 1996). In general, the researchers consider the satisfaction is comfortable when customers are met as their expectations about products and services. The overall satisfaction of service to be considered as a separate variable in relation to the quality of the service components (Durvasula and Mehta, 1999; Chow and Luk, 2005; Mostafa, 2005; Zarei et al, 2012) .

2.3 Relationship between service quality and customer satisfaction

The research shows that the quality of service and customer satisfaction has a close relationship with each other, the quality of service is the cause and the result satisfied (Spereng, 1996; Chow and Luk (2005). the relationship between service quality and customer satisfaction is one way relationships, service quality has a positive impact on customer perception.

According to Zeithaml and Bitner (2000), quality of service and customer satisfaction are two different concepts, quality of service while focusing on the specific components of services, customer satisfaction is the concept generality. According to Cronin and Taylor (1992) and Spereng (1996) suggested that between service quality and customer satisfaction have been linked together.

In the area of service quality research and customer satisfaction has been the researchers carried out a systematic and for many years. Which must include a number of popular models

such as the quality gap model (Parasuraman et al, 1985), SERVQUAL model (Parasuraman et al, 1988).

In the research model on the model SERVQUAL model is a model research applications in the retail sector and services include the following five elements :

Reliability: The ***credibility*** of the service agreement provided by businesses and organizations such as: time, promptly, without errors

Response: As the desire and readiness of personnel system in providing services to customers.

Service capacity: Demonstrating competence, professional qualifications of the staff to provide services such as job-solving skills, service attitude, respect, sense of duty.

The perceived level: Demonstrating understanding, learn interested in the unique needs of the client, attention to customer expectation

Tangibles: As the conditions, facilities, tools for process service provider of enterprise customer organizations.

SERVQUAL has quickly become the most popular model to measure the quality of services in many different areas such as retail (Parasuraman et al, 1988; Duvasula and Lysonski, 2010), telecommunications (Seth, Momaya and Gupta, 2008; Zekiri, 2011), education (Oliveira, 2009) or health care (Mostafa, 2005; Mangold and Babakus, 1992; Amad and Samreen, 2011), travel and tourism (Fick and Ritchie, 1991), sea transportation (Durvasula and Mehta, 1999; Angleos Pantouvakis et al, 2008), audit (Kim and Dart, 1993) ...

2.4 Proposed model

From the above theoretical basis, the research hypothesis of the authors are given as follows:

The confidence shown by the accuracy of the services, ability to retain credibility with customers. Credibility is a component made of the quality of service (Parasuraman et al, 1985.1988). Credibility will be information creates credibility, generate information about a good or service assurance about the reputation of the service (Wheeland, 2002; Harford, 2004). A customer service is more reliable assessment for the services of the competition will bring more sense of customer satisfaction when compared, confidence also affects the perception of overall quality and overall satisfaction of customers for the service. This has been proven through studies telecommunications sector (Seth, K Momaya and Gupta, 2008; Zekiri, 2011), the health care sector (Babakus and Mangold, 1992; Mostafa, 2005; Zarei et al, 2012), even in the field of sea transport (Durvasula and Mehta, 1999). So this study suggests the following studies:

H1*: Factor the trust of logistics services in Da Nang logistics companies influence customer satisfaction.*

The capacity of the department served butler expressed through aspects such as: Impact professional style of staff, the expertise of staff and supervision, availability of service provider by Da Nang logistics companies. Customers rated capacity of the company to serve the higher will feel more satisfied with the service they receive.

The previous research in many areas have shown that the capacity to serve a positive influence on the overall satisfaction of the customer. For example, the study of Atilgan et al, (2003) in the field of tourism services in Turkey, research in the field of health services research Mostafa (2005) in Egypt, research Durvasula and Mehta's research (1999) in the transport sector in Singapore has further strengthened the hypothesis that the ability to serve that affect the service satisfaction. So this study suggests the following studies:

H2: Capacity factor logistics services in Da Nang logistics companies have a positive impact on customer satisfaction.

Empathy is an expression of the concern of service personnel and supervision at the Da Nang logistics companies with customers; employees interested in the special needs of customers

So concern will broadcast the signal of quality of service, giving customers confidence in the quality of services and provide customer satisfaction. This has been proven through a number of research projects Babakus and Durvasula and Mehta (1999) in the field of transport, Mangold (1992), Zarei et al (2012) in the field of health services, Seth, K Momaya and Gupta (2008), Zekiri (2011) in the field of telecommunications. So researchers hypothesized as follows:

H3*: Empathy factor positively influence customer satisfaction for logistics services in Da Nang logistics companies*

Ability to respond the capabilities are ready to serve and meet the needs of customers. Ability to respond reflects the readiness of the system, the intrinsic ability to provide services to customers of the supplier. A system that provides high availability levels, the ability to respond quickly and friendliness will be sympathy for the customer. In terms of factors such as other services (price, reliability of service, etc) vendor capable of faster response, better, friendly staff, customers will be priority choice and they also feel more satisfied with opportunities to compare services between providers. In other words ability to respond with a positive impact on customer satisfaction service. This is proved by several studies in various fields such as research Durvasula and Mehta (1999), Zarei et al (2012) ... So this study raises the following hypotheses :

H4: *Ability to respond increasingly appreciate the customers satisfaction for services in Da Nang logistics companies the greater the first interview.*

Tangibles is reflected in the following aspects: facilities, equipment, personnel, propaganda, promotion. Customers rated positively about the tangible elements of the business also positively rated their satisfaction, feel about their service is appreciated more.

According to the theory of asymmetries information (G.Mankiw, 2005; S.Wheelan, 2002), the infrastructure and facilities of the business tangible signal an indicator of "the promise of providing good service "it will create confidence to customers about the service providers. The study shows the tangible means of positively affecting customers satisfaction, such as the study of Atilgan et al (2003), in the field of tourism services; Research and Luk Chow (2005), Andaleeb and Conway (2006), in the field of restaurant services. Or the study of Mostafa (2005), Zarei et al (2012) in the field of health care, Durvasula and Mehta (1999) in the field of transport etc also shows elements of tangible media influence positive feeling and satisfaction of service users for the quality of that research .So hypotheses set out as follows :

H5: *Factor tangible of Da Nang logistics companies positively affect customer satisfaction with logistic service.*

The authors propose a model as follows :

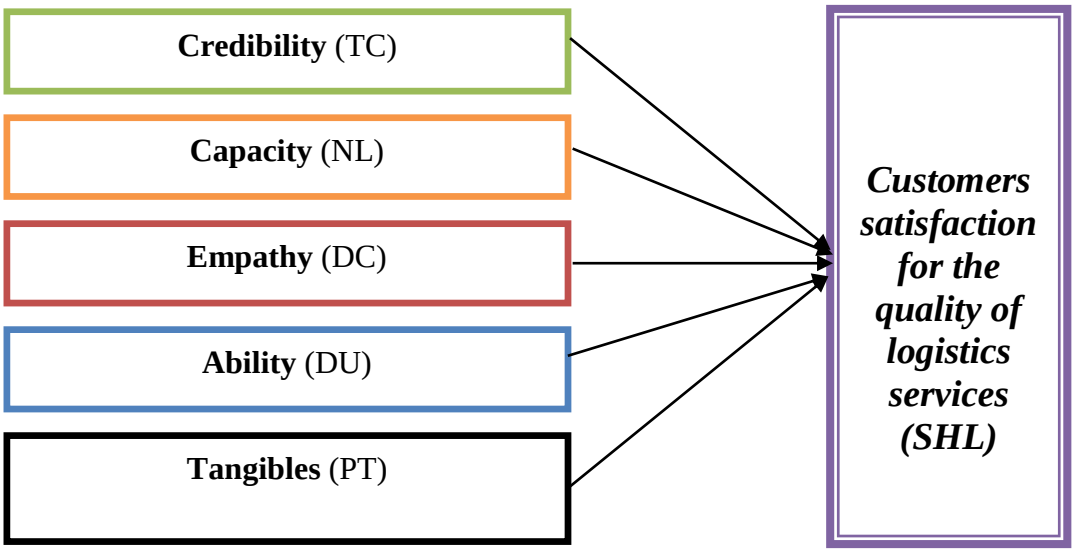

Fig.1 - Proposed model of factors affecting customers' satisfaction with logistics services in Da Nang logistics companies. *Source: The model proposed by author*

Customers satisfaction for the quality of logistics services (SHL) = f (Credibility; Capacity serving; Empathy; Ability;Tangibles)

The dependent variable: The satisfaction of customers for logistics services (HL)

Independent variables:

The First variable is Credibility (TC)

The second variable is The capacity serving (NL).

The Third, Empathy (DC).

The Fourth is the ability to respond the variable (DU).

The fifth is the tangible variables (PT).

Model: $$SHL = \beta_0 + \beta_1 TC + \beta_2 NL + \beta_3 DC + \beta_4 DU + \beta_5 PT$$

3 RESEARCH METHODOLOGY

3.1 Sampling methods and data collection

This study was done over through 01 questionnaire with Likert scale with 5 points level by the scale used here is a positive sequence. The indicators are assessed with a choice of 1 is completely disagree with the statement, choose the number 5 is completely agree with statements and statements agreed level increases from 1 to 5.

Particular in this study divided customers using logistics services at Da Nang logistics companies in 05 offices ownership groups that are private enterprises, limited liability companies, joint stock companies, public companies with foreign capital and state enterprises.

The sample size was determined in accordance with the minimum principles to achieve the necessary reliability of the study but now the minimum sample size is how consistent are still many different opinions of the researchers and inconsistent torch. This study was perform according to convenience sampling and sampled 211 customers using logistics services in the

period from 12/2014 until 06/2015 manner questionnaires rooms are located in a business, customer care department at Da Nang logistics companies. Among them were 07 questionnaire were eliminated because customers have not completed all the questions. Hence the official sample is n = 204.

3.2 Research Methodology

3.2.1 Qualitative research

The authors uses two major research methods, such as qualitative research and quantitative research. In particular, a qualitative study was carried out through the collection, learn, evaluate and synthesize materials research results earlier researchers at home and abroad from books, magazines, internet, particular:

- Proposed model : Based on the theoretical basis, the author proposes a research model in Figure 1 (above)
- Set up formal scale: Scale model study included 26 variables observed with 26 statements as follows :

Credibility (TC) with 5 variables observed :

TC1: He /She believes in the company in general and in particular logistic service.

TC 2: He/She finds company's logistics staff in company try not to occur errors when serving customers.

TC3: He /She finds the quality of the logistics services of company guaranteed as international standards and commitments of the company.

TC 4: He/She feels operation logistics service catering is done correctly correctly.

TC5: He/She finds company's logistics staff of company do what marketing promises they will make true

Ability (NL) with 4 variables observed :

NL 1: He/She finds the staff never logistics proved too busy to not meet the requirements of the customers (eg customs procedures, inquire about the types and specifications of goods .. .)

NL 2: He/She is informed staff exact logistics of the time of the service will be carried out at the request of his / her (eg, receipt, recipient, location ...).

NL 3: He/She finds the logistics staff at the company always willing to help customers.

NL 4: He/She finds the requirements of logistics services in company always been met in full and promptly

Empathy (DC) with 4 variations observed:

DC 1: He/She finds the staff of the logistics department of company how to each customer care.

DC 2: He/She finds that the staff logistics at the company always understand the anxiety, the special needs of customers

DC 3: He/She finds that customers are treated, enthusiastic caring, attentive at the company

DC 4: He / she finds the execution time of service at the company for customers convenience.

Ability (DU) with 4 variations observed :

DU 1: He /She find the behavior of staff logistics create trust for customers

DU 2: He/She feels safe when using logistics in company

DU 3: He / she suppose that in at company always logistics staff, good supervision.

DU 4: He/She suppose that logistics employee, supervisor at company has good knowledge to answer customer questions.

Tangibles (PT) with 4 observed variable :

PT 1: He/She finds the company's warehouse always be neatly arranged and safe.

PT 2: He/She finds costume of logistics employees in company polite.

PT 3: He/She finds the means of directed to serve the customers contact work at company very eye-catching, easy to find.

PT 4: He / she finds the equipment to serve the needs of customers at the company has modern, works well.

The scale of customers satisfaction for the quality of logistics services in company (SHL) is composed of 6 variables observed with 6 states as follows:

SHL 1: He / she was pleased with material foundations of company

SHL 2: He / she satisfied with the services of staff

SHL3: He / she will perform logistics services used by company as needed.

SHL 4: He / she will introduce logistics in company to others.

HL5: Generally he / she was pleased with the service quality of logistics services in company.

3.2.2 Quantitative research

Quantitative research be conducted through data collection survey questionnaire and processed using SPSS software to analyze data using techniques: descriptive analysis, testing Cronbach's Alpha, techniques Exploratory Factor Analysis (EFA), regression analysis.

4 DATA ANALYSIS RESEARCH

4.1 Statistics describing the study sample

SPSS 16.0 software was used to conduct the analysis in the study. Of the 204 customers it has information about the study sample (204 customers) are presented in detail in Table 1 as follows:

Tab. 1 - Descriptive statistics sample. Source: The results of analysis from SPSS 16.0 software

Characteristics	Frequency	Rate %
Type of business use of logistic services	**N = 204**	
The enterprise with foreign capital Investment	9	4,41%
Joint stock company	18	8,82%
Limited liability company	105	51,47%
Private enterprise	39	19,4%
State enterprises	33	15,9%

4.2 Testing the rating scale by Cronbach's Alpha reliability coefficient

Assess the reliability of scale through Cronbach's alpha coefficient less ncoefficient of 0.6 and variable - total (Corrected Item - Total Correlation)> 0.3 (Hoang Trong & Chu Ngoc Nguyen Mong, 2008). So here are 5 variable regression model and to test the independent variables are correlated well or not, the author uses analysis tools Cronbach's Alpha reliability.

Inspection results Cronbach's coefficient alpha reliability for scale of service quality factors and scale of customers satisfaction for the quality of logistics services is shown in Table 2. The results are observed 20 variable 05 elements of logistics service quality and 05 observed variables of satisfaction factors reach and reliability analysis used in the next EFA.

Tab. 2 - Testing the rating scale by Cronbach's Alpha reliability coefficient.
Source: The results of analysis from SPSS 16.0 software

The scale	Number of observed variables	Crobach's Alpha	Result	Note
Credibility	5	0,701	OK	
Ability	3	0,662	OK	Results 2nd after eliminate NL1 variable (Due to the correlation coefficient of total testing time variable 1 is 0.128 <0.3)
Empathy	4	0,771	OK	
Ability	4	0,825	OK	
Tangibles	4	0,769	OK	
Customer satisfaction	5	0,886	OK	

4.3 Exploratory factor analysis (EFA)

This method will help authors shortened set at a more latent variables (factors) from the set of observed variables. *Consistent standards for conducting analysis Exploring factors KMO coefficient is at least equal to 0.5, with p-Bartlett test smaller p-value of 0.05, the minimum factor loading of 0.5, equal to the gross variance extracted is 50%*. Due to technical analysis exploring factors do not consider relationships distinguish between dependent variable and independent variables (Hoang Trong and Chu Nguyen Mong Ngoc, 2008) and only considers the relationship between all the variables included in the analysis. So we will conduct analysis to Exploring factors independent variables and the dependent variable separately. Factor extraction method is the method of principal component with varimax rotation results from data analysis are as follows:

(a) The results of analysis of factors EFA scale logistics service quality:

From the survey results, the data were analyzed Exploring factors with the help of SPSS soft ware, after having eliminated the factor loading coefficient of variation less than 0.5, the analysis exploring last factor obtained as follows:

Tab. 3 – Result of KMO and Bartlett's test (factors of logistics service quality). Source: The results of analysis from SPSS 16.0 software.

Items		**Result**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,776
Bartlett's Test of Sphericity	Approx. Chi-Square	1374,80
	Df	153
	Sig.	0,000

Tab. 4 – Analysis of the gross variance extracted elements (logistics service quality). Source: The results of analysis from SPSS 16.0 software.

Thành phần	**Initial Eigenvalues**			**Rotation Sums of Squared Loadings**		
	Tổng	**% of Variance**	**Cumulative %**	**Tổng**	**% of Variance**	**Cumulative %**
1	4,944	27,469	27,469	2,732	15,180	15,180
2	2,229	12,384	39,853	2,490	13,835	29,015
3	1,960	10,888	50,740	2,252	12,509	41,523
4	1,444	8,020	58,760	2,150	11,947	53,470
5	1,030	5,724	64,484	1,983	11,014	64,484
6	0,925	5,139	69,624			
7	0,762	4,234	73,858			
8	0,628	3,489	77,348			
9	0,607	3,370	80,718			
10	0,558	3,102	83,819			
11	0,517	2,871	86,691			
12	0,501	2,786	89,477			
13	0,471	2,615	92,092			
14	0,366	2,035	94,127			
15	0,340	1,887	96,014			
16	0,320	1,775	97,789			
17	0,229	1,273	99,062			
18	0,169	0,938	100,000			

Extraction Method: Principal Component Analysis.

Tab. 5 – Result of rotated component matrix (logistics service quality). Source: The results of analysis from SPSS 16.0 software.

Items	**Components**				
	1	**2**	**3**	**4**	**5**
DU3	0,857				
DU4	0,826				
DU2	0,693				
DU1	0,657				
PT3		0,804			
PT1		0,794			
PT2		0,727			

PT4	0,689		
DC4		0,794	
DC3		0,784	
DC2		0,753	
NL3			0,787
NL2			0,772
NL4			0,632
DC1			0,586
TC2			0,824
TC1			0,780
TC3			0,722

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations

As can be seen, KMO =0.776 > 0.5, Bartlett's test have p-value = 0.000 < 0.05 (table 3), the gross variance extracted equal to 64,484% > 50% (table 4), the gross correlation coefficients are approximately greater than 0.5 and extracting 5 factors (table 5). Hence, the exploratory factor analysis of logistics service quality is acceptable.

(b) *The results of analysis EFA scale factors of customer satisfaction*

The results showed : KMO = 0.7612 > 0.5, Bartlett's test have p-value =0,000 < 0,05 (table 6), the gross variance extracted = 69,181% > 50% (table 7), variations observed only a single form factor (table 8). Hence, the exploratory factor analysis of customer satisfaction is acceptable.

Tab. 6 - Result of KMO and Bartlett's test (factors of customer satisfaction). Source: The results of analysis from SPSS 16.0 software.

Items		**Result**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,7612
Bartlett's Test of Sphericity	Approx. Chi-Square	872,869
	Df	10
	Sig.	0,000

Tab. 7 - Analysis of the gross variance extracted elements (customer satisfaction). Source: The results of analysis from SPSS 16.0 software.

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**		
	Total	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	3,459	69,181	69,181	3,459	69,181	69,181
2	0,643	12,870	82,050			
3	0,569	11,389	93,440			
4	0,293	5,869	99,308			
5	0,035	0,692	100,000			

Tab. 8 - Result of rotated component matrix (customer satisfaction). Source: The results of analysis from SPSS 16.0 software.

Items	Component
	1
SHL5	0,902
SHL2	0,900
SHL3	0,822
SHL4	0,805
SHL1	0,714

So after conducting analysis Exploring factors from the set of observed variables built, no single factor change. So the research model and research hypotheses remain the same as the original model.

5 RESEARCH RESULTS

5.1 Analysis Correlation

To examine the relationship between the dependent variable "overall satisfaction" and the factors in the model we use single correlation coefficient (Pearson correlation coefficient) for review. Other correlation coefficient unlike 0 and P- value of test-value less than 0.05 2 side can see the concepts related to each other. Positive correlation coefficient of relationship is expressed in the same direction, negative correlation coefficient expressed opposite relationship, the correlation coefficient between the larger factor represents the relationship between them as increasingly close. The results of analysis of data from the study are as follows:

Tab. 9 - Table of analytical the Pearson correlation coefficient. Source: The results of analysis from SPSS 16.0 software.

		DU	PT	DC	NL	TC	HL
DU	Pearson Correlation	1	0,180**	0,540**	0,318**	0,138*	0,619**
	Sig. (2-tailed)		0,010	0,000	0,000	0,050	0,000
	N	204	204	204	204	204	204
DC	Pearson Correlation	0,540**	0,204**	1	0,368**	0,336**	0,492**
	Sig. (2-tailed)	0,000	0,003		0,000	0,000	0,000
	N	204	204	204	204	204	204
NL	Pearson Correlation	0,318**	0,203**	0,368**	1	0,313**	0,405**
	Sig. (2-tailed)	0,000	0,004	0,000		0,000	0,000
	N	204	204	204	204	204	204
	Pearson	0,138*	0,137	0,336**	0,313**	1	0,263**

TC	Correlation						
	Sig. (2-tailed)	0,050	0,051	0,000	0,000		0,000
	N	204	204	204	204	204	204
SHL	Pearson Correlation	0,619**	0,334**	0,492**	0,405**	0,263**	1
	Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	
	N	204	204	204	204	204	204

**. Correlation is significant at the 0,01 level (2-tailed).

*. Correlation is significant at the 0,05 level (2-tailed).

Notes: DU is ability to respond; PT is a tangibles , DC is empathy; NL is the ability to serve; TC and SHL is the belief that the general satisfaction.

From the results of the study showed that among the factors that have a relationship with the dependent variable overall satisfaction, in which variables most strongly associated with DU (0.619, p <0.05) and correlated with variables weakest TC (0.263, p <0.05) and between factors also have a relationship with each other, the two-tailed p-value showed-value <0.05. (table 9). This suggests to consider carefully the possibility of multicollinearity in a multiple regression model.

5.2 Regression Analysis

Correlation analysis tells us that the relationship between concepts, but we do not know the relationship between them is the causality of how to test the research hypotheses. So we have to use regression analysis to examine the causal relationship between them. Analytical methods used method is to use the total least squares (OLS), the method put variable into the regression enter method (put all the variables at the same time) as it is the research expertise should approach would be more consistent enter step-wise approach (Nguyen Dinh Tho, 2011).

(a) The results of regression analysis method Enter

The results estimated from the study data as follows:

Tab. 10 – Result of assessing the calibrated model (model summary[b]). Source: The results of analysis from SPSS 16.0 software.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,700	0,490	0,477	0,38685	1,964

Tab. 11 – ANOVA (b). Source: The results of analysis from SPSS 16.0 software.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28,482	5	5,696	38,063	0,000
	Residual	29,632	198	0,150		
	Total	58,114	203			

Tab. 12 – Result of MRL with individual regression coefficients in the model. Source: The results of analysis from SPSS 16.0 software.

Model	Unstandardized coefficients		Unstandardized coefficients	t	Sig	Collinearity statistics	
	B	Std. Erros	Beta			Tolerance	VIF)
(Constant)	0,185	0,328		0,552	0,582		
DU	0,390	0,052	0,461	7,506	0,000	0,683	1,463
PT	0,250	0,057	0,184	3,505	0,001	0,933	1,072
DC	0,106	0,056	0,122	1,886	0,041	0,616	1,622
NL	0,187	0,071	0,149	2,617	0,010	0,790	1,266
TC	0,090	0,058	0,087	1,559	0,121	0,836	1,196

The regression equation is determined as follows:

SHL = 0,185 + 0,390DU + 0,250PT + 0,106DC + 0,187 NL + 0,090TC

MLR result shows that adjusted R^2 = 0.447, F-test (ANOVA) expresses the significance level sig. =0.000; thus, the regression model is suitable and these factors can explain 44,7% of the variations of the dependent variable.

(b) Testing of hypotheses

Tab. 13 - Regression analysis results. Source: The results of analysis from SPSS 16.0 software.

	Result	b	T	p- value
H1 : Credibility → Customer satisfaction	Reject	0,090	1,559	0,120
H2 : Capacity → Customer satisfaction	Accept	0,187	2,617	0,010
H3 : Empathy → Customer satisfaction	Accept	0,106	1,886	0,041
H4 : Ability → Customer satisfaction	Accept	0,390	7,506	0,000
H5 : Tangibles → Customer satisfaction	Accept	0,205	3,505	0,001

6 DISCUSSION AND IMPLICATIONS FOR ADMINISTRATORS

6.1 Discuss research results

Based on the results of quantitative research on the relationship between the elements of logistics service quality for the customers satisfication with Da Nang logistics companies can draw some conclusions as follows:

- In the condition research for logistics services is credibility factor is not a factor clearly influential to customers satisfaction. This was explained to the group of customers with goods often use the services of logistics often tend choice of transport enterprises prestigious brand before they decided the service. So attributes like reliability is required by Da Nang logistics companies, without it, the customers will definitely feel uneasy, do not trust to use logistics services company. (Hypothesis H1 is rejected because the results regression analysis showed that beta by 0.090> 0, but value p- value = 0.120> 0.05 (Table 13).
- If Da Nang logistics companies improved aspects of their service capacity, improve

customer care stages, improve response rates and the level of customers satisfaction of for vehicles, material foundations of units, the general satisfaction when using the company's logistics services will increase in the coming time. Such assumptions prove H2, H3, H4, H5 is accepted because the p-value value <0.05 (Table 13). All factors related to the quality of logistics services are affected in the same direction (+) to the general satisfaction of customers using the service.

6.2 The implication for administrators

To increase customers satisfaction with the use of logistics services, the business managers specialized service providers should pay attention to the issues related to: service capacity of the unit; improved customer care stitching; perfecting material foundations and capacity to meet the requirements of customers. As follows :

- Managers need to focus on maintaining maximum service capacity for the request, the proposal set out by customers in any given time. Want to accomplish this requires the construction units must strictly business plan, improve the capacity of the department to receive, analyze and process the information requirements of customers, synergies between departments and timely information quickly for managers for timely decision-making in the should / should not provide services to clients; decided to mobilize and take advantage of resources available to the company to meet the requirements, customer suggestions. Besides, managers must also take responsibility in market research surveys, capture the diverse needs of logistics service of each customer to have the best service plan.
- The management unit should also notion that customers were finding difficult, care and customer retention is even more difficult. So finding different options, especially the improvement and renewal of customer care sewn from sending a thank you note after the signing of contracts, e-mail notification about the progress of perform the contract ... until the researchers built a system of sales policy, care is something that the management company that provides logistics services to the note.
- In addition to constantly improve and enhance the material foundations especially the means of providing services, strengthening training, professional training, ethics and professional responsibilities for staff providing logistics services to customers must be regular jobs is an investment, adequate attention from the leaders of the company. Because the human factor is always the deciding factor and have the greatest impact to improve service delivery to meet the next element of tangibles.

6.3 The limitations of the study and suggestions for subsequent studies

- This study was perform according to convenience sampling method should bring results carrying heavy subjective elements of the study's authors, reduced objectivity and generalizability. So further research should consider the use of probability sampling methods because it ensures greater representation and increase in the size of the study sample for analysis more precise, Essential more merchandise.
- This study was only perform in the form of ownership of the customers is the type of business, rather than considering the effects of factors such as domestic and foreign customers, the size and nature of the case copper, the scale of enterprises using the service and other factors.

REFERENCES

Angelos Pantouvakis, Constantinos Chlomoudis, Athanassios Dimas. (2008). Testing the SERVQUAL scale in the passenger port industry: a confirmatory study. *Maritime Policy & Management* 35:5, 449-467. doi:10.1080/03088830802352095

Atilgan.E, Akinci.S & Arsoy.S. (2003). Mapping service quality in the tourism industry. *Managing service quality*, 13 (5), 412 – 422. doi:10.1108/09604520310495877

Babakus.E & Mangold.W. (1992). Adapting the SERVQUAL scale to hospital services: An empirical investigation. *Heath service research*, 26(6), 767 – 786. Retrieved from : http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1069855/

Bitner, M.J. (1992). Servicescape: the impact of the physical environment surrounds customers and employees. *Journal of Marketing*, 56, 69-82. Retrieved from : http://www.jstor.org/stable/1252042

Chow.C.C & Luk.P. (2005). A strategic service quality approach using analytic hierarchy process. *Management service quality*, 15(3), 278 – 289. doi:10.1108/09604520510597827

Cronin & Taylor. (1992). Measuring service quality : A reexamination an extention. *Journal of Marketing*, 56 (3), 55 -68. Retrieved from : http://www.jstor.org/stable/1252296?seq=1#page_scan_tab_contents

Durvasula.S & Lysonski.S.(2010). Diagnosing service quality in retailing : The case of Singapore. *Journal of international business entrepreneurship development*,5(1), 1-17. doi:10.1504/JIBED.2010.035196

Gavin R. Fick and J. R. Brent Ritchie. (1991). Measuring Service Quality in the Travel and Tourism Industry. *Journal of Travel Research*, 30 (2), 2-9.

doi: 10.1177/004728759103000201

Grönroos,.G (1984). A Service Quality Model and its Marketing Implications, *European Journal of Marketing*, 18(4), 36 - 44. doi:10.1108/EUM0000000004784

Hoang Trong, Chu Nguyen Mong Ngoc. (2008). Analyzing data with SPSS research, Ho Chi Minh city : Hong Duc publisher.

Kim D. Freeman and Jack Dart. (1993). Measuring the Perceived Quality of Professional Business Services. *Journal of Professional Services Marketing*, *9*(1), 27-47. doi:10.1300/J090v09n01_04

Mankiw .N.G. (2005). *Principles of Economics, International Student Edition*, 3th ed,Thomson.

Mostafa.M.M. (2005). An empirical study of patients expectations and satisfactions in Egyptian hospitals. *International journal of health care quality assurance*, 18 (7), 516 – 532. doi:10.1108/09526860510627201

Milorad Kilibarda, Slobodan Zečević, Milorad Vidović.(2012). Measuring the quality of logistic service as an element of the logistics provider offering. *Total Quality Management & Business Excellence 23*:11-12, 1345-1361. doi:10.1080/14783363.2012.704279

Oliveira.O.J.D. (2009). *Adaptation and application of the SERVQUAL scale in higher education*. POMA 20th Annual Conference. Orlando Florida USA. Retrieved from :

https://scholar.google.com.vn/scholar?q=Adaptation+and+application+of+the+SERVQUAL+scale+in+higher+education.&btnG=&hl=en&as_sdt=0%2C5

Parasuraman, A. V. A. Zeithaml, & L.L.Berry. (1985). A conceptual Model of Service Quality and its Implications for Future Research, *Jounal of Marketing*,49, 41-50. Retrieved from : http://www.jstor.org/stable/1251430

Parasuraman, Valarie A.Zeithaml & Leonard L. Berry (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49. Retrieved from : http://www.jstor.org/stable/1251430

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1986). SERVQUAL : a multiple-item scale for measuring customer perceptions of service quality. *Report No. 86-108*, Marketing Science Institute, Cambridge, MA.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988). SERVQUAL : a multi-item scale for measuring consumer perceptions of the service quality. *Journal of Retailing* , Vol. 64, No. 1, pp. 12-40.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, Vol. 67, pp. 420-450. Retrieved from :

http://search.proquest.com/openview/20ce41a3232b328c782d08cf26648612/1?pq-origsite=gscholar

Philip Kotler, Gary Armstrong. (1999). *Principles of Marketing*. PrenticeHall Upper Saddle River, New Jersey, USA, pp. 238; 258-260.

Thai V. Vinh. (2007). Service quality in maritime transport: conceptual model and empirical evidence. *Asia Pacific Journal of Marketing and Logistics*, Vol. 20 No. 4, pp. 493-518. doi:10.1108/13555850810909777

Srinivas Durvasula, Steven Lysonski, Subhash C. Mehta. (1999). Testing the SERVQUAL scale in the business-to-business sector: The case of ocean freight shipping service. *The journal of services marketing*, 13 (2), 132-151. doi:10.1108/08876049910266040

Spreng, R. A., and Mackoy, R. D. (1996). An Empirical Examination of a Model of Perceived Service Quality and Satisfaction. *Journal of Retailing*, 72(2), 201-214. doi:10.1016/S0022-4359(96)90014-7

Seth.A, Momaya.K & Gupta.H.M. (2008). Managing the customer perceived service quality for Cellular mobile Telephony: An Empirical investigation. *VIKALPA*, 3(1), 19 – 34. Retrieved from :

https://scholar.google.com.vn/scholar?q=Managing+the+customer+perceived+service+quality+for+Cellular+mobile+Telephony%3A+An+Empirical+investigation&btnG=&hl=en&as_sdt=0%2C5

Zarei.A, Arab.M, Froushani.A.R, Rashidian.A & Tabatabaei.S.M.G. (2012). Service quality of private hospitals: The Iranian patients` perpective, *BMC Health service Research*, 1 -7. doi: 10.1186/1472-6963-12-31

Zeithaml, V.A., and Bitner, M.J. (2000). *Services Marketing; integranting customer focus across the Firm*, 2nd ed, Mc Graw Hill. New York.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

APPLICATION OF TOPSIS METHOD FOR PERSONNEL SELECTION PROBLEM

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ABSTRACT

This research introduces a multi-criteria decision analysis solution for project manager assessment by employing TOPSIS technique. In-depth interviews with seventy-two experts in Vietnam companies have been conducted for the analysis. Four main groups of selection criteria, including basic requirements, project management skills, administration skills and personal skills, are incorporated in the project manager evaluation process. This method is found to be useful when dealing with plenty of assessment criteria and personnel candidates.

Keywords*:* *Personnel Selection, Decision Analysis, TOPSIS, Project Manager, Human Resource Management*

JEL Classification: M12, M54

1 INTRODUCTION

It is a challenged decision-making process for any organization to select an eligible candidate for a management position because his or her actions significantly impact on its achievements (Gatewood, Feild, & Barrick, 2015). Also, if unqualified people are chosen for a management position, this may discourage other personnel who are more qualified and appropriate for the position (Wang, Kao, & Liu, 2010). Furthermore, their motivation to work and devote to the company shall be eliminated. Especially, in large-scale enterprises, the demand for the business and service projects implementation within the enterprise is inevitable. In those organizations, projects are typically associated with a tremendous amount of investment capital as well as time, quality, and budget constraints. A key success factor of their projects is a project manager (Mohammadi, Sadi, Nateghi, Abdullah, & Skitmore, 2014; Sadeghi, Mousakhani, Yazdani, & Delavari, 2014).

Project manager plays an extremely significant role in the success of projects. The project manager must be able to organize and operate their projects by using their knowledge, experience, and necessary personal skills to achieve all project objectives (El-Sabaa, 2001; Odusami, 2002). The selection of qualified project managers is a challenging problem for any firms. Normally, it depends on company's specific objectives, the availability of human resources and the preferences of decision makers. Yet, the previous studies on project manager selection models have been very limited (Dodangeh, Sorooshian, & Afshari, 2014). Most of the existing evaluating and decision-making models are usually based on subjective opinions of decision makers, resulting in irrational and inappropriate decisions (Behzadian, Otaghsara, Yazdani, & Ignatius, 2012). In addition, the models also ignore the factors concerning uncertainty and the importance of assessors. To overcome these disadvantages, we propose a quantitative model for project manager selection by using the TOPSIS method.

2 PROJECT MANAGER EVALUATION CRITERIA

The first step to build the selection project manager model is to identify key selection criteria. Typically, different researchers and companies have different sets of selection criteria. For example, Pinto (2015) ranked the nine most critical skills of effective project managers in order of decreased importance including leader skills, visionary, technically competent, decisive, communication skills, motivator skills, stands up to top management when necessary, supports project members and encourages new ideas. Similarity, Meredith and Mantel Jr (2011) summarized the essential requirements and skills of a project manager into six groups including communication skills, technical background skills, team skills, coping skills, organization skills and leadership skills. In more detail, Abbas Rashidi (2011) pointed out twenty-three selection criteria and divided into four groups: technical and professional background, educational background, demographic features and general management abilities. And Mohammadi et al. (2014) suggested eighteen selection criteria in evaluating project manager applicants, including job experience, academic achievement, communication skills, Microsoft project software, planning skill, organizing skill, leading skill, controlling and monitoring skill, conducting meetings, record keeping, time management, property management, worker welfare management, rules and regulation, problem solving skills, decision analysis, multi-tasking, and correspondence. However, Goodwin (1993); Pheng and Chuan (2006) proved that conceptual skills, human skills, and technical skills are the main basic requirements. Despite different viewpoints of different researchers, in general, there are many similar criteria in assessing the project manager. Also, the selection criteria will depend on the project's characteristics and scale as well as the organization's objectives and vision.

In this research, we identified project manager selection criteria using in-depth interviews with seventy-two experts in Vietnam companies. The results showed that there are eighteen criteria divided into four main groups in the selection process as summarized in Tab.1.

Tab.1 - Project manager selection criteria. Source: Authors' survey data

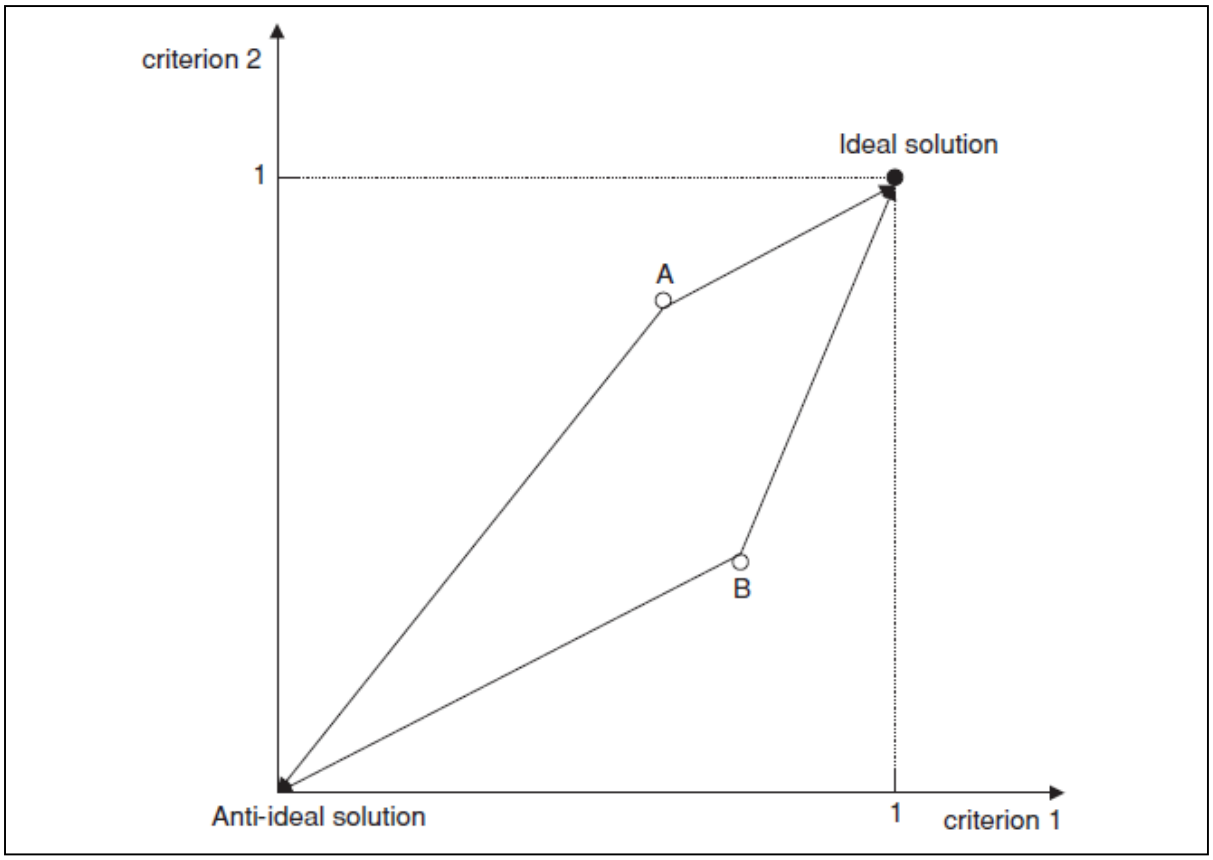
	Basic requirements
1	Experience managing and operating similar projects
2	Project management academic background
3	Knowledge of law and regulation
4	English languages and IT capability
5	Physical and mental health
	Project management skills
6	Planning skills
7	Organizing skills
8	Leading skills
9	Controlling and monitoring skills
	Administration skills
10	Conducting meetings skills
11	Negotiations skills
12	Human resources management skills

13	Time management skills
	Personal skills
14	Communication skills
15	Decision-making skills
16	Problem-solving skills
17	Teamwork skills
18	Training skills

3 RESEARCH METHODOLOGY

In this study, we applied the TOPSIS method to develop a model for project manager selection. The TOPSIS was originally introduced by Yoon and Hwang in 1981 (Pirdavani, Brijs, & Wets, 2010). It orders a set of alternatives having the nearest span to the positive ideal solution and the furthest span to the negative one (Önüt & Soner, 2008). For example, in Fig. 1, compared to alternative B, A is nearer to the ideal solution. Therefore, TOPSIS concludes that alternative A is a more favoured solution than B.

Fig.1 - Principle of TOPSIS method. Source: Authors' review of literature



In this research, the proposed TOPSIS procedure to rank project manager candidate is conducted with the following steps (Ju & Wang, 2012; Önüt, Efendigil, & Soner Kara, 2010):

Step one. Develop the normalized decision matrix of *n* candidates on *m* criteria by using distributive normalization*:*

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{j=1}^{n} x_{ij}^2}} \quad (1)$$

where: r_{ij} stands for the normalized value; i = 1,2, 3, . . . , m and j = 1, 2, 3,…, n.

Step two. Calculate the weighted normalized decision matrix.

$$v_{ij} = w_j * r_{ij} \quad (2)$$

where: w_i stands for the weight of the individual criterion; i= 1, . . . ,m and j = 1, 2, …, n.

Step three. Identity the positive ideal solution and the negative one.

For the positive ideal solution:

$$V^+ = (v_1^+, ,.., v_j^+ ..., v_n^+) \quad (3)$$

and for the negative ideal solution:

$$V^- = (v_1^-, ..., v_j^-, ..., v_n^-) \quad (4)$$

where $v_j^- = \min_i(v_{ij})$ if C_j is to be minimized.

And $v_j^+ = \max_i(v_{ij})$ if C_j is to be maximized

Step four. Calculate the distance for each alternative to both the positive ideal solution point

$$d_i^+ = \sqrt{\sum_{j=1}^{n} (v_j^+ - v_{ij})^2} \quad (5)$$

and the negative ideal one:

$$d_i^- = \sqrt{\sum_{j=1}^{n} (v_j^- - v_{ij})^2} \quad (6)$$

where i = 1,2 . . . ,m; $v_j^+ = \max_i(v_{ij})$ and $v_j^- = \min_i(v_{ij})$

Step five. Calculate each alternative's relative closeness coefficient to the ideal solution:

$$CC_i = \frac{d_i^-}{d_i^+ + d_i^-} \quad (7)$$

Step six. Order the alternatives and choose the one with a maximum value of closeness coefficients.

4 NUMERICAL ILLUSTRATION

With reference to the proposed criteria, to be simple for illustrative purposes only, the group of decision makers considered four main criteria with their significant weights as presented in Tab. 2:

Tab.2 - Main criteria for project manager selection problem.

Source: Authors' Calculation (2015)

	Main criteria	Weight
1	Basic requirements	0.30
2	Project management skills	0.30
3	Administration skills	0.20
4	Personal skills	0.20

Six candidates were selected and evaluated for their capacity for project management position with the following scores:

Tab.3 - The evaluation scores for project manager candidates.

Source: Authors' Calculation (2015)

Project manager candidate	Basic requirements	Project management skills	Administration skills	Personal skills
PM_1	55	50	45	55
PM_2	65	80	95	55
PM_3	90	60	75	65
PM_4	65	50	45	55
PM_5	70	95	55	60
PM_6	75	65	75	95

From the Tab. 3, we can see that the project manager candidates $PM_1$and PM_4 have the evaluation scores dominated by other candidates. Therefore, in the screening step, these alternatives were removed out of further calculation based on TOPSIS method. Then evaluators assessed the remaining project manager candidates by using TOPSIS procedure. The results show that the project manager candidate PM_4 is the best because it gains the highest relative closeness coefficient score (0.48) among all candidates.

5 CONCLUSION

Project manager plays dynamic roles in managing projects. Hence, selecting a qualified candidate to project manager position should be considered carefully. This paper proposes a quantitative approach to select a project manager by using multiple criteria decision-making technique, namely TOPSIS. We believe that this method can provide an even more structured way and reduce the time in evaluation and selection process of a project manager. Compared with traditional methods such as scoring technique, TOPSIS technique is very useful when the number of assessment criteria, as well as the number of project manager candidates, are significant. Moreover, it also takes into account the importance of the role and expertise of decision-makers in the evaluation process. On the other hand, limitations cannot be avoided in each study and this research is not an exception. The data collection in this research has only been conducted in Vietnam. Future research may try to collect data from different countries to check the generalization of project manager evaluation criteria. In addition, this study only used traditional TOPSIS method. A combined advance technique and TOPSIS can be a promising research method.

ACKNOWLEDGEMENT

The authors gratefully acknowledge Hochiminh City Open University (HCMCOU) for supporting this research.

REFERENCES

Abbas Rashidi (2011). Neurofuzzy genetic system for selection of construction project managers. *Journal of Construction Engineering and Management, 137*(1), 17-29.doi:10.1061/(ASCE)CO.1943-7862.0000200

Behzadian, M., Otaghsara, S. K., Yazdani, M., & Ignatius, J. (2012). A state-of the-art survey of TOPSIS applications. *Expert Systems with Applications, 39*(17), 13051-13069. doi:10.1016/j.eswa.2012.05.056

Büyüközkan, G., & Çifçi, G. (2012). A combined fuzzy AHP and fuzzy TOPSIS based strategic analysis of electronic service quality in healthcare industry. *Expert Systems with Applications, 39*(3), 2341-2354. doi:10.1016/j.eswa.2011.08.061

Danh, L. (2012). The Influence of Business Owner Ethics on the Vulnerability of Low-Income Labor Currently in Some Industrial Cities of Vietnam. *Journal of Applied Business & Economics*, 12(6),149-152.

Dodangeh, J., Sorooshian, S., & Afshari, A. R. (2014). Linguistic extension for group multicriteria project manager selection. *Journal of Applied Mathematics, 2014*, 8. doi:10.1155/2014/570398

El-Sabaa, S. (2001). The skills and career path of an effective project manager. *International Journal of Project Management, 19*(1), 1-7.doi:10.1016/S0263-7863(99)00034-4

Gatewood, R., Feild, H., & Barrick, M. (2015). *Human resource selection*: Nelson Education.

Goodwin, R. (1993). Skills required of effective project managers. *Journal of Management in Engineering, 9*(3), 217-226.doi:10.1061/(ASCE)9742-597X(1993)9:3(217)

Ju, Y., & Wang, A. (2012). Emergency alternative evaluation under group decision makers: A method of incorporating DS/AHP with extended TOPSIS. *Expert Systems with Applications, 39*(1), 1315-1323. doi:10.1016/j.eswa.2011.08.012

Mahdavi, I., Heidarzade, A., Sadeghpour-Gildeh, B., & Mahdavi-Amiri, N. (2009). A general fuzzy TOPSIS model in multiple criteria decision making.*The International Journal of Advanced Manufacturing Technology, 45*(3), 406-420. doi:10.1007/s00170-009-1971-5

Meredith, J. R., & Mantel Jr, S. J. (2011). *Project management: A managerial approach*: John Wiley & Sons.

Mohammadi, F., Sadi, M. K., Nateghi, F., Abdullah, A., & Skitmore, M. (2014). A hybrid quality function deployment and cybernetic analytic network process model for project manager selection. *Journal of Civil Engineering and Management, 20*(6), 795-809. doi:10.3846/13923730.2014.945952

Nguyen, T., & Nguyen, P. (2015). Explaining model for supervisor's behavior on safety action based on their perceptions. *Journal of Engineering and Applied Sciences, 10*(20)9562-9572.

Odusami, K. (2002). Perceptions of construction professionals concerning important skills of effective project leaders. *Journal of Management in Engineering, 18*(2), 61-67. doi:10.1061/(ASCE)0742-597X(2002)18:2(61)

Önüt, S., Efendigil, T., & Soner Kara, S. (2010). A combined fuzzy mcdm approach for selecting shopping center site: An example from Istanbul, Turkey. *Expert Systems with Applications, 37*(3), 1973-1980. doi:10.1016/j.eswa.2009.06.080

Önüt, S., & Soner, S. (2008). Transshipment site selection using the ahp and topsis approaches under fuzzy environment. *Waste Management, 28*(9), 1552-1559. doi:10.1016/j.wasman.2007.05.019

Pheng, L. S., & Chuan, Q. T. (2006). Environmental factors and work performance of project managers in the construction industry. *International Journal of Project Management, 24*(1), 24-37. doi:10.1016/j.ijproman.2005.06.001

Pinto, J. K. (2015). *Project Management: Achieving competitive advantage* (4 ed.): Pearson International Inc.

Pirdavani, A., Brijs, T., & Wets, G. (2010). A multiple criteria decision-making approach for prioritizing accident hotspots in the absence of crash data.*Transport Reviews, 30*(1), 97-113. doi:10.1080/01441640903279345

Sadeghi, H., Mousakhani, M., Yazdani, M., & Delavari, M. (2014). Evaluating project managers by an interval decision-making method based on a new project manager competency model. *Arabian Journal for Science and Engineering, 39*(2), 1417-1430. doi:10.1007/s13369-013-0631-0

Wang, Y.-J., Kao, C.-S., & Liu, L.-J. (2010). The selection of sales managers in enterprises by fuzzy multi-criteria decision-making. In F. L. Wang, H. Deng, Y. Gao, & J. Lei (Eds.), *Artificial intelligence and computational intelligence: International Conference, AICI 2010, Sanya, China, October 23-24, 2010, proceedings, part II* (pp. 142-151). Berlin, Heidelberg: Springer Berlin Heidelberg.

Yang, L., & Deuse, J. (2012). Multiple-attribute decision making for an energy efficient facility layout design. *Procedia CIRP, 3*, 149-154. doi:10.1016/j.procir.2012.07.027

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

MEASURING SOCIAL CAPITAL: THE CASE FOR RURAL TO URBAN MIGRANT LABOURERS IN HO CHI MINH CITY, VIETNAM

Phuc Van Nguyen, Quyen Le Hoang Thuy To Nguyen

ABSTRACT

This study aims to measure social capital for rural to urban migrant labourers in Ho Chi Minh City, Vietnam by developing an integrated index. Partial Least Squares-Structural Equation Model (PLS-SEM) with the combination of both reflective and formative constructs is applied. Employing the primary data of a survey conducted in Ho Chi Minh City, Vietnam in 2015, the hierarchical model confirms the statistically significant contribution of structural (network) and cognitive (trust) components to social capital index. Compared to network, trust has a stronger effect on the index. Six dimensions of social capital are distinguished including bonding, bonding-link, bridging, bridging-link, particular trust and general trust. The first four and the second two are categorized as network and trust respectively. Bonding and bonding-link share lesser weights than bridging and bridging-link in the structural score while general trust and particular trust nearly contribute the same weight to the cognitive score. The index shall provide a general picture of the rural to urban migrant labourers' social capital in Ho Chi Minh City and give an empirical result for further micro-research on the social capital outcomes.

Keywords: *Social Capital Indicator, Index, Formative, Hierarchical, Reflective Modeling*

JEL Classification: A1, K0

1 INTRODUCTION

Social capital has consently been considered as a network resource by the researchers' community. It is found as an important driver for individual and community outcomes besides other traditional resources such as natural, economic and human capital (Coleman, 1988; Putnam et al., 1993; Granovetter, 1995; Narayan and Pritchett,1997; Lee et al.,2011). The findings of previous empirical studies have confirmed its benefit, especially to the poor (Grootaert et al.,2004).

In Vietnam, social capital outcomes have become an interest of various interdisciplinary researchers since early 2000. However, the empirical findings were challenged due to the difficulty in social capital measurement (Uphoff and Wijayaratna, 2000). As a consequence of a multi-dimension concept, a consent definition of social capital is still debatable. Moreover, the impacts of different types of social capital are not the same (Granovetter, 1995). According to Krishna and Uphoff (2002), well-reflected social capital indicators in Italy may become inappropriate for other countries owning to its contextual characteristics. Therefore, it is essential to develop an integrated index to measure social capital for the rural to urban migrant labourers in Ho Chi Minh City. It is fundamental for further micro-research on the social capital outcomes.

2 THEORETICAL BACKGROUND

2.1 Social capital definition

According to Hanifan (1916), the word "capital" in "social capital" does not refer to real assets. It implies values such as friendship, tolerance and good attitude towards the network's members. When the network is connected, social capital accumulation shall occur, which may bring positive externality to the individual and the community. In the definition, Hanifan (1916) implicitly indicates two features of social capital which are widely accepted as capital characteristics: i) accumulation and ii) future return.

Bourdieu (1986) has developed Hanifan's view when clarifying network by defining a structure of more or less institutionalized relationships. However, the network is necessary but not sufficient for social capital creation. Coleman (1988) has added to the definition with the emphasis on trust, shared norms and networks which can drive the coordination actions in the society. Putnam et al. (1993) have emphasized that shared norms are fostered by trust. In short, social capital concept with the composition of network and trust has got a wide consensus in the social capital research communities (Van Beuningen and Schmeets, 2013).

2.2 Social capital measurement

As a consequence of diversified definition, hierarchical model of the social capital index can be different in each research to serve various objectives. However, the common consent on the composition of structural and cognitive indicators at the second level as referred in Fig.1 has been reached.

Structural social capital is approached as an individual network based resource. The actual or potential network resources accessed by individual depend on his or her tie strength and social standing with the network members. Tie strength is a criterion to distinguish bonding (strong ties) and bridging (weak ties) while social standing is for linking (formal ties) (Woolcock and Narayan, 2000; Szreter and Woolcock, 2004). Bonding can enhance the consolidation within a closed network but it may, without bridging, derive the narrow interest and the consequence is outsiders' exclusion (Portes,2000). The same philosophy is applied for linking. A strong linking may benefit the favoured groups by accessing to great funding or less strict regulations, which is potential for corruption. Therefore, the combination of social standing with bonding and bridging to form bonding-link and bridging-link besides a traditional way of analyzing social capital as bonding, bridging and linking is an innovative way (Dinh et al., 2012). The development of social capital index based on this new philosophy is desirable for micro-research on the social capital outcomes.

Trust has widely supported as cognitive social capital (Knack and Keefer,1997; Newton, 2001; Baum and Ziersch, 2003). Trust expresses the beliefs about predicted actions. Trust can be categorized as particular, general and institutional one. In fact, general trust relies on the institutional frame of the society and therefore, institutional trust is under the umbrella of general trust. Moreover, the two functions of bonding and bridging have lead to the popular classification of particular trust and general trust respectively (Stone et al.,2004). Particular trust resides in closed network while general trust extends to the strangers in society (open networks). Van Beuningen and Schmeets (2013) evidenced that the indicators in the second and third order constructs are not correlated. Meanwhile, there exists the conceptual correlation among the measurements of the first order construct. Therefore, the higher-order construct of social capital is measured by both reflective and constructive models. The differences between reflective and formative constructs are referred in Tab.1.

Tab.1 - Reflective versus formative construct. Source: Roy et al. (2012)

Reflective construct	Formative construct
The construct causes indicators: $X_i = \beta_i Y + \varepsilon_i$ where X_i: the i^{th} indicator Y: the reflective construct β_i: the coefficient measuring the expected impact of Y on X_i ε_i: the measurement error for X_i	Indicators cause the construct: $Y = \gamma_i X_i + \delta$ where X_i: the i^{th} indicator Y: the formative construct γ_i: the weight contributed by X_i δ: the common error term

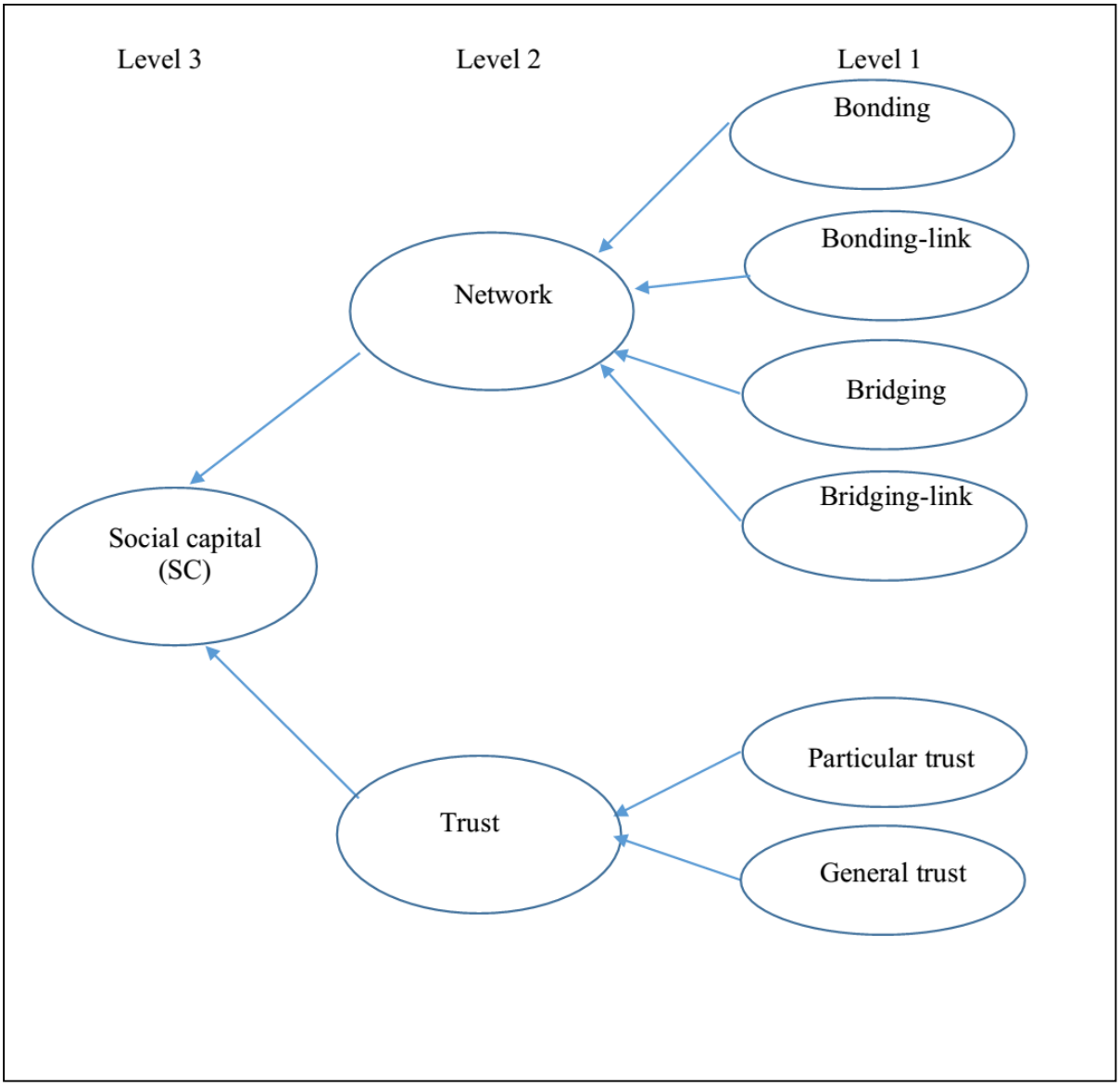

Fig. 1 – Hierarchical model of social capital. Source: Authors' review of literature

Personal social capital has widely attracted micro-researchers. The simplest measure proposed by Putnam et al. (1993) is membership of voluntary organizations. This becomes the departure for later researches with more development of this index by measuring individuals network and trust as summarized in Tab. 2.

Tab.2 - Social capital measurement. Source: Authors' review of literature

Variables	Descriptions
Network participation	Network participation including organizations (weak ties) and network of closed people (strong ties) (Putnam et al.,1993; Narayan and Cassidy,2001; Grootaert et al., 2004)
Potential resource	Frequency of network participation/contact (Chen et al., 2009; Wang et al.,2014)
Actual resource	Benefit received and/or help provided by individual from/to network members (Chen et al., 2009; Wang et al.,2014)
Trust	Trustful perception on individuals and society (Grootaert et al., 2004; Chen et al.,2009; Wang et al.,2014)

Social capital theory emphasized the importance of network participation quality because it predicts the potential resource. Active networks' membership, defined as a member who joins the network's activity at least once in the previous 12 months is an adequate measure to reflect this qualification. In this study, networks are measured based on the division of bonding, bonding-link, bridging and bridging-link. According to Stone et al. (2004), bonding is defined as informal and closed ties such as family, friendship and neighbors. Formal but closed ties which religion is an example, are considered as bonding-link. Bridging refers to general and community based relationships, typically as sport/art/culture/ entertainment clubs and groups. Bridging-link focuses on institutional aspect, including governmental, political, business, social groups, organizations and associations. Particular trust and general trust are measured by asking a series of questions about trustful and reciprocal perception the individual extends to his/her closed and open networks.

3 METHODOLOGY

Qualitative and quantitative approaches are used in designing this research. The results of previous empirical researches and group discussion are fundamental for exploring the social capital structure and optimal scale of measurement for primary data collection. The pilot survey has been done to confirm the favor of 0-10 scale (11-point scale) and similarity in understanding formal and informal, open and closed network structure, common features of developing countries (Narayan and Cassidy, 2001). Tab. 3 presents the description of questions used to measure social capital

Tab. 3 - Social capital measurement. Source: Authors' review of literature (2015)

Code	Description		Source
	Dimension	Questions	
Bond	Bonding	1.Rate the routine contact with closed network 2. Rate the emotional intimacy with closed network 3. Benefit received from closed network 4. Help provided to closed network	Boase and Wellman (2004) Wang et al. (2014)
Bolink	Bonding-link	1. Active member of religious group 2. Benefit received from the group 3. Help provided to the group	Wang et al. (2014) Putnam et al. (1993) Baum and Ziersch, (2003); Flap (2002)
Brid	Bridging	1. Active members of sport/art/culture/ entertainment clubs, groups (country fellow, sport, art, etc) 2. Benefit received from them 3. Help provided to them	Wang et al. (2014) Flap (2002) Baum and Ziersch (2003)
Bridlink	Bridging-link	1. Active members of governmental, political, business, social groups, organizations, associations (political party, women's groups, trade union, etc) 2. Benefits received from them 3. Help provided to them	Wang et al. (2014) Flap (2002) Baum and Ziersch (2003)
Partrust	Particular trust	1. Rate the trust extended to closed network 2. Rate the importance of personal ties to reach the desired goal in life 3. Rate the preference of personal ties to written contract	Wang et al. (2014) Baum and Ziersch (2003) Chen and Lu (2007)
Gentrust	General trust	1. Rate the reciprocal possibility when dealing with difficulties 2. Rate the trust extended to strangers	Chen and Lu (2007) Naef and Schupp (2009)

3.1 Social capital definition

The study analyzed the data from the cross-sectional field survey in Ho Chi Minh City, Vietnam during September to December 2015. The rationale for selecting this city resides in its attracting destination of rural to urban migrant labourers (Le, 2013) with the leading net migration rate in the country (GSO, 2014). A structured questionnaire was designed as a data collecting instrument to take advantages of closed-end questions regarding responses uniformity and easy

processing (Babbie,2001). Participants are those with i) age of 18-55, which is in the range of Vietnamese working age ii) living a period of 6 months-10 years in Ho Chi Minh City to ensure the city life integration and iii) non-city dweller at the age of 0-17. These criteria are applied in this study due to the standard practice in national censuses and local researches on rural to urban migrant labourers. In each household, one participant was interviewed. In case more than one respondent was available, all of them were included.

3.2 Data analysis

3.2.1 Exploratory Factor Analysis (EFA)

As a contextual construct, the underlying structure of social capital needs to be studied. EFA is a proper technique for exploring measured items in the construct (Hair et al., 2010). However, researcher's subjectiveness is the limitation of EFA due to unavailability of the definite statistical test (William et al., 2012). Hence, the researcher's logic and careful judgement is a remedy for this shortage (Henson and Roberts, 2006).

3.2.2 Partial Least Square- Structural Equation Model (PLS-SEM)

Structural Equation Model (SEM), a multivariate technique based on the combination of both factor analyis and regression, has been considered as an advanced statistical method for data analysis in complicated models of the latent and measured variables (Hair et al., 2010). Two methods: covariance-based techniques (CB-SEM) and variance-based partial least squares (PLS-SEM) are taken into considerations when conducting SEM. PLS-SEM becomes an optimal alternative for researchers when dealing with i) non-normality data set ii) minimum demand of sample size and iii) the use of both formative and reflective modes.

As analyzed in section 2.2, both formative and reflective constructs are used in this study to build the hierarchical model of social capital. In addition, skewness and kurtosis are normally found in the data with self-perception and attitude based questionnaires. Therefore, PLS-SEM is superior to CB-SEM in this situation.

4 DATA DESCRIPTION

Survey questionnaires were sent to participants who have satisfied three criteria as mentioned in section 3.1. Five hundred questionnaires were delivered and explained to them by trained data collectors. Of these, 450 responses were returned with 90% rate of response. The survey took 30 minutes on average. A further data review excluded 31 responses with missing data. Tab. 4 summarizes the description of the study sample. Male and female rates were approximately equal. Religious participants shared 42.8% of the total. The largest proportion of participants (56.1%) were from the South. Over half of them were under 30 years. Participants with degrees accounted for over 95%.

Tab.4 - Description of the study sample (N=419). Source: Authors' survey data (2015)

Description	%
Gender	
Male	50.1
Female	49.9
Religion	42.8
Departure	
From the North	10.5
From the Central and High Land	33.4
From the South	56.1
Age group	
Under 30 years	53.0
30-40 years	30.0
Over 40 years	17.0
Education	
Under grade 12	4.8
Grade 12, vocational school, college	30.8
Graduate	39.1
Postgraduate	25.3

5 RESULT AND DISCUSSION

5.1 Index evaluation

5.1.1 Measurement reliability

Cronbach's alpha and item-to-total correlation are used to verify the measurement reliability in EFA. A high alpha coefficient indicates a strong correlation of measured items and vice versa. The later parameter identifies measured items for exclusion if being supported by the theory and such an elimination may considerably increase the alpha coefficient of the factor. Rule of thumb for low alpha is 0.7 and 0.5 for the later (Hair et al., 2010)

Eighteen measured items under six factors arise after verifying measurement reliability. All item-to-total correlations exceed 0.5. The alpha of these factors as indicated in Tab. 4 ranges from 0.737 to 0.909, exceeding the threshold level of 0.7, implying a high internal reliability of the factors

Tab. 4 - Cronbach's alpha. Source: Authors' survey data (2015)

No.	Description	Measurement items	Cronbach's alpha
1	Bonding	04	0.799
2	Bonding-link	03	0.888
3	Bridging	03	0.909
4	Bridging-link	03	0.889
5	Particular trust	03	0.758
6	General trust	02	0.737

5.1.2 EFA Analysis

Kaiser-Meyer-Olkin (KMO) is used to confirm the satisfaction of data requirements for EFA analysis. Rule of thumb indicates an adequacy of the sample size when the KMO has value of larger than 0.5 and lower than 1 (0.5<KMO<1). Kaiser (1974) proposed the following levels of

evaluation for simplicity: in the 0.9s, excellent; in the 0.8s, good; in the 0.7s, middling; in the 0.6s, moderate; in the 0.5s, miserable; below 0.5, unacceptable. Another measure to examine the measured items correlation is Barlett's test of sphericity. It provides the statistical test for the presence of correlation among the measured items (Hair et al., 2010). The cumulative variance (%) is the amount of its variance explained by the factor. Using this guide, all variables with communalities less than 0.5 are not considered sufficient explanation (Hair et al., 2010)

Factor loading is another parameter to ensure practical significance of EFA analysis. According to Hair et al. (2010), the larger the factor loading is, the more important it is in interpreting the factor matrix. The minimum level and practical significance for structure explanation of factor loadings are in the range of +/- 0.3 to +/-0.4 and +/- 0,5 or greater respectively. Comrey and Lee (1973) suggested the acceptable loadings of 0.45-0.54. Also, Costello and Osborne (2005) noted that the value of 0.5 or larger is required if a factor has less than three measured items.

The EFA results in Tab. 5 with KMO =0.732 and % cumulative variance of 67.4 imply the appropriateness for the next analysis step of PLS-SEM.

5.1.3 PLS-SEM Analysis

The PLSPM package in R is used to estimate the model with both reflective and formative constructs. In the reflective model, unidimensionality, convergent and discriminant validity are examined (Sanchez, 2013).

Tab.5 - EFA Analysis result. Source: Authors' Calculation (2015)

	Factor					
	1	2	3	4	5	6
Brid2	.938					
Brid1	.923					
Brid3	.897					
Brid_link2		.906				
Brid_link3		.899				
Brid_link1		.878				
Bond_link1			.941			
Bond_link3			.879			
Bond_link2			.823			
Bond1				.779		
Bond2				.737		
Bond3				.694		
Bond4				.608		
Part_tr3					.795	
Part_tr2					.746	

Part_tr1	.617	
Gel_tr2		.820
Gen_trt1		.692

Unidimensionality is verified with: 1) Cronbach's alpha, 2) Dillon-Goldstein's rho and 3) eigenvalue of the indicators' correlation matrix. The first parameter implies how well the measured items reflect the construct. The second refers to the variance of measured items in the construct. As a rule of thumb, the unidimensional criterion is met when the two parameters exceed 0.7. The third criterion evaluates the 1st eigenvalue, which is greater than 1 whereas the 2nd eigenvalue is less than 1 (Sanchez, 2013).

According to Hair et al. (2010), convergent validity test verifies loadings of the measured items as well as the average variance extracted (AVE). A common rule of thumb for loading value of 0.708 or higher. The rationale of this rule is the square of loading, defined as communality, equaling 0.50.

Discriminant validity implies the unique and distinct construct through comparing the square root of the AVE values with the construct correlations (Fornell-Larcker criterion). The behind logic is that more variance is explained by a construct associated measured items than with others. Another method is based on cross loadings, which is to imply the different level of a given construct compared to the others. (Sanchez, 2013).

Tab. 6 presents the reflective model with alpha ranging from 0.73 to 0.94 and Dillon-Goldstein's rho of 0.88-0.96, exceeding the threshold of 0.7. In addition, the 1st eigenvalue is much larger than 1 (1.5-2.6) while the 2nd eigenvalue is smaller than 1 (0.17-0.66). The results satisfy unidimensional criteria.

Tab. 6 - Unidimensional test of reflective model. Source: Authors' Calculation (2015)

	Cronbach's alpha	Dillon-Goldstein's rho	1st eigenvalue	2nd eigenvalue
Bridging (Brid)	0.9410026	0.9621671	2.683466	0.1795738
Bridging-link (Brid_link)	0.9212561	0.9501357	2.591936	0.2274695
Bonding-link (Bond_link)	0.9120014	0.9446598	2.551677	0.2791829
Bonding (Bond)	0.7991892	0.8693100	2.499347	0.6602927
Particular trust (Part_tr)	0.7623070	0.8633389	2.034607	0.5429089
General trust (Gen_tr)	0.7368930	0.8837408	1.583397	0.4166028

The convergent and discriminant validity of the reflective model, indicated in Tab.7 are reached with the measured items' loadings of 0.74-0.95 (>0.7), and they are the highest in the measured constructs.

Tab. 7 - Cross-loadings matrix. Source: Authors' Calculation (2015)

	Bond_link	Brid	Brid_link	Bond	Part_tr	Gen_tr
Bond_link1	**0.931367674**	0.026411317	-0.16767580	-0.05349173	0.04450031	-0.005621986

	Bond_link	Brid	Brid_link	Bond	Part_tr	Gen_tr
Bond_link3	**0.918750356**	0.045562034	-0.14894071	-0.04044641	0.05455979	0.003041734
Bond_link2	**0.915261295**	0.070523444	-0.12234033	-0.03230899	0.09300471	-0.015443004
Brid1	0.056997914	**0.954733715**	0.28413976	0.10148819	0.12640353	0.110581234
Brid3	0.024114117	**0.937197427**	0.23471627	0.05870127	0.07596848	0.085166416
Brid2	0.069770283	**0.945212977**	0.20189584	0.06116467	0.10945653	0.068629125
Brid_link1	-0.176303228	0.185148205	**0.91635162**	0.13047705	0.16046496	0.020027790
Brid_link3	-0.139419089	0.255706240	**0.93375867**	0.14039869	0.18679107	0.052033507
Brid_link2	-0.124944104	0.266738881	**0.93811461**	0.12668176	0.15796573	-0.015852840
Bond4	-0.002133267	0.002166634	0.03425251	**0.70916219**	0.23595999	0.292470531
Bond2	-0.017572589	0.013790831	0.08935739	**0.80517878**	0.26007653	0.318845460
Bond1	-0.055913803	0.031830530	0.07714350	**0.80487641**	0.24760114	0.283206575
Bond3	-0.054851226	0.158211694	0.20516150	**0.82857404**	0.29509222	0.293319783
Part_tr3	0.048805021	0.090289638	0.09572518	0.27338272	**0.84238298**	0.137347277
Part_tr2	0.063749056	0.065870029	0.12579005	0.26610071	**0.84862655**	0.180831138
Part_tr1	0.064862169	0.122253738	0.23871495	0.28455006	**0.77724982**	0.076240879
Gen_tr1	0.023982758	0.045983996	0.01197033	0.33336864	0.14097585	**0.889078772**
Gen_tr2	-0.036149196	0.120830602	0.02351050	0.33256693	0.14897943	**0.890468080**

Owning to the uncorrelation of measured items in formative model, its evaluation is in a different way of reflective construct. In formative model, weights are used to identify the indicator's contribution. As a variance is explained by loadings instead of weights; therefore, formative weights are normally lower than reflective factor loadings (Hair et al., 2010). Finally, bootstrapping analysis with initial model used as an input is estimated to ensure the stable results.

The results in Tab. 8 show the weights calculating in the model contribute significantly to the integrated index with the total of six dimensions. Robustness of the index has been confirmed with bootstrapping. Trust has a stronger effect on the index than network with approximately equal proportions of particular trust and general trust. Bonding and bonding-link share lesser weight than bridging and bridging-link in network component. The results indicate the positive tendency of social capital development in the rural-to-urban migrant labourers in Vietnam. Though the cultural similarity and the respondents are from rural areas of Vietnam, bonding social capital was not a solid foundation as in China (Xia, 2014). Tab. 9 summarizes the result of formative and reflective models.

Tab. 8 - Bootstrapping test of formative model. Source: Authors' Calculation (2015)

	Original Weight	Mean Bootstrapping	Standard Error	5% significant level	
Bond_link_ score	0.2985592	0.2980421	0.017658869	0.2617721	0.3330157
Brid_score	0.5267437	0.5272562	0.021614964	0.4836860	0.5691201
Brid_link_score	0.5744865	0.5761586	0.020798271	0.5341400	0.6140639
Bond_score	0.3501553	0.3500442	0.018800188	0.3113831	0.3881876
Part_tr_score	0.6409053	0.6417160	0.017814587	0.6073044	0.6758882
Gen_tr_score	0.6713823	0.6702743	0.020424074	0.6333270	0.7140935
Struc_score	0.7904673	0.7916893	0.025829287	0.7427481	0.8393635
Cog_score	0.8824720	0.8834397	0.032310226	0.8249555	0.9488638

Tab.9 - Results of formative and reflective models. Source: Authors' Calculation (2015)

Dimension/ weight	Factor	Weight	Measured items	Loadings
Network 0.79	Bonding	0.35	Rate routine contact with closed network (relatives, neighbors, friends, fellows, others), using 0-10 scale (bond1)	0.804
			Rate emotional intimacy with closed network (relatives, neighbors, friends, fellows, others), using 0-10 scale (bond2)	0.805
			Benefit (material, non-material) received from closed network (relatives, neighbors, friends, fellows, others) (bond4)	0.709
			Help (material, non-material) provided to closed network (relatives, neighbors, friends, fellows, others) (bond3)	0.828
	Bonding-link	0.29	Active religious member (bond_link1)	0.931
			Benefit (material, non –material) received from religious organization (bond_link3)	0.918

Dimension/ weight	Factor	Weight	Measured items	Loadings
			Help (material, non-material) provided to religious organization (bond_link2)	0.915
	Bridging	0.52	Active member of donation, country fellows, sport, culture and others (brid1)	0.954
			Benefit (material, non –material) received from the organizations (brid3)	0.937
			Help (material, non-material) provided to the organizations (brid2)	0.945
	Bridging-link	0.57	Active members of parents, informal savings, youth union, party, women's association, trade union, veteran's association, professional association and others (brid_link1)	0.916
			Benefit (material, non –material) received from the organizations (brid_link3)	0.933
			Help (material, non-material) provided to the organizations (brid_link2)	0.938
Trust 0.88	Particular trust	0.64	Rate the trust extended to closed network (relatives, neighbors, friends, fellows, others), using 0-10 scale (part_tr1)	0.777
			Rate the importance of personal ties to reach the desired goal in life, using 0-10 scale (part_tr2)	0.848
			Rate the preference of personal ties to written contract, using 0-10 scale (part_tr3)	0.842
	General trust	0.67	Rate the reciprocal possibility when dealing with difficulties, using 0-10 scale (gen_tr1)	0.889
			Rate the trust extended to strangers, using 0-10 scale (gen_tr2)	0.890

6 CONCLUSION

In Vietnam, not many studies have explored the measurement model of social capital by developing an integrated index using PLS-SEM. This statistical modeling technique is a proper choice in research situations of small sample sizes, non-normally distributed data and complicated model, which are commonly encountered in social sciences. The social capital

index of rural to Ho Chi Minh City migrant labourers includes two components: network and trust, which is consistent with the theory and previous empirical findings. Therefore, it is an empirical illustration for a complete set of indicators used in social capital index for further research on its outcomes in Vietnam context. The strength of this integrated index is to indicate the contribution of each dimension to component, then to the index. Moreover, the combination of social standing to ties strength to classify social capital as bonding, bonding-link, bridging, bridging-link is innovative and practical for studying the impacts of all social capital dimensions to better exploit its positive aspects and eliminate the negative ones.

The research finds that trust is more important than network. This reflects the priority in nurturing trust for the Vietnamese. In addition, the research results confirm the importance of bridging and bridging-link compared to bonding and bonding-link. This implies the necessity of fostering the open network, especially when it combines with social standing because it is useful for leveraging the resources in the community.

REFERENCES

Babbie, E. (2001). The practice of social research, 9th edn. Wadsworth/Thomson Learning. *Inc, Belmont.*

Baum, F. E. and Ziersch, A. M. (2003). Social capital. *Journal of Epidemiology and Community Health, 57*, 320–323. doi:10.1136/jech.54.6.404

Boase, J., & Wellman, B. (2004). Suggested question on social networks and social capital. *Report to the Policy Research Initiative. Ottawa, Canada*.

Bourdieu, P. (1986). The Form of capital. *Handbook of theory and research for the sociology of education*. JG Richardson.

Chen, J., & Lu, C. (2007). Social Capital in Urban China: Attitudinal and Behavioral Effects on Grassroots Self-Government. *Social Science Quarterly*, *88*(2), 422-442. doi:10.1093/her/cyn020.

Chen, X., Stanton, B., Gong, J., Fang, X., & Li, X. (2009). Personal Social Capital Scale: an instrument for health and behavioral research. *Health education research*, *24*(2), 306-317. doi: 10.1093/her/cyn020

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, S95-S120.

Comrey, A. L., & Lee, H. B. (1973). A first Course In Factor Analysis. New York: *Academic Press*.

Costello, A., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment Research and Evaluation, 10* (7), 1-9.

Dinh, Q. H., Dufhues, T. B., & Buchenrieder, G. (2012). Do Connections Matter? Individual Social Capital and Credit Constraints in Vietnam. *European Journal of Development Research*, *24*(3), 337-358. doi:10.1057/ejdr.2012.11

Flap, H. (2002). No man is an island: the research programme of a social capital theory. *Conventions and Structures in Economic Organisations: Markets and Hierarchies. Cheltenham: Edward Elgar*.

Granovetter, M. (1995). *Getting a job: A study of contacts and careers*. University of Chicago Press.

Grootaert, C. (Ed.). (2004). *Measuring social capital: An integrated questionnaire* (No. 18). World Bank Publications.

GSO (2014). In-migration rate, out-migration rate and net-migration rate by province. https://www.gso.gov.vn/default_en.aspx?tabid=774 accessed on 18/3/2016

Hanifan, L. J. (1916). The rural school community center. *Annals Of The American Academy Of Political And Social Science*, *67*, 130-138.

Hair, J. F. J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate Data Analysis Seventh Edition. *Prentice Hall*.

Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research common errors and some comment on improved practice. *Educational And Psychological Measurement*, *66*(3), 393-416. doi: 10.1177/0013164405282485

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31-36. doi: 10.1007/BF02291575

Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly Journal Of Economics*, 1251-1288. doi: 10.1162/003355300555475

Krishna, A., & Uphoff, N. (2002). Mapping and measuring social capital through assessment of collective action to conserve and develop watersheds in Rajasthan, India. *The Role of Social Capital in Development*, 85.

Le, A. T. K. (2013). *Health and access to health services of rural-to-urban migrant populations in Viet Nam* (Doctoral dissertation, University_of_Basel).

Lee, D., Jeong, K. Y., & Chae, S. (2011). Measuring social capital in East Asia and other world regions: index of social capital for 72 countries. *Global Economic Review*, *40*(4), 385-407. doi:10.1080/1226508X.2011.626149.

Naef, M., & Schupp, J. (2009). Measuring trust: Experiments and surveys in contrast and combination. *IZA discussion papers*, 4087.

Narayan, D., & Cassidy, M. F. (2001). A dimensional approach to measuring social capital: development and validation of a social capital inventory. *Current sociology*, *49*(2), 59-102. doi: 10.1177/0011392101049002006

Narayan, D., & Pritchett, L. (1997). Cents and sociability. World Bank Policy Research Working Paper No. 1796. *World Bank. Washington, DC*.

Newton, K. (2001). Trust, social capital, civil society, and democracy. *International Political Science Review*, *22*(2), 201-214. doi: 10.1177/0192512101222004

Portes, A. (2000). Social capital: Its origins and applications in modern sociology. *LESSER, Eric L. Knowledge and Social Capital. Boston: Butterworth-Heinemann*, 43-67.

Putnam, R. D., Leonardi, R., & Nanetti, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.

Roy, S., Tarafdar, M., Ragu-Nathan, T. S., & Marsillac, E. (2012). The effect of misspecification of reflective and formative constructs in operations and manufacturing management research. *Electronic Journal of Business Research Methods*, *10*(1), 34-52.

Sanchez, G. (2013). PLS path modeling with R. *Trowchez Editions, Berkeley*.

Stone, W., Gray, M., & Huges, J. (2004). *Social capital at work: How family, friends and civic ties relate to labour market outcomes* (No. 0408005). EconWPA.

Szreter, S., & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, *33*(4), 650-667. doi: 10.1093/ije/dyh013

Uphoff, N., & Wijayaratna, C. M. (2000). Demonstrated benefits from social capital: the productivity of farmer organizations in Gal Oya, Sri Lanka. *World Development*, *28*(11), 1875-1890. doi:10.1016/S0305-750X(00)00063-2

Van Beuningen, J., & Schmeets, H. (2013). Developing a social capital index for the Netherlands. *Social Indicators Research*, *113*(3), 859-886. doi: 10.1007/s11205-012-0129-2

Wang, P., Chen, X., Gong, J., & Jacques-Tiura, A. J. (2014). Reliability and validity of the personal social capital scale 16 and personal social capital scale 8: Two short instruments for survey studies. *Social Indicators Research*, *119*(2), 1133-1148. doi: 10.1007/s11205-013-0540-3

Williams, B., Brown, T., & Onsman, A. (2012). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine*, *8*(3), 1.

Woolcock, M., & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. *The world bank research observer*, *15*(2), 225-249. doi: 10.1093/wbro/15.2.225

Xia, M. (2014). Social Capital and Socioeconomic Development in Rural China. *Fudan Journal of the Humanities and Social Sciences*, *7*(4), 563-581.doi: 0.1007/s40647-014-0044-9

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

CURRENT TRENDS IN CZECH FIRM´S BUDGETING PRACTICES: THE SURVEY RESULTS

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ABSTRACT

Budgeting and planning belongs to the traditional tools of management accounting which are essential for the successful control of the business organizations. In recent decades we observe growing dissatisfaction with traditional budgeting concepts, based on annual bases and control functions. Traditional budgeting methods are very often criticized for the inflexibility and strong focus on resource allocation. Many research studies points at the necessity of adopting more sophisticated budgeting methods, which could contribute to better performance management and control of business organizations. Current trends lie in adopting flexible, decentralized budgeting systems, focused on the use of key performance indicators (KPI). The paper presents the initial results of the survey of Czech enterprise budgeting practices. The objective of the study was to compare firm´s approach to their budgeting systems and intention of abandoning the traditional way of budgeting. The paper presents the results of the survey of Czech enterprise budgeting practices. The objective of the study was to analyze the current budgeting practices of the Czech firms and analyze the importance of the budgeting systems for company management.

The first part of the paper presents the analysis of the trends in budgeting practices worldwide, which are based on shift from traditional budgeting methods and increasing use of alternative methods based on performance measurement. The main part of the study presents the results of the questionnaire survey of the Czech enterprises' budgeting practices performed by the authors with focus on the approach to the used budgeting system and its quality perception. Main objective of the survey is to find out if the Czech budgeting practices are featured with similar discontent which we can observe in literature and some foreign studies.

Keywords: *budgeting, planning, managerial accounting, performance management.*

JEL Classification: M41, M19

1 INTRODUCTION

Budgets have historically played center stage in most systems of management control instigated by organizations (Otley, 1994). Budgeting and planning are considered fundamental features of management accounting by many authors (Drury, 2000; Garrison *et al.*, 2012; Kemp and Dunbar, 2003). Budgeting is often connected with planning activities, which is defined as the design of a desired future and effective ways of bringing it about (Ackoff, 1981). Alternatively, budgets are considered detailed plans (Drury, 2000), or as plans transformed into currency units (Král, 2010). Traditional budgets are usually based on annual periods, presenting the metamorphosis of a plan into currency units (Drury, 2000).

Organizations implement budgets for various reasons and they play several important roles. They help to allocate resources, coordinate operations and provide a means for performance measurement (Blocher *et al.*, 2002). Hilton and Platt, (2013) concur and claim that a budget is the most widely used technique to facilitate planning and control. Another important task they perform is to contribute towards ensuring effectiveness and efficiency in resource allocation

(Barrett and Fraser, 1977). Pierce and O'Dea (1998) argue that budgets are still relevant in today's business environment. Last but not least, budgeting motivates and enables managers to achieve both short-term and long-term operational and strategic goals (Jones, 1998) and can support managers to achieve more realistic and beneficial results (Blumentritt, 2006).

Consequently, budgeting has been viewed in the past as an integral element of a management control system (Nazli Nik Ahmad *et al.*, 2003). Subsequently, traditional budgeting acts in a controlling capacity, as it is aimed at setting annual budgetary targets, a step which is followed by comparing real data with defined objectives.

Since the 1990s, it has been possible to observe growing discontent with traditional budgeting systems, which have become the object of frequent criticism. For instance, Hansen *et al.*, (2003) state that the act of budgeting leaves a lot to be desired. According to Lidia (2014), budgets represent the most controversial managerial tool at present. Drury (2000), for instance, explains the conflicting role of budgets, caused by utilizing the self-same budgeting system for different purposes such as motivation and planning. Jensen (2001) considers traditional budgeting to be "broken". Gurton (1999) describes budgeting as "a thing of the past". Budgets are criticized for being time-consuming (Libby and Lindsay, 2010; Schmidt, 1992). A lot of guesswork is required in the budgeting process (Prendergast, 2000), which takes up a lot of managerial time (Libby and Lindsay, 2010). Indeed, Neely *et al.,* (2003) state that the budgeting process actually consumes up to 20% of all managerial time. Nazli Nik Ahmad *et al.,* (2003) argue that budgets do not take into account the aspects of customers and quality, and prove ineffective in a changing environment. Neely *et al*., (2003) report on 12 weaknesses of traditional budgets, as identified in the studies analyzed. Similar limitations of the traditional budgets and its linkage to the strategy in Easter European context had been voiced by Boiko (2013).

Hansen *et al.,* (2003) observe that the dissatisfaction expressed over budgeting is leading to two different approaches to the issue: some firms wish to abandon budgeting altogether while others wish to improve it. Hope and Fraser (2003) present several studies of European companies that had successfully abandoned traditional budgeting systems in favor of a performance measurement system based on performance indicators. Becker (2014) presented the deep multiple case study of companies' abandonment of budgeting in four companies which is conditioned by the skillful agency by dominant insider. Nevertheless, Eckholm and Wallin (2000) report that only 15% of the Finnish companies they surveyed indicated the intention to abandon traditional forms of budgeting, whereas 61% aimed to improve the current budgeting system, and 24% reported they were not planning any changes to the system in use. Libby and Lindsay (2010) surveyed 346 Canadian and 212 U.S. companies about their budgeting practices. They indicated that a total of 79% of the surveyed companies used budgets for controlling purposes. Of that number, 94% reported they were not intending to abandon utilizing budgets for control in the near future, while 5% indicated they were considering doing so, and only 1% stated it was a definite plan to do so within the next two years. The results were similar in both the Canadian and U.S. samples.

Henttu-Aho and Järvinen (2013) analyzed few companies which abandoned the traditional approaches to budgeting or dramatically simplified it. Despite the introduction of the new budgeting tools, the planning, control, and evaluation functions remained. Most of the investigated firms differentiate between target setting and forecasting.

Such criticism of traditional budgeting systems (Eckholm and Wallin, 2000; Hope and Fraser, 2003; Jensen, 2001; Schmidt, 1992; Luigi *et al.*, 2014) had the effect of ushering in alternative budgeting methods, such as Activity-Based Budgeting (ABB) (Drury, 2000) and Beyond Budgeting (Hope and Fraser, 2003). ABB is an approach requiring that the given company uses

comprehension of its activities and driver relationships to quantitatively estimate workload and resource requirements (Dierks and Cokins, 2000). The Beyond Budgeting approach proposes replacing rigid, annual, budget-based performance evaluations with those founded on relative performance contracts with hindsight (Wangari, 2008).

Bunce *et al.,* (1995) noted that the alternative to traditional budgets is not budgetary improvement but an advanced management procedure. In summary, Stewart (1990) and Arterian (1998) claimed that budgeting is "inefficient, ineffective and incomprehensive".

Despite the fact that the limitations of traditional and alternative budgeting systems have been known about for over a decade, many studies show that the majority of firms stick with traditional methods. For instance, Nazli Nik Ahmad *et al.*, (2003) confirmed that Malaysian companies still use budgets for planning and controlling purposes. According to the study by Wangari (2008), budgeting is a practice widely used in the manufacturing industry in Kenya (93% of companies). Van and Järvinen (2015) claims that 94% of firms in Vietnam carry out budgeting practices and compare their results with other developing nations.

All-in-all, the literature provides great evidence on the restrictions of traditional budgeting, and presents various reasons why traditional practices are actually obsolete in the contemporary business environment. Several alternatives have been proposed by academics and practitioners during the past two decades, e.g. Beyond Budgeting and Activity-Based Budgeting, devised to replace traditional budgeting methodologies, and shifting the control process over to a performance measurement system. However, robust knowledge of the real situation in a business is scant. In other words, it is not possible to explain the mechanisms or processes, giving rise to either satisfactory or unsatisfactory consequences of said budgeting systems. Hence, herein, the authors saw an opportunity to contribute to the discussion by studying commercial budgeting practices through conducting an exploratory survey on the approaches favored by Czech firms.

This study presents the findings of the questionnaire-based survey, undertaken by selected Czech manufacturers during the autumn and winter of 2014. The objective of the authors was to analyze current trends in the budgeting practices of the companies and verify if dissatisfaction was expressed with traditional budgeting techniques, as is excessively discussed in the literature, and verify if this dissatisfaction pertains to contemporary budgeting practices in the Czech Republic. Main aim of the study was to verify the perception of the main limitations of traditional budgets, discussed in the literature, by the Czech companies. The study involved a field survey of 177 medium and large Czech industrial companies, excluding trade and service organizations. The overall aim is to further knowledge on organizational budgeting practices within the nation. The architecture of the research, inspired by the study performed in North America by Libby and Lindsay (2010), allows the authors to also compare the findings of the Czech Republic and North America.

2 METHODS

The data was gathered via a web-based questionnaire. Firstly, information from the ALBERTINA database was accessed in order to fix the sample of organizations to be investigated, as well as to obtain contacts for representatives at said organizations. The authors settled on a selection of medium and large sized companies from the industrial sector, excluding service and trade businesses, so as to focus on those of sufficient size and with an ample structure of activities, where budgeting and planning activities would definitely play an important role. For inclusion in the sample, individuals had to be employed at a senior level of financial management, with job titles such as Chief Financial Officer, Financial Director,

Economic Director, Head of Control Department, Director of Budgeting and Division Manager. Such criteria were set to ensure the executives contacted would possess considerable experience in establishing and utilizing budgets.

Next it was necessary to contact the selected persons from the database by telephone. These were asked about their willingness or not to participate in the survey. If they agreed, they were sent an email containing a link to the survey, which took approximately 30 minutes to complete.

2.1 Sample statistics

The authors addressed 1,375 companies, out of which 618 agreed to be surveyed. Finally, 177 completed questionnaires were received. Therefore, the total return rate for questionnaires from all participating companies was12.9%.

The companies were divided in two groups according to the number of employees. The first comprised 142 companies of between 100 to 500 employees. The other numbered 30 firms possessing over 500 employees.

Table 1 shows that 45% of companies were from the manufacturing sector and 9% from construction. In addition, engineering and agricultural businesses accounted for 8.5% each.

The average respondent possessed revenue in 2014 equaling approximately 1 billion CZK (37 million EUR). Four groups were created for categorization purposes, according to European Union income. They were as follows: (i) less than 2 mil EUR, (ii) 2-10 mil EUR, (iii) 10-50 mil EUR and (iv) greater than 50 mil EUR(see Tab. 1). Most companies (52%) were categorized as having revenue of 10-50 mil EUR, 26% with revenue of 2-10 mil EUR, 6.8% less than 2 mil EUR, while 14.7% companies boasted revenue exceeding 50 mil EUR.

Tab. 1 – Detailed statistics for respondents of the survey. Source: authors

	Frequencies	**%**
Number of respondents	177	
Number of employees		
100-500	142	80%
More than 500	30	17%
Sector		
Manufacturing	81	45.7%
Automotive	12	6.8%
Construction	16	9%
Engineering	15	8.5%
Agriculture	15	8.5%
Other	38	21.5%
Annual Revenue		
Less than 2 mil EUR	12	6.8%
2-10 mil EUR	46	26%
10-50 mil EUR	93	52.5%

Greater than 50 mil EUR	26	14.7%
Mean Annual Business Unit Revenue	1 098 927 724 CZK	

2.2 Research design

Research focused on statements present in the literature criticizing traditional budgets. Firstly, Tables 2 to 4 detail the general approach to using budgeting for controlling purposes. Based on a review of the literature, the authors expected a similar approach by firms to those in other countries (Hansen *et al.*, 2003; Hope and Fraser, 2003; Eckeholm and Wallin, 2000) as regards the willingness or otherwise to abandon or modify traditional methods of budgeting.

Next, research investigated perceptions as to the value deemed for budgeting, in order to test if companies consider budgeting activities as adding any value, hence if such worth outweighs the necessary costs (Table 5). Afterwards, the study examined another oft-mentioned limitation of traditional budgets, i.e. consumption of time (Hansen *et al.*, 2003). Herein, the authors investigated how much time was actually consumed by preparing an annual budget (Table 6).

The next section of questions (Table 6, section A) was based on the opinions of Hope and Fraser (2003) on the unpredictability of a business environment. Herein, investigation was made as to how Czech firms undertake predicting the behavior of their given business environment and the manner of transference to the budgeting system.For this section, following null hypothesis was defined and tested: **H0: The budgets are not flexible in accordance with changes in business environment**.

Subsequently, links between budgets and corporate strategies (Table 6, section B) were looked into. This part reflects criticism focused on weak links of budgets to such strategies (Kaplan and Norton, 2001; Hope and Fraser, 2003). Herein, the authors examined the manner Czech companies employ to reflect budgets in said strategies.For this section, following null hypothesis was defined and tested: **H0: Budgeting is not linked to the strategy**.

Finally, examination was conducted on links between budgets and performance targets (Table 6, section C). This section was based on analysis by Hope and Fraser (2003) on the negative practice of using budgets as a "fixed performance contract". Herein, the authors looked into how Czech companies use their budgets for performance measurement.For this section, following null hypothesis was defined and tested: **H0: Budgets are used as the performance targets**.

All defined hypotheses were tested using one proportion test (Pan, 2002).

3 RESULTS

Initially, focus was placed on the general approach applied by firms to their budgeting systems. Based on review of the literature, investigation was made as to the general approach of firms to current budgeting systems and their utilization for controlling purposes. Tab. 2 presents results for a question related to the usage of budgets for control. As can be seen, 88.7% of the firms used budgets traditionally for controlling purposes. This indicates the low level at which alternative approaches to budgeting were applied; suggesting that relatively little dissatisfaction with traditional budgeting actually existed.

Tab. 2 – Use of budgets for control (1st part). Source: authors

Are the budgets used for control?	Frequencies	%
Yes	157	88.7%
No	20	11.3%
Total	177	100%

Table 3 shows results relating to whether organizations planned to abandon using budgets for control.

Tab. 3 – Use of budgets for control (2nd part). Source: authors

Do you plan to abandon the use of budgets for control?	Frequencies	%
Yes	4	2.55%
No	149	94.90%
Possibly	4	2.55%
Total	157	100%

It is noticeable that 95% of respondents did not plan to cease using budgets for controlling purposes, which again indicates either minimal dissatisfaction or a limited perception of alternative methods.

The third question asked about the intention to modify the budgeting system in the following two years.

Tab. 4 – Use of budgets for control (3rd part). Source: authors

Do you plan any changes in budgeting system?	Frequencies	%
Yes	53	29.9%
No	124	70.1%
Total	177	100%

It is visible that the number of organizations in the Czech Republic which indicate the intention to make any changes to the traditional way of budgeting is comparatively high compared to the previous two instances. 30% of the organizations that said they would modify the budgeting system, which is a significant proportion, suggesting some dissatisfaction with contemporary budgeting practices.

The most important reasons given for making such changes are similar to those reported in other surveys of practices (e.g. Eckholm and Wallin, 2000; Neely *et al.*, 2003; Libby and Lindsay, 2010), as follows:

- preparing budgets is time consuming and the benefit may not justify the cost;
- the lack of flexibility inherent in budgeting does not fit well with a constantly changing environment;
- budgets can be manipulated and provide incentives for improper (i.e. self-interested) behavior on the part of managers;

- budgetary reporting is not meaningful to frontline employees;
- budgeting eliminates drive for constant improvement;
- a budget is not aligned with strategy.

Consequently, this section of the survey highlights that traditional methods of budgeting were to stay in place in the future, with just a few firms planning to replace them with alternative methods. Most of the firms declared that they would carry on using budgets, as per tradition, for controlling purposes. A high proportion also veered towards making modifications to the budgeting system, but not completely abandoning it. Therefore, the inference is that the businesses were not ready to discard traditional annual budgeting practices in general, but it does hint at the limitations.

The subsequent part of the survey analyzed opinions on budgets as frequently found in the literature. Hope and Fraser (2003), for instance, assume that a new business environment is characterized by unpredictability; prices and margins are constantly under pressure, product life cycles are shorter, and customer tastes are fickle. They argue that budgeting acts to the detriment of such an environment because, once set, budgets are not typically changed, thereby resulting in plans and targets which quickly become out of date.

Tab. 5 – Observed limitations of budgeting. Source: authors

Strongly disagree (1)	**Disagree (2)**	**Somewhat disagree (3)**	**Somewhat agree (4)**	**Agree (5)**	**Strongly agree (6)**	**Median**	**Modus**	**Std.dev.**
Section A - flexibility of budgeting								
It is difficult to establish precise budgets due to the unpredictability of factors affecting business								
2.82%	23.16%	25.42%	32.77%	11.30%	4.52%	3	4	1.171
The budget becomes outdated during the year								
1.69%	20.34%	25.99%	29.38%	18.64%	3.95%	4	4	1.169
Outside the process of establishing the budget. it is difficult to get new resources to support unpredictable opportunities to achieve the strategic initiatives								
3.39%	27.12%	37.85%	20.34%	7.91%	3.39%	3	3	1.103
There exist no quick approval processes to ensure the availability of funds for activities that were not included in the approved budget, and require a significant amount of financial resources								
5.65%	32.77%	35.03%	16.95%	7.91%	1.69%	3	3	1.090
Section B - budgeting linked to the strategy								
Budgeting process is linked to the strategic objectives of the company								
2.26%	3.95%	4.52%	25.42%	48.59%	15.25%	5	5	1.070
Budgeting raises discussion about strategy of our company								
2.26%	6.78%	14.69%	29.38%	36.16%	10.73%	4	5	1.167

Our company sometimes change strategy and tactics based on the feedback received during budgeting								
3.39%	16.38%	24.29%	40.11%	12.43%	3.39%	4	4	1.110
Managers expect to identify tactical suggestions from the budgeting process to help from the current performance to the desired level of performance								
1.13%	10.73%	22.03%	44.07%	19.77%	2.26%	4	4	0.994
Section C - budgeting and performance of the managers								
Manager's performance is evaluated by his superiors mostly on base of the achievement of the budgetary targets								
2.82%	15.25%	14.69%	35.59%	24.29%	7.34%	4	4	1.235
Managers consider achieving of the budget as a reflection of business success								
1.69%	9.04%	13.56%	40.11%	28.81%	6.78%	4	4	1.098
Support of the manager's job depends heavily on its ability to meet the budget								
4.52%	13.56%	28.81%	32.77%	18.64%	1.69%	4	4	1.125
Top management considers that non-fulfillment of the budget reflects poor performance of the manager								
3.95%	19.21%	34.46%	26.55%	12.99%	2.82%	3	3	1.129

We explored this matter by asking respondents to indicate their degree of agreement with the statement "It is difficult to set accurate budgets because of the unpredictability of factors influencing the business." Forty eight percent of respondents at least 'somewhat agreed' with this statement and 16% "agreed" or "strongly agreed" with it. This result assumes that a firm does not consider it extremely hard to predict the behavior of the business environment, which is somewhat at odds with opinions presented in the literature.

In following question, we asked the firms whether "Budgets quickly become obsolete or outdated during the year" 52% of respondents at least "somewhat agreed" with this statement and 23% "agreed" or "strongly agreed" with it. This result partly confirms the Hope and Fraser´s assumption about unpredictability of business environment, which cannot be generalized for the situation in Czech Republic.

In the next question authors have examined whether if the companies found it easy to obtain new resources outside of the budgeting process to deal with unforeseen opportunities designed to accomplish strategic initiatives. Just 31% of respondents at least 'somewhat agreed' with this statement while just 11% "agreed" or "strongly agreed" with it. It has yet to be confirmed if, indeed, such resources are readily available. As can be seen, companies in the Czech Republic did not report any dramatic problems with adjusting budgetary demands during the fiscal year. This assumption was confirmed by the subsequent question which asked if they use "Fast-track" approval processes to ensure the availability of resources on a timely basis for important initiatives not incorporated in the approved budget. 26 % of the firms at least 'somewhat agreed' with this statement and just 10% "agreed" or "strongly agreed" with it.

In consequent part of the survey, we have investigated another frequently mentioned limitation of the traditional budget, which is its weak link to the corporate strategy. Kaplan and Norton (2001) observe that the majority of firms they have worked with fail to link their budgeting

systems to achieving strategic objectives. Hope and Fraser (2003) also share the view that budgets are typically prepared in isolation from, and not aligned with strategy.

To investigate this issue in Czech conditions we have asked the firms whether "The budgeting system is linked to achieving the strategic goals." 89% respondents in the sample indicated that they at least 'somewhat agreed' with this statement and 64% "agreed" or "strongly agreed" with it. This result conclusively disproves the above mentioned opinions in Czech conditions.

In following part of the survey, we asked respondents to indicate their degree of agreement with three statements defined by Kaplan and Norton (2001) related to the level in which budgets are related to the firm´s strategy implementation. These statements consisted of: **1.** "Setting the budget causes us to talk about and reflect upon our strategy"; **2.** "We sometimes change our strategy/tactics based on the feedback derived from going through the budgeting process"; and **3.** "Within the budget process, managers are expected to identify tactical initiatives to close the gap between current performance and the desired level of performance." A positive answer (at least "somewhat agree") was given to all three questions – 76%, 56%, 66%, with a median score of 4, i.e. „somewhat agree" in all three cases.

Another criticism of traditional budgeting concepts is related to the use of budgets as fixed performance targets. Hope and Fraser (2003) wrote about the negative practice of using budgets as a "fixed performance contract." The problem with this practice is that if actual performance meets or exceeds a pre-defined budgetary target, performance is deemed satisfactory (or better), and this will result in rewards. Hope and Fraser (2003) state that a fixed target represents an improper standard for evaluating performance when factors influencing a budget may change during the period.

The first question in this part of the survey was on whether "The performance of managers is evaluated based on achieving budgetary targets". To this, 67% of respondents at least "somewhat agreed" with this statement while just 31% "agreed" or "strongly agreed" with it. This finding confirms what related studies have highlighted - frequent utilization of budgets as performance targets. The next question investigated whether "managers consider achieving budgetary targets as business success". 76% of respondents at least "somewhat agreed" with this statement while just 36 % "agreed" or "strongly agreed" with it. This substantiates the connection between budgets and business objectives. The subsequent two questions sought to find out if "Support of the job of a manager is strongly dependent on their ability to meet budgetary targets" and "Senior management considers that non-fulfillment of the budget reflects poor performance by a manager". In these two cases 53% and 42%, respectively, of respondents at least "somewhat agreed" with this statement while 20% and 12%, respectively, of respondents "agreed" or "strongly agreed".

4 HYPOTHESES TESTING

In order to compare our results with results by Hope and Fraser (2003), the following table 6 presents an illustrative two-categorical (disagree-agree) evaluating of average values from Section A (see Tab. 5).

Tab. 6 – Evaluation of the answers for hypothesis testing (Section A). Source: authors

	Frequencies	
	Anyhow disagree	**Anyhow agree**
A1	91	86
A2	85	92
A3	121	56
A4	130	47
	Average frequencies	
A	106.75	70.25
%/100	0.603	0.397

In other words, about 60% of the respondents claim that the budget is flexible while Hope and Fraser (2003) assume that the budget is not flexible. We use the p-value to see how significant is our result (for n=177). Usually, before the test is performed, a threshold value is chosen, called the significance level of the test, traditionally 0.05 or 0.01. If the p-value is equal to or smaller than the significance level, it suggests that the observed data are inconsistent with the assumption that the null hypothesis is true and thus that hypothesis must be rejected (see, e.g., Pan, 2002). We further provide a one-proportion statistical test for sections A,B and C, where, for Section A, the null hypothesis corresponds to the claim that budget is not flexible, i.e. H0: $p < 0.5$ (most people agree with the claim), while the alternative hypothesis is H1: $p >= 0.5$, where p denotes proportion of the given result.

Tab. 7 – Hypotheses testing for single categorical variables (proportions p). Source: authors

	Null hypothesis	**Correspon-ding result**	**Alternative hypothesis**	**Result and its proportion**	**P-value**	**Conclusion**
Section A:	The budgets are not flexible in accordance with changes in business environment	Agree		Disagree	0.003	The null hypothesis is rejected and the alternative hypothesis is accepted
	H0: $p < 0.5$		H1: $p >= 0.5$	$p = 0.603$		
Section B:	Budgeting is not linked to the strategy	Disagree		Agree	3E-09	The null hypothesis is rejected and the alternative hypothesis is accepted
	H0: $p < 0.5$		H1: $p >= 0.5$	$p = 0.719$		
Section C:		Agree		Agree	0.995	

	Budgets are used as the performance targets					The null hypothesis is not rejected
	H0: p > 0.5		H1: p <= 0.5	p = 0.596		

As we can see, we have failed to prove Hope and Fraser´s (2003) statements related to the inflexibility of the budgeting weak linkage of the budgets to the strategy. On the other hand we have proved another Hope and Frasers´s (2003) statement related to the low level of budget use as the performance targets. These results point at fact, that some of the tendencies in budgeting practices, observed worldwide are not so strong in the Czech conditions.

4 DISCUSSION AND CONCLUSION

At present, traditional budgeting and planning procedures come in for frequent criticism over their limitations and inability to reflect contemporary business environments. These trends are mostly caused by the lack of flexibility of traditional budgets and their incapacity to serve as a relevant performance measurement system. Potentially, traditional annual budgets could be, according to evidence from the literature and actual practice, replaced by more flexible systems that focus on gauging the performance of individual segments of a business. Hope and Fraser (2003) stated that budgets often impede firms from being flexible and adaptive in an increasingly unpredictable commercial environment. They argued that utilizing traditional budgets for controlling purposes could give rise to a "performance trap", where greater pressure on achieving budgetary targets would not cause an increase in performance.

The questionnaire-based survey performed herein indicates some contemporary trends in budgeting practices in the Czech Republic. In summary, the results show that only a few firms either do not use traditional budgets for control or plan to abandon it. Most firms in the sample planned to improve their budgeting systems and not to move away from them. These results could be compared with a similar study performed in the USA and Canada in 2009 (Libby and Lindsay, 2010). This research showed a lower level of use of budgets for controlling purposes (78.9% vs. 89% in the Czech sample), which might be due to lower application of alternative performance management methods in the Czech environment.

However, while the rate of intention to abandon the use of budgets for control in the North American and Czech surveys was comparable (5.9% for North America and 5% for the Czech Republic), the intention to modify the current budgeting system was more prevalent in North America (46.1%) than the Czech Republic (29.9%). Therefore, the assumption might be that satisfaction with traditional budgeting under Czech commercial conditions is higher due to a lesser perception of the limitations of traditional budgets. This is also borne out by identifying levels of satisfaction with current budgeting systems, with Czech firms showing a slightly higher grade of satisfaction than their North American counterparts. The authors observed mildly more satisfaction with budgeting in the Czech sample (median 75) than the US and Canadian sample (median 70).

While investigating the time needed for preparing budgets, observation was made of the lesser time reported in the Czech sample (median value 3-4 weeks) than the North American one (median 6 weeks for Canada and 10 weeks for the U.S.A). There might be two explanations for this: firstly, there is an indication of shorter time periods necessary for preparing budgets through utilizing more sophisticated automated IT systems; secondly, the Czech companies are

generally integrated into multinational supplier systems and operate in a slightly more stable commercial environment.

While examining the most common limitations of traditional budgeting, respondents did not indicate any significant issues with the flexibility of budgeting. This again accentuates a higher level of stability in the Czech business environment, potentially caused by the different structure of clients served by the Czech firms, which are much more incorporated into the chain of suppliers of foreign manufacturers, hence not interfacing with the retail market.

Similar to the study by Libby and Lindsay (2010), the authors observed the existence of a strong connection between the budget and corporate strategy, which is not confirmed by findings in the literature. Moreover, there were reports of the frequent use of budgets as performance targets, a practice often criticized in the literature. This suggests that there is little awareness of the limitations linked with traditional budgeting practices, as well as limited knowledge on alternative methods for performance measurement.

In conclusion, this study shows that global trends in budgeting practices, which are present in the literature and have been confirmed by research projects conducted worldwide (Libby and Lindsay, 2010), are not generally followed by Czech firms. Although some of the trends were actually indicated – e.g. the intention to modify current budgeting systems, and strong connections between budgeting, strategy and performance - some trends were completely overlooked – e.g. issues regarding the flexibility of budgeting and the time spent on the activity of preparing budgets.

The study results are naturally limited by the quality of the data gathered through the questionnaire. Answers in the questionnaire are mostly based on the personal opinions of the surveyed persons, which in addition did not have to be sufficiently experienced and educated to objectively consider the actual situation inside the organization. On the other hand, the similarity of research tasks with similar foreign studies allows us to accept these results as appropriate and relevant.

ACKNOWLEDGEMENT

This paper is one of the research outputs of the project GA 14-21654P/P403 “Variability of Cost Groups and its Projections in the Costing System in Manufacturing Enterprises” registered at Czech Science Foundation.

REFERENCES

Ackoff, R. (1981). Creating the Corporate Future: Plan or be Planned for. New York: Wiley.

Arterian, S. (1998), Sprinting to a Streamlined Budget. *CFO Europe 23.*

Barrett, M.E., Fraser, L.B. (1977), Conflicting roles in budgeting for operations, *Harvard Business Review*, Vol. 55, No 4, pp. 137-146.

Becker, S.D. (2014), When organisations deinstitutionalise control practices: A multiple-case study of budget abandonment, *European Accounting Review*, Vol. 23, No 4, pp. 593-623, DOI: 10.1080/09638180.2014.899918.

Blocher, E.J., Chen, K.H., Li, T.W. (2002), *Cost Management: a Strategic Emphasis*, 2nd ed., McGraw-Hill International, New York, NY.

Blumentritt, T. (2006), Integrating strategic management and budgeting, *Journal of Business Strategy*, Vol. 27, No 6, pp. 73-79.

Boiko, I. (2013), Instruments of implementing the enterprises' strategy, *Economics and Sociology*, Vol. 6, No 2, pp. 73-81, DOI: 10.14254/2071-789X.2013/6-2/7.

Bunce, P., Fraser, R., Woodcock, L. (1995), Advanced budgeting: A journey to advanced management systems, *Management Accounting Research*, Vol. 6, No 3, pp. 253-265.

Dierks, P., Cokins, G. (2000), *Glossary of Activity-based Management*. Bedford: CAM-I.

Drury, C. (2000), *Management & Cost Accounting*. London: Thomson.

Eckholm, B.G., Wallin, J. (2000), Is the annual budget really dead? *The European Accounting Review*, Vol. 9, No 4, pp. 519–539.

Garrison, R., Noreen, E., Brewer, P. (2012), *Managerial Accounting*. New York: McGraw-Hill/Irwin.

Gurton, A. (1999), Bye-bye budget, *Accountancy International* (March).

Hansen, S.C., Otley, D.T., Van der Stede, W.A. (2003), Practice developments in budgeting: An overview and research perspective, *Journal of Management Accounting Research*, Vol. 15, pp. 95–116.

Hartmann, F., (2000). The appropriateness of RAPM: toward the further development of theory. *Accounting, Organizations and Society*, Vol. 25, pp. 451–482.

Henttu-Aho, T., Järvinen, J. (2013), A field study of the emerging practice of beyond budgeting in industrial companies: An institutional perspective, *European Accounting Review*, Vol. 22, No 4, pp. 765-785, DOI: 10.1080/09638180.2012.758596.

Hilton, R.W., Platt, D.E., (2013), *Managerial Accounting: Creating Value in a Dynamic Business Environment,* 10th Edition, McGraw Hill Higher Education

Hope, J., Fraser, R. (2003), Beyond Budgeting: How Managers Can Break Free from the Annual Performance Trap. Boston, Mass.: Harvard Business School Press.

Jensen, M.C. (2001), Corporate budgeting is broken - let's fix it, *Harvard Business Review*, Vol.79, No 10, pp. 94–101.

Jones, T.A. (1998), UK hotel operators use of budgetary procedures, *International Journal of Contemporary Hospitality Management, Vol.* 10, No 3, pp. 96-100.

Kaplan, R.S., Norton, D., 2001. *The Strategy-Focused Organization*. Harvard Business School Press, Cambridge, MA.

Kemp, S., Dunbar, E. (2003), *Budgeting for Managers*. New York: McGraw-Hill.

Král, B. (2010), *Manažerské účetnictví,* Praha: Management Press.

Libby, T., Lindsay, R.M. (2010), Beyond budgeting or budgeting reconsidered? A survey of North-American budgeting practice, *Management Accounting Research*, Vol. 21, No 1, pp. 56-57, doi:10.1016/j.mar.2009.10.003.

Lidia, T.G. (2014), Difficulties of the budgeting process and factors leading to the decision to implement this management tool. *Procedia Economics and Finance*, Vol. 15, pp. 466-473.

Luigi, D., Iuliana, C., Alma, P., Bilan, Y. (2014), Directly estimating the private healthcare services demand in Romania, *Journal of International Studies*, Vol. 7, No 3, pp. 55-69, DOI: 10.14254/2071-8330.2014/7-3/5.

Nazli Nik Ahmad, N., Sulaiman, M., Alwi, N.M. (2003), Are budgets useful? A survey of Malaysian companies, *Managerial Auditing Journal*, Vol. 18, No 9, pp. 717-724.

Neely, A., Bourne, M., Adams, C. (2003), Better budgeting or beyond budgeting? *Measuring Business Excellence*, Vol. 7, No 3, pp. 22-28.

Otley, D.T. (1994), Management control in contemporary organizations: Towards a wider framework, *Management Accounting Research*, Vol. 5, No 1, pp. 289–299.

Pan W. (2002), Approximate confidence intervals for one proportion and difference of two proportions, *Computational Statistics & Data Analysis*, Vol. 40, No 1, pp. 143-157.

Pierce, B., O´Dea, T. (1998), An empirical study of management accounting practices in Ireland, *Irish Accounting Review*, Vol. 5, No 2, pp. 35-66.

Prendergast, P. (2000), Budgets hit back, *Management Accounting*, London, Vol. 78, No 1, pp. 14-17.

Schmidt, J. A. (1992), Is it time to replace traditional budgeting? *Journal of Accountancy*, Vol. 174, No 4, pp. 103-107.

Stewart, T.A. (1990), Why budgets are bad for business, *Fortune*, Vol. 4, pp. 179-190.

Van, T.T.T., Järvinen, J. (2015), Budgeting practices in Vietnam: A survey in Da Nang City.

Wangari, J.M. (2008), *Budgeting practices in manufacturing firms in Kenya* (Doctoral dissertation, University of Nairobi).

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE PERFORMANCE MEASUREMENT OF GENERALIZED SHARPE RATIO AND ECONOMIC PERFORMANCE MEASURE: A HEDGE FUNDS EXAMPLE

Richard Lu, Khoa Dang Duong

ABSTRACT

This paper uses the Sharpe ratio (SR), and two performance measures which extend the Sharpe ratio, the generalized Sharpe ratio (GSR) and the economic performance measure (EPM) to evaluate performances of hedge funds. Also, both the nonparametric and parametric estimation methods of the GSR and the EPM are employed. The statistic results show that the hedge fund index returns exhibit high negative skewness or high positive kurtosis. According to rank correlations, the nonparametric GSR and the nonparametric EPM produce more similar rankings than those of the SR. Among the three parametric estimation methods of the GSR and EPM, only the method proposed by Alexander (2008) produces similar rankings with the nonparametric GSR and the nonparametric EPM.

Keywords: *Sharpe ratio, generalized Sharpe ratio, economic performance measure*

JEL Classification: G11

1 INTRODUCTION

The Sharpe ratio (SR) is a popularly used performance measure of portfolio management. However, the SR has some limitations and shortcomings that have been extensively discussed in the literature. It is derived under the mean-variance model with the strict assumption of either quadratic preferences or normally distributed returns. When the return distributions deviate from normality, it may lead to unreasonable results. For instance, Hodges (1998) demonstrates the Sharpe ratio paradox. Furthermore, the Sharpe ratio can be manipulated, so its reliability as a performance measure is doubtful (Leland, 1999; Spurgin, 2001; Goetzmann et al., 2002; Ingersoll et al., 2007).

To go beyond the mean and variance and mitigate the shortcomings, there are two methodologies to extend the Sharpe ratio. Hodges (1998) and Zakamouline and Koekebakker (2009) propose a new performance measure called the generalized Sharpe ratio (GSR), based on the expected utility theory of portfolio choice. Moreover, Homm and Pigorsch (2012) constructe another new performance measure called the economic performance measure (EPM) by replacing the standard deviation of the Sharpe ratio with a riskiness index proposed by Aumann and Serrano (2008). Both performance measures are a kind of generalized Sharpe ratio because one reduces to the Sharpe ratio and the other is equivalent to the Sharpe ratio ranking when the return distribution converges to a normal distribution.

To examine the differences between the SR and the GSR, or the EPM on performance evaluation, Zakamouline and Koekebakker (2009) and Homm and Pigorsch (2012) separately evaluate performances of hedge funds because the hedge fund returns often exhibit high negative skewness and high positive kurtosis. In this paper, we put all three performance measures in evaluating hedge funds' performances to examine the differences among the three. Theoretically, the GSR and the EPM are expected to produce more similar rankings of performance than those of the SR.

To compute the performance measures, parametric and nonparametric estimation methods are provided. By assuming that the return follows a normal inverse Gaussian (NIG) distribution, each Zakamouline and Koekebakker (2009) and Homm and Pigorsch (2012) derive a different closed-form formula of the parametric estimators. Another closed-form formula for a parametric estimator is also derived by Alexander (2008), using the Taylor approximation. All three estimators take into account the first four moments of distribution in computing performance measures. The nonparametric estimations are based on numerical methods and take into account all moments of distribution. The parametric methods are easier to compute, but they are only approximations of the nonparametric estimations. In applying the riskiness index of Aumann and Serrano (2008) for finding optimal hedge ratio, Chen et al. (2014) find that various non-normal distributions could have different riskiness even they have the same first four moments of distribution. Thus, it is interesting to examine if the papametric methods can produce similar results of the nonparametric.

This paper contributes to the literature from two prospectives. First, the two performance measures that generalize the Sharpe ratio, the GSR and the EPM, are compared by their ranking performances of hedge funds. Second, using the same data, we also examine the estimates of the performance measures of the parametric and nonparametric estimation methods to see how close the parametric estimates are to the nonparametric. The results indicate that the nonparametric GSR and the nonparametric EPM produce more similar rankings than those of the SR. Among the three parametric estimation methods of the GSR and EPM, only the method proposed by Alexander (2008) produces similar rankings with the nonparametric GSR and the nonparametric EPM.

The remainder of this paper is organized as follows. Section 2 reviews the two methodologies for extending the Sharpe ratio. The performance measurements of hedge funds are presented in Section 3. The final section is the conclusion.

2 GENERALIZED SHARPE RATIO AND ECONOMIC PERFORMANCE MEASURE

Two methodologies which extend the Sharpe ratio are discussed here. One methodology is based on the expected utility theory of portfolio choice while the other uses the reward-to-risk framework.

2.1 The GSR

The Markowitz's portfolio theory that is based on a mean-variance model indicates that the investors always choose the optimal risky portfolio with the highest Sharpe ratio within a feasible set. Thus, the Sharpe ratio is a natural definition of a performance measure. Also, the mean-variance model can be set up by assuming that the investor has negative exponential utility and that the risky asset returns are normally distributed. Hodge (1998) points out that in the mean-variance model with one free asset and one risky portfolio, the maximum investor's utility is given by:

$$\mathrm{E}(U^*) = -e^{-\mathrm{SR}^2/2}, \qquad (1)$$

where SR is the Sharpe ratio of the risky portfolio. Thus, the higher the Sharpe ratio of the risky portfolio, the higher the level of maximum expected utility that the investor can receive.

To go beyond the mean-variance model and generalize the Sharpe ratio, Hodge (1998) conjectures that the relationship between the maximum investor's utility and the generalized Sharpe ratio (GSR) is:

$$\mathrm{E}(U^*) = -e^{-\mathrm{GSR}^2/2}, \quad (2)$$

for any return distribution of the risky portfolio. Thus, the GSR can be computed using:

$$\mathrm{GSR} = \sqrt{-2\log(-\mathrm{E}(U^*))}, \quad (3)$$

by first finding out the maximum expected utility.

To determine the maximum expected utility for any return distribution, Zakamouline and Koekebakker (2009) suggest a numerical optimization method of the maximizing problem

$$\max_a \mathrm{E}(-e^{-\lambda a(r_p - r_f)}) \quad (4)$$

where "*a*" is the decision variable, λ is the parameter of the negative exponential utility function, r_p is the rate of return of the risky portfolio, and r_f is the risk-free rate. This method of finding the maximum expected utility and calculating the GSR is referred to as the nonparametric estimation and is called GSR(NP).

To apply the GSR without using the numerical method, Zakamouline and Koekebakker (2009) derive a GSR formula as a way of parametric estimation by assuming that the portfolio return follows a normal inverse Gaussian (NIG) distribution:

$$\mathrm{f}(r_p;\ \alpha, \beta, \eta, \delta) = \frac{\alpha\delta e^{\delta\varphi + \beta(r_p - \eta)}}{\pi\sqrt{\delta^2 + (r_p - \eta)^2}} K_1(\alpha\sqrt{\delta^2 + (r_p - \eta)^2}) \quad (5)$$

where

$$\varphi = \sqrt{\alpha^2 - \beta^2},$$

$$K_1(x) = \frac{1}{2}\int_0^\infty e^{-\left(\frac{1}{2}\right)x(z + z^{-1})} dz,$$

and α, β, η, and δ are parameters. These parameters are linked to the mean, variance, skewness and kurtosis of the NIG distribution as follows:

$$\mathrm{E}(r_p) = \mu = \eta + \delta\frac{\beta}{\varphi}, \qquad \mathrm{Var}(r_p) = \sigma^2 = \delta\frac{\alpha^2}{\varphi^3},$$

$$\mathrm{Skew}(r_p) = \chi = 3\frac{\beta}{\alpha\sqrt{\delta\varphi}}, \qquad \mathrm{Kurt}(r_p) = \kappa = 3 + \frac{3}{\delta\varphi}(1 + 4(\frac{\beta}{\alpha})^2).$$

From these equations, we can derive:

$$\alpha = \frac{3\sqrt{3\kappa - 4\chi^2 - 9}}{\sigma^2(3\kappa - 5\chi^2 - 9)},\ \beta = \frac{3\chi}{\sigma(3\kappa - 5\chi^2 - 9)},\ \eta = \mu - \frac{3\chi\sigma}{(3\kappa - 4\chi^2 - 9)},\ \text{and}\ \delta = \frac{3\sigma^2\sqrt{3\kappa - 5\chi^2 - 9}}{(3\kappa - 4\chi^2 - 9)}$$

However, to get meaningful parameters α and δ, the following condition must be satisfied:

$$\kappa > 3 + \frac{5}{3}\chi^2 \quad (6)$$

The formula of the parametric estimation of GSR is given by:

$$\sqrt{2(\lambda a^*(\eta - r_f) - \delta(\varphi - \sqrt{\alpha^2 - (\beta - \lambda a^*)^2}))} \quad (7)$$

where

$$a^* = \frac{1}{\lambda}(\beta + \frac{\alpha(\eta - r_f)}{\sqrt{\delta^2 + (\eta - r_f)^2}})$$

Thus, to implement the parametric estimation, we simply estimate the first four moments of the return distribution, and use them to compute the four parameters of the NIG distribution and the GSR. This estimation method is called GSR(P-Z)

Another parametric method to estimate the GSR is developed by Alexander (2008), and is called GSR(P-A). She used the Taylor expansion of the expected utility to get the certainty equivalent of the portfolio investment, and obtain the maximum expected utility by using the approximating method by Pèzier (2008). The formula is as follows:

$$\sqrt{(\frac{\mu - r_f}{\sigma})^2 + \frac{\chi(\frac{\mu - r_f}{\sigma})^3}{3} - (\kappa - 3)(\frac{\mu - r_f}{\sigma})^4/12} \qquad (8)$$

This formula reduces to the Sharpe ratio when the skewness equals 0 and the kurtosis equals 3. It also indicates that negative skewness and/or high kurtosis have the effect of decreasing the GSR.

2.2 The AS Index of Riskiness and The EPM

The Sharpe ratio is a typical reward-to-risk performance measure. However, it is derived under the mean-variance framework. There, the standard deviation is a legitimate risk measure. However, standard deviation is not a good measure under general conditions. Homm and Pigorsch (2012) proposed a new performance measure by replacing the standard deviation with the AS index of riskiness. This performance measure is referred to as the economic performance measure (EPM).

The AS index is derived based on the two key axioms, duality and positive homogeneity. The duality requires the risk index that reflects the way less risk-averse individuals accept riskier assets. Thus, it satisfies monotonicity with respect to second-order stochastic dominance (SSD). This is an important property for risk measurement. If portfolio A dominates portfolio B in terms of SSD and we know that all risk-averse investors prefer A to B, a risk measure with the monotonicity will indicate that portfolio A is less risky than Portfolio B. As a risk measure, standard deviation, semi-standard deviation, value at risk, and expected shortfall all violate the monotonicity.

Aumann and Serrano (2008) defined the economic index of riskiness for a risky asset as the reciprocal of the positive risk aversion parameter of an individual with constant absolute risk aversion (CARA), who is indifferent about taking or not taking the risky asset.

In Homm and Pigorsch (2012), the EPM is defined as:

$$\text{EPM} = \frac{\text{E}(\tilde{r})}{\text{AS}(\tilde{r})}, \qquad (9)$$

where $\text{E}(\tilde{r})$ is the expected excess return of an investment portfolio, and $\text{AS}(\tilde{r})$ is the AS index of the random excess return. As demonstrated by Homm and Pigorsch (2012), the EPM has the positive property of monotonicity with respect to the first-order and second-order stochastic dominance. This property is not held by most other performance measures (Homm and Pigorsch, 2012).

In applying the EPM, the subtle part is to calculate the AS index. According to Aumann and Serrano (2008), we can obtain the index by solving $\text{AS}(\tilde{r})$ in the equation:

$$\mathrm{E}\left(\mathrm{e}^{-\frac{\tilde{r}}{\mathrm{AS}(\tilde{r})}}\right)=1 \qquad (10)$$

Given an empirical distribution or a simulated distribution, without assuming any distribution function, we can apply Equation (10) and solve the AS index. This is a nonparametric estimation method. The EPM estimated by this method is referred as to EPM(NP).

The EPM can also be regarded as a generalized Sharpe measure because the EPM equals two times the squared Sharpe ratio under the normality. Thus, the EPM is equivalent to the Sharpe measure ranking under the normality.

By also assuming a normal inverse Gaussian distribution, Homm and Pigorsch (2012) derived the AS index and the EPM as follows:

$$\mathrm{AS}=(3\kappa(\mu-r_f)-4(\mu-r_f)\chi^2-6\chi\sigma+\frac{9\sigma^2}{(\mu-r_f)})/18 \qquad (11)$$

And

$$\mathrm{EPM}=18(\mu-r_f)/(3\kappa(\mu-r_f)-4(\mu-r_f)\chi^2-6\chi\sigma+\frac{9\sigma^2}{(\mu-r_f)}) \qquad (12)$$

This is a parametric estimation method, and it is called EPM (P). From the formula, it indicates that positive skewness increases the performance measure, but high kurtosis decreases it.

3 PERFORMANCE EVALUATION OF HEDGE FUNDS

In this section, we use the SR, the GSR, and the EPM to evaluate the performances of hedge funds. Both the parametric and the nonparametric methods of the GSR and the EPM are employed. The return data of hedge funds is similar to the data used in Zakamouline and Koekebakker (2009). We use the monthly returns of 14 Credit Suisse (CS) hedges fund indexes (including the main index) which track almost every major style of hedge fund management. There is one index excluded because of its negative mean return. The sample period is from April 1994 to February 2016. The three-month US T-bill rate is used as the proxy of the risk-free rate. All performance measures calculated here are based on the excess monthly returns.[2].

Table 1 reports the first four moments of the hedge fund index returns. As we can see from the table, 10 out of 13 indexes exhibit negative skewness, and only one index doesn't have excess kurtosis. Thus, even we use much more sample, we can still find the style facts of the hedge fund returns.

Table 2 lists performance measures of the hedge fund indexes. First, we examine how good the parametric methods approximate the nonparametric estimations. It is obvious that the GSR(P-Z) produces relatively large numbers which are very different from those of the GSR(NP), and in three indexes, does not lead to any result because the condition for the meaningful parameters is violated. Thus, in the following, we exclude the GSR(P-Z) for further analysis. The EPM(P) does not approximate well to the EPM(NP) either. Except for one index, the EPM(P) gives relatively small numbers than those of the EPM(NP). Only the GSR(P-A) approximates the GSR(NP) well for most of the cases. Table 3 reports the rankings based on the SR, the EPM(NP), the GSR(NP), the GSR(P-A), and the EPM(P). Obviously, the EPM(P) produces very different rankings from those of others because of its poor approximation. Thus, we suggest that, for performance evaluation, the GSR(P-Z) and the EPM(P) should be used with caution.

[2] All data are from DataStream and Credit Suisse Hedge Index LLC.

Finally, we list the rank correlation (Kendall's τ) for the rankings in Table 4. From the rank correlation, we can examine how close the rankings produced by the different measures. From the table, we can identify relatively high correlation (no less than 0.9) among the EPM(NP), the GSR(NP), and the GSR(P-A). Then, the SR has a little bit less correlated with the above three. The rank correlation coefficients are 0.77, 0.85, and 0.74. The EPM(P) has lowest rank correlation. Thus, we can conclude that the EPN(NP), the GSR(NP), and the GSR(P-A) produce more similar rankings than the SR. For the three parametric estimation methods, only the GSR(P-A) approximates well.

Tab.1 - Return statistics of hedge fund indexes.
Source: Credit Suisse hedges fund indexes, 2016

Hedge fund index	Mean	Std	Skewness	Kurtosis
All Hedge Index	0.0047	0.0199	-0.2283	6.0692
Convertible Arbitrage	0.0055	0.0188	-2.5988	19.7375
Emerging Markets	0.0061	0.0394	-0.8218	9.2178
Equity Market Neutral	0.0042	0.0276	-12.3065	181.7022
Event Driven	0.0067	0.0178	-2.0298	12.2631
Event Driven Distressed	0.0076	0.0181	-2.0520	13.7812
Event Driven Multi-Strategy	0.0063	0.0194	-1.5891	9.3891
Event Driven Risk Arbitrage	0.0047	0.0116	-0.8812	7.2374
Fixed Income Arbitrage	0.0044	0.0152	-4.7099	38.8022
Global Macro	0.0090	0.0258	0.1629	7.6701
Long/Short Equity	0.0077	0.0268	0.0027	6.7302
Managed Futures	0.0051	0.0336	0.0174	2.8427
Multi-Strategy	0.0063	0.0145	-1.7001	9.5005

Notes: The Mean, Std, Skewness and Kurtosis are the first fourth moments of the distributions.

Tab.2 - Performance measures of hedge fund indexes.
Source: Author's calculation based on data from Credit Suisse hedges fund indexes, 2016

Hedge fund index	SR	EPM(P)	EPM(NP)	GSR(NP)	GSR(P-A)	GSR(P-Z)
All Hedge Index	0.2384	0.0085	0.1050	0.2352	0.2345	2.2028
Convertible Arbitrage	0.2953	0.0020	0.1084	0.2619	0.2330	5.2101
Emerging Markets	0.1539	0.0052	0.0423	0.1503	0.1497	1.5412
Equity Market Neutral	0.1525	0.0001	0.0222	0.1233	0.0254	NA
Event Driven	0.3745	0.0042	0.1745	0.3328	0.2992	8.2874
Event Driven Distressed	0.4187	0.0042	0.2024	0.3652	0.3122	6.6764
Event Driven Multi-Strategy	0.3229	0.0057	0.1478	0.2972	0.2840	6.9945
Event Driven Risk Arbitrage	0.4091	0.0066	0.2428	0.3814	0.3707	6.3614
Fixed Income Arbitrage	0.2872	0.0007	0.0858	0.2404	0.1581	NA
Global Macro	0.3468	0.0110	0.2131	0.3427	0.3419	1.9138
Long/Short Equity	0.2867	0.0115	0.1515	0.2839	0.2831	1.7267
Managed Futures	0.1509	0.0598	0.0458	0.1513	0.1510	NA

Multi-Strategy	0.4377	0.0057	0.2449	0.3904	0.3524	10.9093

Notes: The SR stands for the Sharpe ratio. The GSR(P-A) is the parametric estimate of the generalized Sharpe ratio (GSR), proposed by Alexander (2008). The GSR(NP) is the nonparametric estimate of GSR. The EPM(P) and EPM(NP) are the parametric and nonparametric estimates of the economic performance measure.

Tab.3 - Rankings of hedge fund indexes by different measures and methods. Source: Author's calculation based on data from Credit Suisse hedges fund indexes, 2016

Hedge fund index	SR	EPM(NP)	GSR(NP)	GSR(P-A)	EPM(P)
All Hedge Index	10	9	10	8	4
Convertible Arbitrage	7	8	8	9	11
Emerging Markets	11	12	12	12	8
Equity Market Neutral	12	13	13	13	13
Event Driven	4	5	5	5	9
Event Driven Distressed	2	4	3	4	10
Event Driven Multi-Strategy	6	7	6	6	7
Event Driven Risk Arbitrage	3	2	2	1	5
Fixed Income Arbitrage	8	10	9	10	12
Global Macro	5	3	4	3	3
Long/Short Equity	9	6	7	7	2
Managed Futures	13	11	11	11	1
Multi-Strategy	1	1	1	2	6

Notes: The SR stands for the Sharpe ratio. The GSR(P-A) is the parametric estimate of the generalized Sharpe ratio (GSR), proposed by Alexander (2008). The GSR(NP) is the nonparametric estimate of GSR. The EPM(P) and EPM(NP) are the parametric and nonparametric estimates of the economic performance measure.

Tab.4 - Rank correlation for the rankings of hedge fund indexes.
Source: Author's calculation based on data from Credit Suisse hedges fund indexes, 2016

	SR	EPM(NP)	GSR(NP)	GSR(P-A)	EPM(P)
SR	1				
EPM(NP)	0.7700	1			
GSR(NP)	0.8500	0.9200	1		
GSR(P-A)	0.7400	0.9200	0.9000	1	
EPM(P)	-0.0300	0.21	0.13	0.23	1

Notes: The SR stands for the Sharpe ratio. The GSR(P-A) is the parametric estimate of the generalized Sharpe ratio (GSR), proposed by Alexander (2008). The GSR(NP) is the nonparametric estimate of GSR. The EPM(P) and EPM(NP) are the parametric and nonparametric estimates of the economic performance measure.

4 CONCLUSION

This paper studies the performance measurement of two new performance measures, the GSR and EPM, which extend the Sharpe ratio. These two measures go beyond the mean-variance framework. Thus, they are particularly useful for evaluating the return distributions that deviate from normal distributions. We use the hedge fund returns for this empirical study. We find that the nonparametric GSR and the nonparametric EPM produce more similar ranking than the SR. We also examine three parametric methods which approximate the nonparametric estimations of the GSR or the EPM. The results show that only the method proposed by Alexander (2008) approximates well and produces similar rankings with the nonparametric GSR and the nonparametric EPM.

REFERENCES

Alexander, C. (2008). *Quantitative methods in finance*. Chichester, England: Wiley.

Aumann, R., & Serrano, R. (2008). An Economic Index of Riskiness. *Journal of Political Economy, 116*(5), 810-836. doi:10.1086/591947

Chen, Y.-T., Ho, K.-Y., & Tzeng, L. Y. (2014). Riskiness-minimizing spot-futures hedge ratio. *Journal of Banking & Finance,* 40, 154–164. doi:10.1016/j.jbankfin.2013.11.038

Goetzmann, W. N., Jr., J. E., Spiegel, M. I., & Welch, I. (2004). Sharpening Sharpe Ratios. *SSRN Electronic Journal SSRN Journal*. doi:10.2139/ssrn.302815

Goetzmann, W., Ingersoll, J., Spiegel, M., & Welch, I. (2007). Portfolio Performance Manipulation and Manipulation-proof Performance Measures. *Review of Financial Studies, 20*(5), 1503-1546. doi:10.1093/rfs/hhm025

Hodges, S. (1998). *A generalization of the Sharpe ratio and its applications to valuation bounds and risk measures*. Financial Options Research Centre, Warwick Business School, University of Warwick.

Homm, U., & Pigorsch, C. (2012). Beyond the Sharpe ratio: An application of the Aumann–Serrano index to performance measurement. *Journal of Banking & Finance, 36*(8), 2274-2284. doi:10.1016/j.jbankfin.2012.04.005

Leland, H. E. (1999). Beyond Mean–Variance: Performance Measurement in a Nonsymmetrical World (corrected). *Financial Analysts Journal, 55*(1), 27-36. doi:10.2469/faj.v55.n1.2239

Pézier, J. (*2008*) *Maximum certain equivalent returns and equivalent performance criteria*. *ICMA Centre Discussion Papers in Finance*

Spurgin, R. B. (2001). How to Game Your Sharpe Ratio. *The Journal of Alternative Investments Alternative Investments, 4*(3), 38-46. doi:10.3905/jai.2001.319019

Zakamouline, V., & Koekebakker, S. (2009). Portfolio performance evaluation with generalized Sharpe ratios: Beyond the mean and variance. *Journal of Banking & Finance, 33*(7), 1242-1254. doi:10.1016/j.jbankfin.2009.01.005

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

CLUSTER POLICY IN SLOVAKIA AND ITS SIGNIFICANT REGIONAL ASPECTS

Martina Sopoligová

ABSTRACT

In Slovakia, the role of clusters has long been underappreciated, and the country still has no explicit cluster policy. The first official policy document mentioning cluster concepts and clusters was the National Strategic Reference Framework for 2007-2013. This document recognizes clusters as a tool for increasing the competitiveness of companies and a way to turn theoretical research results into global market practices. To achieve national strategy goals, it is important to incorporate national strategies on clusters into regional operational programmes. Regional governments and supporting agencies, therefore, play a crucial role in the design and implementation of strategic clusters. There is no agency, organisation or ministry in Slovakia explicitly devoted to clusters. Slovak clusters have emerged mostly from the "bottom-up," some of them with the support of regional governments. The author describes the existing cluster-based policy at a national and regional level in the country. An analysis of regional aspects of Slovak cluster policy based on telephone interviews and questionnaires directed at representatives of all Slovak self-governing regions has been carried out. To improve existing cluster policy at the regional level, recommendations are made.

Keywords: *cluster, cluster policy, region, national strategy, operational programme, Slovakia*

JEL Classification: O25, O30, R10, R58

1 INTRODUCTION

Government intervention has long influenced economics. Governments also establish priorities, especially in times of restricted budgets. Their activities lead to ensure economic growth and competitiveness of regions. Clusters are becoming a modern way of cooperation between private and public sector and drive the economic development in many countries. Essentially, a cluster can be understood as "a geographic concentration of mutually interconnected companies, specialized suppliers, providers of services, companies in similar fields and associated institutions such as universities, agencies and associations of different orientations, which compete, but also cooperate" (Porter, 1990). The government, as one of the inseparable elements of the Triple Helix (Etzkowitz, 2002), stimulates the development of cooperation among clusters, as well as among cluster members at the national and regional levels of cluster policy. At the E.U. level, especially by the European Commission, strategic plans, support policy formulations, programmes, and memorandum dealing with clusters have been created. As a result, activities specifically related to clusters are currently under way in Europe. The Competitiveness Innovation Programme, the Cohesion Policy, and the 7th Framework Programme involve a wide range of activities focused on clusters, innovation and competitiveness. Such federal government initiatives, however, do not always filter down to individual member states. In order establish a more comprehensive cluster policy in Slovakia, an E.U. member state since 2004, a better interlinking of Slovak government policy with European Union cluster policy is needed.

The cluster policies shaped by national governments in cooperation with regional or local governments, may differ in their approaches (European Commission, 2005). However, there are common objectives and characteristics, such as the authorities fulfilling the role of a catalyst, information support, infrastructure, and financial support.

Koschatzky (2010) observed that today's trend in regional development policy approaches is moving towards emphasizing innovation as a means to enhance economic development. Although the European Commission points out that the reduction of social and income disparities in Europe is still among the top priorities, it also notes the importance of increasing knowledge and innovation in European regions. From the regional viewpoint, it is far more necessary in innovation promotion to interact and to coordinate with other policy fields and administrative levels for which the regional administration is not responsible. This is one example of governance in which lower authorities have to coordinate their actions with upper policy levels (Uyarra et al., 2007).

In 2007, the European Cluster Observatory was established as a platform ensuring an analysis of cluster initiatives within the European Union in terms of supporting clustering processes. The same year, the European Cluster Memorandum was developed in order to mobilize support of cluster initiatives and cluster policies at the level of the European Union member states and also at their regional levels (see Laffitte et al., 2007). According to the memorandum, the success of the government cluster policies depends on the actions of many: multiple levels of government and public agencies, companies, investors, trade associations, educational and research institutions, as well as other institutions affecting the business environment of clusters, for example the labour market partners. National and regional government policies are crucial to improving the business environment.

This paper presents the current conditions of cluster policy in Slovakia, focusing on the regional level. The next section provides a definition and a theoretical background of cluster policy, and then characterizes the Slovak national cluster policy. This section also identifies and describes the main government strategic programmes dedicated to the cluster concept and lists agencies supporting cluster development in Slovakia. Section 3 details the methodology used in the context of this study. Section 4 documents the results of this study, while Section 5 provides conclusions.

2 THEORETICAL BACKGROUND OF CLUSTER POLICY

There is no generally accepted definition of cluster policy in academic literature. For this paper, cluster policy is being understood as "all efforts by government, alone or in a collaborative effort with companies, universities, and others, that are directed at clusters to develop their competitiveness" (Ketels, 2009). Clusters should also benefit from other policies that do not directly target clusters, but which can provide stimulus for cluster development (Koschatzky, 2010). Primarily, this is often the case in three key policy areas: innovation and technology, regional economic development, and entrepreneurship/small and medium-sized enterprises (SMEs). However, it can also occur in many other policy areas.

Slovak cluster policies are at an early stage of development and have several problems (CLUSTRAT, 2014). A cluster evaluation system does not currently exist in Slovakia.

Regional and/or local policy makers can help share development vision and give strength to collective actions to enhance the competitiveness of SMEs. They support cluster development actively (GFA Management, 2001). The role of national policies is primarily aimed at creating a business environment connected to clusters, with respect to the fact that each industry has specific requirements and needs.

2.1 National cluster policy in Slovakia

Slovakia has one of the shortest experiences with cluster policy among E.U. members. Slovak clusters have formed spontaneously using specific regional features, potentials or resources. They emerged from the "bottom-up" approach, meaning they have been formed as a result of natural needs, mostly around multinational firms that decided to invest in Slovakia (e.g., Peugeot, Samsung, Volkswagen, and Siemens). Their business activities have attracted many other firms, especially sub-contractors. In contrast with neighbouring countries (e.g., the Czech Republic and Hungary), Slovak clusters were created on the initiative of companies in an industry, not because of the possibility of obtaining state subsidies. The majority of existing clusters are in their early stage of development as they emerged in the year 2004 (BITERAP) and after. In all Slovak regions, a big variety in regards to industry sectors (Tab.1) in which clusters emerged can be observed. Functional cluster organizations can be divided into three groups: technological, tourism or knowledge.

There is no agency, organisation or ministry in Slovakia explicitly oriented on clusters. The main authorities that promote the existence and development of clusters in Slovakia are the Ministry of Economy (MoE) and the Ministry of Education, Science, Research and Sports (MoESR&S). Both are responsible for the conceptual side of cluster policy implementation in the country. The responsibility of its practical application lies on the Slovak Innovation and Energy Agency (SIEA), established by the MoE in May 1999. The SIEA is the information service for MoE, with special focus on innovations and the energy sector. Its main tasks also include the implementation of the national Innovation Strategy, and providing advice and information regarding the establishment and functioning of clusters. In fulfilling its tasks, SIEA mainly cooperates with universities and research and development institutions. Others Slovak agencies that use clusters as tools for supporting SMEs and improving the business environment have been established. The Slovak Investment and Trade Development Agency (SARIO) is a government-funded allowance organization that works under the supervision of MoE. The main objectives of SARIO is to create a competitive investment "business-friendly" environment in Slovakia. In the context of clusters, it also works to integrate SMEs into clusters of economic strategy and improve cooperation with potential partners at the regional level, as well as within higher education and the research sector (see http://www.sario.sk).

The Slovak Business Agency (SBA), until February 2014 the National Agency for Development of SMEs, is the oldest, specialized, non-profit organization for the support of Slovak SMEs, having been founded in 1993 by a common initiative of the European Union and the government of Slovakia. It works with both the public and private sectors.

In 2010, the Union of Slovak Clusters was founded to officially represent the interests of member clusters. It participates in the preparation and implementation of national strategic documents (e.g., the Common Strategic Framework, 2014-2020), which support clusters, their members, and the socioeconomic development and competitiveness of all Slovak regions through appropriate clustering tools. The Union is an important player not only at the national but also at the international level in the field of cluster policy. It helps to transfer information and knowledge from EU cluster policies and projects. The Union is also a partner in a few projects, e.g., Danube Strategy 2014-2020, CluStrat (Central Europe Programme), ClusterPoliSEE (South-East Europe Programme), NoGap (7th Framework Programme), V4Clusters (International Visegrad Fund), and PhotoClust4SME (7th Framework Programme).

So far, the prevailing strategy in Slovakia has been to remove the weaknesses of the regions, however, growth-oriented support that takes into account the specificities of the individual regions should become the focal point. One of the ways is to support cluster initiatives. The

first step towards a cluster-based policy approach appeared in the Slovak economy only recently, within governmental documents from 2007-2013. Some documents relevant to clusters and their development are as follows:

1. National Strategic Reference Framework 2007-2013 (Národný strategický referenčný rámec). This document, one of the most important strategic documents, defined the priorities of Slovakia's use of E.U. structural funds for 2007-2013. Its strategic objective was "to significantly enhance the competitiveness and performance of regions and the whole Slovak economy and employment with respect to sustainable development." In this strategic framework and for the first time, clusters were considered a significant tool for increasing the competitiveness of companies. The National Strategic Reference Framework offered financial support for infrastructure and cluster management and training for actors and participants with budget of 74.7 mil EUR. The document expected activity from regional authorities for creating infrastructure as well as from firms to support their cooperation. The Strategic Framework formed the basis for all operational programmes implemented in Slovakia between 2007 and 2013. The one of them is the *Operational Programme Competitiveness and Economic Growth* (Operačný program Konkurencieschopnosť a hospodársky rast). This programme was aimed at economic development by supporting selected activities. The key objectives of the programme were to ensure sustainable economic growth and employment through sustainable growth and to increase competitiveness, added value and employment in the industry and services sector. This programme was targeted on building competitive regions by bringing local actors and sources together, and it focused on smaller firms with innovation targets, particularly on SMEs. The programme offered financial support for infrastructure, the management of clusters and training, and it included activities aimed at strengthening the competitiveness and efficiency of industrial production, as well as the tourism industry.

2. Innovation Strategy of the Slovak Republic until 2013 (Inovačná stratégia). The strategy is the basic document with the strategic objective of making innovation one of the main instruments in developing the knowledge economy, ensuring the high economic growth of the Slovak Republic. Individual priorities of the strategy were developed into action plans and then specific tasks, leading to the *Innovation Policy of the Slovak Republic for 2008-2010* (Inovačná politika na roky 2008-2010). Taking into consideration the document entitled "EUROPE 2020 – A European strategy for smart, sustainable and inclusive growth" the *Innovation Policy of the Slovak Republic 2011-2013* (Inovačná politika na roky 2011-2013) was created in the authority of MoE. The purpose of the Measure No.1 was to improve industrial competitiveness through support to selected activities of industrial cluster organisations, with a view to promoting joint industrial activities in selected areas. This measure would favour cluster organisations which focus on high-tech, those which operate in less developed regions, and internationally recognized cluster organisations. The competent body was the MoE with cooperation with self-governing regions. Estimated amount of funds to be spent on this measure was 4.0 million EUR.

3. Research and Innovation Strategy for Smart Specialisation of the Slovak Republic 2014-2020 - RIS3 SK (Stratégia výskumu a inovácií pre inteligentnú špecializáciu SR). The creation of the RIS3 SK was created in accordance with the Europe 2020 strategy, to support the process of increasing the competitiveness of Europe and employment. The central coordinators and organizers of the RIS3 SK are the MoE in cooperation with the MoESR&S. A strategic objective of the Europe 2020 is the implementation of policies to support innovations using the potentially strong areas and competitive advantage of regions. It is necessary to mention that the National Strategic Reference Framework was planned for a relatively extensive development. In the 2014-2020 period, the efforts have to be concentrated on a small number of priorities. All tasks were implemented into operational programmes, especially into the

Operational Programme Research and Innovation 2014-2020 (Operačný program Výskum a inovácie) in line with RIS3 SK. The programme is a common document of the MoESR&S and the MoE followed the previous Operational Programme from 2007-2013.

The first grant activity was initiated by the MoESR&S in 2012. From the first call, the best 5 projects of technology cluster organizations were chosen and supported. Subsidies supporting industrial clusters were then granted annually by the MoE. In 2013, under *the Scheme Promoting Industrial Cluster Organizations* (DM-3/2013), financial support was provided to 6 industrial clusters in the amount of 161,000 EUR. In 2014, almost 130,000 EUR was awarded to 7 industrial cluster organizations to enhance their competitiveness through education, to present their clusters in Slovakia and abroad, to create a common expert base, and to participate in international projects, initiatives, and networks (DM-18/2014). Another objective of the financial subsidies was to initiate direct cooperation between the private sector and research centres. In 2015, the popularity of the programme was demonstrated by a fivefold increase in the number of candidates. That year, 130,000 EUR was provided to 7 cluster organizations so that they might increase the competitiveness of their members by streamlining their mutual cooperation as well as strengthening the position of industrial clusters globally.

2.2 Regional aspects of cluster policy

While the concept of clusters has gained a prominent place at all spatial levels, the concept has been adopted primarily at the regional level (Ketels, 2009). Cluster strategies have been adopted for instance within many states in the USA and many regions in Europe (Basque Country Catalonia, Styria). Because clusters may range from the local to the national, governments at all levels should be involved (Koschatzky et all., 2010).

Regions can play a crucial role in the cluster development by implementing strategic plans. After the establishment of instruments of cluster policy, agents who can use these instruments must be identified (Lehmann, 2015). The main are government agents on political levels, including municipal authorities. These agents on the regional and the local level may often initiate and design a cluster policy. Especially in its early stages, agents like regional governments of industry or municipal departments for business development can take the driver´s seat of cluster promotion efforts, at least until an institutionalized cluster initiative is formed for this purpose (Enright, 2000). Apart from national authorities, there are also regional policy actors such as regional authorities and regional development agencies in every self-governing region.

Regional cluster policy is, due to its holistic nature, compatible with regional development policies (the cluster development programme, regional innovation strategies, strategy of regional competitiveness, or RIS3). Thus, it can be part of them or it can be a separate strategy presented in the form of a binding regional document. Recently, Slovak self-governing regions have integrated cluster policies in their development strategies. The regional development policy documents are based on the National Strategic Reference Framework. On the one hand, regions can be instrumental in organising local operations, and by preparing and implementing strategies and projects. On the other hand, they can liaise with knowledge institutions, industries, and clusters to increase research and innovation capacity. Regions that combine risk capital, skills, and research with strong clusters have more opportunities to become innovation hubs while regions with no clusters or isolated research risk falling behind (Laffitte et. al, 2007).

The basic task of a self-governing region in the Slovak Republic is to ensure the overall development and need fulfilment of its inhabitants. The *Economic and Social Development Programme from 2014 - 2020* (Program hospodárskeho a sociálneho rozvoja) a fundamental medium-term strategic planning document, helps in this regard.

3 RESEARCH METHODOLOGY

An analysis of Slovak cluster policy at the regional level was conducted with the use of both primary and secondary sources. In order to successfully accomplish the goal of this paper, appropriate research methods were used. As a first method was chosen critical research of available literature sources regarding the background for the cluster concept development, cluster-based policies, and stage of cluster development in the Slovak Republic. Critical research of information sources was based on professional publications, professional studies and case studies in the majority from Slovak sources.

In order to obtain specific information regarding the present stage of cluster-based policies at the regional level in Slovakia, a survey was conducted. The survey was directed to representatives of all Slovak self-governing regions and comprised of telephone interviews and questionnaires was conducted. The questionnaire consisted of 18 questions: 13 closed and 5 open. The first 4 questions investigated basic information about the level of implemented cluster policy, next 8 questions were devoted to clusters in each self-governing region, to their mapping, supporting and evaluation. Last 6 questions were focused on cluster management and financing of clusters. Primary data were collected during January and February 2016. Altogether, 8 representatives of self-governing regions were asked to take part in the study, from which 6 answered the questionnaire and after that were interviewed (75% response rate). The remaining representatives answered incompletely and thus were excluded from the study.

The questionnaire was then further supported through structured face-to-face interviews with 6 already mentioned representatives. Most of the participants are representatives of the departments of regional development of self-governing regions, one of them is working at the department of education and sports (Žilina Region). The interviews were a great source of knowledge regarding the current situation of regional cluster development and cluster policy.

In addition to that, analysis and synthesis were conducted in order to analyse regional aspects of Slovak cluster policy and identify recommendations to achieve better cluster policy in conditions of the Slovak economy.

4 DISCUSSION

Slovakia is characterized by huge regional disparities that are determined by geography, history, culture, economic development, ethnic composition, religion, and its position as an ages-old cultural and administrative centre. It is affected by deliberate actions of the state on the regions, and a degree of industrialization. European instruments of cohesion policy, mostly structural funds, are used for reducing disparities among the varying levels of regional development. Other instruments such as government grants and new investments from foreign and local investors are used, particularly in regions with high unemployment.

Slovakia is divided into 8 self-governing regions (*samosprávne kraje*): Bratislava, Nitra, Trnava, Trenčín, Banská Bystrica, Žilina, Prešov and Košice. Their governance is, in principle, independent from the central government. Responsible authority for cluster development is almost in every region the department of region development, in Žilina is responsible also the department of education and sport. According to cluster policy, all self-governing region have prepared their own *Economic and Social Development Programme* (E&SDP). One of the outcomes of the programme was to define perspective sectors in each region (Tab.1). The last programmes were approved by most regional governments for the period 2014-2020, in Trnava for the period 2016-2020, in Košice for the timeline 2016 – 2022, in Trenčín for the years 2013-2023. In Žilina clusters are mentioned also in the *Regional Research and Innovation Strategy*,

the same as in Nitra and Prešov. Nitra has the *Regional Innovation Strategy of Nitra Region for 2014-2020* (RIS) directed to supporting clusters.

According to clusters, the main objectives of these strategic programmes are cooperation with clusters within education and sports activities (Žilina, Trnava), creation links between business and science, cooperation and networking (Bratislava, Žilina), support of regional technology platforms and incubators (Trnava), the implementation of innovative bridges to foster the innovation potential and the transfer of technology by clusters (Nitra).

Tab. 1 – Slovak self-governing regions, their documents dealing with clusters, perspective sectors, and existing local clusters. Source: Author´s own based on http://www.minv.sk and self-governing regions websites.

Self-governing regions	Documents dealing with clusters	Perspective sectors	Official name of local clusters (in English)
BRATISLAVA	E&SDP 2014-2020	chemical, automotive, engineering, electrotechnical, food processing, tourism	ABC – Academic Business Cluster, Danube Knowledge Cluster, National Energetic Cluster, EMOCITY–Cluster for E-mobility and Smart City
NITRA	RIS 2014-2020 E&SDP 2016-2018	agriculture, food processing, plastics, energetics	Slovak Plastic Cluster, Cluster Topoľčany, Cluster for Energy Storage of RE, Food Cluster
TRNAVA	E&SDP 2016-2020	automotive, electrotechnical, agriculture (beekeeping), metallurgy, chemistry, glass	Automotive Cluster Slovakia, Electrotechnical Cluster-West Slovakia, Cluster of Tourism-West Slovakia, Energetic Cluster-West Slovakia, Energetic Cluster CENTROPE, Smolenice Cluster, Construction Cluster Slovakia, Cluster for Green and Innovative Technologies Support, Trnavsko-Myjavsky Engineering cluster, Cluster "Agriculture and Countryside", Cluster for Innovative and Green Technologies Support
TRENČÍN	E&SDP 2013-2023 (marginally)	machinery, metalworking, electronics, chemistry, building	KITech Cluster of Innovation Technologies for the Handling with Dusty Inorganic Waste, Slovak IT Cluster
BANSKÁ BYSTRICA	clusters are not a priority topic	metallurgy, woodwork, engineering, chemistry, pharmacy, food processing	1st Slovak Engineering Cluster, Tourism Association BALNEA CLUSTER DUDINCE, Cluster HOREHRONIE, Cluster TRISKEL
ŽILINA	E&SDP 2014-2020, RI&IS 2014-2020	IKT, automotive, engineering, electrotechnical, building	Z@ict, Cluster ORAVA, Cluster TURIEC, Cluster LIPTOV, Cluster Monocrystal, Cluster Oravaregion
PREŠOV	RIS 2015-2020 E&SDP 2014-2020	food processing, chemical, mechanical engineering, textile	Energy Cluster of Prešov Region, Railway Transport Cluster, Cluster of Tourism Branisko-Bachureň, Cluster of Tourism Slanské vrchy
KOŠICE	E&SDP 2016-2022	advanced manufacturing, automotive, IKT, robotics, biomedicine, green technology	BITERAP, Košice IT Valley, Cluster AT+R, Cluster of Tourism Košice Tourism, 1st Spiš Cluster

Regarding regional cluster policy, all Slovak self-governing regions have integrated cluster policies. The problem is with actual implementation, due to a lack of funding from the government. The results of this study also confirmed considerable disparities in the type of support offered for clusters by Slovak regional authorities.

While being involved in cluster policy issues, the representatives of the self-governing regions stressed a number of problems regarding cluster development in the country. Based on their arguments and on results of conducted research, the following can be stated about Slovak regional cluster policy:

- the self-governing regions have competencies for the process adjustment and development of clusters,
- there is a lack of sufficient financial resources needed for modernization, technology, a
- highly-educated workforce, international marketing, etc.,
- there is low motivation for participating in clusters due to insufficient trust among cluster members,
- problems connected with obtaining financial support (bureaucracy, wrong proportion).

A supportive policy environment is an important factor in the development of successful clusters (A Practical Guide to Cluster Development). Porter (1998) highlights that many of the most significant influences on industrial development stem from the way in which national frameworks influence the demand for sophisticated products, industrial innovation, and levels of entrepreneurship.

During the research process, a limited cooperation with authorities and limited support from the regional governments are being observed. For a successful cluster policy, the following recommendations are made:

- at both the national as well as regional levels, a proper understanding of the cluster concept by authorities responsible for the cluster policy is essential,
- systematic institutional support of clusters, e.g., in the new law of innovation support, or in the law of regional development support,
- sustainable financial support (governmental and structural funds),
- to develop sustainable regular communication between the national and regional levels
- within the multilevel governance concept,
- support by human resources, especially for cluster managers (a building of professionalism)
- education, training and workshops for local government authorities, focused on modern aspects of clustering

5 CONCLUSION

Clusters and successful cluster strategy depend on good cooperation between the public and private spheres, national support of research institutions, and cooperation within the cluster, including the targeting of resources. In Slovakia, the important role of clusters has long been underestimated both at the national and regional levels. However, the experiences of more-advanced countries depict a great number of benefits of clusters, e.g., they enhance

competitiveness and employment in sectors where they exist, they are engines of regional development, they increase the productivity of clusters and cluster members, etc.

The research among self-governing regions in Slovakia has shown that cluster policy is not at the forefront of their interest. The main reason is that implementation of these plans is dependent mostly on financial resources from governmental and structural funds.

Cluster success not only depends on the support of different partners but also on an accurate understanding of the clustering idea. Most surveyed representatives basically understand the cluster concept and recognize that clusters benefit not only regions but the whole economy. The experience of foreign cluster policies helps them to clearly specify their needs and problems. The cluster manager´s abilities to convince companies to join the cluster and to create a confidential environment within the cluster are also crucial. The positive activities by government institutions should be continued and further developed in order to further enhance cluster development. Investigations carried out at the departments of regional development in the Slovak self-governing regions portray a rather limited level of specific measures that support clusters, indicating that Slovakia is lagging behind other E.U. members in this respect. This disproportion could be significantly reduced by adopting proper not only regional but also cluster policies in the Slovak Republic.

ACKNOWLEDGEMENT

The author is thankful to the Internal Grant Agency of FaME TBU No. IGA/FaME/2015/0036, "The impact of the concept of cluster policy on the establishment and the viability of cluster companies," for the financial support of this research and also to all representatives of self-governing regions which took part in the study.

REFERENCES

A Practical Guide to Cluster Development. A Report to the Department of Trane and Industry and the English RDAs by Ecotec Research & Consulting (Rep.). (n.d.).

CLUSTRAT (2014). Národný report (Slovenská republika) strategického projektu program Cetral Europe, medzinárodného projektu "CLUSTRAT". Retrieved from http://www.clustrat.eu

Enright. M. J. (2000). The globalization of competition and the localization of copetitive advantage: policies toward regional clustering. In: Hood, N., & Young, S. (2000). *The globalization of multinational enterprise activity and economic development*. New York: St. Martin's Press.

Etzkowitz, H. (2002). The triple helix of university - industry - government: Implications for policy and evaluation. Stockholm: Swedish Institute for Studies in Education and Research.

European Commission. (2005). Final report of the expert group on enterprise clusters and networks (Rep.). (n.d.).

GFA Management (2001). 'Best Practice in Developing Industry Clusters and Business Networks', ADB-SME Development, TA Policy Discussion Paper No. 8, (November), Asian Development Bank, Manila.

Ketels, Ch. (2009). Clusters, Cluster Policy, and Swedish Competitiveness in the Global Economy. Expert Report number 30 to Sweden´s globalisation council. PRINT Edita.

Koschatzky, K., & Stahlecker, T. (2010). A new Challenge for Regional Policy-Making in Europe? Chances and Risks of the Merger Between Cohesion and Innovation Policy. European Planning Studies, 18(1), 7-25. doi:10.1080/09654310903343492

Laffitte, P., Aho, E., Danneels, L., Evrard, J., Meier Zu Kocker, G., Mingasson, J. P., Monks, G., Sandberg, O., Sandri, S., Simon, P. & Subira, A. (2007). The European Cluster Memorandum. Stockholm: Stockholm School of Economics, Center for Strategy and Competitiveness. Retrieved from: http://www.vinnova.se/upload/dokument/ VINNOVA_gemensam/Kalender/2008/Klusterkonfrens_jan08/European%20Cluster% 20Memorandum%20Final.pdf.

Lehmann, T., & Benner, M. (2015). Cluster Policy in the Light of Institutional Context—A Comparative Study of Transition Countries. Administrative Sciences, 5(4), 188-212. doi:10.3390/admsci5040188

Porter, M. E. (1990). The competitive advantage of nations. New York: Free Press.

Porter, M. E. (1998). On competition. Boston, MA: Harvard Businesss School Pub.

Uyarra, E. (2007). Key Dilemmas of Regional Innovation Policies1. Innovation*: The European Journal of Social Science Research*, 20(3), 243-261. doi:10.1080/13511610701707383

Web page sources [online] available at the following addresses:

http://web.vucke.sk/sk/
http://www.mhsr.sk/operacny-program-6352/128037s
http://www.mhsr.sk/operacny-program-vyskum-a-inovacie/144031s
http://www.minv.sk/
http://www.nsrr.sk/narodny-strategicky-referencny-ramec-2007-2013/
https://www.po-kraj.sk/
http://www.sbagency.sk/
https://www.siea.sk/
https://www.trnava-vuc.sk
https://www.unsk.sk/
https://www.vucbb.sk/
www.region-bsk.sk/obcan.aspx
www.regionzilina.sk/
www.tsk.sk/

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

WHETHER THE OWNERSHIP STRUCTURE EFFECTS ON CASH HOLDING: AN EVIDENCE FROM VIETNAMESE STOCK EXCHANGE

Thi Thanh Nhan Do, Ha Pham, Kim Thanh Ngo

ABSTRACT

Using a sample of 577 listed firms on the Vietnamese stock exchange over the period 2007 to 2015, we examine the effect of state ownership and institution-owned on cash holding level. The results find out the state-owned increase lead to the higher level of cash holding and the institution ownership have the opposite direction with cash reserve level. Furthermore, this study investigates whether the change in state ownership causes any alteration on the factors which impact on the cash holding. The findings will contribute to understand the factors impacting the cash holding level as well as having implications for cash management in state-owned firms with over 50% of total shares and state-owned firms with under 50% of the total shares.

Keywords: *Firm Value, State Ownership, institution-owned, cash holding*

JEL Classification: G32, G31, G34.

1 INTRODUCTION

The cash holding plays an important role in daily operations of a firm because they sometimes need money to solve the financial problems immediately. Moreover, Myers and Majluf (1984) with pecking order theory indicated that holding cash decreases the cost in comparison with external financial sources. In addition, the theory point outs that the cash level would be the result of the financing and investment decisions and the information asymmetries are very costly for firms in flotation new equities. Likewise, if the corporations do not have enough cash to cope with all the situations, the firm may suffer from losing affordability. Therefore, the enterprises will finance their investments primarily with internal funds than having the difficulty in finding external funds. Hence, the company keeps more cash which can lead to obtaining more investment opportunities.

However, holding too much cash cause some contrary consequences. Free Cash Flow Theory (Jensen, 1986) reveals that managers have an incentive to store cash to accelerate a number of assets under their control and to take full advantages of the firm investment decision. However, the shareholders thought that is a negative influence on their wealth. Harford (2007) suggests that the corporations hold less cash have weaker corporate governance structure. Furthermore, Kuan et al (2012) reveal that reducing the level of cash can avoid the agency problems suggests finding the relationship between the ownership structure and cash holding and their roles in explaining the cash policy.

Vietnam has become one of the emerging economies in Asia with a lot of enterprises have established. Nevertheless, the instability of the world economy as well as Vietnamese economy, then the managers have pressures on maximizing shareholder value and managing efficient income. Moreover, Vietnamese economy copes with short- funds of banks, bubbles in

real estate market and stock exchange as well as the financial crisis around the world. Therefore, the economics slowdown in the world today, a source of cash becomes more difficult to borrow.

The study about the effect of cash holding on state ownership and institution-owned in Vietnam has not attracted the researchers. This paper examines this relationship in the context of the reform of Vietnamese economy. The aim of the paper confirms structure ownership whether to have an impact on cash holding in Vietnamese listed corporations. Obviously, the paper examines the interaction between state ownership, institution-owned and cash holding. Importantly, we also test whether any changes in the relation between cash holding and some control variables for two sub-samples defined according to the proportion of state ownership. The contributions of the paper are as follows. This is among the first study investigate the reasons and consequences of cash holding in the relationship with the ownership structure, especially state-owned and institution-owned in Vietnamese context, these are important components of listed firms in Vietnam which has recently received a lot of attention in the growing literature on cash holding. The paper is also the first study in Vietnam to examine the changing in the ratio of state ownership effects on cash holding level, this can give the suggestions to improve the management in cash policy as well as provide the appropriate policies for the equalization process.

The results find out that there is a positive relationship between cash holding and state ownership while cash reserve is a negative sign with institution-owned. This argues that the higher state-owned lead to higher level cash holding which can reduce the risk due to the poor corporate governance and agency problems (Shleifer and Vishny, 1998; Megginson and Netter, 2001). And the cash holding of companies decreases when the level of institution ownership is lower owing to experience in the capital market as well as managing the liquidity (Lehmann and Weigand, 2000). In addition, the sub-samples of state ownership represent the similar results for size, firm age for the listed firm with below 50% state owned and state-controlled. The dividend pay-out policy, cash flow, debt and net working capital have the different results in two sub-samples.

The rest of the paper is arranged by reviewing the related literature review, defining the model specifications to address the relevant empirical studies, analysing the data and empirical results, finally deriving implications based on the findings.

2 REVIEW OF RELEVANT EMPIRICAL STUDIES

A large amount of literature has been grown to explain the corporate governance has an influence on the development of the companies. Moreover, the agency theory argues that there is a conflict between managers and shareholders. According to free cash flow theory (Jesen, 1986). Shleifer and Vishny (1998) reveals that managers have an incentive to store cash to accelerate the amount of assets under their control and to take full advantages of the firm investment decision. Easterbrook (1984) and Jensen (1986) indicate that the managers prefer hoarding large cash reverse owing to the less effective control of shareholders, namely flexibility hypothesis. Jensen and Meckling (1976) investigate that the managers would rather quickly deploy cash than save money for investing in the future (spending hypothesis). Trade-off theory (Myer and Majluf; 1984) and Opler (1990) suggest that more effective controlling managers will hold more internal funds. And the important benefit of holding cash which could reduce the sensitivity of financial risks does not obstruct investment decisions, and avoiding the cost of raising external finance, this is the concept of shareholder power hypothesis.

The institutional ownerships affect the efficient operation of businesses in different ways which attract a lot of researchers. On the one hand, the institutions are more professional investors

than the individual investors (McConnell and Servaes, 1990). Moreover, they have more experience in the capital market as well as managing the liquidity (Lehmann and Weigand, 2000). Indeed, the institutions have a motivation in controlling the managers' behaviours because they hold the large amount of shares (Hartzell and Starks, 2003). The management's ability of institutional investors improves the firm performance because of the discipline corporate managers (Rose, 2007). On the other hand, some previous papers intimate the institutions have short term investment strategy which can cause the incompatibility of the long term plans of the firms (Pound, 1988; Hand, 1990). Likewise, Kaserer and Moldenhauer (2006) indicate that the institutions do not enhance the firm performance. Some studies find there is no relationship between the institutional own and firm performance (Chaganti and Damanpour, 1991; Lowenstein, 1991). Most extant studies have investigated the correlation between institutions own and the effectiveness or the firm performance based on the accounting performance measures, the results are mixed. Additionally, the change in institutions' own can whether have an impact on management in internal funds like cash have not mentioned in detail in any research. Thus, this paper tests the changes of the institutional ownership in the companies which can affect cash management in a positive or negative way.

Many studies point out the influence of state ownership on the effective for the business's operations. Yu (2013) shows that positive connection between state ownership and firm performance due to assistance from political connections and government support in order to take advantages in operating the businesses. There are many studies provide the evidence to confirm the positive relationship between state ownership and firm performance (Najid and Abdul Rahman, 2011; and Sun et al., 2002; Le and Buck, 2011; Le and Chizema, 2011). Nevertheless, some earlier studies show that the higher proportion of state ownership has more pressure by politicians such as lower sales price, more unnecessary employee and not flexible in the decision in operating the firms which cause the drawbacks of state ownership (Shleifer and Vishny, 1998). Besides, state ownership is connected with poor corporate governance, weak performance, and severe moral hazard problems (Shleifer and Vishny, 1998; Megginson and Netter, 2001). Moreover, Borisova et al. (2012) state the negative association between state-owned and cash holding. Consequently, the state-owned may cause the poor corporate governance and agency problems. Since the listed firms should hold more cash in order to avoid risk, this predicts the positive relation with cash holding.

As the result, the state-owned has an impact on the operations of the firms such as Aljifri and Moustafa (2007) explain that the companies have a higher proportion of state-owned which do not have the pressure of the financial report, hence the manager can keep the money for improving the firm performance. Le and Chizema (2011) the managers do not have an effort to create more value for the shareholders or maximize the value of assets, so they prefer hoarding more cash. In the same way, the state ownership lead to the rise of cash holding level (Megginson W et al., 2014). However, some studies indicate the helping hand from the government for raising the capital for the state-owned firms, in this case the companies tend to have a smaller amount of cash reserve (Shleifer and Vishny, 1998). Consequently, this study discovers whether to have an interaction between state ownership and cash level.

There are three levels of determinants of cash holding level (Babatunde and Olaniran, 2009). Firstly, the external element as the economy condition which beyond the control of the companies. Secondly, the internal factors including governance structure, ownership structure affect the ability to deal with the external issues. Thirdly, there are some other factors which impact the cash holding such as firm ages, size, debt, cash flow, dividend and networking capital (Meggison et al, 2014; Ferrei and Vilela, 2004; Olatunde L. et al., 2012).

3 METHODOLOGY

The model will evaluate the association between cash holding and state ownership and institution-owned in listed firm in the model.

$$\boldsymbol{Cash_{it} = \gamma_1(State_{it}) + \gamma_2(Institutional_{it}) + \beta_k X_{it} + \alpha_i + \lambda_t + \varepsilon_{it}}$$

where *i* is the accumulation of firms; t is time for the end of the year; $Cash_{it}$ is the dependent variable equal cash plus cash equivalent divided by total asset. The main explanatory variables are state-owned and institution-owned. $State_{it}$ is represented the percentages of a total number of shares that the government owns. $Institutional_{it}$ is the proportion of shares owned by the institutions. X_{it} is a k-vector of control variables (k=1,2,3…k)

The extant findings show the influence of government ownership on the efficient of the business's operation present mixed results studies focus on the association between cash holdings and state-owned. Shleifer and Vishny (1998); Megginson and Netter (2001); Borisova et al. (2012) indicate the positive sign for cash holding. Even though, Najid and Abdul Rahman (2001), Sun et al. (2002), Le and Buck (2011), Le and Chizema (2011) specify the positive connection between cash holding and state ownership. As a result, we expect the positive relationship between the cash holding and state-owned.

Some early studies investigate the correlation between institutional ownership and cash holdings and they discover that institutional ownership holds more cash reserve (Brown et al, 2011). But Choi et al. (2012) suggest that they rely more on external financing and suffer more from cash shortages. The further tests are expected the negative effect of institutional ownership on firm cash holdings.

The control variables are chosen from previous studies to test the correlation with cash holding. According to Ferreira and Vilela, (2004), Uyara A. and C. Kuzeya (2014) has a positive sign with cash holding is consistent with trade off theory but Ozkan and Ozkan, (2004) indicate the positive relation which is line with pecking order and free cash flow theory. We expect bigger firm keep more cash than smaller size because the bigger corporations have more opportunities for investment.

Based on the pecking order theory, the firms should keep higher amount of cash during the difficult time and the majority of studies found a positive relationship between two variables (Ferreira and Vilela, 2004; Rizwan and Javed, 2011; Uyara A. and C. Kuzeya, 2014; Olatunde et al., 2012; Bigelli and Sanchez-Vidal, 2012). For the above result, it expects that the high cash flow will reserve higher cash level. In addition, debt is one of the factors which affect the cash holding level of the firms and Ivan et al (2013) investigated that the company has more debts also holds more cash. Thus, we assume that cash holding is inversely related to debt. Firm age is defined as the number of years since the companies are listed. Bates et al. (2009) says that the listed firms hold more cash than non-listed firms in the United States, so we predict the positive relation between cash reserve and age. Based on Meggison et al. (2014) point out a negative association between cash and dividend payment in Chinese firms, so we expect the same direction in Vietnamese corporations. Net working capital majorly consists of liquid asset cash substitutes. Bates et al. (2009), Ferreira & Vilela (2004) and Opler et al. (1999) investigate the inverse relationship between NWC and cash holdings, hence the following hypothesis is that NWC is inversely related to cash holding.

4 DATA

This paper extracted data from financial statements from the databases of the two largest stock exchange companies in Vietnam, Ho Chi Minh City Stock Exchange (HOSE) and Hanoi City Stock Exchange (HASTC). Between 2006 and 2007, many corporations were listed on the stock exchange with a lot of preferential exemptions which boost the market and Vietnamese economy developed very fast. And the interest rate was going up due to the demand money for the investment increase. Therefore, they had an incentive to keep more cash in order to obtain all the opportunities as well as avoid the high cost of borrowing. That is the reason for us to research Vietnam stock exchange for the period 2007 to 2015. We collect the data of 577 listed firms (excluding financial institutions) on the Vietnamese stock exchange.

Table 1 represents the summary statistics for all variables used in the paper. As can be seen from the table, the average cash holding is 46.3 % out of net asset which is very higher than some markets. The reason is that the cost of borrowing capital rose quickly during the period due to the financial crisis, hence the firms intend to hoard more cash to increase the liquidity and flexible finance. This rate is higher in comparison with others such as the average cash holding level in Japan is about 18.5% by Pinkowitz et al. (2001); 17% in United State during 1971-1994 by Opler et al. (1999); 24% in Chinese firms from 2000 to 2012 by Megginson et al. (2014).

Tab.1 - Descriptive Statistic

Variables	Obs	Mean	Std. Dev.	Min	Max
Cash	3696	.4631401	1.029458	.0016	. 7.8364
State	3696	24.36982	23.67135	0	96.7196
Institution	3696	8.602367	12.57523	0	49.01
Size	3696	5.190518	.611237	3.8503	6.7633
Div	3696	.7732684	.4187742	0	1
CF	3696	.1952288	.6412328	-1.691	3.4627
Debt	3696	1.112805	1.635263	0	10.0292
NWC	3696	.1937639	7151461	. -3.4813	2.0178
Age	3696	.6674422	.2205122	.301	1.2041

Note: Cash= (cash + marketability)/Net assets. State is the fraction of shares owned by the state. Institution is the fraction of shares owned by the institutions. Size is the logarithm of total assets. Div is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. Debt is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current liabilities)/ net assets. Age is the number of years since a firm is listed.

As mentioned above, we will use Fixed Effect model (FEM) and Random Effect model (REM) to avoid the results of regression coefficients are wrong due to the fact that the lack of important factors significant impact on the firm value and cash holding level. We also apply the difference in deference to consider whether the change in the state and institutional ownership influence the cash holding After that, we use the robustness test to ensure that the correlations do not impact the main results.

Next, we divide the data to sub-sample with the first sub-sample is the state ownership is under 50% total shares and the second sub-sample is over 50% to test whether they have any changes in the factors which affect the cash holding.

5 EMPIRICAL RESULTS

Table 2 presents the result of the effect of cash holding level on firm value after managing for unobserved heterogeneity. In addition, the robustness testing is applied to check the stability of the results. The result point out that there is no change of signs in all variables

Tab.2-Cash Holding and state ownership, institution ownership

Dependent variable: Cash	FEM	REM[1]
State	. 0011747 * (.000609)	.001113* (.0006101)
Institution	-.0057669*** (.0011148)	-.0053757*** (.0011173)
Size	.7866041*** (.0539289)	.9841267*** (.0365821)
Div	.0354817* (.0215975)	.0286745 (.0210985)
CF	.0241989*** (.0135078)	.0444854*** (.0130171)
Debt	-.0376017* (.0089791)	-.0191837*** (.0079195)
NWC	-.090656*** (.0172995)	-.0856863*** (.0165684)
Age	.3162569*** (.0517341)	.2358837*** (.048506)
Constant	-3.809655*** (.271751)	-4.804057*** (.1881929)
N	3076	3076
R-squared	0.44	0.44

*Note: ***p<0.01; ** p<0.05; *p<0.1.*

Cash= (cash + marketability)/Net assets. State is the fraction of shares owned by the state. Institution is the fraction of shares owned by the institutions. Size is the logarithm of total assets. Div is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. Debt is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current[3] liabilities)/ net assets. Age is the number of years since a firm is listed.

From the table 2, we see the state-owned have a positive sign with the cash holding at 10%. The clear inference is that the higher level of state ownership leads to hoard larger cash reserve in the listed firms. This is consistent with previous studies (Najid and Abdul Rahman, 2001; Sun et al., 2002; Le and Buck; 201; Le and Chizema, 2011). This conforms with the current situations in Vietnam. The government is still weak in managing the listed firms lead to the

[3] [3] The Hausman test confirms that the fixed effect model is suitable to employ to estimate

poor corporate governance as well as several agency problems (Hoang, 2015). To conclude, the listed companies have a higher level of state ownership hold more cash reserve to prevent the risk or extra cost in the future.

The institution-owned variable is negative and significant with cash holding. This means that the companies reduce the amount of cash reserve when the proportion of institutional ownership increase. It is reasonable because the institutions offer benefits from managerial skills and experience. Besides, the institution may help the firm in raising capital easier based on their connections and experiences. When the number of shares rises in the listed corporations, the managers have incentives to monitor better all funds as well as trying to achieve the gold to maximize the shareholder's wealth.

The experimental results provide the size, age, dividend payment, cash flow, debt and net working capital are the factors to determine the cash holding. In more details, debt and net working capital negatively impact cash holding which is similar with the outcomes from Ivan et al (2013), Bates et al. (2009), Ferreira & Vilela (2004) and Opler et al. (1999). The Vietnamese listed firms reduce the amount of cash holding when they have more debt because they have to pay more interest for the borrower. In this case, they focus on the payment than keeping the cash in the firms. It follows that the net working capital has an inverse association with the cash holding. Obviously, net working capital majorly consists of the liquid asset cash substitutes. Because of this, during the specific period in Vietnam the firm should maintain the high level of cash or liquid assets.

On the other hand, size, age, dividend payment and cash flow have opposite effect on the stockpiling cash. A positive correlation between cash holding and firm size is consistent with the pecking order theory because the larger firms perform better and they need more cash in hand to get more profit in the investment (Opler et al, 1999). Furthermore, the interest rate is fluctuation in recent years, so the firms have the incentive to hold more cash in order to be more active in their businesses. Turning to the age variable, as firm age increases the cash holding also rise due to the fact that they have experienced the interest racing period in Vietnam. Because of that, they tend to keep more cash to alert the difficulties in getting cash for their operations (Bates et al., 2009). In addition, the results show a positive relationship between dividend pay outs and cash holding, implying that the firms keep more cash to avoid a situation in which they are short

of cash to support their dividend payments (Meggison et al., 2014; Ozkan and Ozkan, 2004). Lastly, the firm expected to keep more cash when the cash flow more volatile in an attempt to mitigate the expected costs of liquidity constraints (Ozkan and Ozkan, 2004).

The state ownership in an important explanatory variable in explaining cash holdings. In this case, we examine the determinants of cash levels by dividing our sample into two sub-samples: the state ownership is under 50% total shares and the second sub-sample is over 50% (influence of state-controlled). The results represent in the table 3 below

Tab.3- Cash Holding and state ownership, institution ownership with sub-sample

Dependent variable: Cash	FEM State > 50%	FEM State < 50%
Size	.5692324*** (.102617)	.8710414*** (.0579727)

Div	.1312895*** (.0425493)	-.0208829 (.02381)
CF	-.0217863 (.0213812)	.02931* (.0151575)
Debt	-.0516825*** (.0145107)	-.0004884 (.0105824)
NWC	-.0356771 (.025986)	-.0912303*** (.0198339)
Age	.2802884*** (.0707519)	.208291*** (.0468483)
Constant	-2.744853*** (.5219496)	-4.153911*** (.2905893)
N	960	2730
R-squared	0.44	0.43

*Note: ***p<0.01; ** p<0.05; *p<0.1.*

Cash= (cash + marketability)/Net assets. Size is the logarithm of total assets. Div is 1 if the firm pays dividend, zero otherwise. CF= (EBITDA - interests, taxes, and dividends)/ total assets. Debt is the sum of interest-bearing short-term debt and long-term debt, scaled by net assets. NWC = (current assets - current liabilities)/ net assets. Age is the number of years since a firm is listed.

For the sub-sample of the state-controlled above 50%, the results show that the cash holding have a positive relationship with size, age and dividend payment while there is a negative sign with net working capital. This is consistent with the previous results for the whole sample. The net working capital and cash flow are insignificant with cash holding level. It should be caused by an instability of the performance of companies that are argued as the most inefficient listed firms which are remaining under the umbrella of the State. Companies can access funds easily and that leads to a negative effect of net working capital on cash holding

For the sub-sample of the state-controlled under 50%, our results indicate that the level cash increases significantly with size, firm age, and cash flow variable is an opposite sign. These results are similar to the result for the whole sample. However, the dividend payment and debt are no relation with cash holding level. Even there are no relations between dividend payment and debt with cash holding level, but it can be stated that the state-owned shares are less than 50% will decide to hold cash according to their operations such holding more cash if they are profitable- they can expand their business and/or prevent an urgent financial source; or their debts are a burden for companies- they tend to reduce cash holding by deciding a suitable cash holding level.

6 CONCLUSION

The results specifying the determinants has an impact on cash holding level of Vietnamese listed firm from 2007 to 2015, as well as the impact of changing state ownership on the cash reserve. We also divide the data into two sub-samples based on state ownership: under 50% and over 50% out of the total share to test the influence of state regard.

The results indicate that the increase in state ownership has linkage with the higher level of cash holding in listed firms. Conversely, the listed corporations have the institution-owned have a smaller amount of cash reserve. The study also concludes that some determinants affect cash holding are size, firm age, dividend, cash flow, debt and net working capital. Reference to the variation in state ownership, the study finds that the state ownership interacts in the same way

with cash holding due to the poor corporate governance and agency problems. Furthermore, the state shareholders can take advantage of their political connections to get more investment opportunities which can be supported by the government. Thus, they may keep more cash to get all the opportunities as well as preventing the risk of shortage funds. These finding for the listed corporations in Vietnam should consider as a vital reference to keep suitable the amount of cash which improves the firm performance. Besides, from the above results, there are some policy implementations for policy makers that can consider to reduce the proportion of state-owned in order to decrease a cash amount level in the Vietnam listed firm, then the firms may increase the investment to get higher profit than keeping cash. These finding suggest that the firms should select the state or other institutions when they are going to listed the firms in stock exchange.

REFERENCES

Aljifri, K., & Moustafa, M. (2007). The Impact of Corporate Governance Mechanisms on the Performance of UAE Firms: An Empirical Analysis. *Journal of Economic & Administrative Sciences*, 23(2), 71-93.

Babatunde, M.A & Olaniran, O. (2009). The effects of internal and external mechanism on governance and performance of corporate firms in Nigeria. *Corporate Ownership & Control*, 7(2), 330-344.

Bates, T., Kahle, K., Stulz, R. (2009). Why do US firms hold so much cash than they used to? *Journal of Finance*, 64, 1985–2021.

Bigelli M. and Sanchez-Vidal (2012). Cash holding in private firms. *Journal of Banking and Finance*, 36, 26-35.

Bigelli, M & Sánchez-Vida, J. (2012). Cash holdings in private firms. *Journal of Banking and Finance*, 36, 26-35.

Borisova, G., Brockman, P., Salas, J.M. & Zagorchev, A. (2012). Government ownership and corporate governance: evidence from the EU. *Journal of Banking & Finance*, 36, 2917–2934.

Brown, P., Beekes, W., & Verhoeven, P. (2011). Corporate Governance, Accounting and Finance: A Review. *Accounting & Finance*, *51*(1), 96-172.

Chaganti, R. & F. Damanpour (1991). Institutional ownership, capital structure and firm performance. *Strategic Management Journal* 12, 479-491.

Choi, S.B., Park, B.I., Hong, P. (2012). Does ownership structure matter for firm technological innovation performance? The case of Korean firms. *Corporate Governance: An International Review*, 20 (3), 267-288.

Easterbrook, F., (1984). Two agency-cost explanations of dividends. *American Economic Review* 74, 650–659.

Ferreira, M. & Vilela, A. (2004). Why Do Firms Hold Cash? Evidence from EMU Countries. *European Financial Management*, 10(2), 295-319.

Ferreira, M.A and A.S Vilela (2004). Why do firms hold cash? Evidence from EMU Countries. *European Financial Management*,10, 295-319.

Hand, J. (1990). A test of the extended functional fixation hypothesis. *Accounting Review*, 65, 740-763.

Harford, J. (2007), Corporate cash reserves and acquisitions. *Journal of Finance,*54, 1969-1997.

Hartzell, J. & Starks, L., (2003). Institutional investors and executive compensation. *Journal of Finance,* 58, 2351-2374.

Ivan, E.B. & Rose C.L. (2016). The joint determinants of cash holdings and debt maturity: the case for financial constraints. *Review of Quantitative Finance and Accounting,* 5, 1-45.

Jensen M.C. and W.H. Meckling (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360.

Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economics Review,* 76, 323-329.

Kaserer, C. & Moldenhauer, B. (2006). Insider ownership and corporate performance: evidence from Germany. *CEFS working paper series, No. 2005-01.*

Kuan, T.H., Chu-Shiu,L. & Chwen-Chi, L. (2012). Corporate governance and cash holdings: A quantile regression approach. *International Review of Economics & Finance*, 24, 303-314.

Le, T. & Chizema, A. (2011). State ownership and firm performance: evidence from the Chinese listed firms. *Organizations and Markets in Emerging Economies*, 2, 72–90.

Le, T.V. & Buck, T. (2011). State ownership and listed firm performance: a universally negative governance relationship? *Journal of Management & Governance*, 15, 227–248.

Lehmann, E. & Weigand, J. (2000). Does the Governed Corporation Perform Better? Governance Structures and Corporate Performance in Germany. *Review of Finance,* 4(2), 157-195.

Lowenstein, L. (1991). Why managers should (and should not) have respect for their shareholders. *Journal of Corporation Law* 17, 1-27.

McConnell, J. & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 27, 595–612.

Megginson L.W., Ullah, B. & Wei, Z. (2014). State ownership, soft-budget constraints, and cash holdings: Evidence from China's privatized firms. *Journal of Banking and Finance*, 48, 276-291.

Megginson, W., Netter, J. (2001). From state to market: A survey of empirical studies on privatization. *Journal of Economics Literature*, 39, 321–389.

Myers, S.C & Majluf, N. (1984). Corporate financing and investment decisions when firm have information that investors do not have. *Journal of Financial Economics,*12, 187-221.

Myers, S.C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics,* 5, 147-175

Najid, N. A., & Abdul Rahman, R. A. (2011). Government ownership and performance of Malaysian government-linked companies. *International Research Journal of Finance and Economics, 61*, 42–56.

Olatunde, L., Ogundipe, S, E., and Kehinde A, S., (2012). Cash Holding and Firm characteristics: Evidence from Nigerian Emerging Market. *Journal of Business, Economics & Finance*, 1, 2-16.

Opler T., L. Pinkowitz , Stulz R. & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52, 3-46.

Ozkan, A. and Ozkan, N. (2004). Corporate cash holdings: an empirical investigation of UK companies. *Journal of Banking and Finance*, 28, 2013-2134.

Pinkowitz, L. and Williamson, R. (2001). Bank power and cash holdings: Evidence from Japan. *The Review of Financial Studies*, 14, 1059-1082.

Pound, J. (1988). Proxy contests and the efficiency of shareholder oversight. *Journal of Financial Economics*, 20, 237-265.

Rizwan, M.F., & Javed, T. (2011). Determinants of corporate cash holdings: Evidence from Pakistani public sector. *International Journal of Economics and Finance*, 4(1), 70-79.

Rose, C. (2007). Does Female Board Representation Influence Firm Performance? The Danish Evidence. *Corporate Governance: An International Review*, 15(2), 404–413.

Shleifer, A. & Vishney, M. (1998). State versus private ownership. *The Journal of Economic Perspectives*, 12,133–150.

Sun, Q., Tong, W.H.S. & Tong, J. (2002). How does government ownership affect firm performance? Evidence from China's privatization experience. *Journal of Business Finance & Accounting*, 29,1–27.

Uyara, A. and Kuzeya, C. (2014). Determinants of corporate cash holdings: evidence from the emerging market of Turkey. *Applied Economics*, 46(9), 1035-1048.

Yu, M. (2013). State ownership and firm performance: empirical evidence from Chinese listed companies. *China Journal of Accounting Research*, 6, 75–87.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FACTORS AFFECTING THE QUALITY OF ACCOUNTING INFORMATION IN PUBLIC UNIVERSITIES IN HO CHI MINH CITY

Thien Hong To

ABSTRACT

Accounting information is a powerful tool in providing complete and timely information for the leaders of public universities to perform their economic and financial management. The purpose of this study is to investigate the effect of factors including accounting staff and managers, information technology, consulting experts on the quality of accounting information in public universities in Ho Chi Minh City (HCMC). This study uses a sample of 113 employees of the accounting department including managers, vice-managers, accountants and experienced accounting experts working in 25 public universities in HCMC. The main findings indicate that factor of accounting managers has the most significant effect, following by factor of consulting experts and finally factor of information technology.

Keywords: *accounting manager, accounting personnel, information technology, consulting experts, accounting information system, accounting information.*

JEL Classification: M40, M41

1 INTRODUCTION

Accounting information is interpreted as a data transformation for users to perform a certain task in the course of operation (Snežana Knežević et al., 2012). With function reflecting the financial status and evaluate the activities of a unit in the past, at the present, and forecast for the future, accounting information enables managers have foundations to propose resolutions related to management and supervision of their department in an efficient manner, and help investors and other users make appropriate decisions in financial investment. Many managers believe that the quality of information is the key to their success (Wang et al., 1998), accounting information of poor quality will reduce the trust of users (Kieso et al., 2007). This means that if an organization's information system is poor quality, it will block the organization's growth.

Accounting information plays an important role not only in organizations operating in production and business fields but also in public organizations using the state budget to provide public services in the society, and public university is one of organizations of this kind.

In the current period, as the State gradually gives financial autonomy to public universities, the role of accounting information is more obviously expressed since information accounting is not only a powerful tool supporting for university leaders to make decisions related to financial management but useful information serving external users. To get quality accounting information it is required interaction from the different angles of the factors. However, so far, the majority of studies have focused on exploring the factors affecting the quality of accounting information in organizations operating in the fields of production and business, there have been no studies investigating directly factors affecting the quality of accounting information in public universities.

2 OVERVIEW

2.1 Public university

Public universities are higher education institutions invested, built and owned by the State (Vietnam's higher Education Law, 2012)

2.2 Accounting information system

Information system is a system that collects, records, store and processes data to produce information for decision makers (Romney & Steinbart, 2012).

According to Rapina (2014), the information system is a collection of components of both physical and non-physical are interconnected and cooperate with each other in harmony to process transaction data related to financial issues. Snežana Knežević et al., (2012) said that important factor of a complete information system consists of human, equipment, software, database, procedures organizational methods, communications and network system, from which the researchers produced components of an information system including: (1) Quantification of business events in the form of cash (by recording in accounts) - **Input**; (2). Data processing through accounting bookkeeping and statements – **Processing procedures**; (3). Disclosure of financial statements - **Output**.

In 2010, Saleh Mahdi also defined the accounting information system including related components: (1) **Input** - Data must be entered into the information system to be processed. Data collected are meaningless and useless which, therefore, should be processed and transformed to meaningful, organized, and useful form that is called information; (2) **Output** - is meaningful and useful information are produced by the information system; (3) **Data Storage** - In addition to the external data entered into the information system, there should be internally stored data used for processing; (4) **Processor** - To produce useful and meaningful information, data must be processed. Most companies process data by using computers. (5). **Instructions and Procedures** - An information system produces data by the following instructions and procedures; (6). **Users** - users are people who use the information produced by the system and who interacts with the system; (7). **Control Measures** - To make the information system produce correct and error free information, necessary measures should be taken to protect and control the information system.

2.3 Quality of accounting information

Information is useful for decision-making since it reduces uncertainty and increase knowledge about the issues in question (Gelinas and Dull, 2008). Information has good quality if it is the relevant information to meet the needs of users as accurate, complete, timely and unique (Baltzan, 2012). According to Rapina (2014), the quality of accounting information is measured by the accuracy, relevance, timeliness and completeness. According to Gelinas et al. (2012), quality information is information that gives benefits for decision makers.

Eppler, M.J & Wittig (2000) summarized the specific criteria for quality of information that is timely and accessible, objective, relevant, accurate, consistent and complete. Wang and Strong (1996) classified the quality of information in 4 dimensions with various characteristics: (1) Intrinsic information quality: accurate, reliable, objective, common; (2) Contextual information quality: added value, relevant, complete, timely and appropriate; (3) Representational information quality: interpretable, concise and consistent; (4) Accessibility information quality: accessible and secure. In view of International Public Sector Accounting Standards Board (IPSASB), quality of accounting information is quality of financial statements, and information

presented in the financial statements is useful information for users to make decisions. IPSAS issue four assessment criteria for quality of accounting information: understandable, relevant, accurate and comparable. In the perspective of the Vietnam's accounting regime applicable to administrative and professional units and organizations (public university is an administrative and professional organization), in order to achieve quality information on financial statements, financial statements are required to be correctly prepared in the prescribed forms, and complete, timely, consistent, appropriate, comparable, accurate, honest and objective. Hence, there are different views about the quality of information, which can be seen that the accounting information in nature is a kind of information, therefore, quality of accounting information is also built on a theoretical foundation of quality of information.

In order to achieve an agreement between accounting regulations of the countries in the world and international accounting practices, which create a common accounting language for a connection of financial information among global organizations across, this study use the criteria for assessing quality of accounting information in the viewpoint of IPSAS. Thus, the criteria for assessing the quality of accounting information in public universities with 4 dimensions: understandable, relevant, accurate and comparable.

2.4 Factors affecting the quality of accounting information

By a qualitative research, Xu et al. (2003) discovered four groups of factors that affect the quality of accounting information including people, system, organizational structure and external impact. Ahmad Al-Hiyari et al. (2013) investigating factors influencing the quality of accounting information produced two factors that affect the quality of accounting information that is the resources and management commitment in support of implementation of accounting information system. Rapina (2014) concluded that the management commitment, organizational culture and organizational structure had a direct effect on the quality of accounting information. As studying factors affecting the alignment of accounting information systems at small and medium sized enterprises in Malaysia, Noor & Molcolm (2007) mentioned 6 factors including information technology, management knowledge, management commitment, external experts, internal experts, and firm size.

Previous studies show that the quality of accounting information is influenced by the following fundamental factors: (1) Accounting staff and managers (capacity, qualifications, professional responsibilities and ethics, law-abiding consciousness of managers and accounting staff); (2) Information technology (communications information technology equipment, management software, accounting software that affect the timeliness, accuracy and completeness of accounting information); (3) Working environment (the internal and external factors of the firms that affect directly or indirectly to the activities of firms such as organizational culture, organizational structure, policy, work pressure, business sector, and competition); (4) Consulting experts (internal and external experts in information technology and information systems); (5) Management commitment (information requirements, choice of hardware and software, system implementation, solving problems, and future plans); (6) Firm size (the number of employees).

In summary, previous studies have synthesized the theories on the quality of accounting information including concepts, characteristics and scales of accounting information quality. These studies also examined some factors affecting on the quality of the accounting information in many different aspects and mainly in enterprises. Meanwhile, the study of this topic in the public universities is still a gap, especially in Vietnam, almost no research has been done. Therefore, this study seeks the effects of three factors considered to have a direct impact on the

quality of the accounting information in the public universities in Ho Chi Minh City. Three factors include accounting staff and managers, information technology, and consulting experts.

3 RESEARCH MODEL AND METHODOLOGY

3.1 Research model

Through the identification of factors affecting the quality of accounting information in public universities in HCMC mentioned above, the research model in this paper is constructed as follows:

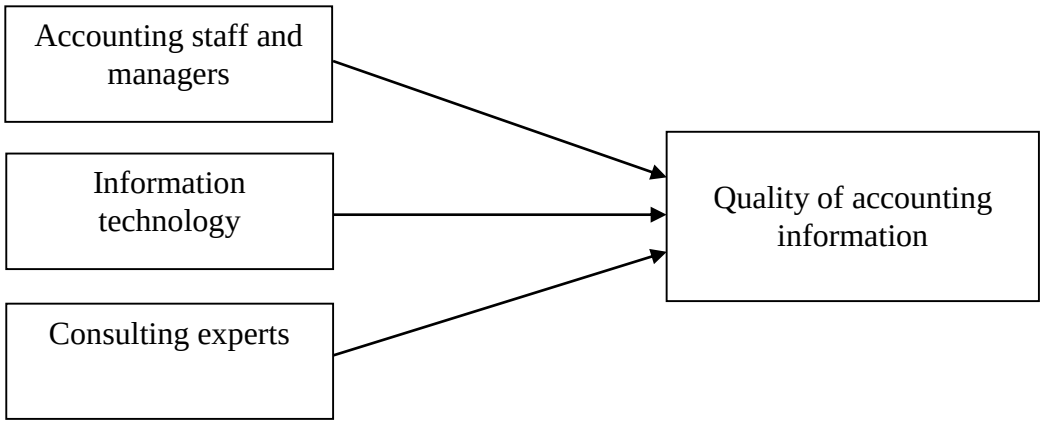

Fig.1- Model of factors affecting the quality of accounting information in public universities. Source: own processing

The model consists of a dependent variable, the quality of accounting information (q1) and three independent variables, accounting staff and managers (q2), information technology (q3), and consulting experts (q4).

This model is to determine the relationship among variables by testing of hypotheses:

H1: The quality of accounting information system is significantly affected by accounting staff and managers.

H2: The quality of accounting information system is significantly affected by information technology system

H3: The quality of accounting information system is significantly affected by the assistance of consulting experts.

3.2 Research methodology

This study used a survey questionnaire. The survey questionnaire is based on understanding of previous studies in combination with the legal provisions on accounting.

In addition, interviews were conducted to adjust the contents of the questionnaire to match the actual conditions. Respondents are managers and vice-managers of financial planning and accounting departments, general accountants and experienced accounting experts of 25 public universities in HCMC. The collected data were analyzed by SPSS software to test the reliability of the scale and linear regression analysis to measure the effect extent of these factors, test the match of the model and test hypotheses. After a careful check with 02 unqualified questionnaires removed, there were 113 valid questionnaires (98,26%).

4 RESEARCH RESULTS AND DISCUSSIONS

4.1 Analysis of the scale reliability

Scale of quality of accounting information (q1) has good reliability since the majority of the measure variables (11 variables) of the scale had a Corrected Item - Total Correlation coefficient between 0.464 and 0.696, with one variable smaller than 0.5 (q1.10). Cronbach alpha coefficient of the scale was 0.874, if omitting variable q1.10, Cronbach alpha coefficient was up to 0.877. However, variable q1.10 cannot be removed as this is a comparative attribute among the financial statements of organizations. That correlation coefficient of q1.10 was lower than the remaining variables can be explained because in the current period, the number of public universities granted fully financial autonomy is not much, disclosure information on financial statements for partners and investors as a basis for comparison with the financial statements of other entities to make decisions on investments has not been widespread yet.

Scale of accounting staff and managers (q2) had good reliability since the majority of variables (10 variables) of the scale a Corrected Item - Total Correlation coefficient between 0.369 and 0.718, with 3 variables under 0.5 (q2.1, q2.2, q2.4) which are scales related to accounting staff. This shows that the development of accounting staff who are qualified and experienced in the field of accounting and understand the information system to improve the quality of accounting information in public universities has not been paid much attention. Cronbach alpha coefficient of the scale was 0.867, if omitting variables q2.2, Cronbach alpha coefficient increased by 0.871.

- Scale of Information Technology (q3) had good reliability because the majority of variables (7 variables) of the scale had a Corrected Item - Total Correlation coefficient between 0.572 and 0.744. Cronbach alpha coefficient of the scale was 0.879 and no variables could be removed because it would make Cronbach alpha coefficient of the scale decrease.

- Scale of Consulting experts (q4) had good reliability since the majority of variables (4 variables) of the scale had a Corrected Item - Total Correlation coefficient between 0.748 and 0.835. Cronbach alpha coefficient of the scale was 0.906 and no variables could be removed because it would make Cronbach alpha coefficient of the scale decrease.

4.2. Exploratory factor analysis (EFA)

Table 1 - KMO and Bartlett's Test of factors showed the value of KMO coefficient of 0.833>0.5, which means that the interface among independent variables in this scale is quite large, and the Sig. value of Bartlett's Test was .000<0.05, meaning rejecting hypothesis Ho, variables had relationships. Thus, variables in the scale are eligible for EFA.

Tab. 1 - KMO and Bartlett's Test. Source: authors' calculation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	1509.158
	df	210
	Sig.	.000

Results of Rotated Component Matrix[a] Analysis showed the number of factors was 4 since factor of "accounting staff and managers" was split into two factors (1 factor included the scales of accounting staff and 1 factor included the scales of accounting managers). This is also

consistent with the reality as the factor of accounting staff has with extent of influence different from the influence of factor of accounting manager on the quality of accounting information.

After 5 times of EFA corresponding to removal of 5 scales with weight under 0.5 to ensure convergence. Factors and scales affecting the quality of accounting information in public universities were grouped into four factors: Accounting manager - X1 (6 scales) with new Cronbach Alpha of 0.887, accounting staff - X2 (3 scales) with new Cronbach Alpha of 0.728, information technology - X3 (3 scales) with new Cronbach Alpha of 0.804, and consulting experts - X4 (4 scales) with same Cronbach Alpha due no scale fluctuations, and dependent variable of Quality of accounting information - Y (11 scales).

4.3 Correlation coefficient analysis

Tab.2 - Correlations. Source: authors' calculation

		Y	X4	X2	X3	X1
Y	Pearson Correlation	1	.471**	.284**	.454**	.489**
	Sig. (2-tailed)		.000	.002	.000	.000
	N	113	113	113	113	113
X4	Pearson Correlation	.471**	1	.148	.468**	.191*
	Sig. (2-tailed)	.000		.119	.000	.043
	N	113	113	113	113	113
X2	Pearson Correlation	.284**	.148	1	.236*	.369**
	Sig. (2-tailed)	.002	.119		.012	.000
	N	113	113	113	113	113
X3	Pearson Correlation	.454**	.468**	.236*	1	.339**
	Sig. (2-tailed)	.000	.000	.012		.000
	N	113	113	113	113	113
X1	Pearson Correlation	.489**	.191*	.369**	.339**	1
	Sig. (2-tailed)	.000	.043	.000	.000	
	N	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2 showed independent variables are linearly correlated with the dependent variable (Sig. values<0.05). However, the correlation between X2 and Y is not strong which is expressed by the Pearson correlation coefficient<0.3. This reveals that the quality of accounting information in public universities does not strongly depend on the accounting staff. To clarify the influence extent of factors on the quality of accounting information, the author used multivariate regression analysis to test the research model and hypotheses.

4.4 Results of multivariate regression analysis

Tab.3 - Model Summary[b]. Source: authors' calculation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644[a]	.415	.393	.36551

a. Predictors: (Constant), X4, X2, X1, X3

b. Dependent Variable: Y

Table 3 shows R square of 0.415, meaning that factors explained 41.5% of the variation of the quality of accounting information (Y), the remaining 58.5% are factors that are not included in the model.

Tab. 4 - ANOVA[b]. Source: authors' calculation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.225	4	2.556	19.135	.000[a]
	Residual	14.428	108	.134		
	Total	24.654	112			

a. Predictors: (Constant), X1, X2, X3, X4

b. Dependent Variable: Y

Sig. values of F testing were smaller than 5%, which means rejecting hypothesis Ho, R square equals 0, the linear regression model includes four factors (X1, X2, X3, X4) affected variable Y in accordance with the dataset reaching extent of 41.5% (Table 4).

Tab.5 - Coefficients[a]. Source: authors' calculation**.**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.718	.439		1.637	.104		
	X1	.365	.087	.344	4.173	.000	.796	1.256
	X2	.070	.081	.070	.870	.386	.849	1.178
	X3	.147	.073	.175	2.003	.048	.709	1.410
	X4	.222	.059	.313	3.750	.000	.779	1.284

The results in Table 5 shows the value Sig. of t-test of variable X2 is 0.386>0.05, accepting hypothesis Ho, regression coefficient of X2 is 0, which means that the effect of accounting staff factor (X2) on the quality of accounting information (Y) of public universities in HCMC is statistically insignificant. In addition, the Sig. values of t-test of variables of X1, X3, X4 are lower than 5%, rejecting hypothesis Ho, regression coefficient of X1, X3, X4 is 0. Regression coefficients of 3 variables X1, X3, X4 are 0.365, 0.147, and 0.222 respectively. This means that the effect of factors of accounting managers (X1), information technology (X3) and consulting experts (X4) on the quality of accounting information (Y) in public universities in HCMC is statistically significant.

Thus, the regression model is: **Y = 0.718 + 0.365X1 + 0.147X3 + 0.222X4**

5 CONCLUSIONS

Through the research model, of 3 factors affecting the quality of accounting information in public universities in HCMC, factor of accounting managers has the strongest influence, followed by consulting experts and then information technology. This can be seen that the improvement of the quality of accounting information in public universities in the current period depends heavily on professional qualifications in accounting, knowledge and experience in accounting information system as well as professional ethics and responsibilities of the accounting leaderships, who will be pioneers in improving the quality of accounting information in public universities in order to meet financial management requirements and those wishing to use the information as the State gradually gives public universities a comprehensive autonomy in finance. In addition, improving the quality of accounting information requires the support of internal and external experts on information technology as well as the accounting information system since in condition of operating from the State budget, the accounting information of public universities simply serve just for the reports on the use of the allocated budget, not external users. An unignorable factor related to improving the quality of accounting information technology is information technology namely accounting softwares meeting using demand, control and management capacity.

The limitation of this paper is not to investigate the effect of factors such as the working environment, management commitment, university size on the quality of the accounting information in public universities in Ho Chi Minh City. Therefore, three factors affecting on the quality of the accounting information in this study only explain 41.5% impacting on the quality of the accounting information, the remaining (58.5%) is the impact of other factors which have not been included in this research model.

REFERENCES

Ahmad Al-Hiyari.2013. Factors that Affect Accounting Information System Implementation and Accounting Information Quality: A Survey in University Utara Malaysia. *American Journal of Economics 2013*, 3(1): 27 - 31, DOI: 10. 5923/ j. economics. 20130301. 06.

Baltzan, P.2012. *Business Driven Information Systems*. Third Edition. New York: McGraw Hill. International Edition.

Eppler, M.J & Wittig, D. 2000. Conceptualizing Information Quality: A review of information quality frameworks from the last ten years (2000*). Proceedings of the 2000 Conference on Information Quality.*

Gelinas, U. J., JR & Dull, R. B. 2008. *Accounting Information Systems*, Canada, Thomson South-Western.

Gelinas, U. J., JR & Dull, R. B. 2012. *Accounting Information Systems*. Nineth Edition, South-Western: Cengage Learning.

IPSAS 1, Presentation of Financial Statements.

Kieso, D.E.,et al. 2007. *Intermediate Accounting*. Twelve Edition. USA: John Wiley and Sons Inc.

Mahdi Saleh. 2010. Usefulness of Accounting Information System in Emerging Economy: Empirical Evidence of Iran. *International Journal of Economics and Finance*, Vol. 2, No. 2.

Marshall B. Romney and Paul J. Steinbart. 2012. *Accounting Information Systems*. Twelfth Edition. Pearson Prentice Hall.

Noor & Molcolm. 2007. Factors influencing the alignment of accounting information systems in small and medium sized Malaysian manufacturing firms. *Journal of Information Systems and Small Business*, Vol 1, No. 1-2, pp. 1-20.

Rapina. 2014. Factors Influencing The Quality of Accounting Information System And Its Implications on The Quality of Accounting Information. *Research Journal of Finance and Accounting*, ISSN 2222-1697 (Paper), ISSN 2222-2847 (Online) Vol.5.

Snežana Knežević, Aleksandra Stanković, Rajko Tepavac. 2012. Accounting information system as a platform for business and financial decision-making in the Company. *Journal for Theory and Practice Management*, DOI: 10. 7595/ management.fon. 2012. 0033.

Wang, R. Y., Lee, Y. W., Pipino, L. L., Strong, D. M. 1998. Manage Your Information as a Product. *Sloan management review*, ISSN 0019-848X, Vol. 39, Nº. 4, 1998, 95-105.

Xu, H., Nord, J.H., Nord, G.D. & Lin, B. 2003. Key issues accounting information quality managerment: Australian case studies. *Industrial Management & Data Systems*, Vol. 103 Iss 7 pp. 461 – 470.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE IMPACT OF CORPORATE GOVERNANCE ON THE LEVEL OF ACCOUNTING INFORMATION DISCLOSURE OF LISTED COMPANIES: EMPIRICAL EVIDENCE IN THE VN30 LISTED COMPANIES

Thinh Tran Quoc, Ha Le Hoang Viet

ABSTRACT

Accounting information has important role for users to ensure the implementation of business decisions in a timely manner. The regulations on the disclosure of accounting information for companies in general and in particular listed companies has been specified in the text of the state management agency. However the status of information provided to users is still inadequate given. For a comprehensive review, authors studied empirical survey on the impact of corporate governance to the level of accounting information disclosure of VN30 listed companies in the period 2012 - 2014. Results showed that the level of concentration of ownership has affected and to reduce the level of accounting information disclosure. Since then, the authors suggest state agencies should clearly stipulate the percentage level of concentration of ownership, particularly for listed companies as well as to publicize the percentage of ownership of the major shareholder. Besides, the listed company should also carry responsibility for the disclosure of accounting information for users.

Keywords: *corporate governance, disclosure, VN30*

JEL Classification: M41

1 INTRODUCTION

Stock market plays an important role in generating capital for the economy, enabling businesses using flexible capital and more efficient. For investors and relevant parties have decided to invest wisely, effective from capital spending, the financial and accounting information must be really helpful and transparency. In the growing trend that the introduction of the VN30 marked a new development in the operation of capital markets in Vietnam. Date January 05th 2012, Chairman of the Ho Chi Minh Securities Exchange signed to built and manage the VN30. VN30 represents 30 shares to satisfy the conditions after passing the screening step on capitalization, free-bai than 5%, and liquidity will be included in the official list of the VN30. VN30 contribute to raising awareness of observing the obligations of listed companies for investors and the market. VN30 push companies to strengthen publicity and transparency of information, improve the quality of corporate governance. This will help increase the efficiency of business operations, generate confidence and attract investors, increase the liquidity of shares.

But reality still exists a gap between what information must be disclosed and regulations on information disclosure of listed companies. Vu Thi Minh Luan (2013) also pointed out that the actual quality of information and the disclosure of limited for listed companies. This stems from various factors, including corporate governance are key issues of interest shown in the case studies as Jenny Goodwin & Jean Lin Seow (2002), Indra Abeysekera (2010), Benjamin Fung (2014), Raef Zeghal Gouiaa & Daniel (2015), Le Thi My Hanh (2015)...

In the trend of integration and development, Vietnam should have adjusted the rules, content, methods of implementation of the coordination between state management agency to create a legal framework and yourself healthy listed companies must also show clear responsibility to contribute to improving the quality of accounting information, creating transparency about the need for the user information.

2 BASIS OF THEORY

2.1 Theoretical foundation

The usefulness of accounting information is made up of many elements which Ijiri & Jaedicke (1966) included the timeliness, reliability, appropriateness and necessity of the accounting data presented. Useful information theory is the normative accounting theory and used as a theoretical foundation for many national. This theory emphasizes the basic tasks of the financial statements is to provide useful information and are suitable for use in the audience making economic decisions. Also useful information theory also refers to the concept of balance of interests and cost, is an important aspect to consider when setting standards (Godfrey et al, 2003). Due to the imbalance in terms of information between objects inside and outside the enterprise, the external objects tend to rely on accounting information as an important document for economic decision making transparent financial information is built on the foundation of the usefulness of the object using the information of the business such as investors, banks and creditors (Dzinkowski, 2010).

2.2 Related Concepts

Corporate governance

Corporate governance is the internal measures to manage and control the company, related to the relationship between the Board of Directors, Executive Board and the shareholders of a company with the relevant interested parties. Corporate governance also created a structure to address the company's objectives and determining the means to achieve those objectives, as well as to monitor the operating results of the company (OECD, 1999). Hillman & Dalziel (2003) suggested that corporate governance is the management and supervision of the activities of the management board through the provision of financial resources for the purpose of enhancing economic efficiency for business operations of enterprises . Epstein & Roy (2010) suggested that corporate governance is the process management activities to help provide information to the user to be transparent in order to bring the highest benefit to shareholders. Corporate governance is the system by which companies are directed and controlled only for long-term results. Accountability, transparency, fairness and openness are the four pillars of corporate governance (Bhasin, 2013).

Accounting information disclosure

Information disclosure of accounting is the entire information is provided through the system of the financial statements of a company in a given period. Healy & Palepu (2001) suggests that in a broad sense, the accounting information disclosure through the financial statements disclose information about a company, not only includes the financial statements, but also including newspapers analysis and evaluation of managers, audit reports and other reports. According to the IASB (2015) said that the disclosure of information through the financial statement according including the narrow and broad sense. Accordingly, in the narrow sense that the report presented the financial position, business performance management and business capital of an economic unit, while the broad sense that includes the whole information provided inside and outside the objects used.

2.3 Previous studies

The impact assessment of the level of corporate governance disclosure has also been a concern of researchers. Jenny Goodwin & Jean Lin Seow (2002) research on the impact of corporate governance mechanisms on the quality of financial reporting and auditing in Singapore. Indra Abeysekera (2010) study of the effects of Board of Directors to the disclosure of listed companies in Kenya. The author uses the top 26 of the 52 companies rated by the Nairobi stock exchange, in the period 2002 - 2003. The author has considered the impact of the Board to scale disclosure level. Results showed that the size of the Board as much the level of information disclosure as much. Benjamin Fung (2014) has studied the need for transparency and disclosure of corporate governance information. The authors studied 121 listed companies in Hong Kong and the results show that corporate governance has impacted the same with the capital scale. Raef Zeghal Gouiaa and Daniel (2015) analyzed the impact of corporate governance and information disclosure level. The author has conducted on a sample of 192 Canadian companies and shows the importance of corporate governance in determining the degree of openness and the cost of financial companies. In Vietnam, Le Thi My Hanh (2015) refers to the issue of transparency of financial information for listed companies in Vietnam stock market. In this study, the author analyze and assess the status of the level of transparency of financial information published by the listed companies in Vietnam stock market on the basis of a sample size of 178 CTNY. Author modeling the relationship between financial factors and corporate governance to the level of transparency of the financial information for listed companies. Regression results show that the factors include financial leverage, profitability, company auditor and board structure affects the level of transparency of the listed companies in Vietnam stock market. In addition, several studies related by Le Minh Thang (2008) has taken the theoretical issues and practices with a view of corporate governance. The author has reviewed the causes which affect compliance with corporate governance principles in listed company of Vietnam. Vu Thi Minh Luan (2013) was conducted to collect information and data on Vietnam's stock market to test the effectiveness. The author also points out that the quality of information and the disclosure is limited of listed company and access to information is difficult.

3 STUDY DESIGN

3.1 Research Methods

The author used quantitative research methods, through surveys of 30 companies listed (VN30) in the period from 2012 - 2014. The author has used SPSS software to calculate, data processing, analysis and regression models.

3.2 Research models

Author modeling based on research by Raef Zeghal Gouiaa and Daniel (2015). However, on the basis of consultation with experts adjusted their authors add variable component foreigners in Board of Directors and concentration of ownership in order to ensure conformity in Vietnam. Multivariate regression model:

$$\mathbf{Y = \beta + \beta1 * X1 + X2 + \beta3\ \beta2 * * * X4 + X3 + \beta4\ \beta5 * X5 + \varepsilon}$$

Inside:
Y: is the dependent variable (degree of accounting information transparency)

Xi: independent variable

X1: Size of the Board

X2: The structure of Board of Directors

X3: Concurrently between the Chairman and General Director

X4: Composition of the Board with foreigners

X5: The concentration of ownership

Regression coefficients: β1, β2, β3, β4, β5.

Regression error: ε

3.3 Describe and measure variables

The level of accounting disclosure (Y)

Accounting information disclosure is the disclosure of information on the financial statements show a true and fair count. This sufficient information to ensure compliance with the principles on the basis of public information to the user. The study of information transparency in the research of Jean Lin Jenny Goodwin & Seow (2002), Indra Abeysekera (2010), Benjamin Fung (2014) Gouiaa Raef Daniel Zeghal (2015), Le Thi My Hanh (2015). Author used T & D indicators by Standard and Poor to evaluate the accounting information disclosure of the VN30 listed company in Ho Chi Minh Stock Exchange. Scale of points made about the level of information disclosure as the specific business situation: 15 points; Accounting policy review: 9 points; Specific accounting policies: 3 points; Stakeholder structure and the transaction: 4 points; Information about auditors: 4 points.
Among the items to be presented in the financial statements, certain items have been the company announced it is set to "1", the item does not publish is set to "0". The formula for determining:

$$I_{ij,t} = \frac{\sum_{i}^{n_{ij}} X_{ij}}{n_{ij}}$$

I (ij, t): index of company's disclosure of j company at the time t;

Xij = 1, if each item i is the company's disclosure to the j company;

nij: number of items that are is expected disclosure i of the j company;

t: period of 2012 – 2014.

Size of the Board (X1)

Size of the Board are reflected in the number of members of the Board of a company. Indra Abeysekera (2010), the Board recognizes the larger size will be more help for better information disclosure.This variable measures on the basis of the number of board members.
The structure of Board of Directors (X2)

Structure of the Board of Directors concurrently expressed between members from the Executive Board. Gul & Leung (2002) suggests that when there is a structure independent of the Board of Directors, the better the level of information disclosure. Reza Fallah & Moein Hashemi (2015) pointed out that the Board structure significantly affect the level of information disclosure. This variable is measured by calculating the proportion of board members not belonging to the Executive Board.

Concurrently between the Chairman and General Manager (X3)

It is the responsibility between two economically most important positions in the company, Chairman and General Manager. Leftwich, Watts & Zimmerman (1978) and Zhang Li Yanxi Yuemei & (2008) demonstrated that most of the general director of the Board of Directors of

the company do not tend to publish more information. This variable is determined by the dummy variable, whereby if there is Concurrently between Chairman and General Director of 1 and otherwise is 0.

Composition of the Board with foreigners (X4)

Board members can participate as foreigners. Nesrine Klai & Abdelwahed Omri (2011) shows that governance mechanisms affect the quality of financial information companies in Tunisia in which foreign elements reduces the quality of information disclosure. This variable measured by the ratio of the number of members in the Board of Directors on foreign total board members.

The level of concentration of ownership (X5)

The level of concentration of ownership represents an ownership control to a certain percentage. Jensen & Meckling (1976) argued that the level of concentration issues equity issues affecting information disclosure at listed company and two this factors inversely proportional. Daros et al (2014) concluded that the level of concentration of ownership will be limited to information disclosure to the outside. Dashti Javad Mohammad Mohammadi Mehdi Salehi & Sariush Zanjirani (2014) pointed out that only some percentage of ownership of the major shareholder with a significant influence on the disclosure of accounting information, including information voluntarily. This variable rate determined by a large number of shareholders (accounting for over 5% of total capital) of total shareholders.

4 FINDINGS

4.1 Evaluate the fit of the model

R2 adjusted value (Adjusted R square) is used to reflect more closely the relevance of multivariate regression model.

Tab. 1 - Testing of the suitability of the model. Source: Data from SPSS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.452	.204	.84	2.424	.784

From Table 1 shows the adjusted $R^2 = 0.84$ means that independent variables explained 84% of the variance of the dependent variable.

4.2 Test the relevance of the model

Inspection F to examine the relationship between linear dependent variable (Y) with independent variables.

Ho: $\beta i = 0$ variables included in the model does not affect the level of accounting information disclosure.

H1: $\beta i \neq 0$ Variables included in the model can affect the level of accounting information disclosure.

Tab. 2 - Results of analysis of variance. Source: Data from SPSS

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.774	5	9.955	1.694	.004
	Residual	193.918	33	5.876		
	Total	243.692	38			

Results Table 2 shows the F statistic is calculated from the value of R^2 of the full model, the value of Sig. < 0.05 shows that the hypothesis Ho is rejected. So linear regression model fit the data set.

4.3 Regression results

After considering the full range of expertise as well as a preliminary assessment of the model study, the authors have made a regression on the variables selected.

Tab. 3 - Results of regression coefficients. Source: Data from SPSS

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	17.852	2.163		8.253	.000		
	Size of the Board	-.121	.155	-.127	-.784	.438	.920	1.087
	The structure of Board of Directors	3.443	2.600	.225	1.324	.194	.838	1.194
	Concurrently between the Chairman and General Director	.981	.955	.188	1.028	.312	.718	1.392
	Composition of the Board with foreigners	-2.126	3.578	-.117	-.594	.556	.623	1.604
	The concentration of ownership	1582.484	812.164	.371	1.948	.060	.664	1.507

The above test showed regression model is built is consistent with the overall. From Table 3, the author based on the value P_value (Sig.) To determine the variables excluded from the model as variables P_value> 0.05. After making 5 factors regression of corporate governance we see only variables X5 - The level of ownership concentration is selected variables in the model. So regression model is defined as follows:

Y = 17.852 + 1582.484 * X5

4.4 Discuss research results

From the research results, the authors found that the problems of concern about corporate governance factors affecting the level of information disclosure. Accordingly, the study also

points out the relationship between variables is relatively tight X5- The concentration of ownership with a set of accounting information disclosure degree. This proves that when there is a rate increase concentration of ownership will have a positive impact in providing accounting information to the outside. These results are similar to previous studies of Jensen & Meckling (1976), Daros et al (2014), Mohammad Mehdi Salehi & Sariush Zanjirani Mohammadi (2014).

5 CONCLUSION AND SUGGESTIONS RELATED POLICIES

5.1 Conclusion

Disclosure of accounting information has important implications for users. Ensuring the information provided is complete, transparent and timely help making business decisions correctly. The corporate governance has an impact on the level of information disclosure of listed companies through the research shows. In this study, the authors acknowledge the extent the current disclosure of the VN30 listed company in Ho Chi Minh Stock Exchange are affected by the level of concentration of ownership of major shareholders. The study results are consistent with previous studies. Since then, the author gives some suggestions and policies to help improve the level of information disclosure information is useful in providing and ensuring the appropriateness of information contribute to improving the quality of information on Vietnam's stock market.

5.2 Suggestions related policies

In the credit institutions, concentration problems ownership outlined in Circular 06/2015 State Bank with effect from July 15th 2015 stipulated time limit, the order and procedures forward for the case of shareholding exceeded the limit. But for companies, especially listed companies are no regulations on the ownership percentage of companies doing business on the level of holdings of shares voting. Opinion, the Ministry of Finance should have clearly defined, specific control rates to hold shares for listed companies to reduce the concentration of voting power among major shareholders reduce transparency properties accounting information disclosure problem for objects used.

State Securities Committee should also rules on disclosure of major shareholders and the percentage holding of equity ownership in listed companies. In addition, the State Securities Commission should also control and supervision for these companies to ensure social benefits between the parties concerned as well as improve the quality of accounting information provided to the users.

For listed companies should comply with the regulations of the State management agency and should publish clear information about the major shareholders in the reported information on the percentage of ownership as well as information disclosure full and timely regulation to demonstrate responsibility and obligation to the people who use the information.

REFERENCES

Benjamin Fung. (2014). The Demand and Need for Transparency and Disclosure in Corporate Governance. *Universal Journal of Management* .Vol. 2(2), pp. 72 - 80

Dzinkowski, R. (2010). More financial transparency please. *Strategic Finance,* January: 44- 47.

Epstein & Roy. (2010). Identification and Use of Sustainability Performance Measures in Decision-Makin. *The Journal of Corporate Citizenship*

Ha Tran Le Viet. (2016). Impact of Corporate Governance to Level Accounting Information Disclosure VN30 Listing of Securities Exchange in Ho Chi Minh City. *Bachelor Thesis, Banking University*.

Hillman & Dalziel. (2003). Boards of Directors and Firm Performance: integrating Agency and Resource Dependence Perspectives. *Academy of Management Review*, Vol. 28. No- 3, 383-396

Ijiri, Y. & R. Jaedicke. (1966). Reliability and Objectivity of Accounting Measurements. *The Accounting Review*, 474-483.

Indra Abeysekera. (2010). The influence of board size on intellectual capital disclosure by Kenyan listed firms. *Review Integrative of Business & Economics*, vol 4(1).

Javad Dashti et al. (2014). The impact of ownership concentration on the level of voluntary disclosure of the information in Tehran stock exchange firms. *Indian Journal of Fundamental and Applied.*

Jenny Goodwin & Jean Lin Seow. (2002). The influence of corporate governance mechanisms on the quality of financial reporting and auditing: Perceptions of auditors and directors in Singapore. *Journal of Accounting and Finance*, Vol.42, pp.195-223.

Juan Gandia. (2008). Determinants of web site information by Spanish city councils. *Information Review*, Vol. 32 Iss: 1, pp.35 – 57

Le Minh Thang. (2008). Corporate Governance the Theoretical Issues and Practical. *Master Thesis*, University of Economics Ho Chi Minh City

Le Thi My Hanh. (2015). Transparency of Financial Information of Companies Listed on Vietnam's Stock market. *PhD Thesis*, University of Economics Ho Chi Minh City.

Raef Gouiaa & Daniel Zéghal. (2015). Analysis of the Effect of Corporate Governance Attributes and Disclosure Level on Firms' Costs of Financing. *Journal of Modern Accounting and Auditing*, November 2015, Vol. 11, No. 11, 561-580

Robert M. Bushman & Abbie J. Smith. (2001). Financial Accounting Information and Corporate Governance. *Journal of Accounting and Economics*. Volume 32, Issues 1–3, December 2001, Pages 237–333

Vu Luan Thi Minh. (2013). Accreditation Weak form Efficient mMarket in Vietnam's Stock Market through VN-Index. *PhD Thesis*, University of Economics Ho Chi Minh City

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

CALENDAR ANOMALIES IN VIET NAM STOCK MARKET

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ABSTRACT

This paper aims to examine the existence of calendar anomalies including monthly effect, day of week effect, and holiday effect in Vietnam stock market. By using the standard OLS (Ordinary Least Squares) regressions with dummies and tests for the quality of means T-test. There is convincing evidences of existence of January effect in HOSE but none in HNX. The paper discovered that July and November effects are also appeared before the economic crisis 2008. In addition, empirical studies indicated the evidence of day-of-the-week effect, which exists on Monday, Tuesday and Friday in both two stock exchanges. In comparison with other studies, a new point has been found about the appearance of pre-holiday effect on Vietnam Independent Day - September 2nd which only exists in HNX. For the reason, this effect occurs when the average returns of pre-holiday are greater than others of during-and-post holiday. Since these effects have are based on empirical evidence in this study, they are against the implications of efficient market hypothesis. So this may create an opportunity for rational investors to make above-average profit by exploiting these calendar anomalies. Finally, the empirical evidences of this report would support the policy makers to come up with specific solutions to improve the market effectiveness.

Keywords*: calendar anomaly, monthly effect, day of week effect, holiday effect, stock returns, HOSE, HNX.*

JEL Classification: G11, G14.

1 INTRODUCTION

The classic statements of the Efficient Markets Hypothesis (EMH) found in Roberts (1967) and Fama (1970) have become the subject of discussion by many scholars in the field of finance. The market is considered to be effective when all of relevant information is incorporated into the stock price. Provided that the market is efficient, investors will not expect to achieve abnormal returns of their investments. Since Fama (1970), a vast number of studies have been completed and many books have been written in this subject. Some of these anomalies are broadly known as calendar effects.

The most important calendar effects studied are the day of the week effect which refers to different returns on some day of the week significantly; usually results in the highest return on Friday and the lowest return on Monday. Calendar effect is also the monthly or January effect (relatively higher January returns), the half month effect (returns are statistically higher over the first half of the month), the turn of the month (statistically higher returns on turn of the month days than other trading days) and the time of the month effect (returns are higher on the 1st third of the month). Thaler (1987b) provides an early and partial survey, while Mills and Coutts (1995) and Coutts *et al.* (2000) provide selective and more recent international references.

For the economy, an efficient market also indicates that resources in the economy have been distributed effectively. However, it's not always the same case with developing countries such as Vietnam which is relatively young with nearly 15 years of operation (from 2000 to 2015) so these markets do not regularly perform its distribution functions. Moreover, many investors are attracted not only by the stock market, but also by other investment channels such as foreign exchange trading, real estate, gold and savings in bank. Therefore, it is doubtful that is whether the stock market information effective or not? Moreover, current regulations of securities are not actually complete and lacking of clear mechanisms and transparency of information. Therefore, the informative efficiency of the stock market is the matter concerned by the authorities such as the State Security Commission and the Ministry of Finance.

Calendar anomaly is an instrument to test the efficient market hypothesis (EMH). It indicates that there is some regularity in return patterns which enable investors to formulate their investment strategies accordingly and achieve abnormal returns. These abnormalities as Calendar Anomalies indicate evidences against but cannot reject EMH. A number of hypotheses have been put forward to explain the most common result of calendar anomalies such as the Day-of-the week effect (or Weekday effect, Weekend effect, or most of the times, the Monday effect), the January effect (or Turn-of-the-year effect), the Turn-of-the month effect and the Holiday effect. The day of the week effect indicates that Monday returns are lower than the returns of other week days (Cross, 1973; French, 1980; Gibbons and Hess, 1981). January effect is another well-known calendar anomaly which indicates that returns in January are the most significant comparing to the returns in other months of the year (Rozeff and Kinney, 1976). Ariel (1987) is the one who discovered the seasonal turn of the month pattern in the US market. Ogden (1990), and Pettengill and Jordan (1988) provided supporting evidence of the turn of the month effect in the same market. Cadsby and Radner (1992) examined the same issue and holiday evidence in 69 daily stock market indices of 10 countries between 1962 and 1989. They found out evidence of significant turn-of-month effect in Canada, UK, Australia, Switzerland, and West Germany that is independent of the turn-of-the-year effect. The January effect is concerned with the abnormally higher returns during this month and the Turn-of-the-month effect refers to the patterns on the last days and the first days of any month. The Holiday effect refers to the abnormal stock returns before and/or after holidays.

In this study, this paper aims to examine the effectiveness in terms of information in Vietnam stock markets from 2000 to 2015 by using the standard OLS (Ordinary Least Squares) regressions with dummies and T-test for the quality of means.

This paper is motivated by a number of factors. Firstly, it is worth noting that only a few studies concerning various calendar effects in Vietnam stock market considered as one of the emerging markets in Asia. It also updates the existing literature for the Vietnam stock markets. In particular, the economic crisis 2008 influences investment flows strongly in Vietnam dramatically and the stock market is not an exception. Consequently the seasonal effects like January effect, day of week effect and monthly effect also have a rather change in the crisis period due to the change of investor's behaviors.

This study analyzed calendar anomalies for both HOSE and HNX before and after the economic crisis 2008. In comparison with other studies about Vietnam stock markets, a new point has been found about the existence of pre-holiday effect on Vietnam Independent Day - September 2nd which only exists in HNX. For the reason, this effect occurs when the average returns of pre-holiday are greater than others of during-and-post holiday. Lastly, there is no other published study investigating calendar anomalies in Hanoi Stock Exchange (HNX) are reported in the financial literature and all support their existence during the period from 2006 – 2015.

Since these effects have been found with the empirical evidence in this study, it is against the implications of efficient market hypothesis. Therefore, it is evident that the Vietnam's stock market is in weak form and its relevant information is inefficient.

The structure of this paper is organized as follows. Section 2 briefly reviews the literature about calendar anomalies. Section 3 describes the data set and discusses our methodologies. Section 4 compares the empirical results of this study with other previous research while a brief summary of findings are presented in Section 5. Section 5 also explores the economic significance of this study and concludes the paper in brief.

2 LITERATURE REVIEW

This section reviews the findings from empirical studies on monthly effects, day of week effect and holiday effect in both developed and emerging stock market so that we can have an overview about the calendar anomalies from the evidence of different countries and different markets all over the world.

2.1 Monthly effect

Month of year effect is the situation when stock market has the abnormal high return during any specific month. Stock prices generally rise sharply in the early months, as the result, January effect is a phenomenon in the stock market. The small-cap stocks regularly have stronger increase than the market in January, especially the first half of January. This indicates that returns in January are significantly higher than the ones of the rest of the year. Rozeff and Kinney (1976) showed that there was the seasonality in US stock market that the stock return was abnormally high in January. Haugen and Jorion (1996) confirmed that the January effect in US Stock market still existed. January effect was not only observed in the US but also in other stock markets all over the world. It was addressed by many researches in other countries like Canada (Tinic, Barone-Adesi, & West, 1987), Japan (Kato & Schallheim, 1985), Ghana (Ayadi, Dufrene, & Chatterjee 1998), Malaysia and Singapore (Chan, Khanthavit, & Thomas, 1996). However, the January effect did not exist in some countries like India (Raj & Kumari, 2006), Nigeria and Zimbabwa (Ayadi, Dufrene, & Chatter 1998), Jordan (Maghayereh, 2003), Bangladesh (Bepari & Mollik, 2009), Greece (Floros, 2008), Thailand (Chan, Khanthavit, & Thomas, 1996).

There are many theories discussed to explain this phenomenon, wherein, liquidity hypothesis was introduced in the study of Ogden (1990) as follow: the beginning of the year is the moment when most employees get bonuses after one year of employment. Therefore they could be able to reinvest into the stock market, which generates an increase in the stock market. Moreover, in January, the important information relating to companies is released to the public (Rozeff and Kinney, 1976), so the investment decision in January into the stock market became more active, in the comparison with the remaining months.

In January, there is appearance of a new fiscal and accounting year. According to tax-loss selling hypothesis, it is said that loser stocks may be sold by the end of the year to offset tax in December and redeemed in January. This makes market discount and rebound in January, or partly makes selling pressure reduced this month (Reinanum, 1983). However, the January effect will not happen in countries that do not have the financial year ended in December.

Furthermore, according to Window Dressing, fund managers sometimes open long position in late December to buy the stocks which rose significantly during the year. Portfolio of any funds listed in the annual reports will be announced to shareholders and obviously the list will become better while several share risers are added. The demand from institutional investors could make

their share prices increased. Ng and Wang (2004) found the evidences to support the above hypothesis that institutional investors would sell the loser stocks extremely in the last quarter and buy many stocks in the following quarter, which creates the turn-of-year effect or January effect.

2.2 Day-of-the-week effect

The most studies found a low return on Monday (usually negative and significant) and a positive return on Friday, the week effect trend is weak open and the strong closing. French (1980) addressed this as weekend effect and pointed out that the return on Fridays was positive while the return on Mondays was abnormally negative. He pointed out that this effect came from the fact that normally the firm would announce the unfavorable news on weekends to avoid panic selling of the stocks. Damodaran (1989) showed that news announced on Fridays tended to be more negative than other weekdays. Usually, the bad news came out after the market had closed on Friday so the effect spilled over to next trading day, which was Monday. However, he pointed out that this could account for only part of weekend effect. Without the bad news announcement on Friday, the return on Monday was still less than other weekdays. Moreover, people tended to sell rather than buy on Mondays. They found that the difference between odd-lot sales and purchases on Mondays were 29% higher than other weekdays on average. This selling pressure made the below-average return on Mondays.

Interestingly, Australia and some Asian markets have found a low return on Tuesday (Jaffe and Westerfield, 1985). Condoyanni et al. (1987) confirms these findings on the Japanese and Australian markets. Kato (1990) also finds that the Tuesday return is negative and Wednesday and Saturday returns are strongly positive in Japan. Using the Levene test, Ho and Cheung (1994) found the existence of day-of-the week variations in volatility with Monday returns having the highest volatility, in most of the emerging Asian stock markets including Hong Kong, Malaysia, Singapore and Taiwan, with the exception of Korea whose highest volatility occurred on Tuesday. Lim and Chia (2010) examine the day-of-the-week effect and twist-of-the Monday effect (the influence of positive or negative previous week return to the subsequent Monday return) in the ASEAN-five stock markets (Indonesia, Malaysia, Philippines, Singapore and Thailand). The authors employ the data of the stock index daily returns over the period 10 June 2002 – 21 August 2009. As indicated by descriptive statistics, almost all markets are associated with negative mean returnson Monday except for Singapore, whereas the returns on Fridays are unusually high.

The results based on the Kruskal-Wallis statistic test show the existence of the day-of-the-week effect in the markets of Malaysia and Thailand. The results indicate that Mondays have relatively lower returns than Thursday and Friday in the case of Malaysia. For Thailand, Fridays have the highest returns among all other weekdays. The Monday returns are affected by the returns of the previous weeks in the stock markets of Indonesia, Malaysia, and Philippines.

Most recent studies in the US (Pettegill, 2003) agreed that the extraordinary effects occur mainly with small-cap shares. In addition, risks are given to explain this effect. The risks may be varied throughout the week, but other explanations are related to the macro-structure of the market or the purchasing behavior of the participants in the market. For example, Keim and Stambaugh (1984) said that the frequency of the transactions was conducted at the bid prices or ask prices throughout one week, results in the weekday effects in the US. The process of clearing also generates this model. Consequently, this may make investors on certain days of the week, do not want to buy at the same price as in other days. The reason is that they do not receive two – weekday credit allowances.

In addition, there can be a model of information flow (macro news or company characteristics). For instance, companies often release bad or shocking news on Friday after the close of trading for investors in order to receive information or it can be a model that analysts published for an offer to buy or sell (Damodaran, 1989).

Respecting transactions, the information processing theory indicates that individual investors can have many positive selling activities after a week of analysis and planning (Wang and Walker, 2000), but the trading is rarely conducted by institutional investors because they had plans on Monday (Kamara, 1997). Short selling behaviors are used to close their positions on Friday and reopen on Monday, and the "Blue Monday" said that investors are less optimistic on Monday and thus less willing to buy or sell assets (Rystrom and Benson, 1989) is hypothesized to be added.

2.3 Holiday effect

Some common results have determined that the pre-holiday returns are often significantly higher than returns of ordinary days at most of all time. A likely explanation for this result is that selling in short time is to protect investors' positions before the holidays (but investors holding shares in a long time do not do this) and holiday effects are formed on buying pressure (Frieder and Subrahmanyam, 2004). Yuan and Gupta (2014) adduce strong evidence that the major Asian stock markets are affected by the Spring Festival. The findings suggest that investors in these Asian countries may be able to earn excess profits by active trade based on the holiday effect.

3. DATA AND METHODOLOGY

Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) are the main stock exchanges in Vietnam. There is VNINDEX which is a capitalization-weighted index comprising all equity listings in the HOSE. And there is HNXINDEX, which is the market value-weighted stock indexes computed from all stocks trading in HNX. The historically data is gathered and used in this study. For VNINDEX, the paper collected data in HOSE from July 28th, 2000 to March 31st, 2015. For HNXINDEX the paper gathered data in HNX from January 4th 2006 to March 31st, 2015. In order to check the robustness of the model, the paper divided full sample into two sub-period. In the sub-period 1, the data was from July 28th, 2000 to the point before the economic crisis of 2008 and in the sub-period 2, the data was collected from the point after the economic crisis of 2008 to March 31st, 2015. Log returns were computed as log for daily frequencies using close prices.

$$R_t = \ln \frac{P_t}{P_{t-1}} \qquad (1)$$

Where:

R_t is the index returns in the period *t;* P_t is the price in the period *t*; P_{t-1} is the price in the previous of the period t.

The comparison between VNINDEX and HNXINDEX statistics in table 1 illustrates that HOSE has 3,488 sample (mean = 0.000213, maximum = 0.033617 and minimum = -0.033250). Respecting HNX has 2250 sample (mean = -0.00002, maximum = 0.078344 and minimum = -0.055960).

Tab. 1 - Descriptive statistics. Source: Authors' calculations

	VNINDEX	HNXINDEX
Mean	0.00021	-0.00002
Median	0.00008	-0.00033
Maximum	0.03361	0.07834
Minimum	-0.03325	-0.05596
Std. Deviation	0.00706	0.00953
Skewness	-0.21341	0.23309
Kurtosis	5.60796	7.65506
Jarque-Bera	1,014.962	2,051.904
Observations	3,488	2,250

Notes. VNINDEX series starting in July 28th, 2000. HNXINDEX series starting in January 4th, 2006.

In order to make sure that the period of data in OLS module is used, the stationary time series for both of HOSE and HNX would be checked. The time-series regression with non-stationary or unit root could create the spurious result (Granger & Newbold, 1974). Therefore, the unit root test based on Augmented Dickey-Fuller Test (ADF test) should be performed to confirm that the data has no unit root problem. After the confirmation of no unit root problem, various tests for calendar anomaly would be conducted. The result gives that all of the period time in two of Vietnam stock exchanges are stationary (not reported).

3.1 Monthly effect

Summary statistics of HOSE in table 2 report that the highest average returns is July while January is known for the lowest ones in full sample and the sub-period 1. However, February is the highest mean when the lowest average return is March in the sub-period 2. May, July and November are negative while the rest of months have a positive in full sample. Respecting the sub-period 1, July and August have negative returns when positive ones is the rest of months. Nevertheless, all the months in the sub-period 2 have the positive returns.

Table 2 also shows that the average returns are divided into 2 groups: the positive and negative returns. January, February, March, April, August, September, October and December have positive returns while the rest of months have negative ones. The highest average returns is in February (0.05%), but May has the lowest average returns (-0.21%).

Tab. 2 - Daily returns per month. Source: Authors' calculations

	HOSE									HNX		
	Full sample			Sub-period 1			Sub-period 2			Full sample		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
January	268	0.00136	0.00709	115	0.00208	0.00738	153	0.00082	0.00684	185	0.00087	0.00826
February	234	0.00008	0.00770	102	0.00175	0.00762	132	-0.00119	0.00754	148	-0.00062	0.00903
March	321	0.00025	0.00712	146	0.00086	0.00668	175	-0.00025	0.00745	211	0.00131	0.01310
April	267	0.00084	0.00675	131	0.00077	0.00706	136	0.00090	0.00647	166	0.00024	0.01168
May	279	0.00000	0.00748	138	0.00070	0.00680	141	-0.00068	0.00806	179	-0.00135	0.01041
June	290	0.00015	0.00699	141	0.00028	0.00719	149	0.00003	0.00681	192	-0.00047	0.00908
July	304	-0.00068	0.00699	147	-0.00173	0.00778	157	0.00029	0.00603	200	-0.00019	0.00806
August	312	0.00012	0.00853	159	-0.00051	0.01019	153	0.00079	0.00632	199	0.00081	0.00811
September	284	0.00009	0.00673	143	0.00057	0.00666	141	-0.00039	0.00679	180	-0.00024	0.00814
October	315	-0.00009	0.00637	159	0.00058	0.00597	156	-0.00078	0.00670	201	-0.00036	0.00864
November	303	0.00024	0.00650	155	0.00165	0.00612	148	-0.00122	0.00657	192	-0.00098	0.00961
December	311	0.00031	0.00624	155	0.00056	0.00597	156	0.00006	0.00650	197	0.00043	0.00859

The classic OLS regression to detect monthly effects includes twelve dummy variables as independent variables. We added a thirteenth variable as the lagged return on the index to have remove autocorrelation. The model becomes:

$$R_t = \sum_{i-1}^{12} \beta_i D_{it} + \beta_{12} R_{t-1} + \varepsilon_t \qquad (2)$$

Where

R_t is the index return in the period *t*, ε_t is the white noise residual term of the regression, D_1 to D_{12} is the month dummy variables representing January to December. We aim to test the following null hypothesis:

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = ... = \beta_{12} \qquad (3)$$

3.2 Day of week effect

Summary statistics of the day of week for whole time in HOSE in table 3 is found that Monday and Tuesday have negative average returns when the rest of weekday have positive ones. It is evident that the returns increase in weekend. The highest average returns are on Friday (3.36%) while the lowest is on Monday (-3.10%).

Tab. 3 - Descriptive statistics in HOSE. Source: Authors' calculations

		Obs.	Mean	Std.Dev	Max.	Min.	Skewness	Kurtosis
Full sample (July 28th, 2000 – March 31st, 2015)	Monday	713	-0.00016	0.00786	0.02894	-0.03099	-0.32568	5.14252
	Tuesday	652	-0.00059	0.00685	0.02014	-0.02155	-0.24296	3.99916
	Wednesday	736	0.00042	0.00719	0.02877	-0.03325	-0.29632	6.66727
	Thursday	655	0.00031	0.00623	0.02048	-0.01965	-0.05538	4.79953
	Friday	732	0.00099	0.00690	0.03361	-0.02938	0.00573	6.33878
	Total	3,488						
Sub- period 1 (July 28th, 2000 – Before the economic crisis of 2008)	Monday	361	-0.00004	0.00806	0.02894	-0.03099	-0.58419	6.34364
	Tuesday	292	-0.00024	0.00633	0.02014	-0.02155	-0.02960	4.74760
	Wednesday	374	0.00083	0.00782	0.02877	-0.03325	-0.35404	7.64101
	Thursday	292	0.00076	0.00596	0.02048	-0.01965	0.52456	5.48834
	Friday	372	0.00140	0.00731	0.03361	-0.02938	-0.05781	7.49092
	Total	1,691						
Sub-period 2 (After the economic crisis of 2008 – March 31st, 2015)	Monday	352	-0.00027	0.00766	0.02894	-0.03099	-0.02156	3.64742
	Tuesday	360	-0.00087	0.00725	0.02014	-0.02155	-0.32872	3.50336
	Wednesday	362	-0.00000	-0.00000	0.02877	-0.03325	-0.27572	3.93522
	Thursday	363	-0.00004	0.00643	0.02048	-0.01965	-0.40505	4.18771
	Friday	360	0.00056	0.00645	0.03361	-0.02938	0.04322	4.19851
	Total	1,797						

The day of week of summary statistics in HNX in table 4 gives that the beginning of week has negative average returns while the weekend has positive one. The highest average returns occur on Wednesday while Tuesday is the lowest.

Tab. 4 - Descriptive statistics in HNX. Source: Authors' calculations

		Obs.	Mean	Std.Dev.	Max.	Min.	Skewness	Kurtosis
Full sample (July 28th, 2000 – March 31st, 2015	Monday	447	-0.00073	0.01083	0.03888	-0.05596	-0.30190	5.79383
	Tuesday	439	-0.00131	0.00916	0.03192	-0.03196	-0.32605	4.72661
	Wednesday	462	0.00058	0.00953	0.04169	-0.03567	0.19252	5.45459
	Thursday	444	0.00028	0.00925	0.07834	-0.03387	1.40855	15.8599
	Friday	458	0.00102	0.00858	0.04222	-0.03277	0.70678	6.54971
	Total	2,250						

The classic OLS regression to specifically detect weekday effects includes five dummy variables as independent variables. We added a sixth variable as the lagged return on the index to have remove auto-correlation. The model would be defined as:

$$R_t = \sum_{i=1}^{5} \beta_i D_{it} + \beta_5 R_{t-1} + \varepsilon_t \qquad (4)$$

Where:

R_t is the index return in the period *t*, ε_t is the white noise residual term of the regression, D_1 to D_5 is the weekday dummy variables representing Monday to Friday. Our goal is to test the following null hypothesis:

$$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 \qquad (5)$$

3.3 Holiday effect

Table 5 show that the average returns of days before holiday usually get positive and days after holiday have negative sign. Vietnam has many holidays but the paper solely focuses on Reunification Day – April 30th and Labor Day – May 1st and Independent Day – September 2nd which are ones of the most important holidays. As we seen in the table 5, Reunification Day and Labor Day do not have existence of Pre-or-Post holiday effects. Respecting table 5, there is lack of evidence to prove post-holiday effect. On the other hand, Pre-Independent holiday effect, which appears at 5% significant level, is caused by the protection of investors' position during holiday. This means that many investors use short-sell activities to cover their position and do not make the long position.

Tab. 5 - Holiday effect statistics at HNX. Source: Authors' calculations

	Period	Obs.	Mean	Std.Dev.	Max.	Min.
Reunification Day and Labor Day	Pre-holiday	56	0.00038	0.01207	0.03361	-0.05596
	Post-holiday	50	-0.00123	0.01110	0.02608	-0.03568
Independent Day	Pre-holiday	48	0.00339	0.00934	0.02741	-0.02000
	Post-holiday	48	-0.00121	0.00783	0.01730	-0.01686

In order to specifically examine the holiday effect, the dummy variable representing that month will be excluded from the model. The model would be defined as:

$$R_t = \beta_0 D_t + R_{t-1} + \varepsilon_t \qquad (6)$$

Where

R_t is the index return in the period *t*, ε_t is the error term, D_t is the dummy variable for Pre-holiday (D_t = 1 if the observation t falls in Pre-holiday and 0 otherwise).

R_t is the index return in the period *t*, ε_t is the error term, D_t is the dummy variable for Post-holiday (D_t = 1 if the observation *t* falls in Post-holiday and 0 otherwise).

4 EMPIRICAL RESULTS

4.1 Monthly effect

As we seen in the table, January effect (5% significant level) has higher average returns than the rest of months, which is consistent with many studies around the world: Canada (Tinic, Barone-Adesi, & West, 1987), Japan (Kato & Schallheim, 1985), Ghana (Ayadi, Dufrene, &

Chatterjee 1998), Malaysia and Singapore (Chan, Khanthavit, & Thomas, 1996). In this study, January effect was shown in both full sample and the sub-period 1. According to tax - loss selling, investors will sell some small-cap and low- profitable stocks in December so as to cover losses. They will buy a large amount of stocks in January. Moreover, most companies announce some important news into the stock market in that time. Respecting liquidity theory, almost workers receive profits and annual bonuses, so there is an increase of cash-flows invested in the stock market directly by private investors.

The outcome for VNINDEX shows different results from many previous researchers in which the return is abnormally high in January. The new point we found is that July (at 5% significant level) and November (at 5% significant level) effects are also appeared across the sub-period 1. The possible explanation is that Vietnamese fiscal and accounting year begins at January 1st and ends at December 31st so July is the time that almost companies published their mid-year financial statements. In order to enhance the portfolio evaluation performance at year end, the investors have tendency to restructure their portfolios by selling loser stocks or low return investments. Another reason for this trend could be due to the psychological behavior of investors because July is considered as the unlucky month so investors reduced their transactions at this month significantly. In the sub-period 2, we do not find any evidences to prove definitely the presence of monthly effects.

The results of monthly effect in HNX demonstrates that although there are March and May effects (at 10% significant level), the reliability is not sufficiently consistent. Therefore, this can deny the argument that monthly effects happened frequently in HNX.

Tab. 6 - Monthly effects at HOSE – Regression results. Source: Authors' calculations

	HOSE						HNX	
	Full sample		Sub-period 1		Sub-period 2		Full sample	
Variable	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
January	0.00094	2.29**	0.00143	2.24**	0.00061	1.13	0.00069	0.99
February	0.00005	0.12	0.00116	1.72	-0.00089	-1.54	-0.00048	-0.63
March	0.00019	0.51	0.00060	1.07	-0.00018	-0.36	0.00106	1.65*
April	0.00063	1.52	0.00054	0.91	0.00072	1.27	0.00021	0.30
May	-0.00003	-0.08	0.00047	0.82	-0.00057	-1.02	-0.00119	-1.70*
June	0.00007	0.18	0.00010	0.17	0.00003	0.06	-0.00037	-0.55
July	-0.00047	-1.22	-0.00122	-2.17**	0.00027	0.51	-0.00014	-0.21
August	0.00014	0.36	-0.00023	-0.43	0.00059	1.10	0.00071	1.07
September	0.00003	0.07	0.00040	0.70	-0.00036	-0.65	-0.00025	-0.37
October	-0.00003	-0.09	0.00037	0.69	-0.00052	-0.98	-0.00025	-0.39
November	0.00018	0.48	0.00114	2.08**	-0.00092	-1.68*	-0.00080	-1.18

December	0.00019	0.50	0.00033	0.61	0.00003	0.06	0.00036	0.54
R_{t-1}	0.29632	18.28***	0.32494	14.07***	0.24899	10.85***	0.17522	8.41***
R-squared		0.09179		0.12168		0.07206		0.03708
Observation		3,488		1,691		1,797		2,250

*Notes. *significant at 10% level,**significant at 5% level, *** significant at 1% level.*

4.2 Day of week effect

The results shows the consistent result with previous studies Damodaran (1989) and Maberly (1990) in which the daily return will be abnormally high on Friday and low on Monday. Similarly, this study examines the weekend effect to figure out whether the returns on Friday and Monday are different from other weekdays. The results in table 7 illustrate that the autocorrelation decreases significantly because Durbin - Watson is approximate 2 (1.976962). Friday effect (at 1% level) is found across full sample, the sub-period 1 and the sub-period 2. There is evidence to prove an existence of Wednesday effect (at 5% significant level) in the sub-period 1 in Vietnam stock market.

The strong existence of Monday and Friday effects could be explained by the behavior of investors. This means that individual investors usually have much more transactions, especially short transactions on Monday and Tuesday. In contrast, companies and institutional investors rarely make long or short transactions at that time. According to information theory, most companies might announce some bad news into market to make induce private investors to sell a large amount of stocks in market on Monday. Therefore, the average return on Monday is often negative. Moreover, according to "Blue Monday" theory, it seems that investors are likely to be pessimistic on Monday, which leads them to take short position at that time. Nevertheless, most of investors will buy stocks on Wednesday as the same time of making the decisions of companies.

Moreover, Tuesday effect (at 5% significant level) exists in the sub-period 1, 2 and across full sample. These results are consistent with previous studies in Australia and Asia markets such as Kato (1990), Jaffe and Westerfield (1985) and Condoyanni et al. (1987).

Table 7 also shows that result in HNX provides evidence with the appearance of Monday, Tuesday and Friday effects (5% level).

Tab. 7 - Weekday effects– Regression results. Source: Authors' calculations

	HOSE						HNX	
	Full Sample		Sub-period 1		Sub-period 2		Full sample	
Variable	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-Stat
Monday	-0.00043	-1.71*	-0.00049	-1.38	-0.00041	-1.17	-0.00092	-2.06**

Tuesday	-0.00059	-2.27**	-0.00030	-0.76	-0.00084	-2.42**	-0.00115	-2.57**
Wednesday	0.00057	2.31**	0.00087	2.49**	0.00023	0.67	0.00074	1.71*
Thursday	0.00026	0.99	0.00060	1.51	-0.00003	-0.08	0.00021	0.48
Friday	0.00085	3.43*	0.00106	3.01**	0.00059	1.69*	0.00095	2.18**
R_{t-1}	0.30108	18.63***	0.33885	14.79***	0.25873	11.33***	0.18062	8.70***
R-squared		0.09600		0.12139		0.07125		0.04061
Observation		3,488		1,691		1,797		2,250

*Notes. *significant at 10% level, **significant at 5% level, ***significant at 1% level.*

4.3 Holiday Effect

Vietnam has many holidays but this paper only focuses on Reunification Day – April 30th and Labor Day – May 1st which are among of the most important holidays. Reunification Day is a public holiday in Vietnam, April 30th, 1975 is the day that marks the fall of Saigon government, ending the Vietnam War and leading to the liberation of Vietnam's southern part. Together with more than 80 countries all over the world, the International Workers' Day, as known as International Labor Day or May Day in Vietnam, is a public holiday of the nation. It is celebrated on the first day of May, right after the Reunification Day; as a result, the two holidays are normally joined together into one break.

Table 8 demonstrates that Reunification Day and Labor Day do not have any appearance of pre-or-post holiday effects. Respecting Independent Day, this paper also does not find any evidences to prove post-holiday effects. On the other hand, Pre-Independent Day effect appearing at 5% significant level is caused by the protection of investors' position during holiday. This means that many investors use short-seller to cover their position and do not make the long position instead of.

Tab. 8 - Pre–holiday effect at HNX – Regression results. Source: Authors' calculations

Variable	Coefficient	T-Statistic	P-value
C	-0.00009	-0.46574	0.64140
Independent day	0.00349	2.51233	0.01210**
R-squared			0.00280
F-statistic			6.31181

*Notes.**significant at 5% level.*

5 CONCLUSION

This study examines the calendar anomalies in Vietnam stock market to find the evidence against the efficient market hypothesis. First, it is worth noting that only a few studies concerning various calendar effects in Vietnam stock market considered as one of the emerging markets in Asia so this paper updates the existing literature for Vietnam stock markets. In particular, the paper divided sample into two periods such as before and after the economic crisis 2008 for both HOSE and HNX to test about the robustness of model.

The empirical results shows that there is the existence of January effect in HOSE but none in HNX, the new point is that July and November effects appeared before the economic crisis 2008. In addition, the paper found out the evidence of day-of-the-week effect, which exists on Monday, Tuesday and Friday in both two stock exchanges. In comparison with other studies, a new point has been found about the appearance of pre-holiday effect on Vietnam Independent Day - September 2nd which merely happens in HNX. With those results above, the study would support investors to build up their trading strategies. Moreover, this study is also served as a reference for the policy makers to come up with dedicated solutions to improve the effectiveness of Vietnam stock market. Finally, this study would enrich theoretical and substantive understanding of calendar anomalies in emerging market and Asia market.

REFERENCES

Ariel, R. A. (1987). A monthly effect in stock returns. *Journal of Financial Economics, 18*(1), 161-174.

Ayadi, O. F., Dufrene, U. B., & Chatterjee, A. (1998). Stock return seasonalities in low-income African emerging markets. *Managerial Finance, 24*(3), 22-33.

Bepari, K., & Mollik, A. T. (2009). Seasonalities in the monthly stock returns: Evidence from Bangladesh Dhaka Stock Exchange (DSE). *International Research Journal of Finance and Economics, 24*, 167-176.

Cadsby, C., & Ratner, M. (1992). Turn-of-the-month and pre-holiday effects on stock returns: Some international evidence. *Journal of Banking and Finance*, 16, 487-510.

Chan, M. W. L., Khanthavit, A., & Thomas, H. (1996). Seasonality and cultural influences on four Asian stock markets. *Asia Pacific Journal of Management, 13*(2), 1-24.

Condoyanni, L. – O'Hanlon, J. – Ward, C. W. R. (1987). Day of the week effect on stock returns: International evidence. *Journal of Business Finance & Accounting*, vol. 14, no. 2, 159-174.

Cross, F. (1973). The Behavior of Stock Prices on Fridays and Mondays. *Financial Analysts Journal*, November - December, 67-69.

Damodaran A. (1989). The weekend effect in information releases: A study of earnings and dividends announcements. *Review of Financial Studies*, 2(4): 607-623.

Fama, Eugene. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, 25, pp. 383-417.

Floros, C. (2008). The monthly and trading month effects in Greek stock market returns: 1996 -2002. *Managerial - Finance, 34*(7), 453-464.

French, K. (1980). Stock Returns and the Weekend Effect. *Journal of Financial Economics*, 8, 1, 55-69.

Frieder L and Subrahmanyam A. (2004). Non-secular regularities in returns and volume. *Financial Analysts Journal*, 60(4): 29-34.

Gibbons, Michael R. and Patrick Hess. (1981). Day of the Week Effects and Asset Returns. *The Journal of Business*, Vol. 54, No. 4. (Oct., 1981), pp. 579-596.

Haugen, R.A. and P. Jorion. (1996). The January Effect: Still There after All These Years. *Financial Analysts Journal.*

Ho, R. Y. and Cheung, Y. L. (1994). Seasonal pattern in volatility in Asia stock markets. *Applied Financial Economics*, 4, 61-67.

Jaffe J and Westerfield R. (1985). The week-end effect in common stock returns: The international evidence. *Journal of Finance*, 40(2): 433-454.

Kamara A. (1997). New evidence on the Monday seasonal in stock returns. *Journal of Business* 70(1): 63-84.

Kato, K. (1990). Weekly patterns in Japanese stock returns. *Management Science,* 36, 1031-43.

Kato, K., & Schallheim, J. S. (1985). Seasonal and size anomalies in the Japanese stock market. *The Journal of Financial and Quantitative Analysis, 20*(2), 243-260.

Keim D and Stambaugh R. (1984). A further investigation of the weekend effect in stock returns. *Journal of Finance*, 39(3): 819-835.

Lim, S. Y., & Chia, R. C. J. (2010). Stock market calendar anomalies: Evidence from ASEAN - 5 stock markets. *Economic Bulletin, 30 (2), 996 – 1005.*

Maghayereh, A. I. (2003). Seasonality and January effect anomalies in the Jordanian capital market. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=441081

Mills, T.C. and J.A. Coutts. (1995). Calendar effects in the London Stock Exchange FT-SE Indices. *European Journal of Finance*, Volume 1, Number 1, Pages 79-94.

Ogden J. (1990). Turn-of-month evaluations of liquid profits and stock returns: A common explanation for the monthly and January effects. *Journal of Finance*, 45(4): 1259-1272.

Pettengill, G., & Jordan, B. (1988). A comprehensive examination of volume effects and seasonality of daily security returns. *Journal of Financial Research,* 11, 57-70.

Raj, M., & Kumari, D. (2006). Day-of-the-week and other market anomalies in the Indian stock market. *International Journal of Emerging Markets, 1*(3), 235-246.

Roberts, Harry. (1967). Statistical Versus Clinical Prediction of the Stock Market. Unpublished manuscript, CRSP, *University of Chicago,* May.

Rozeff, Michael S. and William R. Kinney, Jr. (1976). Capital Market Seasonality: The Case of Stock Returns. *Journal of Financial Economics,* Volume 3, Issue 4, October 1976, Pages 379-402.

Rystrom D and Benson E. (1989). Investor psychology and the day-of-the-week effect. *Financial Analysts Journal*: Sept-Oct, 75-78.

Thaler R. (1987b). Anomalies: The January effect. *Journal of Economic Perspectives*, 1(1): 197-201.

Tinic, S. M., Barone-Adesi, G., & West, R. R. (1987). Seasonality in Canadian stock prices: A test of the "tax-loss selling" hypothesis. *Journal of Financial and Quantitative Analysis, 22*, 51-64.

Wang Y and Walker M. (2000). An empirical test of individual and institutional trading patterns in Japan, Hong Kong, and Taiwan. *Journal of Economics and Finance,* 24(2): 178-194.

Yuan, T., & Gupta, R. (2014). Chinese Lunar New Year effect in Asian stock markets, 1999-2012. *The Quarterly Review of Economics and Finance*, 54, 529 – 537.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

MEASURING EFFECTS OF EXCHANGE RATE AND WORLD PRICES ON EXPORT PRICE OF VIETNAMESE COFFEE

To Thi Kim Hong

ABTRACT

Identifying factors of export price fluctuation in agricultural products is necessary to equip decision makers and producers with bases and tools in forecasting price fluctuation and then suggesting solutions for risk mitigation. This research integrated quantitative and qualitative methods to analyze and measure effects of some major factors on export price of Vietnamese coffee. The data of 34 years from 1981-2014 shows that coffee price have fluctuated with a cycle of 5 year increase and 7 year decrease. The study found major factors of the price fluctuation are exchange rate and export prices of other exporting countries like Brazil and Colombia. Export price of Brazilian coffee made a positive effect on the price of Vietnamese suggesting a competition between two countries in the world coffee market while Colombian coffee occupied its own market share. To promote sustainable growth in exports, Vietnamese coffee needs to maintain stable markets and invest more on branding and product quality to improve its competition capacity.

Keywords: *price, coffee, export, Vietnam, fluctuation*

JEL Classification: F140, L110, M210.

1 INTRODUCTION

Vietnam is one of countries that export a lot of agricultural products to the world. The role of agricultural products is increasing significantly in Vietnam when many large investors concern and invest into agricultural market. Through agricultural exports, Vietnam integrates with others countries in the global economy. Export value of Vietnamese agricultural products reached 22 billion dollars in 2015 with three important commodities are fisheries, coffee and rice (Bureau of Statistics, 2016). This export value brings a significant amount of foreign currency for the country, but it depends on the fluctuations of prices in the world' market, especially during international integration. As the result, despite farmers contribute to income of the country significantly, their life is not guaranteed and unstable due to violation of prices. Moreover, increasing of prices leads to decrease food security expenses. Fluctuation in prices of agricultural products is more than the ones in prices of most non-agricultural products (Tomex and Robinson, 2003). Export commodity prices of one country can be affected by the one of many other countries (Carter and MacLaren, 1997). Therefore the impact of the price review from some countries on the export price of Vietnamese coffee is needed.

2 THEORETICAL FRAMEWORK

Price is the basic mechanism for market performance (Goodwin and Holt, 1999). For export price, a theoretical equation is expressed as following

$$P = \frac{P_D}{E}$$

where:

P: export price of a commodity in US Dollar

P_D: domestic price of the commodity in local currency (for example: VND)

E: exchange rate of the local currency against USD

In the world market, price is established through the adjustment process of world demand and export supply and affected by demand and supply shifters in export and import countries (Thompson, 2000). The market price in the world market would also adjust supply and demand, enforce producers or exporters actively reduce or increase their production quantity to supply toward the market (Begg và ctg, 2005).

In a market, demand of a commodity (Qd) depends on its own price (Px), consumers' income (Ic), buyers' preferences (Tc), competitive products' price (Pr), population (Po), buying capacity (Sm), or consumers' expectation on its price (Fc); expressed by the following equation

$$Qd = f(P) = a + bPx + cIc + dTc + ePr + fSm + gFc \quad \text{(Equation 1)}$$

Whilst, a commodity's export supply (Qs) depends on its own price (Px), exchange rate (Ex), production cost (oil price, Poil, for instance), governmental policy (GP), profitability of substitute products and other external factors.

Among the above factors, price of inputs and substitute products as well as exchange rate are very important one affecting directly on export price of a commodity in the world market (Thompson, 2003), and the export supply is expressed as follow

$$Qs = f(P) = a + bPx + cEx + dPoil + e\,GP \quad \text{(Equation 2)}$$

For agricultural products, exporters and importers behave in a competitive world market (Tomek and Robinson, 2003). Therefore, world demand and export supply are equal

$$Qd = Qs \quad \text{(Equation 3)}$$

With Equations 1, 2 and 3, a price model can be established as following

$$P_X = a + bI_C + cT_C + dS_m + eF_C + f_j \sum_{j=1}^{n} P_j + gE_X + hP_{oil} + iGP \quad \text{(Equation 4)}$$

With the above equation, price of a exported product of a country is a function of price of other products may competing in the world market, exchange rate and other factors like income, technology, production cost,...

3 METHODOLOGY

Qualitative and quantitative methods were utilized integrated in this research. For qualitative method, in-depth interviews with structure and semi-structure questionnaires helped to find out some qualitative and quantitative variables affect on Vietnamese export price.

With time series data collected from UN-Comtrade, IMF, Vietnam Custom, Ministry of Agriculture and Rural Development, FAO, ICO, besides descriptive statistics, this research applied linear regression methods in quantitative methods. In order to measure magnitude of the found variables affecting on export price of Vietnamese coffee, popular and modern

regression tools as OLS, unit root test, causality test, cointegrated test were used to build a double logarithm model described as following:

$$\ln P_X = \hat{\beta}_0 + \hat{\beta}_1 \ln EX_i + \hat{\beta}_2 \ln P_{Oi} + \hat{\beta}_3 \ln P_{Ci} + \hat{\beta}_4 \ln P_{Ti} + f_j \sum_{j=1}^{n} \ln P_j + \hat{\beta}_5 Q_{1i} + \hat{\beta}_6 Q_{2i} + \hat{\beta}_7 Q_{3i} + e_i$$

While, P_x: Vietnamese coffee price

EX: exchange rate of Vietnam dong relative to US dollar

P_O: the world average price of energy

P_C: the world average price of cocoa

P_T: the world average price of tea

P_j: export price of Colombian and Brazilian coffee

Q_i: yearly quarter (i=1,2,3 represented for the first three quarters of a year)

e: error term of the regression model

4 RESULTS AND DISCUSSION

4.1 Fluctuation in coffee prices of the world and Vietnam

During 1981 - 2014, coffee price in the world market had strongly fluctuated and become less predictable (Andrew and James, 2002). The world price was in increasing trend from 1980 and got its peak in 1986 (Figure 1) and followed the export price of some major coffee exporting countries as Vietnam, Brazil, India and Colombia.

In 1986, export coffee price of the above countries got the peaks respectively of 104.23 USD/ton in Vietnam, 141.21 USD/ton in Brazil, 173.24 USD/ton in Colombia and 107.42 USD/ton in India. But after achieving the peaks, the export prices were continuously downing following the collapse of International Coffee Association (ICA) in 1989 (Julie Craves, 2006). Coffee prices in the world market were stable in the duration 1990-1993 but fluctuate again since 1994 as described by International Coffee Organization. The export price of four countries Vietnam, Colombia, Brazil and India in 1995 had increased double relative to 1993 (ICO, 2009) before a sudden collapse since 1998. Export price in the world market lost 20% in 1999, 25% in 2000 and 29% in 2001 (FAO, 2002) due to an increase in production of the major exporters. The price got back its value since 2004 (Figure 1) and reached peaks in 2014 with respectively, 123.22 USD/ton in Vietnam, 107.895 USD/ton in Brazil, 140.14 USD/ton in India and 159.71 USD/ton in Columbia.

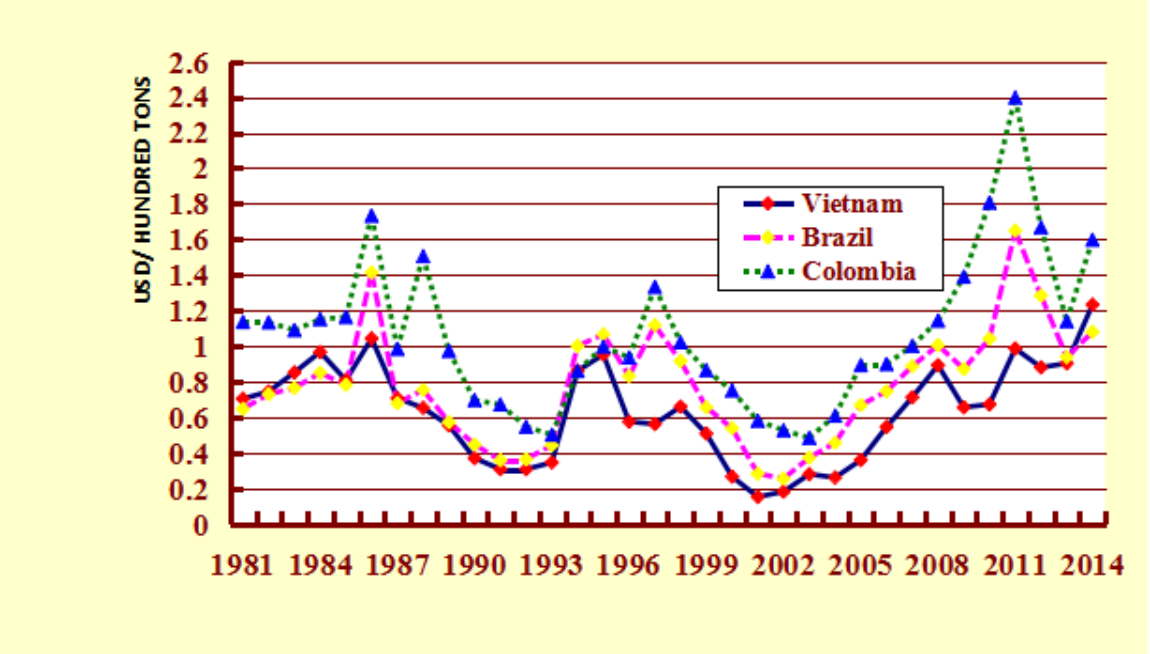

Fig.1 - Export price in the world market of the major coffee exporting countries during 1981-2014. Source: Compiled from UN-Comtrade datasets

Most researchers and business managers in coffee sector agreed that export prices in the world market follow the rule of supply and demand and a business cycle of seven years. After a 7-year stable increase, the world price of coffee seems to have a collapse (World Bank, 2004). Although the price of Vietnamese coffee is the lowest in the world market, about 25% lower than the average value (Doan Trieu Nhan, 2009), export price of the four major and important coffee producers and exporters, Vietnam, Brazil, Colombia and India, had co-integrated during 1981 to 2014 except a period of 1997-2004 when the price of Vietnam was likely to go far from the trend of the word coffee price. The fluctuation in world prices therefore affects Vietnamese coffee prices. In reverse, an out-break in coffee production in Vietnam also cause an influence on the world prices.

4.2 Measuring the effects of exchange rate and world prices on export price of Vietnamese coffee

With historical data from 1981-2014, tools and quantitative methods in time-series analysis were used to build up a regression model to identify and measure possible effects of VND-USD exchange rate and prices of competitors in the world market on the export price of Vietnamese coffee.

Augmented Dickey-Fuller tests (Table 1) confirmed the stationary of variables included in the regression model. This confirmation permits to use ordinary least square method in econometric to regress a model in which export price of Vietnamese coffee is the dependent variable while exchange rates and prices of competitors, Columbia and Brazil, are interesting independent variables.

Tab. 1 - Stationary test results for variable used in the regression. Source: authors' calculation

Variable	P-value	Critical value (5%)	Lag Length
LnPVN	0.78	-1.56	1
LnEX	0.839	-1.447625	1
LnPcocoa	0.58	-2.017204	1
LnPtea	0.68	-1.826889	1
LnPColom	0.26	-2.639025	1
LnBrazil	0.6911	-1.808842	1
LNPenergy	0.9655	-0.746944	1

Pairwise Granger Causality test found that export prices of Colombia and Brazil coffee had strong effect on the one of Vietnamese coffee at significant level of 99% (p-value respectively are 0.0068 and 0.0025). However, the test affirmed that the reverse effect is not significant statistically. Therefore, export prices of Colombia and Brazil coffee may used as pre-determinant variables for export price of Vietnamese coffee. Dummy variables represented to yearly quarters were also included in the model to test and isolate the seasonal effect on the price. The result for regressed model was described in Table 2.

Tab. 2 - Regression results for export price of Vietnamese coffee. Source: authors' calculation

Variable	Estimate coefficient	t-statistic	p-value
Constant	-0.790038	-1.560630	0.1231
LnEX	0.796636	9.001307	0.0000
LnBrazil	0.867564	8.170541	0.0000
LnColom	-0.681899	-5.738411	0.0000
LnTea	-0.075183	-1.939977	0.0564
LnCocoa	-0.149248	-2.745366	0.0077
LnEnergy	-0.041104	-1.3402	0.1845
Q1	0.004928	0.289274	0.7732
Q2	0.048637	2.672143	0.0094
Q3	0.059115	3.466379	0.0009
R^2=0.9281 n=80 D.W=0.5782			

Tests in econometrics were used to examine the appropriateness and to correct the regressed model. Although multicolinearity or heteroskedasticity were not found in the model, the variable of LnPtea (logarithm of world tea price) are likely to be irrelevant. Therefore, this variable were excluded out of the model. The value of Durbin - Watson criteria suggested a

possible serial-correlation may exist in the model regressed. Procedures to correct the model had been implemented to give a more appropriate model. Insignificant variables were not reported to make the model simpler visually. The corrected model was written as following

$$LnPVN=-0.83^{***}+ 0.313^{***}LnEX + 0.50^{***}LnBrazil - 0.35^{***}LnColom – 0.038LnPcocoa + 0.035LnPenergy + 0.03^{***}Q1 + 0.03^{***}Q2 + 0.02^{***}Q3 + error \quad \textit{(Model 2)}$$

n=79; R^2=0.7414; $\overline{R}^2 = 0.7118$; D.W=1,67

4.3 Discussion

4.3.1 Effect of exchange rate on export price of Vietnamese coffee

The regression results confirmed that exchange rate and export prices of Brazil and Columbia coffee influenced the one of Vietnamese coffee. In the world market, exchange rate are usually used by exporting countries to support their exports. The regression result shows an unexpected effect of exchange rate on the export price of Vietnamese coffee with that when the Vietnam currency lost its value, export price in USD would increase. Most of Vietnamese exports uses USD for foreign payment because the Vietnam dong is pegged to the US dollar and thus ignores the value of other currencies. Once Vietnam dong lose its value, export price in USD should be decrease theoretically. However, according to Keith Flury (2014); Kristinek and Anderson (2002), if currencies of main competitors appreciated relative to the USD, Vietnamese export price still increase despite of its currency's devaluation or depreciation. In the duration 1981-2014, exchange rate of Colombia and Brazil decreased (aka its currencies appreciate) while Vietnam currency is continuously lose its value.

According to 92% experts interviewed, exchange rate affects positively export volume and price in long time. If exchange rate decreased, (aka Vietnam dong appreciated), foreign customers would deal to decrease export price (in USD). Therefore the regression result is confidential. An 1% increase in exchange rate would raise export price of Vietnamese coffee by 0.313% when other factors are constant.

4.3.2 Price effects of other main exporters on Vietnamese coffee

The regression results estimated that an 10% increase in export price of Brazilian coffee would raise the one of Vietnamese coffee by 5%. In contrast, an 10% increase in export price of Colombian coffee would lower the one of Vietnamese coffee by 3.5%.

The negative effect of Colombian price on Vietnamese price in the world market is due to difference in market share and kind of coffee produced. Colombia exports mostly arabica coffee to the world market while Vietnam exports robusta coffee like Brazil. This market segmentation would explain for the negative effect of Colombian price and positive effect of Brazilian one on Vietnamese price in the world coffee market.

The findings are agreed by most interviewed experts in coffee sector. Most Vietnamese coffee exporters concern price competition from Brazil, India, not from Colombia. They explained that Vietnamese coffee have to compete with Brazilian coffee in the same market share of low price robusta while Colombia occupies the market share of high price arabica coffee.

5 CONCLUSION

Export prices of major coffee has business cycle of seven years. The world price of coffee seems to decrease after a 7-year stable increase. Export price of Vietnam, Brazil, Colombia and India, had co-integrated during 1981 to 2014 except a period of 1997-2004. The fluctuation in world

prices affects Vietnamese coffee prices but not in reverse, confirmed by the Pairwise Granger Causial test.

The regression results estimated that an 1% increase in exchange rate would raise export price of Vietnamese coffee by 0.313% when other factors are constant. An 10% increase in export price of Brazilian coffee would also be estimated to raise the one of Vietnamese coffee by 5%. In contrast, an 10% increase in export price of Colombian coffee would lower the one of Vietnamese coffee by 3.5%.

In order to promote the coffee sector in Vietnam, decision makers and coffee producers in Vietnam should monitor carefully not only the price fluctuation in the world coffee market but also the changes in exchange market.

REFERENCES

Andrew, M. K. and James, K. N. (2002). Coffee prices and regulation and their impact on livelihoods of rural community in Kenya. Tegemeo Institude of Agricultural Policy and Development Egerton University

Carter, A. C. and MacLaren, D. (1997). Price or Quantity Competition? Oligopolistic Structures in International Commodity Markets. *Review of International Economics*, 5(3), 373-38

Craves, J. (2006). The coffee crisis. Coffee and conservation.

Doan Trieu Nhan, 2009. Vietnam's coffee sector - current situation and prospects ". The Association of Vietnam Coffee and Cacao.

FAO (2002), “Commodity Market Review 2001-02”, Commodities And Trade Division Food And Agriculture Organization Of The United Nations. Food and Agriculture Organization of The United Nations, Rome.

International Coffee Council - ICC (2014). World coffee trade (1963 – 2013): A review of markets, challenges and opportunities facing the sector. London

Keith, F. (2014). Agricultural Strategist. Coffee and Currencies. BNP Paribas corporate and investment banking

Kristinek, J. J. and Anderson, D. P. (2007). Book “Exchange rates agricultural commodity prices”. Texas A&M University

Thompson, Henry (2000). International Economics - Global Market and Competition. World Scientific Publishing.

Tomek, G. W. and Robinson, L. K (2003). Agricultural product prices. Book. Cornell university press, Ithaca and London. Chapter 3, page 31-57.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

SERVICE QUALITY OF THE TAX AUTHORITIES AND TAXPAYER SATISFACTION: AN EMPIRICAL STUDY IN VIETNAM

Trang Cam Hoang, Thuc Thi Vo

ABSTRACT

The need for tax revenue is increasing; therefore, the government in general and particularly, the tax authorities who are in direct relationship with the taxpayers, needs to raise its service quality in order not to lose the taxpayers, but to gain them. In this paper, a survey was conducted among the taxpayers in Ho Chi Minh city, Vietnam, and from the perspectives of them, an analysis of the relationship between service quality of the tax authorities and taxpayer satisfaction was carried out with statistical techniques. The results confirm that the service quality of the tax authorities strongly influences taxpayer satisfaction.

Keywords: *Service quality, tax authorities, taxpayer satisfaction, Viet*nam.

JEL Classification: H29, C91, H41.

1 INTRODUCTION

The need for faster development and growth necessitated higher public expenditure for the government. Considering the fact that the all tax revenue of Vietnam corresponds to 24% of the national income (The Saigon Times, 2015), the importance of increasing the tax revenue that constitutes the resource of public expenditure is clearly visible. For increasing the share of tax revenue within the public revenue it is very important to increase the compliance of the taxpayers for paying taxes. With the impact of globalization, the importance of the satisfaction of subjects of service has increased in the management approach to tax systems and today, the service perception of the government, which is anticipated to generate faster, more effective and more transparent services, has been subject to transformation.

The tax system in Vietnam applies the self-assessment system base, which is a system that gives more responsibility to each taxpayer to register, calculate, pay and report tax their tax obligations to government itself. We believed that taxpayers' satisfaction with tax service quality should be a key concern of government agencies or administration authorities, since this satisfaction is intended to improve the tax revenue. Therefore, we studied taxpayer satisfaction with service quality of the tax authorities.

2 LITERATURE REVIEW

It is widely agreed that service quality depends on two variables: expected (desired) service and perceived service. Gronroos (1988) found that perceived service quality is the outcome of an evaluation process where the expected service is compared with the service received.

Service quality was defined mainly by means of service quality models. Parasuraman et al. (1988) defined service quality using descriptive terms and divided the construct into different dimensions. These dimensions are tangibility, reliability, responsiveness, assurance and empathy. These authors also developed the first service quality measuring instrument,

SERVQUAL. Richard and Allaway (1993) and Voss (2003) found that SERVQUAL was widely accepted as a robust categorization of the dimensions of service.

Tax authorities should perhaps spend more time on improving the services it renders to the taxpayers. It is conceptualized that better service quality management of the services rendered to taxpayers might impact the trust in the tax authority and also influence tax compliance (Muehlbacher & Kirchler, 2010).

Several attempts have over the years been made by both practitioners and academics to examine the issue of tax compliance from various angles including the taxpayer satisfaction (e.g., Lubian & Zarri, 2011; Boonyarat et al., 2015; Feldman et al., 2009). For instance, Feldman et al (2009) argues that the amount of tax revenue generated by a government for its expenditure programs depends among other things, upon the satisfaction of the taxpayer to comply with the tax laws of the country. This satisfaction could also be attributed to the attitude that taxpayers demonstrate at any given point in time on the one hand and the purpose of the tax on the other hand.

Parasuraman et al. (1988) discussed the two concepts, quality and satisfaction as related and suggested that presence of satisfaction over time ensures perceptions of service quality. They also discussed that the high level of service quality leads to higher customer satisfaction. This notion is supported by Saravana and Rao (2007) who had reviewed several researches on the topic and acknowledged that customer satisfaction is grounded in the level of service quality provided.

Most of these studies were conducted in developed countries. It has been argued that the findings of these studies could not be favorably applied within the context of developing countries like Vietnam due mainly to the noticeable differences in the society, politics and culture. This study is going to be based on taxpayer-reported evidences drawn by empirical data from taxpayer surveys, hence it is relevant to review if the taxpayers find any differences between the terms quality and satisfaction.

Based on the above, our hypotheses were:
H1: Reliability of the tax authorities is positively associated with taxpayer satisfaction.
H2: Responsiveness of the tax authorities is positively associated with taxpayer satisfaction.
H3: Empathy of the tax authorities is positively associated with taxpayer satisfaction.
H4: Tangible of the tax authorities is positively associated with taxpayer satisfaction.

3 RESEARCH METHOD

3.1 Measures of service quality

Service quality is a multi-dimensional construct that has often been measured by using the SERVQUAL instrument (Parasuraman et al., 1988). SERVQUAL measures the service dimensions of tangible, reliability, responsiveness, assurance, and empathy. Considering the dimensions of service quality identified by SERVQUAL, assurance is guaranteed since the tax-filing system is government-owned (Chen, 2010). Consequently, we excluded the sub-dimension of assurance. Therefore, our framework for service quality only included reliability, responsiveness, tangible and empathy.

3.2 Measures of taxpayer satisfaction

Appendix presents the constructs and corresponding measurement items for our study. All items were obtained from previously validated instruments (Chen, 2010; Parasuraman et al., 1988).

3.3 Model and constructs for measuring taxpayer satisfaction

Figure 1 shows the research model.

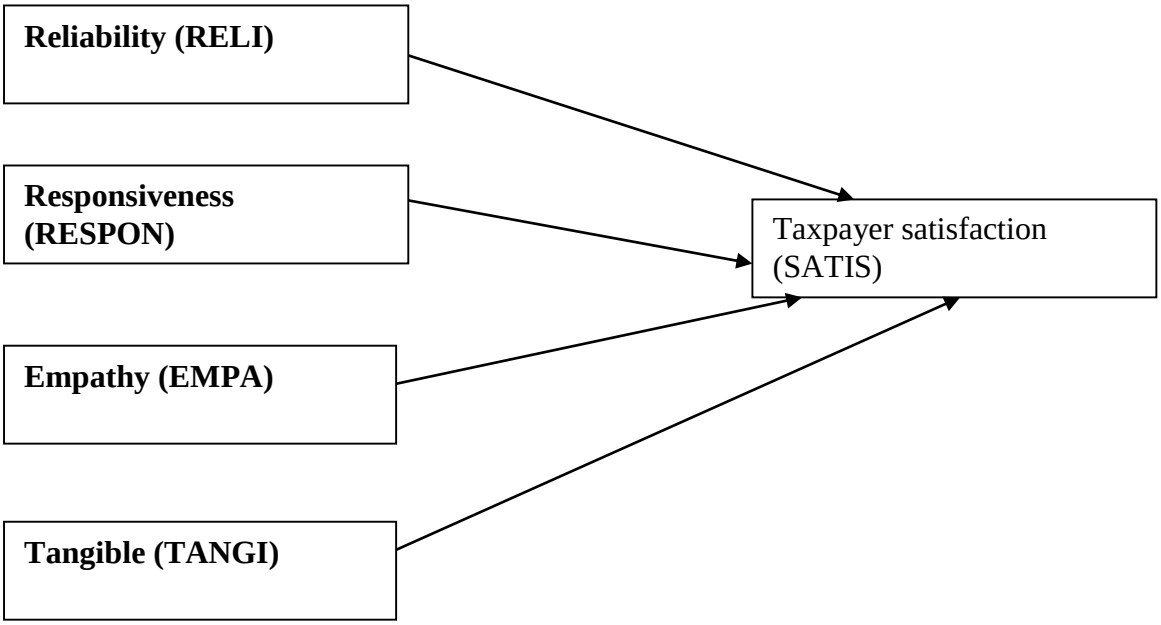

Fig. 1 - The impact of service quality dimensions on taxpayer satisfaction. Source: own

To determine the influence of service quality dimensions on taxpayer satisfaction, the following multiple regression model is developed:

$SATIS = \beta_0 + \beta_1 RELI + \beta_2 RESPON + \beta_3 EMPA + \beta_4 TANGI + e$

Where:

SATIS = Taxpayer satisfaction;

RELI = Reliability;

RESPON = Responsiveness;

EMPA = Empathy;

TANGI = Tangible;

e = error term.

3.4 Sample

Data was collected over 3 weeks in March, 2016, and a total of 101 completed questionnaires were obtained, of these, 82 questionnaires were considered valid (after excluding those with missing values or inconsistent responses). Likert scale with 5 points level by the scale from 1 to 5 was used in the questionnaire. The items are assessed with 1 (one score) is absolutely dissatisfied and 5 (five scores) is absolutely dissatisfied with the statement in the questionnaire. The initial draft of the questionnaire contained 5 items dealing with reliability, 5 for responsiveness, 3 for empathy, 5 for tangible, and 3 for taxpayer satisfaction.

4 RESULTS

4.1 Characteristics of taxpayer in the survey

Of the 82 taxpayers sampled, 93% has worked with the tax authority more than 1 year. Regarding type of business, 68% taxpayers work in limited liability companies, 23% in joint stock companies and 9% in others.

4.2 Reliability and validity analyses

When applying scales in the study, one of the most important issues to consider is the internal consistency of the scale. In order to assess the internal consistency of the SERVQUAL scale, one of the most popular indicators for reliability – Cronbach's alpha – is used. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The results of Cronbach's Alpha coefficients are presented as following table 1. The results indicated that all scales satisfied the requirement for reliability. All Cronbach's alphas of the scales were higher than 0.60 (Nunnally, 1978). Among them, the lowest value of Cronbach's alpha is 0.6679 in Empathy measure, other scales got the good Cronbach's alpha coefficients which higher than 0.80.

Tab. 1 - Cronbach's Alpha reliability coefficients on SERVQUAL (N= 82).
Source: calculated by authors.

Scales	**Number of items**	**Cronbach α**
Reliability	5	0.8294
Responsiveness	3	0.8159
Empathy	3	0.6679
Tangible	5	0.8346
Total service quality	16	0.8973
Taxpayer satisfaction	3	0.8991

An exploratory factor analysis (EFA) was performed to confirm the validity of scales and to ensure that the items that make up one construct are highly correlated with each other and not with those items that make up the other constructs (Lattin et al., 2003).

According to the results of EFA to tax authorities' service quality scales, the Kaiser - Meyer - Oklin value is 0.845, above the commonly recommended value of more than 0.5 (Hair, 1998). Bartlett`s Test of sphericty reached significance with p=.000, therefore supporting the application of factor analysis. Principal Component Analysis discloses the presence of 4 components with eigenvalue above 1, the first component explains 40.77% of the variance, the second 13.46%, the third 8.44%, and the fourth 6.67% of the variance. After having eliminated the factor loading coefficient of variation less than 0.5, the analysis exploring last factor obtained as follows:

Tab. 2A - Rotated Component Matrix[a]. Source: calculated by authors.

ITEMS	COMPONENTS			
	1	2	3	4
RELI3	0.5917			
RELI4	0.9461			

RELI5	0.8194			
RESPON1		0.8550		
RESPON2		0.7066		
RESPON3		0.8386		
EMPA1			0.7947	
EMPA2			0.7941	
TANGI1				0.8732
TANGI3				0.7204
TANGI4				0.8222
TANGI5				0.8545

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

[a]*Rotation converged in 6 iterations.*

According to the results of EFA to taxpayer satisfaction scales, the Kaiser - Meyer - Oklin value is 0.732, above the commonly recommended value of more than 0.5 (Hair, 1998). Bartlett's Test is significance with p value = 0.000, therefore supporting the application of factor analysis. Principal Component Analysis discloses the presence of one component with eigenvalue of 2.499, explaining 83.31% of the variance. The rotated component matrix reveals as follows:

Tab. 2B - Rotated Component Matrix. Source: calculated by authors.

ITEMS	COMPONENTS 1
SATIS1	0.8791
SATIS2	0.9261
SATIS3	0.9321

4.3 Descriptive Statistics for the Factors Means

Table 3 shows the overall descriptive statistical analysis for the survey. The table presents the minimum, maximum, mean, and standard deviation for all variables in the regression model. According to the descriptive results, the mean of the tangible factor is highest (3.53) while that of the responsiveness factor is lowest (2.87).

Tab. 3 - Descriptive Statistics for the Factors Means on SERVQUAL (N= 82). Source: calculated by authors.

Variable	Mean	Std. Dev.	Min	Max
Satisfaction	3.0325	0.7344	1.0000	5.0000
Reliability	3.0366	0.6728	1.0000	5.0000
Responsiveness	2.8659	0.7083	1.3333	4.6667
Empathy	2.9390	0.8833	1.0000	5.0000
Tangible	3.5274	0.6632	2.0000	5.0000

4.4 The correlations among the four subscale

Table 4 shows the correlations among the four subscale ranges from 0.317 to 0.789 in the desired positive direction at the .01 level. Based on Cohen (1988), these coefficients are in the range of medium to large. The largest correlation is 0.789 between Empathy and Responsiveness. In summary, the data in Table 4 support the construct validity of the SERVQUAL survey. The results of the correlations among the subscales are statistically significant at the .01 level. They are either moderately or highly correlated (Cohen, 1988).

Tab. 4 - Intercorrelations among Subscale on SERVQUAL (N= 82). Source: calculated by authors.

	Reliability	Responsiveness	Empathy	Tangible
Reliability	1.0000			
Responsiveness	0.5516*	1.0000		
	0.0000			
Empathy	0.5231*	0.7893*	1.0000	
	0.0000	0.0000		
Tangible	0.3367*	0.3168*	0.3717*	1.0000
	0.0020	0.0037	0.0006	

* p value ≤ 0.05.

4.4 Multiple Regression Analysis

This study checks the variance inflation factor (VIF) for the regression analysis and finds that the maximum VIF is 2.85 (Table 5), which is less than 10 for the regression model, so multicollinearity does not seem to be a problem in the empirical models tested in this study (Gujarati & Porter, 2009).

Tab. 5 – Multiple regression results using taxpayer satisfaction (SATIS) as the dependent variable. Source: calculated by authors.

SATIS	Coef.	Std. Err.	t	P>t	VIF
RELI	0.2409**	0.0911	2.6500	0.0100	2.85
RESPON	0.2692*	0.1182	2.2800	0.0260	2.82
EMPA	0.2612**	0.0943	2.7700	0.0070	1.53
TANGI	0.2450**	0.0819	2.9900	0.0040	1.20
_cons	-0.1024	0.3136	-0.3300	0.7450	

R^2 = 0.6492, F statistic = 35.62, p-value = 0.000, N = 82.

∗ and ∗∗ denote significance levels at 5% and 1%, respectively.

Table 5 provides the result of the test of the hypothesis where SATIS (taxpayer satisfaction) is the dependent variable; and RELI (reliability), RESPON (Responsiveness), EMPA (Empathy), TANGI (Tangible) are the independent variables. The table shows that the coefficient estimate

of RELI is positive and significant with a coefficient of 0.241 (p = 0.01), supporting Hypothesis 1. Similarly, the coefficient between RESPON and SATIS is 0.269 (p<0.05), which was also significant, supporting Hypothesis 2. Table 5 also shows that the coefficient estimate of EMPA is positive and significant with a coefficient of 0.261 (p < 0.01), supporting Hypothesis 3. Finally, TANGI to SATIS was also significant, and had a coefficient of 0.245 (p<0.01), supporting Hypothesis 4.

5 CONCLUSIONS

Service quality of tax authorities is an important determinant of taxpayer satisfaction. We considered only reliability, responsiveness, empathy and tangible. Analytical results from the multiple regression show that the service quality (i.e., reliability, responsiveness, empathy and tangible) to taxpayer satisfaction was significant, supporting Hypotheses 1, 2, 3 and 4.

These findings propose a number of implications in Vietnam. Firstly, tax authorities are suggested to provide intensive counseling to taxpayers to raise awareness of the taxpayer to comply in paying their tax obligations in an effort to increase tax revenue. For subsequent researcher who are interested in replicating this study is recommended to extent the involvement of other independent variables to determine which variables influence on the taxpayer satisfaction.

The sample size used was not very large. Further research could therefore by conducted into the phenomenon using a larger sample size. Preferably the study could be conducted across the other regions of Vietnam to find out whether there are regional differences in the relationship between service quality of the tax authorities and taxpayer satisfaction. This could be an important step is clarifying and updating extant knowledge about the tax culture of Vietnam.

APPENDIX

Reliability (RELI)

RELI -1: The tax authority complies with its process.

RELI -2: The tax authority ensures the proper regulation of working hours, without causing waste of taxpayers' time.

RELI -3: The administrative procedures of the tax authority are simply.

RELI -4: Forms are unified, clear, easy to implement.

RELI -5: The resolution process of the tax authority is quick.

Responsiveness (RESPON)

RESPON-1: The staff of the tax authority can give prompt service.

RESPON-2: The staff of the tax authority can give service with a standard process.

RESPON-3: The staff of the tax authority can promptly detect errors on records of taxpayers to let them know.

Empathy (EMPA)

EMPA-1: I find tax officers caring, sympathetic to the problems of taxpayers.

EMPA-2: Taxpayers do not have to pay unofficial expenditure to the staff of the tax authority.

EMPA-3: I find the role of family and friends is not important in negotiations with tax officers.

Tangible (TANGI)

TANGI-1: The place where the tax service happens is convenient.

TANGI-2: The position of the notices from the tax authority is easy for taxpayers to recognize.

TANGI-3: Equipments, furnitures and computers at the tax authority are adequate.

TANGI-4: The parking and awaiting seats are always available.

TANGI-5: Facilities are clean.

Taxpayer satisfaction (SATIS)

SATIS-1: I am pleased with the support, advice and provided information on administrative services by the tax authority.

SATIS-2: I am satisfied with the administrative services by the tax authority.

SATIS-3: I am pleased with implementation of tax administrative services at the tax authority.

REFERENCES

Boonyarat, N., Sofian, S., & Wadeecharoen, W. (2015). The Antecedents of Taxpayers Compliance Behavior and Effectiveness of Thai Local Government Levied Tax. *International Business Management, 9*(4), 431-439. doi: 10.3923/ibm.2015.431.439

Chen, C.-W. (2010). Impact of quality antecedents on taxpayer satisfaction with online tax-filing systems—An empirical study. *Information & Management, 47*(5–6), 308-315. doi: **http://dx.doi.org/10.1016/j.im.2010.06.005**

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*: Hillsdale, N.J. : L. Erlbaum Associates, 1988.

Feldman, N., Slemrod, J., Feldman, N., & Slemrod., J. (2009). *War and Taxation: When Does Patriotism Overcome the Free-Rider Impulse? The New Fiscal Sociology*: Cambridge University Press.

Gronroos, C. (1988). Service Quality: The Six Criteria Of Good Perceived Service, Review of Business, Vol.9, No.3, pp.10-13.

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics*. Boston: McGraw-Hill Irwin.

Hair, J. F. (1998). *Multivariate data analysis*. Upper Saddle River, N.J: Prentice-Hall International.

Lattin, J. M., Carroll, J. D., & Green, P. E. (2003). *Analyzing Multivariate Data*: Thomson Brooks/Cole.

Lubian, D., & Zarri, L. (2011). Happiness and tax morale: An empirical analysis. *Journal of Economic Behavior and Organization, 80*, 223-243. doi: 10.1016/j.jebo.2011.03.009

Muehlbacher, S., & Kirchler, E. (2010). Tax Compliance by Trust and Power of Authorities. *International Economic Journal, 24*(4), 607-610. doi: 10.1080/10168737.2010.526005

Nunnally, J. C. (1978). *Psychometric theory*: New York. 2nd ed.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing, 64*(1), 12-40.

Richard, M. D., & Allaway, A. W. (1993). Service Quality Attributes and Choice Behavior. *Journal of Services Marketing, 7*(1), 59.

Saravanan, R., & Rao, K. S. P. (2007). Measurement of Service Quality from the Customer's Perspective – An Empirical Study. *Total Quality Management & Business Excellence, 18*(4), 435-449. doi: 10.1080/14783360701231872

Voss, C. A. (2003). Rethinking paradigms of service: Service in a virtual environment. *International Journal of Operations & Production Management, 23*(1), 88-105.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
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THE IMPACT OF FIRM CHARACTERISTICS ON SOCIAL AND ENVIRONMENTAL DISCLOSURE: THE CASE OF VIETNAM

Trang Cam Hoang, Tri Minh Chau, Trieu Thi Nguyen

ABSTRACT

This paper examines the effect of firm characteristics on the social and environmental disclosure (SED) of Vietnamese listed firms. The 2014 annual reports of a sample of 322 Vietnamese listed firms were examined to assess the extent of SED and the impact of firm characteristics on SED. Multiple regression analysis was conducted to investigate the determinants of SED. This study reports a low extent of SED in the annual reports of Vietnamese listed firms. The findings show that firm size, profitability and leverage are significant factors determining the variation in SED. No significant relationship was found between state ownership, foreign ownership and SED. This study extends prior literature on corporate SED in an emerging economy. These findings have implications for the future development of reporting standards and regulations in regard to corporate governance in Vietnam.

Keywords: *Vietnam, Disclosure, Firm Characteristics, Environmental, Social*

JEL Classification: G39, I23, M14.

1 INTRODUCTION

Reporting of corporate social and environmental practices is an issue that has attracted a great deal of attention in the accounting literature (Gray et al., 2001; Lu & Abeysekera, 2014; Taylor & Shan, 2007). The Word Business Council for Sustainable Development (1999) defines corporate social and environmental reporting as the continuing commitment by business to behave ethically and to contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and of society at large.

There are some factors which have been argued by researchers to be having a role in determining the disclosure level of social and environmental information related to firms' activities. Hossain and Reaz (2007) argued that one of the most three important issues encounters researchers, in disclosure-related studies, is identifying and understanding the factors influencing managers' decisions regarding disclosure issue, and how such understanding can be beneficial in predicting disclosure levels, and thus enhancing the quality of firms' reports in terms of non-financial information. These factors can be broken down into three groups: general contextual factors; corporate characteristics; and internal contextual factors (Adams, 2002).

Given the dearth of studies investigating factors driving corporate social and environmental in developing countries, including Vietnam, this study investigates the impact of corporate characteristics on the disclosure level of social and environmental information in Vietnamese listed firms.

2 LITERATURE AND HYPOTHESIS

Many corporate characteristics have been believed to be explanatory variables for the status of social and environmental disclosure provided by corporations. These characteristics include foreign ownership, state ownership, firm size, return on assets and leverage.

Prior studies note that foreign ownership is related to voluntary disclosure (Haniffa & Cooke, 2005; Vu et al., 2011). When a high proportion of shares is held by foreigners, the demand for disclosure is greater. The foreign shareholders are considered a significant influence factor as regarding the companies' voluntary disclosure practice. Haniffa and Cooke (2002) pointed out that there is a positive association between the foreign ownership and the extent of voluntary disclosure. Higher levels of investment from abroad might indicate a greater influence of foreign practices (Jeon et al., 2011; Yoshikawa et al., 2010). In details, the current trends of CSR implementation in many developing countries have been largely affected by Western-style management practices to have higher levels of social engagement. Therefore, we are expecting that firms with foreign ownership majority to have a higher level of social and environmental disclosure.

H1: Foreign ownership is significantly positive associated with corporate social and environmental disclosure.

Government ownership is a strong feature in the Vietnamese corporate sector. The government of Vietnam owns a significant amount of shares in listed firms, especially some strategic industries (Vu et al., 2011). Privatized companies in Vietnam were incorporated to achieve some social objectives rather than simply profit driven. The government is expected to show that it acts for the benefit of society. Therefore, a company with high government ownership may engage in more socially responsible activities. The influence of state ownership on corporate disclosure has been widely discussed in the literature (Amran & Devi, 2008; Haji, 2013; Vu et al., 2011). Accordingly, we hypothesize:

H2: State ownership is significantly positive associated with corporate social and environmental disclosure.

Prior studies (Cormier et al., 2011; Mahadeo et al., 2011; Nurhayati et al., 2006) find a positive relationship between firm size and the level of social and environmental disclosure in a number of countries. As such, larger companies are inclined to report more frequent and more accurate social and environmental information to ensure a positive social image in the information disseminated to the public and delivered to investors. Accordingly, the following hypothesis is proposed:

H3: Firm size is significantly positive associated with corporate social and environmental disclosure.

Managers of firms with better financial performance than others tend to distinguish their performance through a process of voluntary disclosures such as corporate social and environmental information. Studies document that profitability is positive related to SED (e.g., Haniffa & Cooke, 2005; Lu & Abeysekera, 2014). In this study, we expect a positive relationship between profitability and the score of social and environmental disclosure.

H4: Corporate profitability is significantly positive associated with corporate social and environmental disclosure.

In order to reduce agency costs and improve information asymmetry, managers of firms with higher leverage may disclose more information to provide creditors, suppliers and investors with more assurance that the firm can meet its financial obligations. However, empirical

literature provides mixed results. Cormier et al. (2011) do not find any significant relationship between leverage and social disclosure while Clarksonet al. (2008) find a positive relationship between leverage and environmental disclosure. Conversely, Cormier et al. (2011) and Brammer and Pavelin (2008) demonstrated a negative relationship between environmental disclosure and leverage. Since the actual impact of leverage on social and environmental disclosure is unclear, the non-directional hypothesis is stated as follows:

H5: Corporate financial leverage is associated with corporate social and environmental disclosure.

3 METHODOLOGY

3.1 Measuring dependent variable

The dependent variable in this study is the social and environmental disclosure (SED). SED is measured using the Global Reporting Initiative (GRI) 3.1 index, the social and environmental indicators in particular, to measure SED practices in Vietnam. Currently, the GRI is the most widely used framework to assess and measure Sustainability Reporting, including SED (Hopkins, 2012). The disclosure index consists of a total of 75 items (Appendix) that include the social dimension (45 items) and the environmental dimension (30 items). The social dimension consists of four aspects, including 15 items of labour practices and decent work indicators, 11 items of human rights indicators, 10 society indicators, and 9 product responsibility indicators.

The disclosure of an item within the check list in the annual reports is scored (1), while the non-disclosure of an item within the check list in the annual reports is scored (0). The scores for each item are then added to compute a total disclosure score for a particular firm. The SED score (SED_SCORE) for each firm is calculated as the ratio of the total SED score awarded to the firm divided by the maximum number of possible SED items. All items are assigned an equal weighting. The un-weighted approach is chosen to negate any subjectivity (Meek et al., 1995).

3.2 Measuring independent variables

The five independent variables in this study are foreign ownership (FOREIGN), state ownership (STATE), firm size (SIZE), profitability (PROF) and leverage (LEV).

STATE is measured by the percentage of shareholding owned by the state, is an independent variable in this study. FOREIGN is the other independent variable, measured by the percentage of shareholding owned by foreign investors. PROF is measured by return on sales. LEV is calculated by ratio of total debts to equity of firm. This study uses the natural logarithm of total sales as a proxy measure of firm size (SIZE) to reduce the effect of skewness on the data set.

3.3 Model Development

To determine the influence of the five firm characteristics on the level of social and environmental disclosure, the following multiple regression model is developed:

$$SED\_SCORE = \beta_0 + \beta_1 FOREIGN + \beta_2 STATE + \beta_3 SIZE + \beta_4 ROA + \beta_5 LEV + e$$

Where:

SED_SCORE = the social and environmental disclosure's the score of each firm;

FOREIGN = foreign ownership;

STATE = state ownership;

SIZE = firm size;

PROF = profitability;

LEV = leverage;

e = error term.

3.4 The sample

This study examines the annual reports during the year ended 31 December 2014 to capture the extent of SED of Vietnamese listed firms. The annual reports are retrieved from Ho Chi Minh and Hanoi stock exchanges' websites and company websites. Firms in the finance sector operate under tighter regulatory environment and are possibly subject to other disclosure requirements forcing several previous SED studies to not consider them along with non-finance firms (Haji, 2013; Haniffa & Cooke, 2005). Hence, banks and financial institutions are excluded in this study. A sample of 322 firms listed on Ho Chi Minh and Hanoi stock exchanges was selected. Data required for firm characteristics is hand-collected from the 2014 annual reports and on firm websites.

4 RESULTS

Table 1 shows the descriptive statistical tests results of dependent and independent variables for the sample of companies. The table presents the minimum, maximum, mean, and standard deviation for all variables in the regression model. According to the descriptive results, the score of social and environmental disclosure of Vietnamese listed firms indicates an overall low level of SED, with a mean disclosure of 10.04 per cent, a minimum of 6.67 per cent and maximum of 63.33 per cent. The standard deviations indicate that there are wide variations in the level of social and environmental disclosure between the listed companies. This result is supported by other previous empirical studies performed in developing countries (Naser et al., 2006; Nurhayati et al., 2006).

The proportion of foreign ownership in the sample ranged from 0 to 88.16%, with an average of 9.63%. State ownership of Vietnamese listed firms is relatively high (23.65 per cent in average), with the lowest and highest being 0 and 96.72 per cent, respectively. The mean of firm size is 11.63. The mean of profitability is 11.65 per cent and 7.76 per cent (25 firms) of the 322 firms in the sample reported losses during the 2014 financial year. The average of leverage (LEV) is 1.42 (with a range of 0.02 to 17.26).

Tab. 1 - Descriptive Statistics for dependent and independent variables. Source: own

Variables	Mean	Std. Dev.	Min	Max
SED_SCORE	0.1004	0.0985	0.0667	0.6333
FOREIGN	0.0963	0.1348	0.0000	0.8816
STATE	0.2365	0.2550	0.0000	0.9672
SIZE	11.6335	0.8255	9.0000	14.0000

PROF	0.1165	2.0619	-0.2967	36.9957
LEV	1.420869	1.89915	0.0152	17.2598

This table shows the summary statistics for the dependent and independent variables used in this study. The sample consists of 322 firms listed on the Ho Chi Minh and Hanoi stock exchanges for the year of 2014.

Table 2 presents correlations coefficients between all variables. The results show that there is some high correlations between dependent variable and independent variables, more specifically between SED_SCORE and FOREIGN; SED_SCORE and SIZE; SED_SCORE and PROF with coefficients of 0.16; 0.11; 0.35; respectively. Table 2 reveal that the highest correlation is (0.35) between SED_SCORE and PROF. Therefore, collinearity did not appear to be a serious problem in interpreting the regression results.

Tab. 2 - Correlations Coefficients between Variables. Source: own

	SED_SCORE	FOREIGN	STATE	SIZE	PROF	LEV
SED_SCORE	1					
FOREIGN	0.1602*	1				
	0.0039					
STATE	0.0611	-0.0049	1			
	0.274	0.9296				
SIZE	0.1133*	0.1693*	0.2317*	1		
	0.0422	0.0023	0.000			
PROF	0.3519*	0.1136*	0.0583	-0.1792*	1	
	0.000	0.0417	0.2969	0.0012		
LEV	-0.0835	-0.1394*	0.0284	0.1244*	-0.0269	1
	0.1348	0.0123	0.611	0.0256	0.6303	

** p value ≤ 0.05.*

Table 3 provides the result of the test of the hypotheses where SED_SCORE is the dependent variable, and FOREIGN, STATE, SIZE, PROF, LEV are the independent variables. The table shows that the coefficient estimates of FOREIGN and STATE are positive but not significant, rejecting the hypotheses H1, H2, consist with prior studies (e.g. Sufian & Zahan, 2013).

Tab. 3 – Multiple regression results using SED_SCORE as the dependent variable. Source: own

		Robust			
SED_SCORE	Coef.	Std. Err.	T	P>t	Sig
FOREIGN	0.0555	0.0476	1.1700	0.2440	

STATE	0.0004	0.0200	0.0200	0.9840	
SIZE	0.0212	0.0067	3.1800	0.0020	***
PROF	0.0178	0.0007	26.8800	0.0000	***
LEV	-0.0044	0.0020	-2.2100	0.0280	**
_cons	-0.1473	0.0744	-1.9800	0.0490	

R^2 = 0.1707, F statistic = 13.01, p-value = 0.000, N = 322 firms.

, ** and * denote significance levels at 10%, 5% and 1%, respectively.*

Firm size is significant positive associated with corporate social and environmental disclosure (coefficient = 0.0218 and $p < 0.01$). It indicates that larger firms to engage in SED more actively than smaller firms, confirming the hypothesis H3. This result is consistent with existing studies (e.g. Cormier & Gordon, 2001; Tagesson et al., 2009).

The result in Table 3 indicates that there is a positive and significant relationship between firm profitability and corporate social and environmental disclosure (coefficient = 0.018 and $p < 0.01$), confirming the hypothesis H4. This finding is consistent with Barnea and Rubin (2010) who found statistically significant evidence of a positive association between corporate social and environmental disclosure and profitability.

Leverage is significant negative associated with corporate social and environmental disclosure (coefficient = -0.004 and $p < 0.05$), confirming the hypothesis H5. This result is consist with Cormier et al. (2011) and Brammer and Pavelin (2008).

5 CONCLUSIONS

The extent of social and environmental disclosures on Vietnamese listed firms, is measured by content analysis using a checklist consisting 75 items from GRI 3.1 framework. To determine the firm characteristics‘ factors that influence the level of social and environmental information disclosures under descriptive statistics and multiple regressions analysis were used.

The general conclusion of this study is that the social and environmental information disclosures in Vietnamese listed firms still infancy. Multiple regression analysis revealed that there is a highly significant positive association between firm size as well as profitability and social and environmental disclosure. In constract, financial leverage is significant negative associated with corporate social and environmental disclosure. Also, state and foreign ownership are not significant associated with corporate social and environmental disclosure.

This study provides some empirical evidence related to the level of social and environmental disclosure for researchers, students, and academics, and it extends the findings of previous studies in developing countries. The findings of this study will benefit regulators in better understanding firms’ SED practices to improve the current guidelines on the SED of Vietnamese listed firms.

APPENDIX

Social Indicators in the GRI 3.1 index

Labor Practices and Decent Work Performance Indicators		
Employment	LA1	Total workforce by employment type, employment contract, and region, broken down by gender.
	LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.
	LA3	Benefits provided to full-time employees that are not provided to temporary or parttime employees, by significant locations of operation.
	LA15	Return to work and retention rates after parental leave, by gender.
Labor/Management relations	LA4	Percentage of employees covered by collective bargaining agreements.
	LA5	Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements.
Occupational health and safety	LA6	Percentage of total workforce represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs.
	LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender.
	LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.
	LA9	Health and safety topics covered in formal agreements with trade unions.
Training and education	LA10	Average hours of training per year per employee by gender, and by employee category.
	LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.
	LA12	Percentage of employees receiving regular performance and career development reviews, by gender.
Diversity and equal opportunity	LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.
Equal remuneration for women and men	LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.

Human Rights Performance Indicators		
Investmentand procurement practices	HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.
	HR2	Percentage of significant suppliers, contractors, and other business partners that have undergone human rights screening, and actions taken.
	HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.
Non-discrimination	HR4	Total number of incidents of discrimination and corrective actions taken.
Freedomof association and collective bargaining	HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.
Child labor	HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.
Forced and compulsory labor	HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.
Security practices	HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.
Indigenousrights	HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.
Assessment	HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.
Remediation	HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.
Society Performance Indicators		
Local communities	SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.
	SO9	Operations with significant potential or actual negative impacts on local communities.
	SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.

Corruption	SO2	Percentage and total number of business units analyzed for risks related to corruption.
	SO3	Percentage of employees trained in organization's anti-corruption policies and procedures.
	SO4	Actions taken in response to incidents of corruption.
Publicpolicy	SO5	Public policy positions and participation in public policy development and lobbying.
	SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.
Anti-competitive behavior	SO7	Total number of legal actions for anti- competitive behavior, anti-trust, and monopoly practices and their outcomes.
Compliance	SO8	Monetary value of significant fines and total number of non-monetary sanctions for non- compliance with laws and regulations.
Product Responsibility Performance Indicators		
Customer health and Safety	PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.
	PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.
Product and service labeling	PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.
	PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.
	PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.
Marketing communications	PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.
	PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.
Customer privacy	PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.

Compliance	PR9	Monetary value of significant fines for non- compliance with laws and regulations concerning the provision and use of products and services.

Environmental Indicators in the GRI 3.1 index

Materials	EN1	Materials used by weight or volume.
	EN2	Percentage of materials used that are recycled input materials.
Energy	EN3	Direct energy consumption by primary energy source.
	EN4	Indirect energy consumption by primary source.
	EN5	Energy saved due to conservation and efficiency improvements.
	EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved.
Water	EN8	Total water withdrawal by source.
	EN9	Water sources significantly affected by withdrawal of water.
	EN10	Percentage and total volume of water recycled and reused.
Biodiversity	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
	EN13	Habitats protected or restored.
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.
Emissions, effluents and waste	EN16	Total direct and indirect greenhouse gas emissions by weight.
	EN17	Other relevant indirect greenhouse gas emissions by weight.
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.
	EN19	Emissions of ozone-depleting substances by weight.
	EN20	NOx, SOx, and other significant air emissions by type and weight.
	EN21	Total water discharge by quality and destination.
	EN22	Total weight of waste by type and disposal method.

	EN23	Total number and volume of significant spills.
	EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.
	EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.
Products and services	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.
	EN27	Percentage of products sold and their packaging materials that are reclaimed by category.
Compliance	EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.
Transport	EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.
Overall	EN30	Total environmental protection expenditures and investments by type.

REFERENCES

Adams, C. A. (2002). Internal organisational factors influencing corporate social and ethical reporting: Beyond current theorising. *Accounting, Auditing & Accountability Journal, 15*(2), 223-250. doi: doi:10.1108/09513570210418905

Amran, A., & Devi, S. S. (2008). The impact of government and foreign affiliate influence on corporate social reporting: The case of Malaysia. *Managerial Auditing Journal, 23*(4), 386-404. doi: 10.1108/02686900810864327

Barnea, A., & Rubin, A. (2010). Corporate Social Responsibility as a Conflict Between Shareholders. *Journal of Business Ethics, 97*(1), 71-86. doi: 10.1007/s10551-010-0496-z

Brammer, S., & Pavelin, S. (2008). Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment, 17*(2), 120-136. doi: 10.1002/bse.506

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society, 33*, 303-327. doi: 10.1016/j.aos.2007.05.003

Cormier, D., & Gordon, I. M. (2001). An examination of social and environmental reporting strategies. *Accounting, Auditing & Accountability Journal, 14*(5), 587.

Cormier, D., Ledoux, M.-J., & Magnan, M. (2011). The informational contribution of social and environmental disclosures for investors. *Management Decision, 49*(8), 1276-1304. doi: 10.1108/00251741111163124

Gray, R., Javad, M., Power, D. M., & Sinclair, C. D. (2001). Social and Environmental Disclosure and Corporate Characteristics: A Research Note and Extension. *Journal of Business Finance & Accounting, 28*(3-4), 327-356. doi: 10.1111/1468-5957.00376

Haji, A. A. (2013). Corporate social responsibility disclosures over time: evidence from Malaysia. *Managerial Auditing Journal, 28*(7), 647-676. doi: 10.1108/maj-07-2012-0729

Haniffa, R. M., & Cooke, T. E. (2002). Culture, Corporate Governance and Disclosure in Malaysian Corporations. *Abacus, 38*(3), 317-349. doi: 10.1111/1467-6281.00112

Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy, 24*(5), 391-430. doi: 10.1016/j.jaccpubpol.2005.06.001

Hopkins, M. (2012). *The Planetary Bargain: Corporate Social Responsibility Matters*. GB: Routledge Ltd.

Hossain, M., & Reaz, M. (2007). The determinants and characteristics of voluntary disclosure by Indian banking companies. *Corporate Social Responsibility and Environmental Management, 14*(5), 274-288. doi: 10.1002/csr.154

Jeon, J. Q., Lee, C., & Moffett, C. M. (2011). Effects of foreign ownership on payout policy: Evidence from the Korean market. *Journal of Financial Markets, 14*, 344-375. doi: 10.1016/j.finmar.2010.08.001

Lu, Y., & Abeysekera, I. (2014). Stakeholders' power, corporate characteristics, and social and environmental disclosure: evidence from China. *Journal of Cleaner Production, 64*(Journal Article), 426-436. doi: 10.1016/j.jclepro.2013.10.005

Mahadeo, J. D., Oogarah-Hanuman, V., & Soobaroyen, T. (2011). A Longitudinal Study of Corporate Social Disclosures in a Developing Economy. *Journal of Business Ethics, 104*(4), 545-558. doi: 10.1007/s10551-011-0929-3

Meek, G. K., Roberts, C. B., & Gray, S. J. (1995). Factors Influencing Voluntary Annual Report Disclosures by U.S., U.K. and Continental European Multinational Corporations, 555.

Naser, K., Alhussaini, A., Alkwari, D., & Nuseibeh, R. (2006). Determinants of Corporate Social Disclosure in Developing Countries: The Case of Qatar. *Advances in International Accounting, 19*(Journal Article), 1-23. doi: 10.1016/s0897-3660(06)19001-7

Nurhayati, R., Brown, A., & Tower, G. (2006). Understanding the level of natural environment disclosures by Indonesian listed companies. *Journal of the Asia Pacific Centre for environmental accountability, 12*(8), 4-11.

Sufian, M. A., & Zahan, M. (2013). Ownership structure and corporate social responsibility disclosure in Bangladesh. *International Journal of Economics and Financial Issues, 3*(4), 901.

Tagesson, T., Blank, V., Broberg, P., & Collin, S.-O. (2009). What explains the extent and content of social and environmental disclosures on corporate websites: a study of social and environmental reporting in Swedish listed corporations. *Corporate Social Responsibility & Environmental Management, 16*(6), 352-364. doi: 10.1002/csr.194

Taylor, D., & Shan, Y. G. (2007). What Drives the Fledgling Practice of Social and Environmental Reporting by Chinese Companies Listed in Hong Kong? *Accounting, Accountability & Performance, 13*(2), 55-86.

Vu, K. A., Tower, G., & Scully, G. (2011). Corporate communication for Vietnamese listed firms. *Asian Review of Accounting, 19*(2), 125-146. doi: 10.1108/13217341111181069

Yoshikawa, T., Rasheed, A. A., & Del Brio, E. B. (2010). The impact of firm strategy and foreign ownership on executive bonus compensation in Japanese firms. *Journal of Business Research, 63*, 1254-1260. doi: 10.1016/j.jbusres.2010.06.012

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

FACTORS INFLUENCING THE INTENTIONS OF USING TAX CONSULTING SERVICES OF FIRMS IN HO CHI MINH CITY, VIETNAM

Trieu Thi Nguyen, Thao Trang Nguyen, Thi Thuy Ha

ABSTRACT
Based on the survey responses of 112 firms regarding tax consulting service, the research uses the TPB model in combination with other variables under the conditions of firms in Ho Chi Minh City (HCMC). Through factor analysis method, the research shows three groups of factors that influence the firm's intentions of using the tax consulting services including attitude toward the behavior, subjective norm and perceived behavioral control. This is a significant scientific base for tax consulting service providers since they will better understand both their clients' intention of tax consulting service and main aspects that should be strengthened to help their clients to perform their choice behavior of tax consulting service to reduce the tax risks while increasing the management efficiency.

Key words: *Tax consulting services, Intention, Behavior, TPB*

JEL Classification: K20, K40.

1 INTRODUCTION

Tax consulting service is one of various professional consulting services and is interested to study by many researcher (Alexander, 2003; Dhaliwal, Gal-Or, Naiker, & Sharma, 2013; Sokołowska, 2014). The tax consultants with their profound knowledge and understanding of tax law will provide the most professional advice and solutions for their clients related to tax issues. They provide orientation and correct interpretation of the tax law so that the taxpayers can use most efficiently and minimize the amount of tax payable while ensuring the legal compliance. Consultants will examine all aspects of tax to ensure providing the best tax strategy for the financial activities of their clients in the future as well as represent their clients to implement tax obligations to the state. Statistics from the Tax Consulting Association shows that there are currently 79 tax agents in HCMC (updated on 16/3/2015) and many companies providing tax consulting services such as Pricewaterhouse Coopers (PWC), Deloitte (DTT), and Ernst & Young (E&Y). A concern is that there are a lot of consulting companies and the service usefulness is easy to recognize; however, the number of firms used this service is only about 300 firms which is a greatly small figure compared to the number of existing firms in HCMC. Hence, the rush work posed is to "study the factors affecting the intention to use tax consulting services in firms in Ho Chi Minh City" thereby clarify the situation and provide solutions for tax agents and tax consulting service providers to really become a bridge between the tax authorities and taxpayers as well as support and facilitate taxpayers to comply with the tax law; reduce the costs of time and resources for both the tax authorities and taxpayers tax to comply with law, contribute to improving the efficiency of management.

Regarding the intention prediction models, there have been a lot of models to be studied and applied worldwide. Typical patterns are widely used as TRA (Davis, 1989), TAM (Bagozzi, Davis, & Warshaw, 1992; Davis, 1989), and TPB (Ajzen, 1991) of which TPB model is evaluated as offering more advantages since it adds an important factor, perceived behavioral control (Figure 1), which will also affect people's intentions. Perceived behavioral control

reflects the ease or difficulty in performing behaviors and whether such behavior performance is controlled or limited or not (Ajzen, 1991). It represents the resources necessary for a person to perform any kinds of job. They think the more resources and opportunities, the fewer obstacles are and perception control of behavior will be greater. This control factor may be derived from within an individual (motivation and capacity) or outside an individual (time, opportunity, economic conditions, etc.…). Therefore, TPB model is considered more optimal than TRA model in predicting and explaining the behavior of the consumer in the same research conditions and contents. There have been a lot of researches around the world applying the TPB model in predicting intention so far such as (Heath & Gifford, 2002) applied the theory of planned behavior to explain the behavior to use of public transport by students from Victoria University, UK, (De Groot & Steg, 2007) used TPB to explain people's intention to use a park-and-ride facility in Groningen, The Netherlands, Borith, L., Kasem, C. & Takashi, N. (2010) studied the psychological factors affecting the behavioral intention of using future sky train in Phnom Penh capital, Cambodia based on the TPB, (Li, Xiong, Chen, Zhao, & Dong, 2014) use to study public transportation choice behaviors. In Vietnam, many studies have used the TPB as a model to predict intentions and provided more scientific benefits. For instance, (Lê, 2011) investigated the motivation using Internet Banking service of consumers in Da Nang City. The research revealed 8 motivations of using Internet Banking service. In general, the use of Internet Banking was derived from functional value of the service including usefulness, flexibility and risk reduction. In addition, the use of Internet Banking service was affected by a number of other factors. (Lee & Ngoc, 2010) examined an integrated model, and extension of the TPB with an additional factor of trust, by investigating the online shopping intentions of Vietnamese students. The results showed that the trust could raise the benefits predicted by TPB for intention to participate in online shopping behavior, along with three variables of the TPB model. Trust factor plays an important role in the relationship between attitude and shopping behavior intention.

Taking advantages and strengths of the TPB model, in this research, the author applies the adjusted TPB model to analyze, predict intentions of using tax consulting services of firms in HCMC, Vietnam. More specifically, the author uses three factors of the TPB model including attitude toward the behavior, subjective norm, and perceived behavioral control in combination with a newly added factor, replacement (Figure 2). The new factor is added because of characteristics of most Vietnamese firms, hiring accountants. Accountants in firms will be responsible for declaring and making tax settlements, tax plans, which will strongly influence the intentions of using tax consulting services. These factors are divided into many small questions, through the process of factor analysis, Cronbach Alpha test, the research will analyze the correlation between the intentions of using tax consulting services and the factors. And a model predicting the intentions of using the tax consulting services of firms in HCMC will be built through the Logistic regression model.

Part 2 presents the research methodology and research results is presented in part 3 and conclusions are stated in the last part.

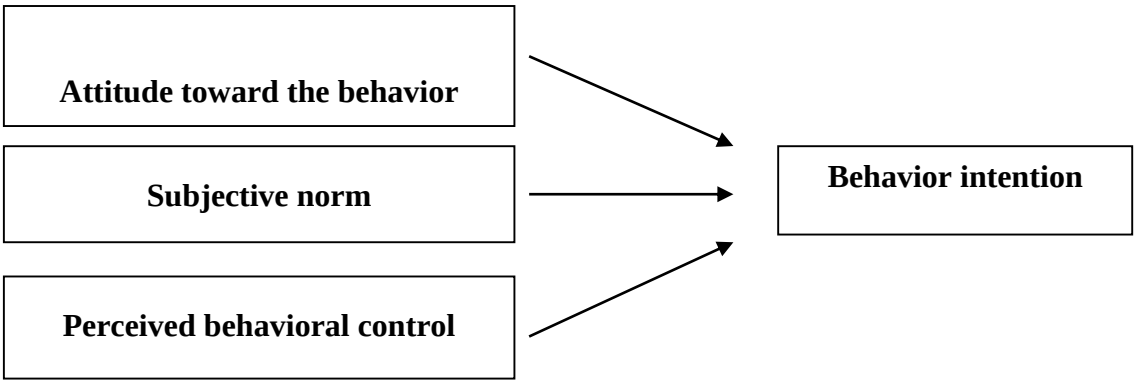

Fig. 1 – The Theory of Planned Behavior. Source: (Ajzen, 1991)

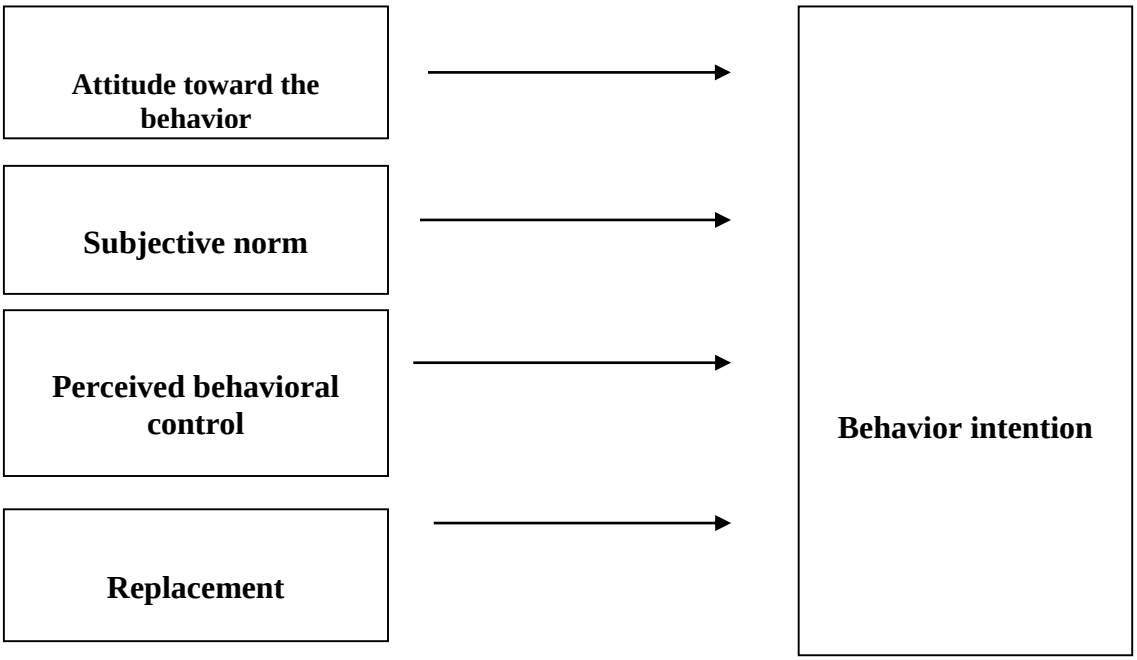

Fig. 2 – Research model: a model combining TBP with other factors.
Source: author's proposed model

2 RESEARCH METHODOLOGY

- Approach: the quantitative research, initial factors were set forth from reference of previous studies and adjusted according to the characteristics of firms in HCMC.
- Research design: Using a survey questionnaire. The questionnaire was designed with 4 factors, including:
- Dependent variable: Intention of using tax consulting services. This is a qualitative variable so its response is coded into 2 values of 1 and 0.
- Value 1: Firms intend to use tax consulting services.
- Value 0: Firms do not intend to use tax consulting services.
- Independent variable: includes attitude toward the behavior, subjective norm, perceived behavioral control and replacement.
- Variables are designed into small items and measured by Likert 5 scale

Tab. 1 – List of factor analysis. Source: author's proposed model

Attitude toward the behavior	A1	Convenient
	A2	Time saving
	A3	Cost saving
	A4	Avoiding errors for the declaration and payment of tax
	A5	Timely and rapid updates with new provisions of law
	A6	Optimization of methods of administrative procedures affects decisions
Subjective norm	B1	Recommended by colleagues/friends
	B2	Recommended by partners
	B3	Right updates affect decisions to use
	B4	Advertising affects the choice
	B5	Incentive policy of state affects decisions
Perceived behavioral control	C1	I decided the use of services
	C2	I can study and make decisions easily
	C3	I select companies with moreprestige in this field
	C4	I intend to use tax consulting services in the near future
Attractiveness of replacement	D1	Accountants will better manage information
	D2	Accountants will give information faster and more punctual when I need
	D3	Hiring consulting services is more expensive than hiring accountants

- Data collection: Using the method of direct interview
- Sampling: Random sampling of 112 firms in HCMC.
- Data analysis: From the data collected, the exploratory factor analysis is conducted in order to adjust factors, eliminate insignificant variables. The reliability of these factors continues to be assessed by Cronbach Alpha test. Finally, the Logistic regression model is applied to build the model, explore the correlation among factors and dependent variable, predict intentions of using tax consulting services for any firm.

3 FINDINGS

After twice exploratory factor analysis, removing insignificant variables, the remaining 18 items are divided into five factors (Table 1) including attitude toward behavior, subjective norm, (besides 2 items of subjective standards, item A6: Optimization of methods of administrative procedures affects decisions and items C4: I intend to use tax consulting services in the near future can still be viewed as subjective intention), perceived behavioral control, external influence (partners and advertising), the attractiveness of replacement.

Cronbach Alpha test results for these factors are shown in Table 3. It can be seen that all Cronbach alpha coefficients are higher than 0.6, correlation coefficients between the item and factors are higher than 0.3, which demonstrates the factors are highly reliable.

Tab. 2 – Last factor analysis. Source: author's calculation via SPSS program

	Component				
	1	2	3	4	5
A4	.716				
A5	.699				
A1	.677				
B3	.564				
A6	.560	.518			
A3	.537				
B5		.856			
B1		.715			
C4		.510			
C3			.818		
C1			.702		
C2			.577		
B2				.851	
B4				.801	
D1					.832
D3					.738
D2					.684

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Tab. 3 – Results of Cronbach Alpha test for factors. Source: author's calculation via SPSS program

Attitude toward the behavior. Cronbach Alpha = 0.788					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A1	19.6339	6.793	0.581	0.369	0.745
A3	20	7.297	0.493	0.262	0.767
A4	19.6161	7.104	0.558	0.333	0.752
A5	19.4821	7.189	0.542	0.326	0.756
A6	19.8214	6.851	0.56	0.335	0.751
B3	19.5714	7.112	0.499	0.277	0.766
Subjective norm. Cronbach Alpha = 0.776					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A6	10.8929	4.187	0.613	0.416	0.707
B1	11.1875	4.226	0.542	0.314	0.741
B5	11.0089	4.405	0.555	0.327	0.735

C4	11	3.514	0.626	0.429	0.701
Perceived behavioral control. Cronbach Alpha=0.723					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
C1	7.8839	1.779	.638	.407	.511
C2	8.1071	2.042	.504	.284	.683
C3	7.8661	2.189	.495	.277	.690
Subjective norm (Partner and Advertising). Cronbach Alpha=0.660					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B2	3.4018	.549	.505	.255	
B4	3.3839	.869	.505	.255	
Attractiveness of replacement. Cronbach Alpha=0.671					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
D1	7.4286	1.671	.489	.239	.574
D2	7.2768	1.679	.472	.223	.593
D3	7.5268	1.315	.505	.255	.559

After implementing the corresponding multiplication for each factor and setting the Logistic regression models, results of model were shown in Table 4. After two steps of eliminating insignificant variables, we built an appropriate model in which "intention of using tax consulting services" will depend on three factors: attitude toward the behavior, subjective norm, perceived behavioral control but attitude toward the behavior of using tax consulting services is the most powerful determinant of the using intention. Analytical results also showed that the hypothesis adding to the model, "the attractiveness of replacement", was insignificant.

Tab. 4 –Development of Logistic regression model. Source: author's calculation via SPSS

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	FAC1_1	2.974	.673	19.528	1	.000	19.568
	FAC2_1	2.315	.570	16.519	1	.000	10.126
	FAC3_1	1.387	.441	9.892	1	.002	4.002
	FAC4_1	.588	.537	1.195	1	.274	1.800
	FAC5_1	.226	.439	.264	1	.607	1.253
	Constant	.873	.438	3.974	1	.046	2.394
Step 2[a]	FAC1_1	2.992	.679	19.436	1	.000	19.934
	FAC2_1	2.385	.565	17.821	1	.000	10.861

	FAC3_1	1.450	.432	11.283	1	.001	4.265
	FAC4_1	.594	.535	1.230	1	.267	1.811
	Constant	.835	.424	3.875	1	.049	2.305
Step 3[a]	FAC1_1	2.895	.638	20.613	1	.000	18.079
	FAC2_1	2.448	.567	18.639	1	.000	11.560
	FAC3_1	1.381	.418	10.943	1	.001	3.981
	Constant	.773	.401	3.713	1	.054	2.166

a. Variable(s) entered on step 1: FAC1_1, FAC2_1, FAC3_1, FAC4_1, FAC5_1.

Analytical results also showed that firms in HCMC are most interested in the usefulness of the product rather than replacement or external impact, which proves that if firm do not much use the services the main reason is that the service itself fails to prove its actual usefulness. we should readjust mechanisms and working ways in order to bring about the most usefulness and effectiveness. When effectiveness of the service exists, firms will certainly know and use it.

4 DISCUSSION

It can be concluded that the intention of using the tax consulting services of firms in HCMC depends on three factors, the usefulness of tax consulting services, subjective norm and perceived behavioral control. Thus, in order to enhance the number and percentage of firms using tax consulting services, it is required to pay more attention to improving the inners of these factors. Recommendations and suggestions are given as follows

For attitude toward the behavior of the usefulness of tax consulting services, the results showed that the factor "time saving" received a high extent of influence. Therefore, suppliers of tax consulting services should focus on the time of supply and work completion. Suppliers need to plan for each customer; regularly inform of the progress of work to help their customers control their time when using the service. In the future, in addition to the expansion of contents of consulting services, suppliers also need to adjust their consulting process as well as construct a consulting process for new consulting aspects in accordance with Vietnamese customers. The classification of consulting activities under customer's business activities is required because the operation of firms, in addition to paying general taxes such as VAT, CIT and PIT could be affected of various taxes depending on different kinds of business industries and sectors.

Human resources in the firm are very important. Only with high professional qualification of human resources can the firm build its reputation and brand. To develop good human resources, firms need to organize intensively training courses and offer good wage policy for their employees, and create a healthy competition among employees with a salary policy according to job performance.

Research showed that the service cost was significant to the firms' intention of using tax consulting services. Thus, a reasonable mechanism limiting the costs of mistakes should be developed.

Suppliers should also focus on consulting firms with managerial information. Figures or ideas provided by services suppliers will help administrators to set their future plans. Hence, firms will trust services suppliers and this will gradually improve the reputation of services suppliers.

For perceived behavioral control factor, research results showed that when firms were well awared of the service provider, their intention of using tax consulting services were high. Service suppliers need to develop brand promotion programs such as designing the corporate websites in

Vietnamese and English and participating in social activities to bring the image of the company closer to customers.

Suppliers should also organize customersconferences to get feedback on the services they provide, which can further improve their business processes and understand new needs of customers to diversify forms of consulting. Customers who are not the suppliers' customers should be invited to the customers conference so that they are introduced to tax consulting services, expanding customer opportunities with the suppliers.

For subjective norm factor, the results showed that the update and compliance with law related to firms had the biggest impact. Therefore, it should pay more attention to the update of relevant legal documents, enhance problem-solving skills and punctually grasp changes of law.

Service suppliers should focus on those foreign-invested companies and small-scaled enterprises in the country. Foreign-invested companies already know about this service so when investing in Vietnam, they would prefer the consulting services. Small-scale companies with simple organizational structure can hire external services. Service suppliers also need to be proactive in customer strategies. Apart from the customers who come to consulting services when experiencing difficulties, service suppliers should proactively seek, and send sales letters to potential customers. This is also greatly important since many customers may fail to recognize their tax issues, only when directed by the experts, can they realize the important benefits that they may get when using tax consulting services, and the suppliers will easily grow the number of customers.

In addition, Analytical results also showed that firms in HCMC are most interested in the usefulness of the product rather than replacement or external impact, which proves that if firm do not much use the services, the main reason is that the service itself fails to prove its actual usefulness. Suppliers should readjust mechanisms and working ways in order to bring about the most usefulness and effectiveness. When effectiveness of the service exists, firms will certainly know and use it.

5 CONCLUSIONS

Based on the TPB model, an adjusted TPB model was proposed to analyze the factors influencing the intentions of using tax consulting services of firms in HCMC. The results obtained after implementation of exploratory factor analysis to explore, Cronbach Alpha test and Logistic regression showed that intention of using tax consulting services depends on three factors: attitude toward the behavior, subjective norm, perceived behavioral control of which attitude toward the behavior of usefulness of tax consulting services is the most powerful determinant of the firm's decision. From these findings, the research analyzed and propose recommendations to improve the quality of tax consulting agents in HCMC, and contribute to making tax consulting services more and more familiar with the firms.

6 LIMITATION AND FURTURE RESEARCH

First, the sample size is only 112 firms, those with knowledge of tax consulting services in HCM City is truly less than a quantitative study. Second, factors influencing the intentions of using tax consulting services of firms by many factors, but this papers just focus on the subject 4 factors are: Attitude toward the behavior, Subjective norm, Perceived behavioral control and attractiveness of replacement (due to specific accounting environment in Vietnam). Third is the solution also qualitative assessment and not the obstacles to implementing the above measures.

The further research project is to increase the number of sample and diversification of respondents. At the same time, other related variables: E.g: the cost of tax advisory services should also be considered for inclusion in the model to study the relationship with dependent variables.

REFERENCES:

Ajzen, I. (1991). The theory of planned behaviour. Organizational Behaviour and Human Decision Processes, 50, 179-211. *De Young*, 509–526.

Alexander, R. M. (2003). The Effects of Source Credibility on Tax Professional Judgment in Consulting Engagements. *The Journal of the American Taxation Association*, *25*(s-1), 33–49. http://doi.org/10.2308/jata.2003.25.s-1.33

Bagozzi, R. P., Davis, F. D., & Warshaw, P. R. (1992). Development and test of a theory of technological learning and usage. *Human Relations*, *45*(7), 659–686.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319–340.

De Groot, J., & Steg, L. (2007). General beliefs and the theory of planned behavior: The role of environmental concerns in the TPB. *Journal of Applied Social Psychology*, *37*(8), 1817–1836.

Dhaliwal, D. S., Gal-Or, R., Naiker, V., & Sharma, D. (2013). The influence of the audit committee on auditor provided tax planning services. *Available at SSRN 2259314*.

Heath, Y., & Gifford, R. (2002). Extending the theory of planned behavior: predicting the use of public transportation1. *Journal of Applied Social Psychology*, *32*(10), 2154–2189.

Lê, T. K. T. (2011). Nghiên cứu động cơ sử dụng dịch vụ Internet banking của người tiêu dùng tại thành phố Đà Nẵng.

Lee, S.-H., & Ngoc, H. T. B. (2010). Investigating the on-line shopping intentions of Vietnamese students: an extension of the theory of planned behaviour. *World Transactions on Engineering and Technology Education*, *8*(4), 471–476.

Li, L., Xiong, J., Chen, A., Zhao, S., & Dong, Z. (2014). Key Strategies for Improving Public Transportation Based on Planned Behavior Theory: Case Study in Shanghai, China. *Journal of Urban Planning and Development*, *141*(2), 4014019.

Sokołowska, E. (2014). The Role and Nature of Alternative Investments in Wealth Management BT - Alternative Investments in Wealth Management: A Comprehensive Study of the Central and East European Market. In E. Sokołowska (Ed.), (pp. 67–91). Cham: Springer International Publishing. http://doi.org/10.1007/978-3-319-08075-8_4.

Web page source [online] available at the following address:

http://www.mof.gov.vn/, http://tphcm.gdt.gov.vn, http://www.vtca.vn

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

APPLYING THE BALANCED SCORECARD MODEL TO IMPROVE THE ACCOUNTING EDUCATION QUALITY IN PUBLIC UNIVERSITIES UNDER THE FINANCIAL AUTONOMY MODEL IN HO CHI MINH CITY, VIETNAM

Truc Anh Thi Nguyen, Chung Quang Dong, Khanh Quoc Vo and Phuc Hong Le

ABSTRACT

Accounting is the language of business so the need of learning and teaching accounting subject is extremely large. In the context of the increasingly fierce competition among universities, the supply of courses with increasingly high quality is one way to attract students. Accounting is one of the subjects which the highest number of students select to study so the priority to improve the accounting teaching quality is greatly crucial. This topic aims at researching the application of Balanced scorecard (BSC) model to improve the accounting teaching quality in public universities under financial autonomy model based in Ho Chi Minh City, Vietnam with four perspectives: financial, customer, internal business process and learning and growth. These perspectives will somewhat generalize all strengths and weaknesses of the accounting curriculum in universities and then reasonable remedies and improvements can be introduced**.**

Keywords: *education quality, accounting, balanced scorecard*

JEL Classification: M41

1 INTRODUCTION

Currently, the supply of high quality education service is key to the success of the universities. However, how to know whether the education quality is satisfactory or not is a concern for managers. From practical requirements, we find it necessary to discover a tool capable of measuring and evaluating the effectiveness of higher education quality and that is the balanced scorecard model.

The balanced scorecard model has been widely used to manage and improve business performance in profit or nonprofit organizations and companies; however, its application in universities under the financial autonomy model has still been very limited. Hence, the purpose of this research is to study the application of balanced scorecard model in order to assess and build strategies improving the accounting education quality in financial autonomy public universities in Ho Chi Minh City, thereby building the standard model to be applied in universities throughout the country.

Financial autonomy university model is a new university model which has been formed in Vietnam in recent years. That is the model in which universities directly under the State but they have a financial autonomy such as they are autonomous in determining tuition fees; the management and use of assets, enrollment and recruitment. The revenues are used to pay the costs and the remainders can be used for reinvestment. That the university is financially autonomous will make efficient uses of these resources. If a university is financially strong then it will have much advantage of investing in other items such as infrastructure, quality of teachers and staff and so on which will create differences in education quality compared to other

universities. Hence, the general level of quality of universities in Vietnam will be more improved and developed in the future.

2 BALANCED SCORECARD METHOD

Balanced scorecard-BSC is a strategic planning and management system originated by Kaplan and Norton (1992). With the versatile and fast characters and the performance indicators optimization, the BSC provides the managers with measures to measure the operation performance.

BSC consists of four perspectives: financial, customer, internal business process, learning and growth (Kaplan ve Norton, 1996:2). Based on the BSC model, business managers can know how well their business is running, create values for their customers in the present and in the future. BSC also requires improving internal capacity as well as human investment, operation systems and processes to enhance business efficiency in the future. When BSC is applied and maintained, besides expectations of the financial prospect and interest on short-term effect, it also provides a strategic measurement tool for managers to achieve competitive advantage in the future with nature of a long-term orientation.

Persepctives of BSC are stated below (Kaplan ve Norton, 1996: 25-28):

1) Financial perspective: BSC maintains the financially traditional measurement methods. The organization's long-term financial goal is the optimal profit on investment capital. BSC is not only a tool to measure and evaluate the success of the business in the long term but determine what factors promote the long-term goals. These factors depend on the organization's business sector, competitive environment and business strategy. However, the financial measure is unsufficient to orient and assess companies in the information age. Businesses must create future values through investment in customers, suppliers, employees, internal processes, technology and innovation.

2) Customer perspective: The measures of this perspective includes customer satisfaction, ability to attract new customers, ability to retain customers, and ability to make profit from customer. Therefore, BSC helps businesses set specific objectives to satisfy their customers based on data obtained from this perspective.

3) Internal business process perspective: Indicators in this perspective allow managers to know the business status, whether their products or services meet the needs of customers or not. These indicators must be produced by individuals who well understand business processes in the company.

4) Learning and growth perspective: This perspective is a motivation for three above-mentioned perspectives. The purpose of this perspective is to invest for the future so that the business can develop in the long term, for example, new equipment investment, research and development of new products. BSC also stresses on processes, management systems, infrastructure, human resources.

After being developed as a tool to measure and evaluate the performance, BSC also becomes a tool used in combining regular activities into long-term plans of the business and a tool to control them. In addition, BSC is also a tool that provides panoramic view for managers to develop strategies for their businesses. (Kaplan and Norton, 2000)**.**

3 PREVIOUS STUDIES

Quality in higher education is a complex and multifaceted concept and there has not been an appropriate concept to define it (Harvey and Green, 1993). Thus, most scholars agree that: "The

best method to identify and measure the education quality has not been born yet". Each subject related to higher education (students, government, professionals) has their own views, depending on their specific needs. (Clewes, 2003, p. 71)

O'Neill and Palmer (2004, p. 42) defined the quality of higher education was the difference between the quality the students wished to receive and what they actually received. Guolla (1999) pointed out that student's feeling about the service quality was a prerequisite for student satisfaction. The students' positive perception of the service quality would please them. The students who were satisfied with the school's education quality would attract more students to study through word of mouth and they might return school to enroll higher courses. (Marzo-Navarro et al., 2005; Mavondo et al., 2004; Schertzer and Schertzer, 2004).

Zeithaml et al. (1993) divided the service quality expectations into 3 different types: desired service, edequate service and predicted service. Customers always wanted to get the desired service. However, customers could also accept a service of lower quality that was edequate service since they knew they could not always achieve the desired level. Quality of service between these two levels was the tolerance that customers can generously accept. Eventually, customers had predicted service, it was the service that customers believed the company might provide.

According to Kaplan and Norton (2001), BSC was often used in manufacturing and service firms, nonprofit organizations, and public agencies, and produced positive results. It was obvious that the practical application of BSC for profit organizations is broader; however, there were still many utilities that could be applied for non-profit organizations. It could be seen from sources of BSC and educational institutions that the number of research projects including both were relatively rare (Yuksel and Coskun, 2013).

Cronc and Vermaak (2004) compared the structure of potential BSC model that could be applied in the Accounting Department of two universities in South Africa and Australia. Similarly, they carried out an investigation on determining the scope and criteria for measuring the performance of the Accounting Department. The results showed that BSC is an effective tool in planning and supporting accounting teaching and a potential tool for the development of accounting subject.

Wu and other colleagues (2011) clarified the application of BSC as an enforcement tool in the continuing education centers at three studied universities. In the studies, they found that the perspective of learning and growth was the most effective, and it could affect other perspectives. Similarly, their studies indicated that perspectives of financial and internal business processes played a key role in assessing the operational performance of the continuing education centers.

In the research by Stanley and Marsden (2012), the approach "Problem-based learning" was considered in the accounting education. The study found that the students were more active in learning, teamwork and problem-solving abilities.

Yuksel and Coskun (2013) examined the using of BSC in educational institutions to support and increase the performance for the organizations. In the study, they suggested a BSC model suitable for high schools in Turkey. They found that when the BSC model was applied to the high schools, the strategic orientation obtained more satisfactory results. Aljardali et al. (2012) implemented a study by establishing a BSC framework that could be applied to higher Education.

4 RESEARCH METHODOLOGY

We proposed to survey the quality accounting education in a number of public universities under financial autonomy model in Ho Chi Minh City with four perspectives in the BSC namely: financial, customer, internal business process, and learning and growth. The survey questionnaire consists of 26 questions.

Survey questionnaires were delivered in class. With random sampling, the questionnaires were sent to 400 students. All 400 questionnaires were collected. After eliminating unsatisfactory questionnaires due to lack of information, there were 293 valid questionnaires reaching 73.25% and the data were used for analysis. Research data collected were handled with SPSS 20.0 software.

The questionnaire was designed with two types of scales. The first scale is Likert scale including 5 levels from "1-Strongly disagree", "2-Disagree", "3-Undecided", "4-Agree", "5.Strongly agree" used to measure observed variables in the factors. Likert scale was used to survey customer perspective. The second scale was "Yes – No" question used to examine the areas of internal processes and learning and development. In addition, the authors carried out interviews with experienced and qualified experts in the field of education management such as the senior managers at universities, scientists, educators, professors teaching BSC. Comments and suggestions and advice from the experts also helped the authors to consolidate the research results and state helpful suggestions related to the financial area.

5 DATA DESCRIPTION

Tab 1 - Description of survey subjects. Source: calculated by author

	Frequency	**Percentage (%)**
1. Gender		
Male	43	14.7
Female	250	85.3
Total	**293**	**100.0**
2. Student of		
Ton Duc Thang University	184	62.8
Others	109	37.2
Total	**293**	**100.0**
3. Year of study		
First year	0	0
Second year	5	1.7
Third year	194	66.2
Fourth year	93	31.7
Other	1	0.4
Total	293	100.0
4. Reasons for learning accounting		

Professional job	73	24.9
Personal interest	100	34.1
Family preference	99	33.8
As friends	21	7.2
Total	**293**	**100.0**
5. Career goal		
Accounting-Auditing	223	76.1
Banking	14	4.8
Financing	6	2.0
Tax advising	5	1.7
Self-business	27	9.2
Other	18	6.1
Total	**293**	**100.0**

293 students who participated in the survey included 43 males and 250 females. Most students participating in the survey were students in third and fourth years. The majority of students chose accountancy due to their personal interest (34.1%). However, there were also many students being forced by families (33.8%) which might adversely affect their academic performance. 76.1% of students said that they wanted to do the work related to the accounting-audit area after graduation.

6 DATA ANALYSIS

6.1 Financial perspective

Currently, there are more and more financially autonomous public universities. Therefore, the financial perspective has new points compared with the past time regarding the self-determination of tuition and enrollment volume to pay for regular operating expenses or salaries for teaching staff to attract qualified human resources. This demonstrates that the revenue target in public universities under financial autonomy model is significant. However, they are still public universities, profit is only used to improve teaching quality, invest in facilities and not to distribute to shareholders or enrich the management. The most important thing in the financial perspective of the schools still consists of good resource management and cost saving. After consulting the opinions of experts as well as practical researches, targets and measures of financial perspective are presented in Table 2.

Tab 2 - Financial perspective. Source: Author's synthesis

Targets	Measures
Revenue grow	
Revenue from tuition fee	Tuition fee level and number of enrollment
Donations of philanthropists, businesses, partners, and former students	Donations

Revenues from the state budget	Extent of duty completion ordered by the State on the allocated budget.
Budget increase from other sources	Other contributions as renting assets which are unused or used but not at full capacity
Performance improvement	
The effectiveness of using resources	Budget is allocated to each unit compared to costs per student.
Wages for managers and lecturers	- Capacity of managers, their positions and their scope of responsibility; - Comparison of teachers' degrees and titles to the number of students.
Cost decrease	Analysis of changed and fixed costs per unit, the effectiveness of the training process.
Asset using	
Scholarships and Funding	Study and research scholarships for teachers and students from the State, partner universities, businesses, abroad government and non-government organizations.
Investment in infrastructure and education	Percentage of investments compared to revenues from tuition fee

6.2 Customers perspective

In the customer perspective of the BSC, 6 survey questions for students were modeled after the Likert scale of 5 levels. Before the survey data were analyzed, they had been tested for reliability and Cronbach Alpha value received was 0.754.

Tab 3 - Customers perspective. Source: calculated by author

No.	Questions	Mean	Standard Deviation
1	Do you have sufficient knowledge about the Accounting Law and Vietnam Accounting Standards?	2.74	0.635
2	Can you implement the accounting process of a unit such as billing accounting, inventory accounting, general accounting, and tax accounting?	3.06	0.740
3	Can you use the computer well to do the job of an accountant?	2.39	0.790
4	Can you detect and control situations in the actual accounting such as mistake or fraud?	2.76	0.812
5	Can you prepare a complete financial statement?	3.15	0.832
6	Are you confident about finding jobs right after graduation?	3.02	0.854

As shown in Table 3, survey questions were prepared in accordance with the knowledge required after studying accounting majors offered by Universities. The value of responses was

calculated. The questions in the customer perspective with the mean value of smaller than 3 will be analysized (value "3" is seen as having sufficient knowledge of accounting).

Through the survey data, the mean value of the questions 1, 3, 4 is smaller than 3.

It can be seen that students have unsufficient knowledge about the accounting Law and Vietnam accounting standards. This is completely not good since understanding the accounting Law and accounting standards will be the basis of the accounting profession. If they do not know them well, it would be difficult for them to do the job well in the future. The reason for this comes from the fact that students rarely read and learn about the Law and Standards related to the profession.

In addition, the data also showed that students were not proficient in using computer and common softwares such as word and excel to support the accounting work. The number of poor-skilled students focused on those who come from remote provinces where information technology still slowly develops. This shows the need to increase the use of computer in the accounting learning process.

Students said that the subjects in the accounting curriculum such as general auditing, auditing of financial statements, internal control could help them identify mistakes in accounting. However, students' ability to detect fraud situations were still not good since the mean value was under 2.76. This might be because they lack practical experience, especially with third-year students who have not entered the stage of practical internship in enterprises yet.

In addition, data in the customer perspective also showed strengths. Questions of 2 and 5 had the highest mean value, 3.06 and 3.15 respectively. The responses showed that students had sufficient capacity to do the work of inventory accounting, billing accounting, tax accounting and financial statement. More than 50% of the surveyed students were confident about the possibilities and opportunities for employment in the future upon graduation (mean value reached 3.02). This demonstrates that the training program and values of Universities are training accounting major in this study initially satisfy their students.

6.3 Internal business process perspective

This perspective is to identify and establish internal processes in order to achieve the desired outputs.

Tab 4 - Internal business process. Source: calculated by author

No.	Questions	Measured targets	Yes	No
			%	%
1	Is the number of students in each class consistent with the school's facilities?	Facilities	90.9	9.1
2	Does the library have sufficient materials for self-study and research in the learning process?		75.8	24.2
3	Were the facilities of the school (furniture, lighting, computer, projector...) fully supported?		74.4	25.6
4	Is there enough space for student's self-learning and groupwork?		86.8	13.2
5	Are number of lecturers and their academic titles appropriate?	Teaching quality	87.2	12.8

6	Is subject knowledge always updated and practical?		73.9	26.1
7	Does teaching method have attractiveness and help students acquire knowledge well?		78.4	21.6
8	Are lessons between theory and practice appropriate?	Student's satisfaction	46	54
9	Does the number of subjects in the course provide sufficient necessary knowledge for future work?		58.3	41.7
10	Are periods of each subject appropriately allocated?		75.7	24.3

Table 4 shows that the majority of students are satisfied with the facilities of the university, which reflected in questions 1 through 4. Universities always focus on how to create good space and facilities in order to encourage their students to enhance learning initiative, group learning, self-study hours in the library and after school.

Most students (90%) said that the number of teachers and their qualifications match the expertise. Teaching methods made the appeal to students and help them well acquire knowledge (78.4%). These figures show that recruitment process of teachers at the Universities is quite strict and serious. In addition to requirements of qualifications, teachers have lots of practical experience, good teaching method and constantly improve their research capacity.

However, many students thought their knowledge was unsufficient for future job (41.7%). This can be explained by the fact that 54% of surveyed students said that the practical periods were quite less than the theoretical periods. Students mainly access to knowledge in theoretical aspects rather than practical situations. On the other hand, in Vietnam, the number of the companies that offer intership opportunites to students is still quite low. Because of the confidentiality of data, companies are quite conservative in combination with the school to facilitate real access for accounting students. Hence, after graduation, students are required to strive to learn experience besides basic and profound knowledge trained by the university.

6.4 Learning and growth perspective

The perspective of learning and growth emphasizes the research and innovation of teaching methods so it greatly affects the education quality in the future. Therefore, it is required to find out the missing points of the current objectives as vocational guidance for students, improvement of capacity, analytical thinking, and a sense of responsibility in order to introduce reasonable remedies. The contents of the questions in Table 5 are to examine the implementation of these objectives.

Tab 5 - Learning and growth perspective. Source: calculated by author

No.	**Questions**	**Measured targets**	**Yes**	**No**
			%	**%**
1	Do school & faculty regularly organize career orientation festivals for students?	Career orientation	86.7	13.3

2	Are students fully communicated about job opportunities and potential career development direction at the present and in the future?		85.7	14.3
3	Do students have opportunity to meet and exchange with successful people in the fields of economics and finance?		89.9	10.1
4	Does the curriculum help students to raise their awareness of social responsibility?	Social responsibility	91.1	8.9
5	Is students' thinking ability developed during the course?	Personal ability growth	78.9	21.1
6	Does accounting course help students reveal their leadership?		48.4	51.6

The universities began to realize that the link between companies and universities is extremely important in training human resources to serve the socioeconomic development. Universities need to know about the companies' expectations and demands for their employees. companies also need to create opportunities for students, especially accounting majored students, to approach practical situations, from which to create a common voice in the training program. That is shown by the fact that the Universities regularly organize career orientation festivals for students (86.7%), as well as communicate about job opportunities and potential career development direction at the present and in the future (85.7%); organizing activities for students to meet and exchange with successful people in the economics and financial fields is one of the activities is well performed by the universities for students (89.9%). Programs are regularly and periodically held such as business forum, accounting quiz and accounting olympic.

Besides the professional knowledge, strength of the accounting program is that most students improved their own thinking ability (78.9%) and sense of social responsibility (91.1%). However, 51.6% of students said they were still quite timid and shy when expressing their own opinions, and failed to expose their leadership through the courses. These are weaknesses in the teaching process.

6.5 Open-ended questions

Question 1: In your opinions, do you have any suggestions to improve the quality of accounting education in Vietnamese universities?

Here are the most popular suggestions by students

- Increasing the number of practice periods, reducing the number of theoretical periods
- Providing more practical examples in teaching process
- Giving more opportunities for students to develop their ability of self-study
- Having periodical intership opportunity in companies each semester.
- Training more soft skills

It can be seen that students are awared that the urgent need today is to increase their practice skills, get acquainted with the real environment so that they will not feel unfamiliar upon graduation. These are greatly reasonable suggestions to be considered by universities.

Question 2: What are your expectations when selecting the accountancy to study?

Here are the most popular responses:

- Having a job in the professional field immediately after graduation.

- Being able to work in various fields: accounting, auditing, financing, banking, tax consulting, ect….

- Obtaining occupational prestige, good salary and development opportunities to the chief accountant position.

Expectations of the majority of accounting students are job opportunities suitable for their major upon graduation. Then they thought of wage and opportunities for career development. In addition, the desire of students is to access and diversify sectors and industries in the future. Hence, the universities should prioritize strengthening practical knowledge so that the students can easily look for employment opportunities.

7 CONCLUSIONS AND RECOMMENDATIONS

The strengths and weaknesses of the accounting curriculum of Ton Duc Thang University and other public universities managed under the financial autonomy model in Ho Chi Minh City have been identified by using the BSC. Similarly, a standardized model, which is used as the scientific foundation to apply to many universities, is also proposed in this study. Conclusions drawn from the research are evaluated through 4 respectives of the BSC.

Financial perspective was not excluded from the research when the survey was carried out at the public universities since they are financially autonomous puclic universities which mean they still have somewhat financial targets. Thus, the financial perspective can also be used to measure the profitability besides its main objective is to be used as a tool to measure the efficiency in the use of resources.

For customer perspective, the students said that the university's accounting training program provided relatively adequate knowledge. For details, the students were confident that they could be able to do inventory accounting, billing accounting, tax accounting, and financial statement. However, the students also mentioned that they were not proficient in conducting the accounting work on computer, accounting law and Vietnam accounting standards. It is suggested that universities should increase the time of the computer accounting course to enhance their knowledge to students and identify the obstacles students face when learning about the Vietnam accounting Law and accounting Standards to make the necessary adjustments.

For internal business process perspective, we found that the majority of students were satisfied with the quality of teaching staff and facilities of the universities. However, most students said that they were not given much practice for what they had learned which led to the fact that a lot of students were unconfident they had enough knowledge for work after graduation. Universities are proposed to add more practice periods in the teaching process and offer courses simulating the real working environment, especially for the fourth-year students before they enter the company environment. In this way, students will be more confident in their abilities.

Finally, for the perspective of learning and growth, universities showed that they really focused on vocational guidance for students by regularly organizing vocational guidance festivals for students, organizing activities for their students to meet and exchange with successful people in economic and financial fields and so on. Most students were very pleased with this aspect. In addition, most students also improved their own thinking ability and their sense of social

responsibility after the courses. However, many students said that they did not disclose their leadership and this was the weakness of the teaching process. Hence, we recommend that soft-skill training courses for students as skills in using office equipment; effective communication, presentation, team-building, time management and negotiation skills should be more regular offered. Today, the work of an accountant not only works with the numbers but also interact a lot with other people so it is necessary to equip students with soft skills for their job in the future.

In addition to four perspectives of the BSC, recommendations are proposed as financially autonomous universities can apply the KPI (Key Performance Indicators) tool in parallel with the BSC in the performance management and measurement of the organization's objectives. The use of KPIs will help the assessment of job performance becomes more transparent, specific, equitable and efficient. Highly quantitative and measurable evaluation indicators will enhance the efficiency of job performance evaluation. Based on the completion of the KPI, the university will have proper policies for each individual. KPI is the basis for the managers to evaluate the achievement of each individual and provide appropriate policies for each official, teacher and employee. Obviously, since the public universities are not much concerned with profit as organizations operating for profit or private universities, the construction of the KPIs will be different. Indicators such as "graduation rate" and "job-seeking success rate right after graduation" will reflect the mission and goals of the university.

REFERENCES

Aljardali, H., Kaderi, M., Tadjine,L.T., (2012). The Implementation of The Balanced Scorecard in Lebanese Public Higher Education Institutions. *Procedia – Social and Behavioral Sciences*, Vol:62, 98-108. doi: 10.1016/j.sbspro.2012.09.018

Beard DF., (2009). Successful Applications of the Balanced Scorecard in Higher Education. *J Educ Bus.*,84(5):275-282. doi: 10.3200/JOEB.84.5.275-282

Cronje, J.C., Vermaak, S.N.F., (2004). The Balanced Scorecard As A Potential Instrument For Supporting Planning and Improvement In Accounting Education: Comparative Survey Findings. *South African Journal of Economic and Management Sciences,* Vol: 7, No:3, 480- 491. doi: http://dx.doi.org/10.1108/1022252920010016

Clewes, D., (2003). A Student-Centred Conceptual Model of Service Quality in Higher Education. *Qual. High. Educ.*, Vol. 9, No. 1, pp. 69-85.

doi: 10.1080/13538320308163

Clinton B.Schertzer, Susan M. B. Schertzerb., (2004). Student Satisfaction and Retention: A Conceptual Model. *Journal of Marketing for HIGHER EDUCATION* 14(1):79-91. doi: 10.1300/J050v14n01_05

Farid D, Nejati M, Mirfakhredini H., (2008). Balanced Scorecard Application in Uiniversities and Higher Education Institutes: Implementation Guide in an Iranian Context. *Ann Univ Bucharest, Econ Adm Ser.*,2(2):31-45.

Guolla, M.ˆ, (1999). Assessing the Teaching Quality to Student Satisfaction Relationship: Applied Customer Satisfaction Research in the Classroom. *J. Mark. Theory Pract.*, Vol. 7, No. 3, pp. 87-97. doi: 10.1080/10696679.1999.11501843

Harvey L, Green D., (1993). Defining Quality. *Assess Eval High Educ*,18(1):9-34. doi: 10.1080/0260293930180102

Kaplan RS, Norton DP. (2005). The balanced scorecard: Measures that drive performance. *Harv Bus Rev*, 83(7-8).

Kaplan, R. S., NORTON, D. P. (2001). "The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment". *Harvard Business School Press*, Boston, MA.

Kaplan, R. S., NORTON, D. P. (2004). Strategy Maps. *Harvard Business School Publishing Corp*., Boston, MA.

Kaplan RS, Norton, David P. (1996). Linking the balanced scorecard to strategy. *Calif Manage Rev*., 39(1):53-79. http://eprints.bournemouth.ac.uk/2933/1/licence.txt. doi: 10.2307/41165876

MarzoNavarro, M., Pedraja-Iglesisias, M. & Rivera-Torres, P. (2005). A new management element for universities: satisfaction with the offered courses. *International Journal of Education Management*, Vol. 19 No. 6, 505 – 526. http://dx.doi.org/10.1108/09513540510617454

Mark Farrell, Felix T. Mavondo., (2004). The effect of downsizing strategy and reorientation strategy on a learning orientation. *Personnel Review*, Vol. 33 Iss: 4, pp.383 - 402. doi: http://dx.doi.org/10.1108/00483480410539470

O'Neill, M. A., PALMER, A. (2004). "Importance–Performance Analysis: A Useful Tool for Directing Continuous Quality Improvement in Higher Education". *Qual. Assur. Educ*., Vol. 12, No. 1, pp. 39-52. doi:http://dx.doi.org/10.1108/09684880410517423

Özpeynirci R, Yücenurşen M, Apak İ, Polat Y., (2015). A Comparative Analysis of Accounting Education's Effectiveness with the Balanced Scorecard Method: A Case Study of KMU. *Procedia - Soc Behav Sci*;174:1849-1858. doi:http://dx.doi.org/10.1016/j.sbspro.2015.01.847.

Tohidi H, Jafari A, Afshar AA., (2010). Using balanced scorecard in educational organizations. *In: Procedia - Social and Behavioral Sciences*. Vol 2. ; 2010:5544-5548. doi:10.1016/j.sbspro.2010.03.904

Stanley, T., Marsden, S., (2012). Problem-based Learning: Does Accounting Education Need It?. *Journal of Accounting Education*, Vol: 30, 267-289. doi: 10.1016/j.jaccedu.2012.08.005

Wu HY, Lin YK, Chang CH., (2011). Performance evaluation of extension education centers in universities based on the balanced scorecard. *Eval Program Plann*, 34(1):37-50. doi: 10.1016/j.evalprogplan.2010.06.001

Yüksel H, Coşkun A., (2013). Strategy Focused Schools: An Implementation of the Balanced Scorecard in Provision of Educational Services. *Procedia - Soc Behav Sci*, 106:2450-2459. doi:10.1016/j.sbspro.2013.12.282.

Zeithaml, V.A., Berry, L.L. and Parasuraman, A., (1993). The nature and determinants of customer expectations of service. *Journal of the Academy of Marketing Science*, Vol. 21 No. 1, pp. 1-12. doi: 10.1177/009207039321100

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

ORIENTATING, TRAINING AND FOSTERING PROFESSIONAL QUALIFICATION OF ACCOUNTING TO MEET INTEGRATION REQUIREMENTS

Chuc Anh Tu

ABSTRACT

Joining in TPP and AEC has opened the broad regional and international integration with many fields including the field of accounting. Accounting service transfer and accounting certificate recognition has given many difficulties, challenges, and works to be done for Vietnam. Language barriers; education program; National legislation, customs and habits; practicing certificate and practice conditions recognition are issues which need to be resolved and mentioned with solving orientation in the article.

Keywords: *training, accounting, intergration.*

JEL Classification: M40

CONTENTS

On February 4th, 2016, in Auckland - New Zealand, Signing Ceremony of TTP-Trans Pacific Strategic Economic Partnership Agreement has taken place including members of USA, Japan, Malaysia, Vietnam, Singapore, Brunei, Australia, New Zealand, Canada, Mexico, Chile and Peru. TPP includes 30 chapters about adjusting issues related to Electronic Commerce; Cross-border services; Taxation; Environment; Financial services; Intellectual Property; The government's public expenditure; Investment; Labor; Legislation; Dispute resolution; Origin, Origin of Goods; Quarantine of food; Telecommunications; Textiles; Commercial Damage Compensation; Entrepreneur's easier entry into member countries. According to the Ministry of Industry and Trade, there are five key characteristics making TPP become a turning-point agreement of the 21st century, which creates a new standard for commerce, It is the comprehensive market access and regional access in making commitments, resolving new challenges to trade, that including all elements related to trade and being the foundation for regional integration.

In 2015, Vietnam has officially joined the ASEAN economic community (AEC – ASEAN Economic Community) with four basic elements including "A unique market and common production base are built through the freedom of goods turnover, Service turnover, investment turnover and skilled laborers turnover". Regional unified framework agreement with 14 Articles dated December 15th, 1995 by representatives of member countries of Association of Southeast Asian Nations (ASEAN including Brunei Darussalam Government, Republic of Indonesia, Malaysia, Republic of Philippines, the Repubic of Singapore, Kingdom of Thailand, Socialist Republic of Vietnam) on prescribling the service problems including the transfer and mutual recognization of accounting practice certificate in the region. People say that international recognition of professional qualifications in the region is urgently needed. Assessment procedures and examination infrastructure require improvement.

The summary of roadmap for mutual recognition of a practicing certificate includes 03 phases:

- The 1st phase (2015-2016): Establishing the Supervision Commitee and offices, assessment reports of ASEAN accounting certificate (Drafting assessment report of ASEAN accounting certificate and circulating for collecting and summing the opinions of members and submmiting the Commission of ASEAN accounting certificate, editting and completing).
- The 2nd phase (2016-2017): Assessment Committee and and Secretariat: Presenting the standards and criteria to reduce barriers through the assessment report and ASEAN accounting certificate (Researching the current barriers and strategies mitagating each barrier), approving the assessment report.
- The 3rd phase (2018-2919): Agreeing approving the ASEAN accounting certificate and guidance on the application.

The above stages will focus on the Education and Training in many aspects, such as Professional Education; Accounting, Finance & Related Knowledge; Organizational & Business Knowledge; Information Technology; Skills, Values, Ethics & Attitudes; Practical Experience; Providers of Practical Experience. These will describe by the information from the past to the future as follow:

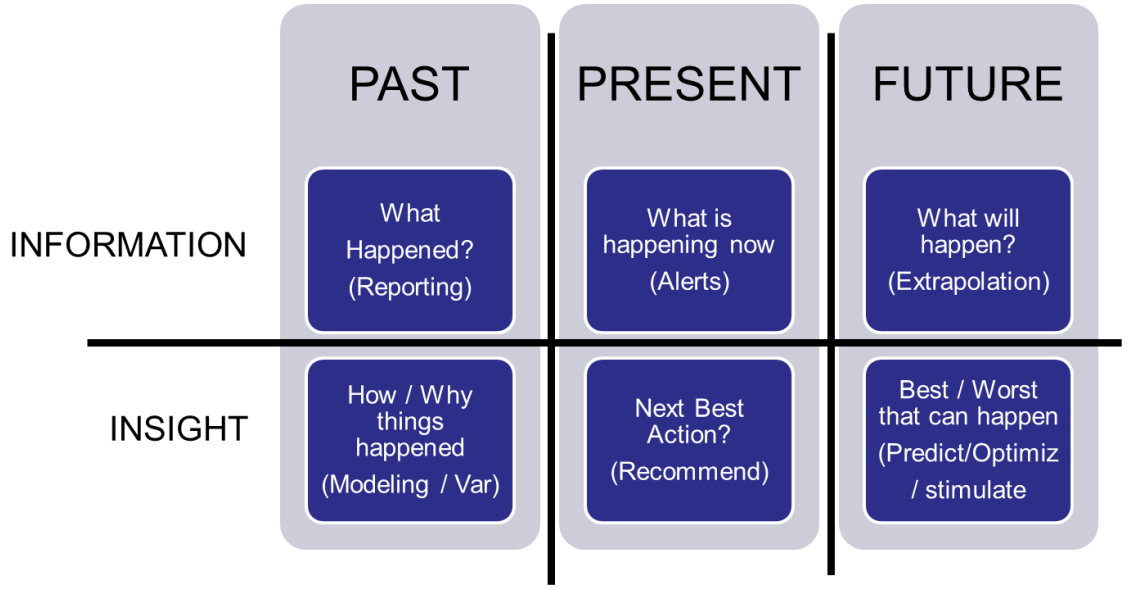

Fig 1 – Information flow

One of the core capabilities that finance professionals should acquire in order to move towards world-class performance is developing skills and competencies to provide strategic insights to the organisation. Business leaders are expecting this and the finance professional must move into this space. As well as getting the numbers and controls right, finance should help to develop strategies for managing value and growth. Strategic involvement includes developing:

- Robust strategic processes
- Advising on major investments
- Product developments
- Asset and infrastructure investments
- Working with operational and business managers

- Advising on issues such as current and expected business mix, capital structure etc
- Risk return profiles
- analytics

Those strategic should be done by professional accountant with higher philosophy in the modern economy as current trend in the global. Competencies accountants need to deliver as:

Fig. 2 – Accountant´s competencies

To solve the problems occurred in the enterprises, organizational decision makers are looking for:

- Information to assess risk and uncertainty
- Better market analysis
- Better competitor analysis
- More accurate customer profitability analysis
- Improved understanding of cost behavior and drivers
- Improved cost control and management
- More accurate cost information for product costing / pricing

From the above information, we see some issues that need to be resolved when moving accounting services and having the mutual recognition of practice certificate in the region, include:

Firstly, the unified language for use: each country has its own language, so when having laborer movement in general and the transfer of accounting services in particular, the language barrier

will be set out first and it is required to give treatment measures. It shall be difficult to transfer if using the native language. If using the common language that is English according to the current trend, the laborers are required to have good English level. Current reality in Vietnam it is showed that the qualified team for accounting services who meet the requirements of English is not much due to many objective and subjective reasons. Therefore it needs to have time for additional fostering and training to meet the demand. Therefore, the problem which is given, is resolving the current number of laborers for satisfying the requirements as well as building program and training contents and testing process of human resources in the future.

- *Resolve of current human resources*: Asking each unit of using laborers, each individual to be responsible for improving and fostering in order to complete the target of achievement of international certificates of foreign language and considering this is one of the compulsory requirements for professional practice. The updating and testing annual knowledge must mention to this compulsory condition
- *Resolve of human resources*: Almost of programs of the training facilities include the program, training content of basic English and specialized English, and also include commitment of and output foreign language standard, but in fact because of many reasons, the result is not been as expected and the laborers may not use English fluently. Therefore, it is necessary to take foreign language with the requirements at higher levels than current regulations in the exam program of annual certification. Moreover, examination questions for testing foreign language should focus on major, law and resolving situations, etc.

The training process of foreign language may be illustrated as follows:

Tab 1 – Training process. Source: author´s research

No.	Level	Foreign language requirement
1	Before having the occupational certificate	Individual self-train and foster
2	Taking an examination for getting occupational certification	Compulsory conditions, high requirements related major, law, resolving the situations
3	Professional practice	Fostering and updating regularly and testing for satisfying certain standards

Secondly, the professional qualification of accounting: The posed problem is that program and the contents of subjects must be recognized in the region and over the world. This is a relatively difficult duty because countries in general and Vietnam in particular have the different program and training contents and there is not the unity of professional qualification. Moreover, there is not quantitative measurement to determine specifically for the unity of professional qualification. Therefore, it is necessary to build the program and content of compulsory general frame that is applied in each region under each certain level. The professional qualification of accounting can be illustrated as follows:

Tab 2 – The professional qualification of accounting. Source: author´s research

No.	Subject	Level	Objective of subject
1	Accounting Principles	Principles	The basic problem of book keeping operation and arising profession under the level of general principles
2	Basic Accounting / General Accounting	Level 1	Basic arising profession related to accounting unit and accounting books
3	Financial Statement	Level 2	✓ Principles and basic objectives of financial statement; ✓ Database of making and presenting financial statement ✓ Adjustment of financial statement
4	Corporation Accounting	Level 3	✓ Principles of forming Economic Group ✓ Arising professions and adjustment in Economic Group (simple and complex) ✓ Principles and objectives of the consolidated financial statement ✓ Database of making and presenting consolidated financial statement
5	Accounting Law	Level 4	✓ The legal system of accounting in Vietnam (Accounting Law, accounting standards, accounting regimes) ✓ The legal system of international accounting (International accounting standards, the accounting of some advanced countries)
6	Accounting Professional Ethics	Level 5	Regulations and principles of accounting professional ethics for related subjects (accountants, people of accounting services practice, etc.)

If the finance function and the finance professional are to significantly transform to add value to organizations and become true business partners a new set of skills and competencies. It is essential to acquire the following:

- Excellent analytical skills using not just financial analysis but also customer and market analysis, statistical and also sophisticated modeling techniques
- Use of multi-disciplinary team approach to inform key decision making as well as the ability to integrate inputs from diverse non-financial sources
- Strong commercial acumen characterized by strong product, process and market knowledge

Thirdly, regulations on practice conditions of accounting services in the host country: Each country has certain conditions of service practice, so chartered certified accountants who satisfy all requirements are admitted to practice. Therefore, the problem posed is that countries should have common regulatory framework for professional practice in the region and the world or notices of own rules on professional practice conditions. This makes the individuals who want to transfer services self-improve for satisfying the requirements. In current situation, if each individual meets the new requirements by himself, the individual is admitted to practice. For example, foreigners who want to practice a profession in Vietnam; they must take part in an examination of testing and meet all requirements. Moreover they also must meet other related requirements. If the regulation still exists, its advantage is that each country only should maintain the existing regulations but its limitations is that there is not common area for laborer turnover of accounting services in the true sense. The formation of common regulations on providing accounting services in the region brings the advantage that is the expressing common community but it also has limitation that it is necessary to change the regulation for matching other countries

Fourthly, recognition of practicing certificate in the region: practicing certificate in the region has the detailed roadmap on mutual recognition, but this problem is only feasible if countries in the region resolve problems, barriers and get the certain agreements on some issues including training and fostering program, exam and testing process of certificate, contents and knowledge of training and fostering, regulations on conditions of professional practice registration… Finance and accounting professional today are moving out of their traditional finance roles and financial views alone and becoming analytical:

Fifthly, laws and customs in the host country: When having the shift of free labor, it is compulsory to research the customs and habit of the host country and adapt for working in the country. The understanding Law of host country plays an important role to determine the existence of each individual because in addition to the foreign language and accounting expertise as well as conditions of service practice, the understanding relevant law and customs of host country is also the decisive factor. Therefore the process of fostering and retraining is required the Law subject (as the second part mentioned) and the history and culture of the region, each individual also required to have knowledge and reach the certain qualification.

CONCLUSION

Directing to the shift of human resources in general and the accounting services transfer in particular according to the integration commitments brings Vietnam many problems to be solved urgently, including program of fostering and training, language, the understanding international law, especially the mutual recognition of certificate of chartered certified accountants, etc. Some issues that are showed and oriented to resolve are basic contents of the article with the purpose of contributing to the integration process taking place quickly and achieving the stated objectives. Vietnam will come to the expected destination if follow the requirements of international professional bodies. They are qualification standards and professional requirements, regional recognition as a basis for international accounting recognition, examination content and structure, program development for education and practical experience requirements.

Annex 1

Estimation of Qualitative beta

Weight (%)			1	2	3	4	5	WR
			1	2	3	4	5	
0.1	M	Management	1					0.1
0.25	A	Assets: Business : Industry/Product			3			0.75
0.03	S	Strategy					5	0.15
0.15	C	Country Risk			3			0.45
0.1	O	Operating leverage		2				0.2
0.15	F	Financial Leverage	1					0.15
0.05	L	Liquidity of Investments	1					0.05
0.05	A	Access to sources of funds				4		0.2
0.02	P	Partners					5	0.1
0.05	E	Exposure to other risks (currencies)	1					0.05
0.05	C	Cash flow stability			3			0.15
1								2.35
		Beta of Equity	2.35x0.5=	1.175				

WR: Weighted risk

1	2	3	4	5
Low	average	substantial	High	very high

Annex 2

CAPM under qualitative beta

CAPM-Capital Asset Pricing Model	2010	2011	2012	2013
Cost of Equity = Risk-Free Rate + Beta * (Market Rate of Return - Risk-Free Rate)	0.1122	0.12404	0.12169	0.12075
Risk Premium (RM-RFR) (http://people.stern.nyu.edu/adamodar/)	0.0628	0.0728	0.0708	0.07
Risk Free Rate (RFR) (http://www.tradingeconomics.com/czech-republic/government-bond-yield)	0.0385	0.0385	0.0385	0.0385
Beta*(Market Rate of Return - Risk-Free Rate)	0.07379	0.08554	0.08319	0.08225
% differences between, cost of equity on accounting beta and qualitative beta	0.11	0.03	0.02	0.02

Explanation: Table is constructed under qualitative beta. All the variables remain the same with table 2, only cost of equity is changing and Beta*Risk premium. In addition is added, % differences between cost of equity within accounting beta and qualitative beta

Annex 3

	2010	2011	2012	2013
WACC (cost of capital)=Cost of Equity%(weights of equity)+Cd(%weight of debt)	0.0724	0.0682	0.0668	0.08914
Cost of Equity*(weight of equity)	0.0456	0.0498	0.0485	0.0543
Cost of debt*(weight of debt)	0.02714	0.0184	0.0183	0.0207
Equity/Total Assets	0.406628134	0.402284454	0.399184345	0.456598411
Debt/Total Assets	0.593371866	0.597715546	0.600815655	0.543401589
1- Tax Rate	0.81	0.81	0.81	0.81
After-tax cost of debt = Pretax cost of debt(1-Tax rate)	0.022	0.0149	0.0148	0.0167

Explanation: Table is constructed under qualitative beta. All variables remain the same with the table 3, only changes occur in: cost of equity*(weight of equity) and WACC.

REFERENCES

ACCA (2015), The workshop of joining in TPP and AEC – opportunities and challenges for accounting and auditing of Vietnam

Jakarta, ASEAN Integration in Service

Web page sources [online] available at the following addresses:

http://www.asean.org
http://www.iaiglobal.or.id/
http://www.trungtamwto.vn/cachiepdinhkhac/tom-luoc-cong-dong-kinh-te-asean-aec

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

BANK CAPITAL LEVERAGE: AN EMPIRICAL STUDY OF VIETNAMESE COMMERCIAL BANKS DURING THE PILOT PERIOD OF BASEL REGULATORY

Tung Thanh Ho

ABSTRACT

This paper is aimed to analyze the evolution of the on-balance-sheet of Vietnamese commercial banks' leverage ratio during the period 2008Q1 to 2015Q2. There was a pilot program from 2010Q4 to 2015Q2 in the period. The purpose of the pilot program is to assess whether commercial Vietnamese banks are ready to adopt Basel 2 and Basel 3 regulatory framework. We divide the full period into two sub-periods according to pre- and post- of the capital regulation requirements which are launching by the State Bank of Vietnam. Analysis was made by application of the pooled regression model on the panel data. We found that in the post-period of the capital regulation requirements, most of the leverage of the Vietnamese commercial banks is dependent on both the household deposit and the interbank capital. The situation of post-period is similar as the pre-period of the launch capital regulation requirement of the State Bank of Vietnam, but the volume of the interbank capital is become smaller. From the regulation perspective, our findings suggest that the State Bank of Vietnam should supervise the assets quality of off – balance sheet and the value ratio of collateral is accepted (called "haircut") by the Vcb to avoid resulting liquidity risk. We also remind the Vcb about the improvement of own capital for the achievement of capital regulation requirement.

Keywords: *Basel 3, bank regulations, Vietnamese commercial banks, bank leverage ratio*

JEL Classification: E58, G21, G28.

1 INTRODUCTION

The Basel committee believes that the global financial crisis was the build-up of excessive on- and off balance sheet leverage in the banking system (Basel Committee on Banking Supervision, 2014). When the leverage was forced to reduce, the process could help the financial system to avoid the damage. And "leverage ratio framework is critical and complementary to the risk-based capital framework" (see Basel Committee on Banking Supervision, 2014). The leverage ratio bases on the definitions of capital (the capital measure) and total exposure (the exposure measure)." (Basel Committee on Banking Supervision, 2010). In 2014 the Basel Committee issued a formula for it:

$$\text{Leverage ratio} = \frac{\text{Capital measure}}{\text{Exposure measure}} \qquad (1)$$

The Basel committee defines the elements of leverage ratio:

"The capital measure for the leverage ratio is the Tier 1 capital of the risk-based capital framework." … And

"A bank's total exposure measure is the sum of the following exposures: (a) on-balance sheet exposures; (b) derivative exposures; (c) securities financing transaction (SFT) exposures; and

(d) off – balance sheet (OBS) items."

In Vietnam, till recent time, even the State Bank of Vietnam (SBV) plans to apply Basel fully to Vietnamese commercial banks (Vcb) from 2018. But, to ready for the full application, the SBV also issued some regulations from 2007. The previous issues are almost the same as regulation of Basel 2, and lack a regulation of leverage. The Basel 3 regulates a leverage position. This article is aimed to analyze some elements on the on – balance sheet of the Vcb that most effect to leverage of Vcb in the period from 2008Q1 to 2015Q2, and to study whether the changes of the elements will be the threat to Vcb.

The rest of the paper is organized as follows: Section 2 reviews previous leverage-oriented studies. Section 3 discusses methodologies and data processing used. Section 4 presents results and discussions. Section 5 contains conclusion.

2 LITERATURE REVIEW OF LEVERAGE AND RELEVANCE RESEARCH

Until 2010, leverage ratio was determined officially in Basel 3. Before the Basel 3, some researchers mentioned the relationship between off-balance-sheet (OBS) and riskiness of bank (see Berger et al., 1995; Angbazo et al., 1998; Boot, 1997). Breuer (2002) provides measures of implicit leverage in derivative contracts. Blum (2008) states that leverage should be reported to identify a bank's risk. Bordeleau et al. (2009) proved that the stabilization of Canadian banks could be based on their constraint of a lower leverage ratio in comparison with the leverage ratio of banks in the United States.

Leverage ratio is calculated as its formula (1). The numerator has clear and simple elements derived from the balance sheet of banks, while the elements in the denominator are volatile and depend on the economic situation. The elements of the denominator in formula (1) are On-Balance-Sheet exposures, Off-Balance-Sheet exposures, and derivative and securities transaction exposures. In addition, I also drop a brief overview of the relevance research at the end of this section. In this section, each of the elements is reviewed in the chronological order.

2.1 Leverage research before Basel 3

Bordeleau et al. (2009) examines the Canadian experience of the leverage management to support that a leverage ceiling would complement risk-weighted measures. In this study, the authors compare Tier1 evolution in period from 2000 to 2009 of Canadian banks, the US banks, the UK, and Europe. Then, the comparison is used again with the leverage of such the countries. Finally, the authors use discrete autoregressive regime-switching model to test their hypothesis and get the result: "…a leverage ceiling would be useful tool to complement risk-weighted measures and mitigate procyclical tendencies in the financial system." (cite & use in discussion)

2.2 On-Balance-Sheet exposures

Chen (2013) investigates the performance of Japanese commercial banks during the period of financial crisis in the late 1990s. the author approaches two styles of leverage of Japanese commercial banks, those are book leverage and market leverage. Based on the analysis of these two criteria, using regression method, Chen finds that the market leverage is more significant to indicate the systematic risk than the book leverage. As the results, the author believes that market leverage ratio could provide more information for the regulators to identify the distressed banks and to enhance market discipline.

Koch (2014) develops a new approach. He employs cointegration and vector error correction models (VECMs) method to analyze the change of leverage on the sample of all German banks

over the period 2002 to 2010. The analysis is to derive cointegration relationships between various liability components and "balance sheet total". Koch finds two reactions of banks due to their activities in short-run or long-run, in which the reactions of short-run are almost from derivations of long-run, where all elements of on-balance-sheet liability are adjusted by banks due to risky on equity market, bond and debt in domestic. These findings prove that banks with global operations deemed to headquartered in major developed countries are "systemically relevant", and the increase of their leverage shows that international banks expose their risk as their would-wide activities. Kock suggests that the regulator might use such the analysis methods of him to assess the short-run reactions of banks to developments on different financial markets, and measures the counter-cyclical capital of long-run liability ratios.

Studying the effects of the leverage ratio requirement in part V of Basel III for lending of banks and its stability, Kiema et al. (2014) believes that this new complement of regulations lead to a reduction in the banks' risk. The study shows that low leverage ratio contributes to gross factors which are optimal for bank lending and decrease the probability of bank failures. Authors recommend tighter leverage ratio requirement for higher stability of banks. The authors divide loans into high-risk and low-risk categories for high-risk and low-risk firms respectively and employ a single risk-factor model. The authors assume that regulators, banks, and borrowers base their actions on common estimates of loan default probabilities. Based on a similar idea and the way of approach as Kiema et al. (2014), Bargigli, et al. (2014) agree with previous studies that leverage has relationship with banks' stability. In addition, the authors use data of Japanese banks to prove that if the increase of market concentration effect banks, leverage ratio will grow and make banks lead to an unstable credit period. Bargigli, et al. (2014) supposes that the additional parameter can modify the skewness of bank degree and credit simulated distributions for the simulation models with real data on credit networks.

2.3 Off-Balance-Sheet exposures

Angbazo (1998) tests the hypothesis that banks would select higher loan and deposit rates to achieve higher net interest margins. The author finds that interest-rate risk and liquidity risk are related to differences in the off-balance-sheet exposures. Angbazo supposes the exploitation of off-balance-sheet should be consistent with the moral hazard.

Duffee et al. (2001) mentions credit derivatives in banking, Authors use structure of the loan payoff, net present value, and the probabilities of defaults to state that "the introduction of a credit-derivatives market is not necessarily desirable because it can cause other markets for loan risk-sharing to break down." The authors also say that if asymmetric information is present in the mechanism of credit derivative, weak banks would not be better. The authors believe that credit derivative is not a beneficial instrument for risk managing. Instead, credit derivative may be the more choice for capital allocation. Batten et al. (2002) agrees with Duffee et al. (1998) that credit derivative may be the prior choice for capital allocation, moreover, Batten employs the GARCH model and approaches credit derivatives through the comparison between credit risk and bond default. The authors find that credit derivatives bring capital for bank and shift assets from off-balance-sheet. The findings suggest that credit derivatives might be the new techniques for risk management but the techniques lead to increased need for information from both original borrowers and off-balance-sheet of lending banks. In addition, Cipovova et al. (2012) analyzes the credit risk methods management of Czech banks., the authors suspect that when banks can choose the estimation of their portfolio exposure themselves, banks may distort off-balance-sheet to take advantage.

Karim et al. (2013) use logic approach and Granger-cause test to investigate banking crises in 14 OECD countries, authors recognize that off-balance-sheet correlates with GDP growth, and the fluctuation of real house price causes the change of off-balance-sheet. The authors suggest that off-balance-sheet exposure should be considered as a direct regulation because of its impact on the crisis probability. Additional, Jarrow (2013) proves that Value-at-Risk (VaR) and collateral have the same probability of insolvency, but VaR estimates cannot compare across firms. Jarrow suggests that banks only need to report their "haircut" and this information will provide the regulators the relevant leverage ratios that regulators might compare banks each other.

Use an adverse selection hypothesis approach, Duran et al. (2013) analyses data from banks in 27 member countries of the European Union in period from 1996 to 2009. This study shows that if the quality of off-balance-sheet assets is high, the ratio of off-balance-sheet to total assets is negatively related to insolvency and portfolio risk; if assets quality on off-balance-sheet is low, the ratio is positively related to liquidity and credit risk. These findings illuminate the need of market discipline-a requirement of Basel 3. Moreover, analysing the "credit immigration" of collateral derivatives, Sakurai et al. (2014) recommend that off-balance-sheet leverage makes default risk of derivatives dealers increase.

2.4 Derivatives and Securities transaction exposures

In article of Breuer (2002**),** author supposes "leverage positions can trigger financial market turbulence", and the situation could be caused by the derivative of off-balance-sheet. Breuer suggests the measuring off-balance-sheet exposure is an appropriate capitalization measure for both on- and off-balance-sheet. Finally, Breuer suggests that this ratio shall be applied as a "convert the exposure" for equity and debt equivalent while the capital regulation is calculated. While analyzing the pros and cons of Basel 2, Blum (2008) comments that the mechanism of internal ratings based approach (IRB approach) of Basel 2 is letting banks to choose their requirement capital themselves. Blum proves that it is necessary to enforce penalty sanctions at dishonest banks to equate the profit of these banks with the profit of honest banks. The proving of Blum rises up a leverage ratio included the minimum lever of capital and the risks of bank.

Keffala (2015) investigates the effect of financial derivatives on banks stability. Keffala suggests that options and futures style of derivatives can be considered as risky derivatives of banks, and level of credit risk is one of many explanatory variables which are used in the model. Additionally, Alnassar et al. (2015) reviews several relevant articles published before the day of the Basel 3 was released, authors conclude that the use of credit derivatives are mostly used as hedging instruments, and that credit derivatives are related to bank's size, distress costs, capital position and level of credit risk.

2.5 Some relevance research

Search for the bank regulation research and the relevance within the Web of science and Scopus, I find a few submissions in the areas, some studies bellow could represent for such the areas.

Chalermchatvichien et al. (2014) simulate the capital requirement standard of Basel 3 on a sample of East Asian banks in the period 2005–2009 before this standard takes effect in 2013. The simulation indicates two important suggestions. First is the increase of capital reduces risk and second is banks in a higher developed country gets a better result from this matter than in a lower developed country.

Manlagnit (2015) approaches the cost efficiency of Philippine commercial banks to analyze the impact of Basel regulation on the efficiency of the banks. Manlagnit believes that the implementation of Basel standard improves the assets quality and reduces the risk in the banks.

3 DATA AND METHODOLOGY

Panel data was collected from quarterly-released financial statements of the Vcb which were available in the period from 2008Q1 to 2015Q3. The charts in Fig.1 are showing the changes of indicator by the mean values calculated from this data.

Pooled regression was used to analyze the relationship between selected variables. The selection process from pool effect, fix effect or random effect is shown in appendix A1. Credit derivatives are not available in Vietnam. There is, however, derivative exchange market and the derivative interest market which are not developed and fully opened. On the other hand, this article is aimed to analyze some elements on the on – balance sheet of the Vcb that most effect to leverage of Vcb in the period from 2008Q1 to 2015Q2, and to study whether the changes of the elements will be the threat to Vcb. To achieve the aim of the paper, in our model, leverage (Lev) is dependent variable and there are the elements that could be most correlate the change of the leverage are deposit of customers (Depo), borrow from other banks (BOB) and lend to other banks (LOB). Lending to customers (LCus) and own capital (TOC) will also be descriptive to analyze their close relationship with the variables in the model. Analyzed period is divided into two stages. The first stage ranges from 2008Q1 to 2010Q4 and the period after 2010Q4 when the SBV launch the capital regulations. As this split, we add dummy variables for each regressor to observe the change trend of Vcb in each stage during the full period. We expect that the result from the regression of these four variables in model (1) may show us some information of some important factors that most effect for the Vcb's leverage.

The model is formulated as:

$$Lev_{it} = \beta_1 Dep_{it} + \beta_2 BOB_{it} + \beta_3 LOB_{it} + \alpha_1 After_i Dep_{it} + \alpha_2 After_i BOB_{it} + \alpha_3 After_i LOB_{it} + u_{it} \quad (2)$$

where

Lev_{it}: leverage of bank i, in quarter t.

$After_i Dep_{it}$, $After_i BOB_{it}$, *and* $After_i LOB_{it}$ are dummy variables of Dep, BOB, and LOB respectively. The addition of these dummy variables in formula (2) allows us to know whether there are some changes of the observed variables during the two sub periods as we described above.

Assumption: The variables are not correlative each other, $u_{it} \sim N(0, \delta^2)$, and

$$Lev = \frac{Total\ \ Liabilities}{Total\ Own\ Capital} \quad (3)$$

This leverage calculation is similar to the calculation used in Bordeleau et al. (2009).

4 RESULTS AND DISCUSSION

The key issue from the specifications that the figures of the variables LOB, BOB and Depo in Tab.2 indicate the high correlation relationship of them in the interbank capital market while the correlation relationship between the deposits from household and LOB or BOB are weaker. The information from the description of variables in formula (2), their correlations and their evolutions are the consolidation with the result from the regression model.

Tab.1 - Description of variables. Soure: calculated by author

Variables	N	Min	mean	Max	Sd	skew	Kurtosis
Lev	219	2.77	8.31	23.35	3.76	0.75	0.56
LOB	218	157,501.00	28,381,397.00	143,811,243.00	29,011,255.30	1.39	1.77
Depo	219	351,213.00	144,147,076.99	621,132,821.00	129,016,012.75	1.11	0.48
BOB	219	22,976.00	23,558,686.27	103,807,877.00	23,743,129.00	1.32	1.20

Tab.2 – Variables correlation matrix. Soure: calculated by author

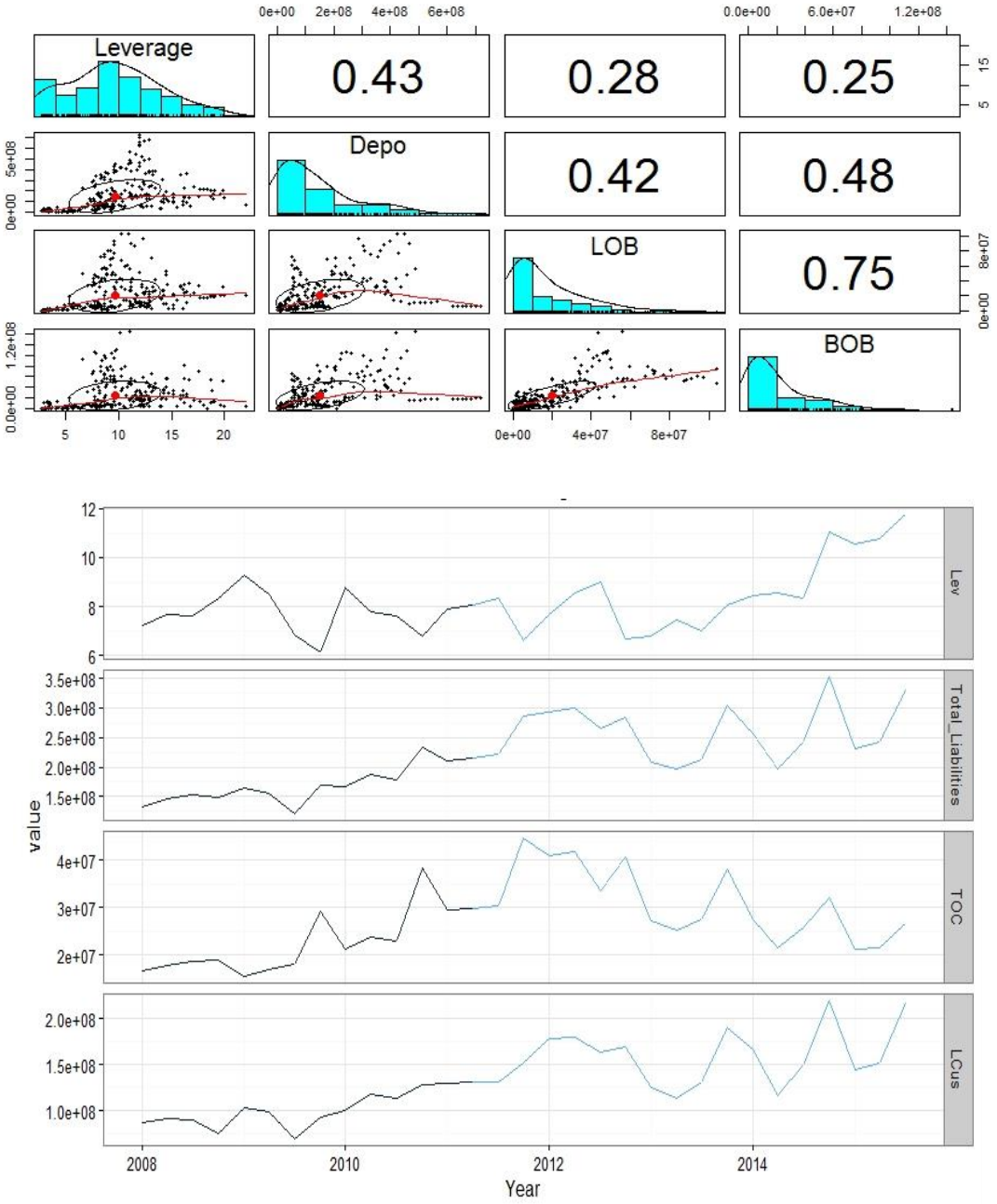

Fig. 1 – The trends of leverage elements

Before the capital regulation requirement ——

After the capital regulation requirement

(Figures of the leverage and some of its elements. Calculated by author.)

The charts of leverage's elements show that almost the full period LCus increases. It causes total liabilities is increased, while TOC increases in the period from 2010Q2 to 2012Q2, then reduces and fluctuates as same level in early of the 2010. This situation makes Lev is increased from around 7 in the end of 2012 to 12 in recent. We know that the line charts show the mean data of the cross banks in the period. On the industry perspective and following Bordeleau et al. (2009), Lev indicator during the full range is till safe, except few individual has Lev higher than 30. The charts tell to us that Vcb did not cut down their lending during the time of capital regulations requirement. Shaw et al. (2013) finds that banks could change their equity-debt financing rather to cut their lending when the capital requirement is increased. Additional, the findings of Blum (2008) and Cipovova & Belas. (2012) show that the internal rating is letting banks to choose their requirement capital themselves. The findings of Shaw et al. (2013), Blum (2008) and Cipovova & Belas. (2012) may explain for the situation of Fig.1 that why the Vcb did not cut down their lending during the period of capital regulation requirement. To determine which factors are financing to the increase of Lev, we are going to examine the result from model (2) shown in Tab.3 and some other related calculation.

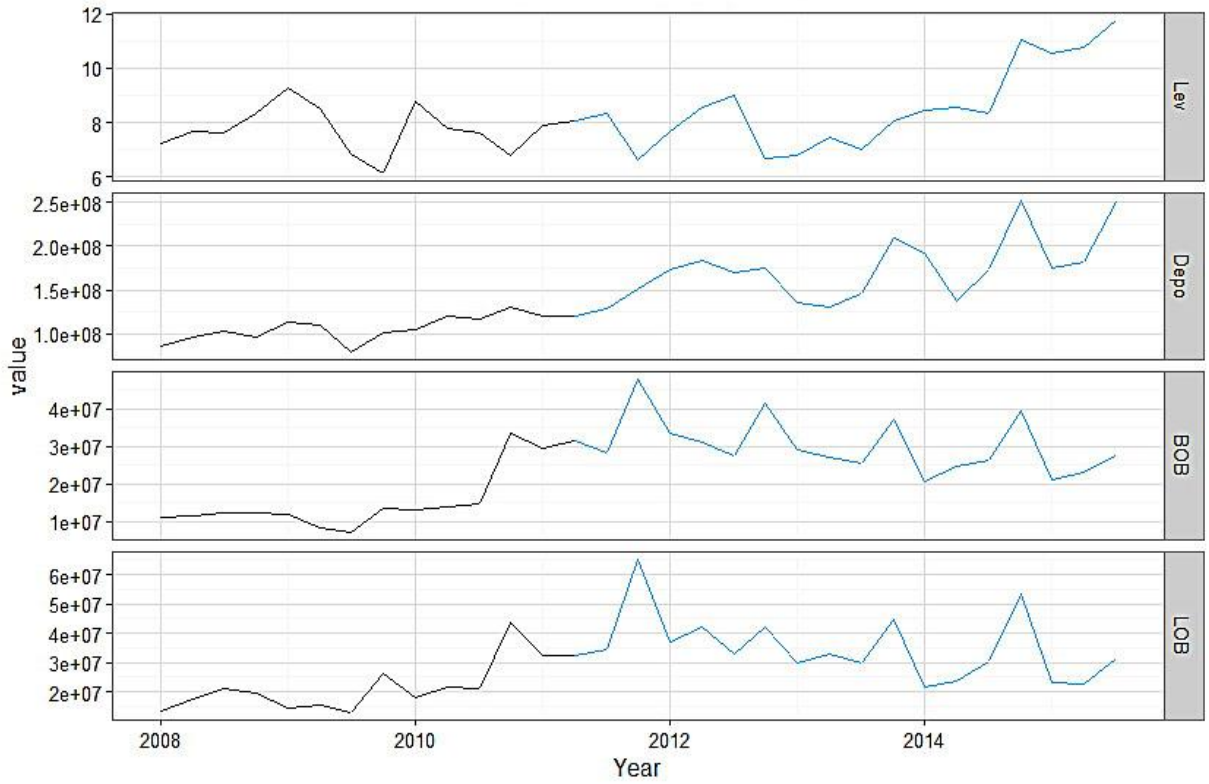

Fig. 2 – The trends of the indicators

Before the capital regulation requirement

After the capital regulation requirement

(Figures of the indicators in the plots are the mean values calculated from panel data. Calculated by author.

Tab.3 – Result of pooled regression from formula (2) . Soure: calculated by author

Balanced Panel: n=9, T=31, N=279
Residuals:

Min.	1st Qu.	Median	3rd Qu.	Max.
-5.660	-2.510	-0.552	1.630	13.400

Coefficients :

	Estimate	Std. Error	t-value	Pr(>|t|)	
Intercept	6.9624e+00	3.5072e-01	19.8517	< 2.2e-16	***
Depo	1.8272e-08	4.5514e-09	4.0145	7.71e-05	***
LOB	-2.7687e-08	4.2985e-08	-0.6441	0.520047	
BOB	7.4566e-08	3.6194e-08	2.0602	0.040333	*
After_Depo	-6.9001e-09	4.7514e-09	-1.4522	0.114206	
After_LOB	7.3098e-08	4.6128e-08	1.5847	0.114206	
After_BOB	-1.0326e-07	3.8751e-08	-2.6648	0.008164	**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares: 5248.2
Residual Sum of Squares: 3756.6
R-Squared: 0.28421 Adj. R-Squared: 0.27708
F-statistic: 18.0001 on 6 and 272 DF, p-value: < 2.22e-16

The results in Tab.3 show that Depo and BOB are statistically significant effect to Lev, after the launching of capital regulation requirement, the p-values of dummy variables indicate that the change of Depo and LOB are not statistically significant between the pre and post-regulation periods, and only BOB is statistically significant change during the periods. Additional, the evolution in Fig.2 shows that Depo keeps increasing over the time while LOB and BOB are declining. The results tell us that next to Depo, BOB is the most effect the increase of Lev. It means that to keep the increase of lending activities, the Vcb most rely on interbank capital and mobilizes deposit actively. On the one hand, with the interbank loans, lending banks can approach the information from their counterparties. On the other hand, Duffee et al. (2001), Batten et al. (2002), Koch (2014), and Keffala (2015) have the same concerns that when banks invest on the credit derivatives, banks do not have information of the real borrowers. The increase of the Lev is mostly from household deposit, so we believe that the riskiest scenario of the Vcb is the liquidity. Georg (2013) suggests that the central bank should help banks to withstand the liquidity shock from the contagions of interbank loans. Georg (2013) proves that when the individuals are insolvent, in short run, the networks of highly interbank interconnected is become an endogenously unstable factor. In addition, Belas et al. (2102) states that credit risk is the most important risk of banking business. So, the exposure of credit derivative now is not a high harm to credit business the Vcb.

Before the 2012, when the Vcb can finance for their lending by household deposit and the interbank, we may recognize that the gap between interest rate for household deposit and banks lending is large. Then, results in Fig.2 combines with the result in Tab.3 show that by the end of the 2012 the volume of the interbank capital is become smaller According to the findings of Craig et al. (2015), this decline is a good signal for the lending banks as their liquidity risk is reduced, but the opportunity cost of obtaining interbank liquidity for borrower banks is higher. It means that the interest rate gap is become smaller. This situation is the negative effect on the margins of borrower banks. Thus, to optimize the credit business, the borrower banks may lead to the higher credit default (e.g., increase the non – mortgage lending or reduce the quality of

assets on off – balance sheet) for a higher lending interest rate and almost the reactions make the exposure of leverage components be higher.

Geanakoplos (2014) states that a high or low leverage is made sense by the interest rate, and the leverage of a bank could cause by other bank. The findings of Geanakoplos (2014) are based on the analysis the housing price mechanism, in which the author mentions the "haircut" of the mortgages. This idea is really suitable for the banking business in Vietnam, where lacks the credit derivative, and housing mortgage and "haircut" are most popular methods to manage credit risk. The "haircut" of housing mortgage is on the off – balance sheet and its exposure should be measured due to the housing price and the liquidity of the mortgage. Thus, the suggestion of Jarrow (2013) that banks need to report their "haircut" should be useful. Additional, the regulators in Vietnam should consider the findings of Duran et al. (2013) about the assets quality of off – balance sheet because of its relationship with the liquidity and the credit risks.

Overall, these findings point that: First, The Vcb does not cut down the lending in general while the TOC is not improved in comparison with the sub period before the regulation period. At the same time, the leverage is increased and caused by the increase of the lending; second: in early of the regulation requirement period, the lending banks in Vcb interbank market reduce their lending while enhanced the household deposit. The findings arise the preoccupations that the housing mortgage and the "haircut" on off – balance sheet are popular in Vietnam banking business. The matters enhance the need to supervise the off – balance sheet assets quality and the "haircut" information.

5 CONCLUSION

The findings obtained though this paper point three important issues that the SBV should pay attention to. First, SBV should control the quality of off – balance sheet and the disclosure of off – balance sheet of the Vcb. Second, most of changes in leverage position is dependent on the household deposit and on the interbank capital related to liquidity risk and the first issue could help banks to avoid the liquidity risk. Third, the Vcb should concentrate more on the improvement of capital regulation requirement.

The figures and calculation show that during the capital regulation requirement period the capital of the Vcb is not improved while the leverage is increased continually. Besides the funding of household deposit, the interbank capital is statistically significant effect the leverage. Some of the lender of interbank market withdraw their money while the demand of credit is still large. The matter will trigger an increasing of interest rate. The result that the price of capital will be higher and the capital regulation objective of some Vcb which are weak in mobilizing activity will be harder. In addition, the interbank is most liquidity in short run (see Georg, 2013) but recently it become narrower. On the one hand, the situation leads the Vcb in general be illiquidity. On the other hand, some banks will be taken over if they cannot deal with the difficulties of regulation achievement and the pressure of interest increasing.

The credit derivative is not available in Vietnam. So, the interbank is still the priority capital for the Vcb. Thus, the fluctuation of it should be considered to provision the liquidity for the Vcb. The limitations of this paper that is we do not analyze the individual ability in such the situation. The individual analyzing should show us more information for a more suitable suggestion. So, it should be the matter of our future study.

Acknowledgements: The author is thankful to the Internal Grant Agency of FaME TBU No. IGA/FaME/2015/025. The possibilities of the financial performance growth for commercial

banks in the context of the credit risk of SME and the customer satisfaction, for financial support to carry out this research.

APPENDIX

Tab. A1 – The results of F-test, Breusch-Pagan test and Hausman test for choosing of pooled regression model, an extract from Gretl software.

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gretl output for ho 2016-04-30 04:38, page 1

      Diagnostics: assuming a balanced panel with 9 cross-sectional units
                           observed over 31 periods
Fixed effects estimator
allows for differing intercepts by cross-sectional unit
slope standard errors in parentheses, p-values in brackets
       const:         -12.817         (2.7896)        [0.00001]
        Depo:    5.9155e-009    (1.6564e-009)        [0.00042]
        BOBb:          1.3745        (0.18729)        [0.00000]
         LOB:   -3.0675e-008    (1.2959e-008)        [0.01864]

 9 group means were subtracted from the data
Residual variance: 3466.62/(279 - 12) = 12.9836
Joint significance of differing group means:
 F(8, 267) = 0.440762 with p-value 0.895889
(A low p-value counts against the null hypothesis that the pooled OLS model
is adequate, in favor of the fixed effects alternative.)
Means of pooled OLS residuals for cross-sectional units:
 unit  1:        0.19669
 unit  2:        0.88014
 unit  3:        0.31477
 unit  4:       -0.38785
 unit  5:      -0.099124
 unit  6:       -0.11644
 unit  7:       -0.47493
 unit  8:       -0.38183
 unit  9:       0.068574

Breusch-Pagan test statistic:
 LM = 1.67356 with p-value = prob(chi-square(1) > 1.67356) = 0.195782
(A low p-value counts against the null hypothesis that the pooled OLS model
is adequate, in favor of the random effects alternative.)
Variance estimators:
 between = 0
 within = 12.9836
theta used for quasi-demeaning = 0
                         Random effects estimator
            allows for a unit-specific component to the error term
            (standard errors in parentheses, p-values in brackets)
           const:         -12.434         (2.7565)        [0.00001]
            Depo:    5.8701e-009    (1.6401e-009)        [0.00041]
            BOBb:          1.3484        (0.18504)        [0.00000]
             LOB:   -2.8421e-008    (1.2768e-008)        [0.02683]

Hausman test statistic:
 H = 2.79996 with p-value = prob(chi-square(3) > 2.79996) = 0.423506
(A low p-value counts against the null hypothesis that the random effects
model is consistent, in favor of the fixed effects model.)
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REFERENCES

Alnassar, W. I., & Chin, O. B. (2015). Why Banks Use Credit Derivatives? Review Paper. *Procedia Economics and Finance, 26*, 566–574. http://doi.org/10.1016/S2212-5671(15)00956-9

Angbazo, L. A., Mei, J., & Saunders, A. (1998). Credit spreads in the market for highly leveraged transaction loans. *Journal of Banking & Finance*, *22*(10), 1249–1282.

Bargigli, L., Gallegati, M., Riccetti, L., & Russo, A. (2014). Network analysis and calibration of the "leveraged network-based financial accelerator." *Journal of Economic Behavior & Organization*, *99*, 109–125. http://doi.org/10.1016/j.jebo.2013.12.018

Basel Committee on Banking Supervision (Ed.). (2014). *Basel III leverage ratio framework and disclosure requirements* (Jan. 2014). Basel: Bank for International Settlements.

Batten, J., & Hogan, W. (2002). A perspective on credit derivatives. *International Review of Financial Analysis*, *11*(3), 251–278.

Berger, A. N., Herring, R. J., & Szego, G. P. (2001). The Role of Capital in Financial Institutions.*International Library of Critical Writings in Economics*, *133*, 3–40.

Blum, J. M. (2008). Why "Basel II" may need a leverage ratio restriction. *Journal of Banking & Finance*, *32*(8), 1699–1707. http://doi.org/10.1016/j.jbankfin.2007.12.003

Boot, A. W., & Thakor, A. V. (1997). Financial system architecture. *Review of Financial Studies*, *10*(3), 693–733.

Bordeleau, E., Crawford, A., & Graham, C. (2009). *Regulatory constraints on bank leverage: Issues and lessons from the Canadian experience*. Bank of Canada Discussion Paper. Retrieved from http://www.econstor.eu/handle/10419/66923

Breuer, P. (2002). Measuring off-balance-sheet leverage. *Journal of Banking & Finance*, *26*(2), 223–242.

Chalermchatvichien, P., Jumreornvong, S., & Jiraporn, P. (2014). Basel III, capital stability, risk-taking, ownership: Evidence from Asia. *Journal of Multinational Financial Management*, *28*, 28–46. http://doi.org/10.1016/j.mulfin.2014.09.001

Chen, S. (2013). How do leverage ratios affect bank share performance during financial crises: The Japanese experience of the late 1990s. *Journal of the Japanese and International Economies*, *30*, 1–18. http://doi.org/10.1016/j.jjie.2013.07.003

Cipovova, E., & Belas, J. (2012). Assessment of Credit Risk Approaches in Relation with Competitiveness Increase of the Banking Sector. *Journal of Competitiveness*, *4*(2), 69–84. http://doi.org/10.7441/joc.2012.02.05

Craig, B. R., Fecht, F., & Tümer-Alkan, G. (2015). The role of interbank relationships and liquidity needs. *Journal of Banking & Finance*, *53*, 99–111. http://doi.org/10.1016/j.jbankfin.2014.12.022

Duffee, G. R., & Zhou, C. (2001). Credit derivatives in banking: Useful tools for managing risk? *Journal of Monetary Economics*, *48*(1), 25–54.

Duran, M. A., & Lozano-Vivas, A. (2013). Off-balance-sheet activity under adverse selection: The European experience. *Journal of Economic Behavior & Organization*, *85*, 176–190. http://doi.org/10.1016/j.jebo.2012.04.008

Geanakoplos, J. (2014). Leverage, Default, and Forgiveness: Lessons from the American and European Crises. *Journal of Macroeconomics*, *39*, 313–333. http://doi.org/10.1016/j.jmacro.2014.01.001

Georg, C.-P. (2013). The effect of the interbank network structure on contagion and common shocks. *Journal of Banking & Finance*, *37*(7), 2216–2228. http://doi.org/10.1016/j.jbankfin.2013.02.032

Jarrow, R. (2013). A leverage ratio rule for capital adequacy. *Journal of Banking & Finance*, *37*(3), 973–976. http://doi.org/10.1016/j.jbankfin.2012.10.009

Karim, D., Liadze, I., Barrell, R., & Davis, E. P. (2013). Off-balance sheet exposures and banking crises in OECD countries. *Journal of Financial Stability*, *9*(4), 673–681. http://doi.org/10.1016/j.jfs.2012.07.001

Keffala, M. R. (2015). How using derivatives affects bank stability in emerging countries? Evidence from the recent financial crisis. *Research in International Business and Finance*, *35*, 75–87. http://doi.org/10.1016/j.ribaf.2015.03.007

Kiema, I., & Jokivuolle, E. (2014). Does a leverage ratio requirement increase bank stability? *Journal of Banking & Finance*, *39*, 240–254. http://doi.org/10.1016/j.jbankfin.2013.11.009

Koch, C. T. (2014). Risky adjustments or adjustments to risks: Decomposing bank leverage. *Journal of Banking & Finance*, *45*, 242–254. http://doi.org/10.1016/j.jbankfin.2014.03.017

Manlagnit, M. C. V. (2015). Basel regulations and banks' efficiency: The case of the Philippines. *Journal of Asian Economics*, *39*, 72–85. http://doi.org/10.1016/j.asieco.2015.06.001

Shaw, M., Chang, J., & Chen, H.-J. (2013). Capital adequacy and the bank lending channel: Macroeconomic implications. *Journal of Macroeconomics*, *36*, 121–137. http://doi.org/10.1016/j.jmacro.2012.12.001

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

THE RELATIONSHIP BETWEEN WORKING CAPITAL MANAGEMENT AND FIRM'S PROFITABILITY: AN EMPIRICAL INVESTIGATION IN VIETNAM

Tuyen Kim Thi Nguyen, Hien Thanh Thi Cao, Vu Hoai Phan, Thien Phuc Nguyen

ABSTRACT

In this paper, the authors investigate 50 different firms listed on Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) operating in 5 sectors of power - electricity - gas, plastics- packaging, production - trading, steel, and food for the period of 2008 - 2014. Variables of cash conversion cycle and net trading cycle are used to assess the effect of working capital management. Using methods of descriptive statistics, Pearson correlation analysis and multivariate regression analysis, the results indicate that there is a relationship between the firm's working capital management, firm size, current ratio, debt ratio and its profitability. The results of this study should be of interest to executives and major stakeholders, such as creditors, investors and financial analysts,…

Keywords: *Working capital, profitability, relationship*

JEL Classification: G3, G32.

1 INTRODUCTION

Working capital plays an important role in the firm's capital structure, and is defined as the difference between current assets and current liabilities, reflects the level of capital required to participate in the firm's production and business process. Working capital and cash are imagined to be the blood current in the vessels of a business entity in order to save the survival of the business entity and management of this part is claimed to be the beating heart of a business entity pumps up the blood into the vessels of the organization (Taghizadeh Khanqah Vahid, 2012).

Effective working capital management is the balance between liquidity and profitability of the firm. Firms need to balance two objectives of liquidity and profitability. If profitability is ignored, the firm is unlikely to survive and develop sustainably, meanwhile if liquidity is ignored, the company will face the possibility of losing the payment of due debts. Efficient management of working capital plays an important role of overall corporate strategy in order to create shareholder value. (Shin & Soenen, 1998).

2 LITERATURE REVIEW

Shin & Soenen (1998) analyzed the relationship between the firm's net trading cycle and its profitability. The authors analyzed a large sample consisting of 58,985 listed firms in the United States in the period 1975-1994 and found a strong negative relation between the firm's net trading cycle and its profitability.

Erasmus (2010) investigated the relationship between working capital management and profitability for a sample containing both listed and delisted South African industrial firms. The obtained results showed the statistically significant negative relationship between firm's profitability and its net trading cycle, debt ratio and liquidity ratio. Similar results were observed

if the listed firms were investigated separately. Based on the results of this study, it would appear that management could try to improve firm profitability by reducing the overall investment in net working capital.

Amarjit G. (2010) investigated the relationship between the working capital management and profitability for a sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007, and found a significant relationship between working capital management and profitability.

Marc D. (2003) used a sample of 1,009 non-financial Belgian for the 1992-1996 period. Trade credit and inventory policies were calculated by number of days acccounts receivable, inventories and accounts payable and cash conversion cycle was used as a comprehensive measure of working capital management. The author pointed out the strong negative relationship between profitability and number of day's accounts receivables, accounts payable and inventories. Results suggested that firms could increase profitability by reducing the number of day's accounts receivable and inventories.

Lazaridis and Tryfonidis (2006) analyzed the relationship between profitability and cash conversion cycle for a sample of 131 companies listed on Athens Stock Exchange for the period of 2001-2004. Their research showed the statistical significance between profitability and cash conversion cycle.

Raheman and Nasr (2007) studied Pakistani 94 firms listed on Karachi Stock Exchange for a period of 6 years from 1999 - 2004. The authors studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, current ratio on the net operating profitability of Pakistani firms. The results showed that there was a strong negative relationship between the variables of working capital management and profitability of the firm. It means that as the cash conversion cycle increase it will lead to a decline in the profitability of the firm, and managers can create a positive value to shareholders by reducing cash conversion cycle to a possible minimum level.

By collecting a data table of 8,872 small and medium-sized Spanish firms for a period of 6 years from 1996 - 2002, **Garcia-Teruel & Martinez-Solano (2007)** investigated the effects of working capital management on the profitability of small and medium-sixed firms. The results showed that the managers could create profitability by reducing their inventories and accounts receivable period. Similarly, shortening the cash conversion cycle also improved the firm's profitability.

Gill, Biger and Mathur (2010) analyzed the relationship between working capital management and profitability of 88 American firms listed on New York Stock Exchange for a period of three years from 2005 - 2007. The data were handled by bivariate Pearson correlation analysis and WLS regression technique. The study found the statistically significant relationship between cash conversion cycle and profitability. It followed that managers could create profitability for their company by correctly handling cash conversion cycle by keeping accounts receivable at an optimal level.

Charitou et al. (2012) carried out an empirical investigation on the effect of working capital management on profitability of the firm in an emerging market. The study used a dataset of all Indonesian firms over the period of 1998 - 2010. The results indicated that working capital management had a positive relationship to the firm's profitability. In addition, the result showed a negative relationship between the firm's risks and its profitability.

Kulkanya Napompech (2012) examined the effect of working capital on profitability based on a sample of 255 companies listed on the Stock Exchange of Thailand from 2007 through 2009. The results showed the negative relationship between the profitability and inventory period, and receivables collection period. Therefore, managers could increase the profitability of their company by reducing the cash conversion cycle, inventories conversion period, and receivables collection period. However, they could not increase profitability by increasing the payables deferral period. The findings also demonstrated that the industry characteristics also had an impact on the profitability.

Daniel Mogaka Makori et al. (2013) analyzed the effect of working capital management on profitability of manufacturing and construction firms in Kenya for the period 2003 to 2012. The study found the negative relationship between profitability and number of day's accounts receivable and cash conversion cycle but a positive relationship between profitability and number of day's of inventory and number of day's payables. The results suggested that managers could create value for their shareholders by reducing the number of day's accounts receivable, and increase number of day's accounts payable and inventories to a reasonable maximum level.

3 METHODOLOGY

3.1 Research data

The data in this research are secondary data of non-financial firms listed on HOSE and HNX. Selected firms must have a stable financial situation and their data were fully published from 2008 through 2014 and continue to operate in 2016. The data scale consists of 50 firms on both HOSE and HNX operating in 5 sectors of power - electricity - gas, plastics - packaging, production-trading, steel, and food for the period of 2008 - 2014. The data were collected for a period of 7 years of 2008 through 2014. The authors obtained 350 observations of 50 firms for 7 years. Then, the researchers used descriptive statistics to observe the variables in the model, and Pearson correlation analysis to examine the relationship between the variables of profitability and working capital in the model, multivariate regression analysis to assess the relationship between the variables, draw conclusions on the results and general conclusions for the paper.

Tab.1 – Percentage of firms in each sector. Source: Field of Authors (2016)

Sector	**Number of firms**	**Percentage**
Power, electricity, gas	6	12%
Plastics, packaging	10	20%
Manufacturing, trading	19	38%
Steel	5	10%
Food	10	20%
Total	50	100%

3.2 Empirical Models

Analysis of the effect of working capital on the firm's profitability used the dependent variable of ROA to measure profitability; independent variables including cash conversion cycle, net trading cycle to measure working capital. Relating to independent variables, the researchers

used control variables including: SIZE – firm size, SG – sales growth, CR- current ratio, DR - debt ratio (Charitou et al. (2012).

Dependent variable:

Variable ROA is measured by the firm's profitability - ROA shows the profitability of the assets.

$$\text{ROA} = \frac{return}{\text{total assets}}$$

Independent variables

No.	Variables	Notation	Calculating formula
1	Cash conversion cycle	CCC	Receivable colection period (RCP) + Inventory conversion period (ICP) – Payables conversion period (PCP)
With	Inventory conversion period	ICP	$\frac{\text{Inventory}}{\text{Cost of goods sold}} * 365$
With	Receivable colection period	RCP	$\frac{\text{Receivables}}{\text{Net revenue}} * 365$
With	Payables conversion period	PCP	$\frac{\text{Liabilities}}{\text{Cost of goods sold}} * 365$
2	Net trading cycle	NTC	$\frac{(receivables \ + \ inventories \ - \ payables)}{net \ revenue} * 365$
3	Firm size	SIZE	Ln(Total assets)
4	Sales growth	SG	$\frac{Net\ revenue_i - Net\ revenue_{i-1}}{Net\ revenue_{i-1}}$
5	Current ratio	CR	$\frac{S□ort - term\ asset}{Short - term\ debt}$
6	Debt ratio	DR	$\frac{Total\ debt}{Total\ assets}$

4 RESULTS

Table 2 shows the statistical description results of dependent and independent variables for the firms. The table presents the max value and min value, mean value, standard deviation of variables for all variables in the regression model.

Tab. 2 – Statistical description results.

Descriptive Statistics				
	Minimum	**Maximum**	**Mean**	**Std. Deviation**
ROA	-0.6455	1.1172	0.087715	0.108572
CCC	-66.2322	565.1546	98.99065	81.8238
NTC	-57.982	546.294	90.26338	72.35826
SIZE	23.6462	29.0468	26.36801	1.107909
SG	-0.5943	169.585	0.745372	9.159806
CR	0.5677	18.1997	2.406529	2.539448
DR	0.032	0.8592	0.462263	0.20874
ICP	0.6796	722.6137	82.98248	71.89887

This table shows the summary statistics for the dependent and independent variables used in this study. The sample consists of 50 firms listed on the Hochiminh and Hanoi stock exchanges from 2008 to 2014.

Table 3 presents the correlation coefficient among all variables. The results show that there is a high correlation between the dependent variable and the independent variables (sig.<0.01), more specifically between ROA and CCC; ROA and NTC; ROA and SIZE; ROA and DR with coefficients of -0.177; -0.190; and -3.03; respectively. Table 3 shows the highest correlation of (-3.03) between SED_SCORE and DR.

Tab. 3 – Correlations Coefficients between Variables

Correlations							
	ROA	**CCC**	**NTC**	**SIZE**	**SG**	**CR**	**DR**
ROA	1						
CCC	-.177**	1					
NTC	-.190**	.993**	1				
SIZE	-.269**	-.075	-.084	1			
SG	-.026	.284**	.317**	-.037	1		
CR	.092	.045	.051	-.283**	.126*	1	
DR	-.303**	.017	.018	.445**	-.088	-.646**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Tab. 4 – Multiple regression results 1

	Coefficients		Sig.	T	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.682	.139	.000	4,904		
CCC	.000**	.000	.001	-3,510	.906	1.103
SIZE	-.018**	.005	.001	-3,338	.794	1.259
SG	.000	.001	.836	,207	.905	1.105
CR	-.007*	.003	.013	-2,484	.576	1.737
DR	-.167**	.036	.000	-4,619	.503	1.990

Dependent Variable: ROA, R Square .164, F = 13.511, Sig = 0.000, N= 350

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Tab. 5 – Multiple regression results 2

	Coefficients		Sig.	T	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.695	.139	.000	5,001		
NCT	.000**	.000	.000	-3,816	.884	1.132
SIZE	-.019**	.005	.001	-3,422	.792	1.263
SG	.000	.001	.670	,426	.885	1.129
CR	-.007*	.003	.015	-2,449	.575	1.738
DR	-.164**	.036	.000	-4,552	.501	1.995

Dependent Variable: ROA, R Square .169, F = 14.030, Sig = 0.000, N= 350

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Tables 4 and 5 shows that the variables influence on the profitability of the two models are equal. The negative correlation between variable ROA and variables SIZE, DR and CR, (models 1 and 2); positive correlation between profitability and variables CCC, NCT (models 1 and 2).

Table 4 and 5 also shows variables CCC and NCT are significantly positive with ROA (sig<0.01). It points out that there is a relationship between the firm's profitability and its cash conversion cycle and the higher the cash conversion cycle is, the higher the profitability of the

firm is and the results are consistent with the studied findings by Charitou et al. (2012) and Amarjit Gill (2010).

According to Tables 4 and 5, variable SIZE is significantly negative with ROA (sig.<0.01). It reveals that there is a relationship between company size and the firm's profitability and the higher cash conversion cycle is, the lower the profitability of the firm is. This result is in contrast to the studied result by Charitou et al. (2012).

Tables 4 and 5 also show that variable CR is significantly positive to ROA (sig.<0.05). It means that there is a relationship between the current ratio and the profitability of the firm and the higher the current ratio is the lower the firm profitability is. This result matches with study results by Charitou et al. (2012).

According to Tables 4 and 5, variable DR is significantly negative to variable ROA (sig.<0.01). It reveals that there is a relationship between debt ratio and the firm's profitability and the higher debt ratio is the lower firm profitablity is. This result is similar to the study result by Charitou et al. (2012) and Erasmus (2010).

5 CONCLUSIONS

Working capital management is the most important decisions in knowledge of financial management. The ability of corporate for long term activity related to this subject that financial managers apply optimum management for working capital management. Our dataset consists of 50 different firms listed on Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) operating in 5 sectors of power - electricity - gas, plastics- packaging, production - trading, steel, and food for the period of 2008 – 2014. Using multivariate regression analysis, the conclusions of this study indicate the following:

There exists a positive association between working capital management and a firm's profitability.

There exists an inverse relationship between a profitability and firm's riskiness which measured by the debt ratio.

This study provides some implications from the above results is that firms should pay attention to working capital management. It seems that taking advantage of credit terms to the suppliers is valued positively by the market. Moreover, firms should maintain inventories at certain levels to satisfy clients, that avoid losing them.

The findings of this study will benefit for executives and major stakeholders since efficient utilization of a firm's working capital leads to increased profitability and thus to value creation.

REFERENCES:

Amarjit, G., & Nahum, B. & Neil, M. (2010). The Relationship Between Working Capital Management And Profitability: Evidence From The *United States. Business and Economics Journal,* Volume 2010: BEJ-10.

Charitou & Lois & Santoso (2013). The Relationship Between Working Capital Management And Firm's Profitability: An Empirical Investigation For An Emerging Asian Country. *International Business & Economics Research Journal,* Vol 11, No 8 pp 839-848.

Daniel M. M., Ambrose J. (2013). Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi

Securities Exchange, Kenya. *International Journal of Accounting and Taxation, Vol. 1, No. 1 pp. 1-13.*

Erasmus (2010). Working capital management and profitability: The relationship between thenet trade cycle and return on assets. *Management Dynamics Volume 19* No. 1.

Garcia-Teruel, P. J., & Martinez-Solano, P. (2007). Effects of working capital management on SME Profitability. International Journal of Managerial Finance, Vol. 3 Iss: 2, pp. 164-177. http://dx.doi.org/10.1108/17439130710738718

Gill, A., Biger N., and Mathur, N. (2010). The relationship between working capital management and profitability: evidence from the United States. B*usiness and Economics Journal* 10, pp. 1-9.

Hyun-Han, S., & Soenen & Luc (1998). Efficiency of Working Capital Management and Corporate Profitability. *Financial Practice & Education*; Fall/Winter 98, Vol. 8 Issue 2, p37.

Kulkanya N. (2012). Effects of Working Capital Management on the Profitability of Thai Listed Firms. *International Journal of Trade, Economics and Finance*, Vol. 3, No. 3 pp. 227-232. doi: 10.7763/ijtef.2012.v3.205

Lazaridis và Tryfonidis (2006), "Relationship between Working Capital Management and Profitability of Listed Companies in The Athens Stock Exchange". *Journal of Financial Management & Analysis*, 19(1), p 26.

Marc, D. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting*, 30 (3/4), 573-587.

Raheman, A., Nasr, M. (2007), Working Capital Management and Profitability - Case of Pakistani Firms. *International Review of Business Research Papers*, Vol. 3, March, pp. 279 – 300.

Taghizadeh K. V. & Ghanavati E. & Akbari K. M. & Ebrati M. (2012). Working capital management and corporate performance: evidence from Iranian companies. Procedia - Social and Behavioral Sciences 62 (2012) 1313 – 1318. doi: 10.1016/j.sbspro.2012.09.225

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ICFE 2016 – The 3rd International Conference on Finance and Economics
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PROJECT CULTURE OF PROJECT ORIENTED COMPANIES

Radka Vaníčková, Peter Jakúbek

ABSTRACT

Presented study deals with the position of project culture in frame of project oriented society. It describes the company and project culture, identifies the relation between them and accents the importance of project culture for the successful implementation of project management philosophy. Very important part of the study is to analyse of present impact of project culture on Czech project oriented societies. The primary aim is the confirmation of the hypothesis H1: Project culture rooted in all levels of the enterprises hierarchy of project oriented society is the essential of project management success, but the developed project culture appears in less than 20 % of project oriented societies acting on Czech market. This study is an output of the KEGA project No. 001DTI - 4/2015 supported by the Ministry of Education, Science, Research and Sport of the Slovak Republic.

Keywords: *Project manager, project management, project management culture, project-oriented company, critical success factors.*

JEL Classification: M14, M19, O21, O22, O31.

1 INTRODUCTION

The present time is very turbulent and companies undergoing constant changes aimed at satisfying the needs and meet requirements of customer. Each such company is situated between two extremes - the continuous production and project. On the one hand there is maximum efficiency and returns to scale, and on the second to the maximum satisfaction of customer needs. Mass customization strategy try to take advantage of both of these extremes, and its goal is to meet requirements of customer with efficiency approaching the level of mass production. This strategy requires the ability to distinguish between what is standard and what is contrary different. Project management is then engaged precisely what is different, it present an aid in overcoming the problems which brought as linear staff organizational structure, which in our country is still prevalent. According to Lacko (2014) "*it is overcome such problems, as long chain of communication, delays and problems during complicated communication or the occurrence of a Ping-Pong effect."* It is distinguished into more and more companies and does not include a designation of activities as projects, but it is the entire complex methodology by which companies manage their processes and activities, it is a science and an art. It can be stated that project management is now frequently used term, where definition is very broad, and differently interpreted, which is evident not only from the Czech but even from foreign technical literature in the field of project management when, as an example we can mention PMBoK (2013), or both books editions of collective authors of Project management according to IPMA (2009), (2012), further publications of Kerzner (2010), (2013), (2015) or publications of Rosenau (2007) and Svozilová (2011) and many others. A key determinant of project management is through the implementation of specific procedures and techniques particularly more effective achievement of project objectives. Thus trivializing the argument has considerable practical dimension, because appropriate chosen methodology for the particular project management is reflected not only in saving time but also in costs or human resources. *„Project management is inherently integration efforts, action or failure in one area, therefore*

usually affect other areas"(Hrazdilová Bočková, 2014). Changing the scope of works as such e.g. almost always affect project cost, but concurrently may or may not affect team morale or product quality Boechova & Gabrhel (2015). These links often bring change of project objectives - performance in one area can be increased only by reducing them in another area. Successful project management requires active management of these linkages. With the aim assist in understanding of the integrative nature of project management and emphasize the importance of integration, it is necessary to describe project management in terms of its component processes and their mutual influencing. Doležal et al. (2012, p. 86) argues that *„ Project management has to be understood as a series of interconnected processes, when the process is formulated as a sequence of actions aimed at creating of results "*. Project management processes are mostly organized into knowledge areas with recommendations, for example Project Management Body of Knowledge and Project Management Handbook or national standard project management competences. Project management process areas that can be applied, and their division into groups, are described in detail in Hrazdilová Bočková et al. (2014, p. 11). It should be seen that project management is not just about the use of methods and techniques, even the most basic should know every project manager. *„Project management means particularly a certain philosophy and operating style, a way of thinking"(*Hrazdilová Bočková & Škoda, 2014). This is quite a frequent source of misunderstanding. Yet even with us over time practicing of project management gradually settles, and in certain fields literally dominates. An increasing number of companies use in their activities projects and become project-oriented companies. Project oriented is, according to Fiala (2004, p. 85) firm, which: *„Considers project management as an organizational strategy, uses temporary organization for the realization of complex processes, manages a projects portfolio different types, has specific permanent organization for integrative functions, applies the „new managerial paradigm", has an explicit project management culture, considers itself as project-oriented".* The predominant strategy in project oriented company is project management. The culture of company is based on project management Ulkhuraiji, Liu, Oderanti & Megicks (2016). By using project management pursues the following organizational objectives, which states Fiala (2009, p. 74): *„ organizational differentiation and decentralization of management responsibility, ensuring quality through the project team work and holistic project definitions, the learning of company through projects. "* Furthermore Fiala (2009, p. 75) states that "project-oriented company has not enough ability to effectively manage individual projects. Besides, it must also be able to*: assign projects and programs, solve consultation and audit of projects and programs, manage the portfolio of projects, manage the programs, and apply networking projects. "*Managing by projects enhances the flexibility and dynamism of company, decentralizing the responsibility of the operational management and improves organization as a result of instruction affecting organizational changes. Other management concepts (e.g. management by objectives) can be integrated and used alternatively.

2 THEORETICAL BACKGROUND/ LITERATURE REVIEW

To any company could work in the form of project, it is necessary to create a project organizational structure and encourage a culture of project. *„Culture of project-oriented company must be in line with its strategy and structure"(*Betáková & Hrazdilová Bočková, 2015). Culture of project-oriented company can be defined as a set of values, norms and patterns jointly created and accepted members of company. Project culture is according to Doležal, Lacko & Máchal (2009, s. 317) „ *Positive mood in the team, its motivation and increasing of competencies, setting rules for managing projects, programs and project portfolios* ".Culture of project management needs to be continuously developed. The extent, to which the culture of

project management in the company exists, can be traced by the presence of its elements in company. These elements of the project management representatives of relevant knowledge the top managers and heads of departments, project managers and team members and internal consultants of project management and project organization, how is in the form of specific values, norms and rules of project management captured in the guidelines, lists and guides, its own culture of project management, which elements are the subject of constant development as reported Carvalho, Potah & Louza (2015); Kostela & Schuler (2016); Hought, Dilchert (2017). Fiala (2009) states that to the procedures used in developing a culture of project management in the company include: monitoring the performance of project management training, monitoring the performance of pilot projects (training on projects), involvement of internal and external consultants for hold a seminars and support of project management, implementation of software for project management and standardization of project management methodology in user manuals. Standardization can be achieved by developing standard hierarchical structures work, defining standard milestones and specifying standard structures manuals. The rate of application standardization depends on the ratio between the number of repeating and unique projects in company. The greater number of repeat projects the greater desire for standardization. During excessive standardization but there is also the risk of losing the benefits of project work that will weaken the autonomy and creativity of workers at work on projects? Key factors of the project culture are about Yang, Chen & Chang (2016): shared values, standards of conduct and opinions. Shared values are widespread views on what is important. Values are those things that are community (society) appreciated and that people refer as inherently important. Word „value „is in „Webster´s Dictionary „defined as: „*principles, standards and quality of inherently considered as useful or desirable. Values can help employees find meaning and reason for their work and combine their individual goals with organizational goals „which* is essentially the basic building block for implementation of project management into the company activity and foundation for project organizational culture. The same dictionary defines views as „ *the belief that certain things will happen* ". Opinions are what one emotionally accepts as inherently true. The standards are based on values and are guide of behaviour within the rules, regulations or standards that people representing specific role follow. According to Hajkra (2010) are currently coming to the fore the systematic development of project culture, which is a combination: long term development of competencies of project management linked to international certification and consultancy aiming for particular client solutions. From the above may suggest that project culture characteristics can be follow: clear communication, knowing when, who and what is doing (has the task), handling with time, deadlines and responsibilities, understanding the hidden agendas and priorities and control interface between the project and line organizations. *„ In connection with implementation project culture may be associated problems with understanding the local culture"(*Hrazdilová Bočková, Gabrhelová & Porubčanová, 2016). *If we want to be good and most effective project managers, we have a good understanding of the values, views and norms of the culture "*(Gabrhel & Hrazdilová Bočková, 2015). In our own organization we are well acquainted with our culture. In the new situation (example external project manager), it is necessary to first understand the principles of the organizational culture and then to enter it. In the case of between-cultural situations (international projects), the problem appears as to be doubled, since there are two cultures, i.e. two values, beliefs and norms, it is necessary to observe that they are conflicting, and which in turn can help to integration. Conversion of an existing company culture towards a culture of project should be realized by the following process: promotion of top management is necessary for change of the organizational culture, creation of new symbols, stories and rituals, selection and support of staff who will defend the new values, re-design of social processes in order to comparison with the new values, change

the wage system towards the promotion of new values, replace the unwritten rules of formal legislation with the great powers, blend contemporary subculture with new restrictions and participation of employees to change. Outside the organizational structure, this is basically a change in communication structures, in particular to the development of a new perception of the role of the organization and project staff, which is related to the development of new methods of planning work, to ensure new staff qualifications and acceptance of autonomy, complexity and dynamics of the project, as stated Schein (1987). The biggest problem for the development of project culture is an area of communication relationships, it discusses in detail Fišer (2014). Communication itself is a significant factor in project management. In the Czech companies workers of different levels spend much time with communications, which is a common phenomenon of multi-project environment. A number of managers argue that the more communication the better. Of course they are right, but only on condition that communication is effective and leads to the timely completion of various project activities. Unfortunately, not all communication in an organization is productive. Often we spend considerable time with communications over inefficient systems of company, or we devote too much time. This is mostly due to the absence of clear and firm priorities in company that are not only interconnected, but also separate issues. Unclear priorities are mostly due to a lack of information about the current status of the project, e.g. the degree of completion of various coarse phases of the project. Unstable priorities occur when the company regularly changes the relative importance of overlapping activities. Changing priorities are mostly in response to new information management in pursuing individual projects. In an uncertain world of projects the effective communication is essential. The ability to communicate, receive and filter new information, update requests, the status of activities, state the results of tests and surveys, specification changes often creates a gap between success and fall in the eyes of the customer. *„Effective communication is enough strong factors to create a high quality working environment and project culture"(*Bedrnová & Nový, 2004). Bartošová (2012) assert that it requires proactive efforts to identify the concrete type of information that are indispensable for the operation of the company, and which should establish a regular and high-quality communication channel. The concept project culture appears not only in connection with projects and project management, but also in relation to the typology of corporate culture T. B. Deal and A. A. Kennedy, which divides the corporate culture according to rate of the risks and dynamics to four types described in Hroník (1999). This typology talking about the so-called analytic - project culture.

The aim of organizing and coordinating of projects is one of the core platforms suitable for project culture. The organizational component of project management in this case must prove ensure: creation of appropriate organizational environment in order to achieve the planned project objectives and the achievement of project plans; the delegation of powers and responsibilities for each position of the project organizational structure and envelopment of organizational culture and its respect. The successful completion of projects, tasks and activities is a significant part of customer relationship management The Last statement goes to the unity of words and actions. These statements have a positive effect on employees and increase their trust in management that report Gallo, Štefko (2015). Increasingly frequent implementation of project management into corporate structures often causes a problem employee subordination of several managers - one responsible for the fulfilment of routine activities, another for fulfilment of the task associated with the project. This leads to a blending vertical and horizontal organizational relationships, leads to conflict situations, disruptive of interpersonal relations and a threat not only to achieve the objectives of the project, but also the entire organization and there is also come about a loss of work morale and distortions of project culture as demonstrated in their work Hrazdilová Bočková & Škoda (2014). Doležal, Lacko & Máchal

(2009) state that the existence of project management principles, hence the overall organizational principles, is one of the solutions to this situation, as it can eliminate duplicate and other unwanted work. The quality of the project culture is even during the use of large methodologies and rules fully dependent on the people who are its bearers, not exclusively and only on their individual performance, but on the activities of the whole company and its efforts to achieve the desired goal.

3 METHODOLOGY

The aim of the paper is the confirmation of hypothesis H1: Project culture rooted in all levels of the hierarchy of project-oriented company is a basic prerequisite for the success of project management, but fully developed project culture exists at less than 20 % of companies operating on the Czech market.

The model-building task can be thought of as the analysis of two conceptually distinct models (Anderson & Gerbing, 1982; Joreskog & Sorbom, 1984). The ability to do this in a one-step analysis approach, however, does not necessarily mean that it is the preferred way to accomplish the model building task. Anderson & Gerbing (1988) report that is as background to the two-step approach, we begin with a section in which we discuss the distinction between exploratory and confirmatory analysis, the distinction between complementary modelling approaches for theory testing versus predictive application, and some developments in estimation methods. Following this, we present the confirmatory measurement model; discuss the need for one-dimensional measurement; and then consider the areas of specification, assessment of fit, and specification in turn. In the next section, after briefly reviewing the confirmatory structural model, we present a two-step modelling approach and, in doing so, discuss the comparative advantages of this two- step approach over a one-step approach: the first Exploratory Versus Confirmatory Analyses and the second Complementary Approaches for Theory Testing Versus Predictive Application.

Measuring and managing business performance is a relatively complex and difficult process which is undergoing significant changes both in practice and in research. Despite the ongoing effort to improve the methodology used, it seems that the traditional business performance management based primarily on financial management has reached its limits and in recent years we have seen the development of new non-traditional indicators, methods and models based primarily on nonfinancial methods, in particular on strategic and other qualitative indicators Rajnoha, Štefko, Merková & Dobrovič (2016). The contribution is based on the integration of two key areas of knowledge - theory and practice of project management. The main emphasis of the work is placed on one of the fundamental aspects of project management and that is project culture which of a project-oriented company. To obtain relevant information summarized at the end of the contribution was used following procedure: A substantial part of secondary analysis is focused on processing of the review of the current state of solve problems and was obtained based on critical analysis of available information sources: the study of three research reports, summary of the available standards and methodologies of project management, 29 of web links, 8 conference papers, and 6 articles in scientific journals, 135 specialized books in English and Czech available in the Library of Tomas Bata University in Zlín, while the selection of materials for secondary analysis was influenced by the importance and actual of contributions, conferences, publications or web-based reference. There were analysed studies, opinions, future scenarios and key issues, all in cooperation with experts from academia and from practise. It has also been drawn from the practical experience of students in bachelors and masters managerially oriented degree programs within leadership their dissertations and theses. Extremely useful was lecturing meetings and workshops with

practitioners of project management, project managers and project team members of both small and large projects, projects of national and international in their further education in the MBA professional degree programs. The focus of the analytical work has been professionally arrangement according to the *Classification Structure of Project Management Topics of Knowledge and Competencies* processed Dworatschkem (2004) in direct comparison with *National standard of competences of project management: National Competence Baseline of project management* processed by Pitaš (2008) and the subsequent implementation of its lines of thought. The primary objective of the secondary analysis is evaluation of available data in order to obtain a detailed overview of the current level of impact of the project culture on successful project management. It was formulated 10 working hypotheses that served as the primary basis of subsequently executed qualitative research described below. A secondary analysis was conducted in the period 2011 - 2014.

4 DATA DESCRIPTION

A significant part of the output of the paper consists of qualitative and quantitative research. Performing detailed research has brought a thorough overview of the current level influence of project culture on successful project management. Outputs of qualitative and quantitative research are below interpreted in an integrated shared way, as the outputs of qualitative research are closely tied to how the inputs, subsequent outputs of quantitative research.

Qualitative research does not give results in the form of numbers and percentage, but is directed to obtain different opinions and attitudes of individual users of project management, which provided an opportunity to discuss and further develop the information obtained from secondary analyses and confirm working hypotheses. Qualitative research result is detailed questions and answers and expanding the knowledge base of key aspects of the impact of the project culture on successful project management. Within the qualitative research was selected respondents divided further into relevant groups according to relation to the use of project management in their practice in the form of workshops and interviews confirmed the relevance of the 10-hypotheses arising from secondary analyse. Workshops and interviews should also responsible for defining the details of the primary direction subsequent to quantitative research and across the board to intervene in outcomes of secondary analysis regarding the description of the impact of the project culture on successful project management. This section includes the formulation of the main points of the secondary analysis as practice-oriented project management considerations. Cannot say that the secondary analysis and qualitative research was conducted separately and independently on the contrary, the outputs of secondary analysis entering to qualitative research and qualitative research outputs to reciprocate refining outputs of secondary analysis. To implement qualitative research was used information gained by workshop with 140 civil servants, 27 workers in the construction industry, 358 certified project managers and project managers, 154 project team members. Accomplished workshops were recorded via the recorder and then listen and evaluated. Interview is methodically conducted conversation to obtain the necessary information. 30 interviews in the time range of 90 minutes were personally carried out in the period January 2014 - August 2015 with respondents further divided into 4 groups according to their relation to the use of project management in their practice follows: users of project management and project team members (15 respondents), consultants (3 respondents), academics (2 respondents), project managers – certified and non-qualified (10 respondents). Interview was realized in 2 phases: first phase **(**January - March 2015) contained 5 interview purposefully led to formulation of a 5 case studies used for individual areas of project management corresponding with 5 steps to successful project management as stated in Doležal, Krátký & Cingl (2013) and second phase (April - August

2015) included 25 interviews with 25 respondents further divided into 4 groups according to their relation to the use of project management identified above. All interviews were recorded via the recorder and then listen and evaluated. Since, the large number of respondents and somehow anonymous participants in workshops and interviews was not possible to determine the detailed specification of the respondents, such as age, gender, specific employment status, education, length of experience, this was not our intention. A common feature of the respondents is simple orientation in the issue of project management or the inclusion of respondents to project-oriented jobs, but also the direct application of project management in almost daily practice of respondent. In the final phase of qualitative research was to achieve its primary output, which was to pronounce the three most important hypotheses which are further qualitative research verified to hypothesis to confirm or not to confirm, and the following procedure: Status detected in secondary analysis summarized into 10 work hypotheses identified as relevant through workshops and interviews was presented during the September - October 2015 as an important theoreticians and practitioners of project management. To determine the order of importance hypotheses were interviewed 108 respondents via email. It was about 25 academics, sponsors and academics lecturers issues of project management at Czech universities in bachelor's or master's degree programs and 83 project managers and members of project teams, who in the period completed MBA career education program at the Business Institute in Prague and Cambridge Business School in Prague and at the same time fulfilled the criterion of expert project management. Because of irrelevance was not in these respondents identified other specifications such as age, gender, specific job status. A common feature of the respondents is simple orientation in the field of project management or the inclusion of respondents to project-oriented jobs during current meeting of the requirement for expert of project management. These respondents numerically valued 10 from secondary analyses arising and formulated working hypotheses through workshops and interviews confirmed as relevant in a scale of 1-10 (1 is the highest rating, the highest importance, 10 is the lowest rating, the lowest importance) to state the three most important hypotheses. The above stated procedure expression of hypothesis rank despite the scale ratings to qualitative research, since in this case the writing array we judge the quality, not the size, it is therefore a scale quantify of qualitative research.

The outcome of quantitative research were the views of 594 experts project management with an intention to confirm or not to confirm the three hypotheses, as the primary objective of quantitative research, scaling data (via questionnaire) in the timeframe September - October 2015 and especially the determination of the impact of the project on the culture of successful project management. The outcomes of the quantitative research cannot be regarded as a dogma of project management in the Czech Republic. Already in the secondary analysis and qualitative part of the research, it was found that the dogma of project management within the country still has not been defined. For this reason, priority was lay stress on experts of project management. Selected criteria for a representative sample of respondents in questionnaire survey are the following: member of the company for project Management / project manager certification IPMA, PMI, PRINCE2 or other / completed MBA professional education in the program of Project management or program related to containing models of project management area / retraining Manager or Project Administrator or Manager of programs and complex projects compliant with the Ministry of Education from 2013, which contributed (SPŘ, Ltd), MBP Consulting, Ltd., PM Consulting, Ltd., Shine Consulting, Ltd and more than 2 years' experience in project management. The data below confirm that this requirement regarding the respondent's quality - experts has been met: all of the respondents work at area of project management more than 2 years, 43,2 % respondents are members of SPŘ, 45,9 % is certified project managers, 89, 6 % has a particular education or retraining. Quantitative research aims

to confirm or refute the declare hypothesis consists of partial investigations dealing with: project orientation of the Czech Republic, defining the current state and future scenarios and trends of the Czech project management and identifying critical factors of success of the Czech project management. Quantitative research takes account of the increasing awareness of the impact of the project culture to successful project management resulting from secondary analyses and qualitative research.

5 RESULTS

It emerged from structured interviews with experts in project management, project management is considered to be a core platform performance and competitiveness of the company, on which is layered other extensions, which already does not solve the primary objective which is the generation of profit and mere survival in the market, but trying to cope with influences of the current complex world and very quickly and dynamically changing environment in which companies operate.

In the framework of project-oriented companies can be identify the critical success factors that are considered to be essential for successful implementation of projects in the current competitive conditions. The analysis of critical success factors lay in performing the following steps (Critical success factors of project management and its detailed analysis state Valenta, Hrazdilová Bočková & Vořechová (2004)): based on the secondary analysis were defined critical success factors that should help in developing and applying the most appropriate project management practices in project-oriented company. To identify the critical success factors proceeded from: results of secondary analysis, results of structured interviews, knowledge of the environment of companies that label their project management as successful and critical success factors were tested to determine their relevance and relationship to the holistic conception of a company's performance. To determine the mutual relations proceeded from: contribution of project management, culture of company, training and education, standardization, future expectation, process of familiarization with project management and critical success factors have been subjected to a benchmarking with management principles defined by the standard ISO 9001:2000. The success of the project management has always been characterized by a fundamental triple constraint, in other words, a project that has reached the planned objectives (outputs), on time and within planned costs was considered as successful. Despite these relatively clear and simple metrics, the success of projects in worldwide gauge at the end of the 20th century in ranged from only 16 to 20 % (refer to surveys conducted by the Standish Group company). The survey shows that the success of project management is not just determined by the classical disciplines of project management, but is primarily determined by cultivation of the project environment, good established procedures, the correct choice of projects in line with the objectives of the company, exact specifications of assignment, correct and realistic planning and make visibility of all resources and activities on the project and especially the project culture. Based on these dramatically changed conditions of the environment in which the implementation of projects take place was the original definition of the success of the project management changed as follows. For a successful project, consider one that: was completed in the scheduled time, in planned costs with s appropriate quality (given by performance or level of specification), was fully accepted by the customer / user, creates conditions for using the customer's name for reference was implemented with minimal number of project changes (conditioned by mutual consent), did not caused disruption of work major flows of company and require nor did it introduce changes in the culture of the company. Within the summarization of the results can be indicated even the fact that the project culture is one of the most important critical success factors of project management and as such stimulates the

imagination solution towards the creation of acceptable values and understanding of customer needs. Importance of critical success factor was project culture by respondent indicated with value of 62 %. Developing of company culture through project management was identified as a critical success factor in project management. 63.3 % of respondents say that project management is part of their culture. Taking into account that the project culture, we can mention only in the case when project management is fully penetrated into all levels of the company hierarchy, and then there is a project culture only in 11.6 % of respondent companies. This reality points to the fact that the term project culture is not in its correct form fully extended and project management is only partially understood. Project management as management philosophy is difficult to implement into large companies because of its rooting to line organization is condition to employee participation only to on the successful projects.

Hypothesis H1 showing the average level of relevance, it may be regarded as relevant for the Czech environment and declare that it was not its relevance unequivocally rejected.

According to Hrazdilové Bočkové et al. (2015) is one of the most important aspects of the project culture experienced, educated and, if possible, a certified project manager and performance of standardization of project management within the project-oriented company. However, the positions of project manager is by no means standardized, are possible nuance of this position within individual organizations, but thanks to a successful and rewarding treating "project" qualifications to NSK was under MBP Consulting (2010) from the perspective of the development project culture in the Czech Republic reached: gradually increasing demand for holders of "certified qualifications" from the perspective of the labour market (preference of candidates that possess proven qualifications), surer hand and greater success in recruitment into "project-oriented professions" (personnel and managers can rely on the qualification and evaluation standards relating to these professions), gradually increasing demand for holders of "certified qualifications" in terms of public procurement (technical and qualification requirements for tenders), increased interest in the activities and services related to the development of qualifications and advisory services in project management, respectively services related to the verification of these qualifications, gradually increasing project success, respectively reducing the number of various "project excesses", generally a more efficient use of resources and last but not least meaningful spending "public money". Evaluation of hypothesis: number of replies: 105, standard deviation: 1, 27, average: 2, 22.

6 CONCLUSION

When companies want to increase their competitiveness, then the managing of modern project management in the form of project-oriented company management system is a necessary prerequisite. This is not only a condition necessary for the Czech manufacturing and non-manufacturing companies; this includes a number of state and non-state institutions.

As the output aforementioned partial research works has been defined seven parameters, without whose existence is impossible to successfully apply the philosophy of project management. Among these parameters plays a vital role Project company culture. The reason is that to the application of the principles of project management for commercial and business transactions, all the stakeholders of the project-oriented company must ensure uniform rules and principles in order to eliminate significant deviations in results of individual projects. Project culture is becoming an important criterion for the classification of the project-oriented company into one of the three existing types of (type A, type B, type C), project management, which will be described in detail and evaluated within the project VEGA, which will be filed in April 2016 and in the next three years, worked out in detail. The table below (Table 1) shows

the parameter values for each type of project management. The parameters can be analysed through questionnaires surveys and through analysis of critical success factors have been identified and recommended values for the classification of companies into one of three types.

Tab. 1 - Metrics degree of implementation of the Czech project management. Source: own research

Metrics degree of implementation of the Czech project management	Type A	Type B	Type C	CZ
Top management supports the implementation of project management	1,9	2,6	2,6	2,5
The use of project management methods	2	1,8	2	2
Compulsory education and training	2,4	2,6	2,5	2,3
Participative management style of management	1	1,2	1,8	1,8
Project managers have good conditions for further career growth	1	1?6	2,4	2
Project company culture	1	1,6	2	1,9
Standardization of project Management	1,4	1,6	1,8	1,5

The last column of table indicates the numerical values of the parameters defining the current state of project management in the Czech Republic, which is located on level B, it is evident that the project culture within those parameters is relatively developed, bordering with values for type C. This means that in reality of the Czech economy is project management supported by top management as a competitive factor and is often implemented at the operational level rather than strategic. His approach is very detailed and is focused on efficiency and takes into account the basic project objectives and that in the concept of Triple Constraint, is quite often used. Project management is deeply rooted in the culture of Czech companies. Line and project organizations work in parallel and very efficiently. Project culture at this level have various traditional sectors of the Czech economy such as construction and engineering, as well as the defence of the State and those sectors where there is a frequent change in the situation on the market (e.g. the IT industry) or those sectors where the company is very customer oriented and which takes into account the high complexity due to the internationalization and short cycles of innovation.

In the business reality of our country project management application mainly represents the definition of tasks which are imposed on us in terms of demand from our clients, but also and mainly, in terms of legislative impacts arising from the activities of ministries, agencies and EU requirements. While essentially in the context of project management is the ability to define the need for solutions, further enable sufficient discussion - from which emerges clarification of tasks, staff motivation, feedback control and definition of project culture. Sufficient discussion often prevents to authoritative access of executives - an inability to define the task and a clear explanation for consistency and clarification of why that particular worker must be the solution to the task = project deal. Another obstacle is overkill of competition of workforce and high career motivation, which is a psychological barrier to the development of discussion and intensification of knowledge on a given task (ideal for executives are Bata's motto "All are my colleagues").

Project culture, in particular organizational culture of business entities in the project-oriented company, which is part of the continuously contributes to the comprehensive measurement of the impact the effectiveness of key factors (shared values, standards of conduct and opinions) in the process of project-oriented companies, particularly small and medium size.

This paper is useful in the field of project management, applied to the practice of project management project-oriented companies and firms, particularly small and medium size.

REFERENCES

A guide to the project management body of knowledge (PMBOK® guide). (2013). Newtown Square, Pennsylvania: Project Management Institute.

Alkhuraiji, A., Liu, S., Oderanti, F.O., Megicks, P. (2016). New structured knowledge network for strategic decision-making in IT innovative and implementable projects. *Journal of Business Research.* 69 (5), 1534-1538.

Anderson, J. C, & Gerbing, D. W. (1982). Some methods for specifying measurement models to obtain one-dimensional construct measurement. *Journal of Marketing Research,* 19, 453-460.

Anderson, J. C, & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological bulletin*, 103 (3). 411 – 417.

Bedrnová, E. & Nový, I. (2004). *Psychology and Sociology*. Prague: Management Press. 5.

Betáková, J. & Hrazdilová Bočková, K. (2015). *Project management*. Brno: College of Business, Inc.

Boekova, K.H. & Gabrhel, J. (2015). Innovation manager and his position in the company. International Business Management. 9, (5), 685-693.

Carvalho, M. M., Patah, L. A. & Souza Bido, D. (2015). Project management and its effects on project success: Cross-country and cross-industry comparisons. *International Journal of Project Management*. 33, (7), 1509-1522.

ČSN ISO 10006. (2004). Prague: Czech Standards Institute.

Doležal, J., Krátký, J. & Cingl, O. (2013). *5 Steps to Successful Project 22 key documents and templates 3 complete real projects*. Prague: Grada Publising.

Doležal, J., Lacko, B., Máchal, P. & Hrazdilová Bočková, K. (2009). *Project management according to IPMA.* Prague: Grada Publishing.

Doležal, J., Lacko, B., Máchal, P. & Hrazdilová Bočková, K. (2012*). Project management according to IPMA.* Prague: Grada Publishing.

Dworatschek, S., Kruse, A., Asum, H., Baumann, T., Schmidt, K., Poli, F. & Preuschoff, A. (2004). *PM World Study: International PM State & Trend:* research report. Bremen: VW Coaching.

Fiala, P. (2004). *Project Management - models, methods of analysis.* Prague: Professional Publishing.

Fiala P. (2009). *Project Management - Management strategy, project-oriented companies.* [Online]. [Cited 21 February 2016]. Available from: http://www.automa.info.cz.

Fišer, R. (2014). *Process management for managers. How do I get people to know, they wanted to know how I could*. Prague: Grada Publishing.

Gabrhel, J. & Hrazdilová Bočková, K. (2015). Innovation Manager and His Position in the Company. *International Business Management.* Medwell Journals. 9(5): 685-693.

Gallo, P. & Štefko, R. (2015). *Using Management Tools to Manage Network Organizations and Network Models*. In SROKA, W., HITTMÁR, Š. ET AL. Management of Network Organizations Theoretical Problems and the Dilemmas in Practice. Springer International Publishing Switzerland, ISBN: 978-3-319-17346-7, p. 255-256.

Hajkr, J. (2012). *What is happening in project management?* [On/line]. [Cited 21 February 2016]. Available from: //http://www.shine.cz.

Hrazdilová Bočková, K. (2014). *Project management*. Dubnica nad Váhom: Dubnica Institute of Technology in Dubnica.

Hrazdilová Bočková, K., Škoda, M., Hrvolová, M. & Korintuš, K. (2014). *Project management*. Dubnica nad Váhom: Dubnica Institute of Technology in Dubnica.

Hrazdilová Bočková, K. & Škoda, M**.** (2014)**.** Study of culture of project oriented society. *International Journal of Information Technology and Business Management. 9(5)*. 685-693.

Hrazdilová Bočková, K., Gabrhelová, G. & Porubčanová, D. (2014). Game Theory as a Tool of Conflict and Cooperation Solution between Intelligent Rational Decision-makers in Project Management. *International Journal of Economic Perspectives. 10(4).* 1307-1337.

Hrazdilová Bočková, K., Škoda, M., Polčáková, M. & Rozvadský Gugová, G. (2015). *The competence of managers of national and international educational projects*. Dubnica nad Váhom: Dubnica Institute of Technology in Dubnica.

Hroník, F. (1999). *How to be burned when selecting employees. Detailed guide the selection process*. Prague: Computer Press.

Hough, L., Dilchert, S. (2017). Personality: Its measurement and validity for employee selection. Handbook of Employee Selection. 299-319.

Joreskog, K. G., & Sorbom, D. (1984). *USREL: Analysis of linear structural relationships by the method of maximum likelihood.* Chicago:National Educational Resources.

Kerzner, H. (2010). *Project management: best practices: achieving global excellence*. Hoboken, N. J.: John Wiley & Sons.

Kerzner, H. (2013). *Project management: a systems approach to planning, scheduling, and controlling*. Hoboken, New Jersey: John Wiley & Sons.

Kerzner, H. (2015). *Project management 2.0: leveraging tools, distributed collaboration, and metrics for project success*. Hoboken: John Wiley & Sons.

Koskela, V., Schuyler, K. G. (2016). Experiences of Presence as a Key Factor toward Sustainability Leadership. *Journal of Leadership Studies.* 9 (4), 54-59.

Lacko, B. (2014). *Project Management - a tool to increase competitiveness*. [Online]. [Cited 29 January 2016]. Available from: http://system.ccb.cz/site/rizeni_projektu.

MBP Consulting. (2011). *NSK2 project*. [Online] [Cited 21 June 2015]. Available from: http://www.mbpconsulting.cz.

Pitas, J. (2008). *National Standard Competences of Project Management: National Competence Baseline of project management*. Brno: Brno University of Technology in cooperation with SMR.

Rajnoha, R., Štefko, R., Merková, M. & Dobrovič, J. (2016). Business intelligence as a key information and knowledge tool for strategic business performance management. *E+M Economics and Management,* 1 (19): 183-203.

Rosenau, M. D. (2007). *Managing projects*. Brno: Computer Press.

Schein, E. H. (1987). *The Art of Managing Human Resources*. New York: Oxford University Press.

Standish group. (2015). [Online]. [Cited 29 January 2016]. Available from: http://www.standischgroup.at/cd02.

Svozilová, A. (2011). *Project management*. Prague: Grada Publishing.

Valenta, K., Hrazdilová Bočková, K. & Vořechová, E. (2004). State of the Project Management Practice in Czech Republic – the research methodology framework. *E + M Economics and Management*, 7 (1). 6 - 14.

Yang, L.R., Chen, J.H. & Chang, S. P. (2016). Testing a framework for evaluating critical success factors of projects. *Journal of Testing and Evaluation*. 44, (1), 19-30.

Webster's Dictionary. (2011). [Online] [Cited 21 April 2015]. Available from: //www.webster-online-dictionary.org.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

APPLYING SUPPLY CHAIN MANAGEMENT TO CONSTRUCTION INDUSTRY: A CASE STUDY OF VIETNAM

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ABSTRACT

The application of the supply chain management (SCM) in industry has achieved much success, especially in the manufacturing sector. In the current market, the Vietnamese construction companies must compete not only the domestic companies but also the foreign companies, the application of SCM is essential to improve efficiency and increase their competitive advantage. In this paper, a survey was carried out to identify factors that cause limitation in applying SCM to the Vietnam construction industry. A qualitative approach was based on prime contractor's perspective at the construction phase of the project. The survey questionnaire was designed by synthesizing and inheriting the previous studies and consultation with experts. The survey participants are those who have had working experience with main contractors and joined in the construction projects. The face-to-face interviews were conducted to collect data. Descriptive statistics analysis and Exploratory Factor Analysis (EFA) were used to analyze data. The results indicated seven leading causes which limited the application of SCM in the construction industry.

Keywords: *Supply Chain Management (SCM), Limiting Factors, Construction Industry*

JEL Classification: M10, L74.

1 INTRODUCTION

The Vietnamese construction industry is one of the main economic sectors playing an important role in country's economic growth. It faced with many difficulties due to the impacts of the economic crisis. However, in recent years, the construction industry in Vietnam has shown signs of recovery. In 2014, the total value of construction sector reached 211,200 billion VND, increasing 6.2% compared to the year 2013. In addition, Vietnam has integrated into the international market when joining the World Trade Organization (WTO) (11th January 2007), signing the Vietnam - Korea Free Trade Agreement (VKFTA) (5th May 2015), the Vietnam – Eurasian Economic Union Free Trade Agreement (29th May 2015), and the Trans-Pacific Strategic Economic Partnership Agreement (TPP) (4th February 2016). These not only brought many opportunities but also created significant challenges for Vietnamese businesses when they have to compete in today's fiercely competitive environment. The construction firms in Vietnam have to compete with not only domestic companies but also foreign corporations. Thus, the current demand for innovations to improve the efficiency of the construction industry and increase the competitive advantage of its companies is very urgent.

SCM technique has been widely applied to various professions, especially in the manufacturing sector. Its efficiency helped many industries to lift productivity and competitive capacity at the current global market. The successful SCM applications of Wal-Mart, Procter & Gamble, Ford, and Dell are typical examples. As a result, they have become the leading firms in the markets. In Vietnam, Vinamilk company has also achieved great success from the application of SCM in their business activities. Therefore, SCM is considered as an appropriate method that can

meet the urgent needs of the Vietnam's construction sector. Despite the present recognition of SCM importance, its application for the construction industry in general and Vietnam's, in particular, is limited. Therefore, it is essential to find the causes of such limitation.

2 RESEARCH BACKGROUND

2.1 Supply Chain and Supply Chain Management in Manufacturing

Some definitions have been proposed concerning the concept of the supply chain and its management such as Ganesham, Ran and Terry P. Harrison (1995); Lambert, Stock and Ellram (1998); Chopra Sunil and Peter Meindl (2001) (Binh Nguyen Cong, 2008). In general, the supply chain in manufacturing can be stated as the activities network of companies involving from raw material to finished product and delivery to the customers. Therefore, SCM can be defined as the manipulations impact on the operations of the supply chain to gain the desired results, the coordination of manufacture, inventory, place and transport among the members of a supply chain with the aim to rhythmically and efficiently meet the market demands (Michael Hugos, 2010).

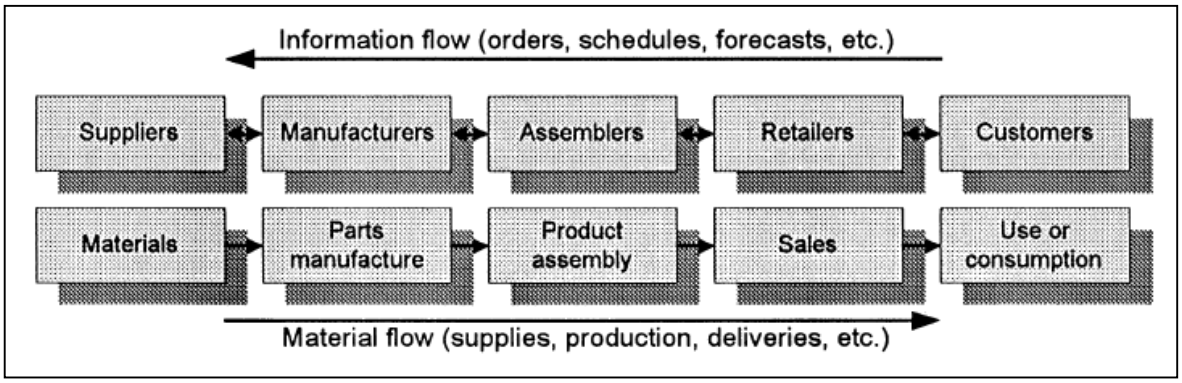

Fig.1 - Generic configuration of a supply chain in manufacturing. Source: Vrijhoef and Koskela (2000)

2.2 Supply Chain and Supply Chain Management in Construction

Although the construction industry is much delayed than other sectors in applying SCM, many concepts are available, such as the ones suggested by Serpell and Heredia (2004), Xue et al. (2005), Shijun Song and Min Fan (2010). However, in this research, the supply chain, and SCM are understood as follows: Supply chain is the activities network of involved companies (client/ owner, designer, consultant, the prime contractor, subcontractor, and supplier) to create and put a completed building to use. Each supply chain member is a link of one or many other chains, creating a complex network; SCM in construction is the ways that the firms used to raise the cooperation between stakeholders in the chain and link the key construction business processes. Its purposes are to improve construction productivity, enhance competitive advantage and satisfy the client requirements at the lowest cost.

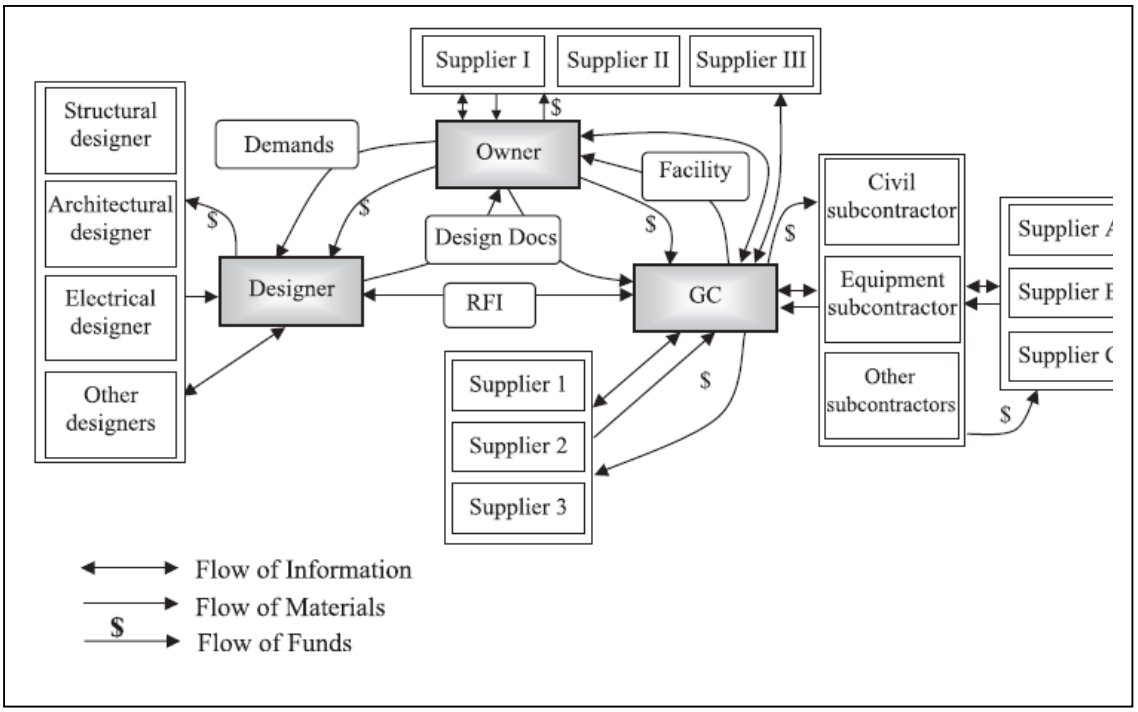

Fig. 2 - Model of construction supply chain. Source: Xue et al. (2005)

2.3 Characteristics of Construction Supply Chain

According to Ruben Vrijhoef and Lauri Koskela (2000), Morledge et al. (2009), Shijun Song and Min Fan (2010), Li et al. (2010), the construction supply chain is characterized by the following elements:

- Convergent supply chain: Directing all materials to the construction site. The "construction factory" is set up for a single product, in contrast to systems of manufacturing where multiple products pass through the plant and distribute to customers.

- Pull supply chain: Products are derived from the requirements of the owners, they find the main contractors who can meet their demands. The main contractors continue to find the subcontractors, suppliers that can help them to complete the project. This process continues to create a construction supply chain.

- Make-to-order supply chain: Each project creates a new product. There is little repetition except for some special cases.

- Apart from rare exceptions, a supply chain is only used for a single project, and the duration of the chain depends on the project life cycle. As a result, the construction supply chain is typified by temporary, instability and fragmentation.

2.4 Status of Supply Chain Management Application to Construction Industry in Vietnam

Vietnam has gradually integrated into the international market. Therefore, the local contractors need to find the development strategies to be able to compete against the foreign contractors. According to Vinh Nguyen Tan Quang (2015), only a small number of domestic contractors have the opportunity to access the world advanced management and construction techniques. Also, domestic contractors are in the need of supporting industry to compete at the global level. Currently, only some of the big contractors such as CotecCons (CTD) and Hoa Binh (HBC) attempt to carry out the Design – Build model and BIM system to create the added values and

improve their gross margin. It could be the upcoming trend and strategy for Vietnam constructors.

Beside Design – Build model and BIM system, SCM technique also meets the current demands of Vietnam's construction industry. However, its concept is not popular. The survey result shows a significant number of respondents (72%) agreed that applying SCM to construction is essential. Also, some of the core benefits were achieved when respondents had agreed on implementing SCM. First, it brings many advantages to all members of supply chain and contributes to improving efficiency. Second, it helps to resolve adversarial relationships among the project stakeholders; and create favorable conditions for all members of the supply chain to coordinate together.

However, Thuy Nguyen Van (2013) found that some problems remained with the Vietnamese construction. For instance, 97.5% of respondents adopt the primary ways (mail, fax, telephone or face-to-face) to connect and share supply information. Only 2.5% of them use connected information systems and have a computer program that specialized in supply. The major way employed by contractors from materials procurement is depending on the site request (88.6%). It is the simplest purchase method and only aim to satisfy the location material demands without optimizing calculation. Moreover, the subcontractors work scheduling is often proposed by themselves (43%), by the main contractor (27.8%) and by the combination of the main contractor and their subcontractors (29.1%). All of these challenge the contractors to implement SCM. Thus, the causes of restriction to SCM application are not only innovation aversion, but also other barrier factors, such as the sector characteristics, lack of SCM knowledge, inappropriate organization structure to support the system.

3 RESEARCH METHODOLOGY

At the departure, the preliminary list of 39 limiting factors in applying SCM to the construction sector are identified by synthesizing from the other sources like textbooks, journals, and previous studies. However, most of the documents were originated in different countries, so the experts' consultation was carried out to match with the Vietnam context. A group including nine professionals who have extensive experience in project management and participated in large-scale projects valued over 200 billion VND, were invited to assess, select from the preliminary list of factors and add many factors that they experienced in practice. Among nine experts, there are one with over 20 experience-year, followed by three with over 16 years, two with over 11 years and three with over five years. After several face to face interviews with these experts, 30 factors were extracted from 39 original factors and put in the survey questionnaire.

The participants for the survey are the people who have experiences in working with the main contractors and joined the civil and industrial projects. The face-to-face interview was conducted to collect data. The respondents were asked to indicate the limited level of the factors by using a five-point Likert scale from 1= "least extent" to 5= "great extent".

Eighty-six valid responses with 3 from senior managers (3.5%), 22 from project managers or (deputy) project directors (25.6%), 16 from construction site commanders (18.6%), 34 from members of project management department (39.5%), 11 from low-level managers or engineers (12.8%) were obtained after the data collecting process. Regarding working experience, there are one people with over 20 years (1.2%), nine people with 16-20 years (10.5%), nine people with 11-15 years (10.5%), 51 people with 5-10 years (59.3%), and 16 people with 3-5 years (18.6%). For project scale, over 200 billion VND projects share 47.7% with 41 participants. The proportion of 100-200 billion VND projects, 50-100 billion VND projects and under 50

billion VND projects are 15.1% of 13 people, 14% of 12 people and 23.3% of 20 people respectively.

Tab.1 - Thirty factors were extracted from 39 original factors.

Source: Authors' Calculation (2015)

	The limiting factors
A	**Group of factors related to the sector characteristic**
1	The temporary and short-term of construction project
2	The complexity of construction project (there are many components involved in the supply chain)
3	The uncertainty and frequent changes of construction project (The changes usually from commands of owner lead to the change of project implementation plan)
4	The uniqueness of construction project (each project construction is different in size, resources, and implementation method)
5	There are more conflicts and disputes than other industries
6	No standardization in the construction project of labor, machinery, equipment, and so forth.
7	There is strongly affected by many external factors: human, social, weather and other natural elements that lead to high risk (legal aspect, price fluctuations, labor safety, and so forth)
B	**Group of factors related to the participants in a project (Owner, Designer, Contractor, Consultant, Supplier):**
1	Lack of understanding of supply chain and supply chain management
2	Lack of top management commitment
3	Inappropriate organization structure to support system
4	Fragmented processes
5	Lack of appropriate information technology system
6	Insufficient resources to integrate processes and manage logistics within a one-off project environment
7	Lack of experience for innovations (JIT, BIM, TQM,…)
8	The emphasis on individual interests rather than the common interests of the project members
9	The weakness in the internal management of the units involved
10	Deficiency trusts in the partner competence
11	Lack of coordination and mutuality among the partners joined the process
12	Adversarial relationships among the participants in the project
13	Less transparency, limitation and inadequacy in sharing the project information and communication

14	Applicability is limited by the competitive bidding process (Prime focus on bid prices, without focus on real cost)
15	Lack of initial preparation of organizations involved in the project's supply chain
16	Lack of awareness of the benefits and importance of adopting supply chain management in construction projects
17	Low commitment of partners
18	The professional contractors were not involved early in processes of the projects (because the owners selected inappropriate contractor at the beginning of stage)
19	The residual power between the participants
20	Minimal or no direct interactions that foster long-term sustainable relationships with the partners
21	Lack of possible partners with the appropriate collaborative capability (regarding scale, available resources to meet the requirements when joining the chain)
22	Differences in language, procedure and process when it has the participation of foreign firms
23	The owner financing does not satisfy the chain's requirements

4 DATA ANALYSIS

In this research, data analysis was undertaken using the descriptive statistics analysis method combined with exploratory factor analysis by IBM SPSS Statistics Version 22. A7 and B19 factors were removed when testing scale reliability through Cronbach's alpha coefficient. The results show six groups of main reasons caused the limitation to SCM application for the construction industry in Vietnam. They are labeled and presented in Tab. 5.

Tab.2 - Ranking the sector characteristics' factors according to the average value.

Source: Authors' Calculation (2015)

	Factors	**Mean**
A3	The uncertainty and frequent changes of construction projects (The changes usually from commands of owner lead to the change of project implementation plan)	3.53
A6	No standardization in construction projects of labor, machinery, equipment.	3.44
A2	The complexity of construction projects (there are many components involved in the supply chain)	3.37
A5	There are more conflicts and disputes than other industries	3.28
A1	The temporary and short-term of construction projects	3.12
A4	The uniqueness of construction projects (each project construction is different in size, resources, and implementation method)	2.98

Tab.3 - Ranking factors related to the participants in a project according to the average value. Source: Authors' Calculation (2015)

	Factors	**Mean**
B1	Lack of understanding of supply chain and supply chain management	3.81
B8	The emphasis on individual interests rather than the common interests of the project members	3.71
B23	The owner financing does not satisfy the chain's requirements	3.65
B16	Lack of awareness of the benefits and importance of adopting supply chain management in construction projects	3.63
B9	The weakness in the internal management of the units involved	3.62
B2	Lack of top management commitment	3.60
B14	Applicability is limited by the competitive bidding process (Prime focus on bid prices, without focus on real cost)	3.53
B13	Less transparency, limitation and inadequacy in sharing the project information and communication	3.51
B11	Lack of coordination and mutuality among the partners joined the process	3.49
B7	Lack of experience for innovations (JIT, BIM, TQM, and so forth)	3.49
B3	Inappropriate organization structure to support system	3.49
B12	Adversarial relationships among the participants in the project	3.45
B15	Lack of initial preparation of organizations involved in the project's supply chain	3.44
B21	Lack of possible partners with the appropriate collaborative capability (regarding scale, available resources to meet the requirements when joining the chain)	3.42
B6	Insufficient resources to integrate processes and manage logistics within a one-off project environment	3.42
B4	Fragmented processes	3.35
B10	Deficiency trusts in the partner competence	3.33
B5	Lack of appropriate information technology system	3.28
B22	Differences in language, procedure and process when it has the participation of foreign firms	3.14
B20	Minimal or no direct interactions that foster long-term sustainable relationships with the partners	3.14
B18	The professional contractors were not involved early in processes of the projects (because the owners selected inappropriate contractor at the beginning stage)	2.94

	Factors	**Mean**
B17	Low commitment of partners	2.94

Tab.4 - Summary of Factor Analysis results. Source: Authors' Calculation (2015)

Components	**Factor Loading**	**Eigen-values**	**% of variance**
1. The company's SCM capability approaches		**3.552**	**16.148**
Lack of understanding of supply chain and supply chain management	0.665		
Lack of top management commitment	0.743		
Insufficient resources to integrate processes and manage logistics within a one-off project environment	0.586		
The emphasis on individual interests rather than the common interests of the project members	0.591		
The weakness in the internal management of the units involved	0.686		
Deficiency trusts in the partner competence	0.673		
2. The awareness of the importance of coordination and support among the project stakeholders		**2.946**	**13.389**
Lack of coordination and mutuality among the partners joined the process	0.630		
Adversarial relationships among the participants in the project	0.612		
Less transparency, limitation and inadequacy in sharing the project information and communication	0.636		
Lack of initial preparation of organizations involved in the project's supply chain	0.620		
Lack of awareness of the benefits and importance of the adopting supply chain management in construction projects	0.579		
The professional contractors were not involved early in processes of the projects (because the owners selected inappropriate contractor at the beginning stage)	0.685		
3. The inappropriate supply chain creation support systems		**2.367**	**10.760**
Inappropriate organization structure to support system	0.557		
Fragmented processes	0.706		
Low commitment of partners	0.685		

Components	**Factor Loading**	**Eigen-values**	**% of variance**
Differences in language, procedure and process when it has the participation of foreign firms	0.560		
The owner financing does not satisfy the chain's requirements	0.573		
4. The poor maintaining of collaborative relationships		**2.002**	**9.101**
Applicability is limited by the competitive bidding process (Prime focus on bid prices, without focus on real cost)	0.749		
Minimal or no direct interactions that foster long-term sustainable relationships with the partners	0.615		
Lack of possible partners with the appropriate collaborative capability (regarding scale, available resources to meet the requirements when joining the chain)	0.615		
5. The experience of innovations		**1.736**	**7.890**
Lack of experience for innovations (JIT, BIM, TQM…)	0.839		
6. The appropriate information technology systems		**1.333**	**6.060**
Lack of appropriate information technology system	0.840		

5 DISCUSSION

Based on the component of the construction characteristics, together with six components obtained from the exploratory factors analysis, it can be concluded that the application of SCM to Vietnamese construction industry is limited by seven major causes including (1) the characteristics of construction industry; (2) the company's SCM capability approaches; (3) lack of awareness of the importance of coordination and support among the project stakeholders; (4) the inappropriate supply chain creation support systems; (5) the poor maintaining of collaborative relationships; (6) lack of experience of innovations; and (7) lack of appropriate information technology systems.

(1) **The characteristics of the construction industry.** They are barriers to applying SCM. The temporary and short-term of construction projects lead to the difficult creation of long-term relationship and the mutual support among the members involving projects. Also, the participation of many organizations at the same time, as well as uncertainty and frequent changes during the project implementation process, made the construction have more conflicts and disputes than other industries, creating obstacles for managing a supply chain. Additionally, each project has its characteristics and no standardization in construction projects of labor, machinery, equipment, as a result, many aspects have to be considered to select appropriate supply chain with the demands on the resources (finance, labor, and machinery) to meet requirements of chains. This multiple is also an issue of the construction sector.

(2) **The company's SCM capability approaches to apply SCM.** The understanding and equipment of every member of a supply chain about mind, knowledge, support structure, available resources are crucial; these will be facilitated when they take part in the chain. Also, each participant who comes from various independent organizations will always focus on individual interests rather than common interests, therefore, conflicts are created. The

deficiency trust in the partner competence has also been mentioned. These factors make the coordination and mutuality harder to apply. Especially, when the problem is happening, each member will treat by himself without, mutual discussion to find the best resolution. It makes the SCM ineffective and wasteful.

(3) **Lack of awareness of the importance of coordination and support among the project stakeholders.** The coordination and support among the project stakeholders play important roles in SCM. They help complete tasks efficiently and effectively. However, due to lacking of awareness of their importance, many problems still exist in chains. First, it is adversarial relationships among the participants in the project, and less transparency. Second, it has limitation, and inadequacy in sharing the project information and communication; and lack of initial preparation of organizations involved in the project's supply chain. Third, the professional contractors did not participate early in processes of the projects; lack of coordination and mutuality among the partners joined the process. Therefore, the organizations who want to apply the SCM, should perceive and resolve these problems.

(4) **The inappropriate supply chain creation support systems.** This group often results in the fracture or disruption within supply chains, in which, the owner financing greatly influences the SCM decision making. Besides, enterprises have not yet mastered the SCM. As a consequence, the organizational structure, and operating mechanisms are not effective. The activities of the supply chain are separated, and the businesses have not mechanisms to link them. Furthermore, the commitments of partners have significant roles. The clear division of interest, obligation, and responsibility of participants, as well as among stakeholders helps to raise the effect of SCM.

(5) **The poor maintaining of collaborative relationships.** The long-term collaborative relationships have benefits when implementing SCM. The collaborative relationships in chains have been unstable and short-term by the factors in this group. In most countries, bidding is used to choose the suitable contractors who are eligible to meet the project demands. However, choosing bidder with the focus on bid prices leads to many problems. First, it is an attempt to improve profit levels on the project through reductions in quality of materials; the contractor will attach particular importance costs instead of project quality, and they do not have an ability and willingness to cooperate in giving innovations or collaborating to solve problems. Also, since the short life cycle of projects and myopic thinking of the project stakeholders, the long-term relationships are not also considered. The capability plays an important role when they want to achieve long-term relationships. Another problem is to find suitable partners. Therefore, maintaining a long-term collaborative relationship is a challenge in applying SCM.

(6) **Lack of experience of innovations.** Ruben Vrijhoef and Lauri Koskela (2010) found that the wastes and problems of chains are widely caused by obsolete and myopic in the chain driver. So, applying SCM and offering innovation are very essential. However, the shortage experience will bring bad results and make more waste. For example, the Buchhaugen project used JIT style delivery system and employed a unit order system where the project was split into small packages of material delivered to the site where they are needed, just as they are required. As a result, at least one firm (an intermediary materials handler or supply depot) found an overall increase in costs with the unit order system.Therefore, we should consider this problem before applying SCM or any new methods.

(7) **Lack of appropriate information technology systems.** In a construction project, from beginning to end, many participants and heavy set of documents, drawings are attached. Furthermore, there are many problems needed to coordinate and exchange rapidly to make decisions quickly when the project is implemented. Thus, in SCM, information technology (IT)

is vital to meet the document management demands, as well as exchange information and coordinate partners rapidly and more efficiently, support to quickly and timely make decisions. However, Vietnam's construction industry still has not had a suitable IT system. Most of the companies have manually managed their documents, exchanged information through direct conferences, phones, faxes or emails. This led to many mistakes and dangerous consequences. It can cause cost overrun, schedule delay, and difficulties when applying SCM. It is a barrier to the application of SCM in Vietnam.

6 CONCLUSION

The SCM helped many industries improve their performance and competitive capacity in today's global markets, especially in the manufacturing sector. However, the construction industry is limited to apply SCM technique. In this research, seven main causes of limitation to apply SCM application to Vietnamese construction industry are identified following the perspective of the main contractors at the construction phase of the project.Based on these results, the contractors can propose some solutions to help them reform and upgrade SCM application level. It will help contractors increase productivity, optimize costs and enhance their competitive advantage in the current fiercely competitive market.

However, the concept of supply chain and SCM are relatively new to the construction industry in Vietnam. The collected data are still approximate despite trying to gather data by face-to-face interview because the respondents did not deeply understand the survey issue. Besides, this research only assesses the subject based on the viewpoint of the main contractors at construction phase of projects.

REFERENCES

Akintoye, A., McIntosh, G., & Fitzgerald, E. (2000). A survey of supply chain collaboration and management in the UK construction industry. *European Journal of Purchasing & Supply Management, 6*(3), 159-168. doi:10.1016/S0969-7012(00)00012-5

Albaloushi, H., & Skitmore, M. (2008). Supply chain management in the UAE construction industry. *International Journal of Construction Management, 8*(1), 53-71. doi: 10.1080/15623599.2008.10773108

Azambuja, M., & O'Brien, W. (2009). Construction supply chain modeling: Issues and perspectives. *Construction Supply Chain Management Handbook.*

Behera, P., Mohanty, R., & Prakash, A. (2015). Understanding construction supply chain management. *Production Planning & Control, 26*(16), 1332-1350.doi: 10.1080/09537287.2015.1045953

Benton, W., & McHenry, L. F. (2010). *Construction purchasing & supply chain management*: McGraw-Hill New York.

Dawood, N., Akinsola, A., & Hobbs, B. (2002). Development of automated communication of system for managing site information using internet technology. *Automation in Construction, 11*(5), 557-572. doi:10.1016/S0926-5805(01)00066-8

de Souza, D. V. S., & Koskela, L. (2012). *On improvement in construction supply chain management.* Paper presented at the Proc. For the 20th Annual Conference of the International Group for Lean Construction.

Deshmukh, P., More, A., & Chavan, S. Supply chain management in residential construction sector.

Houlihan, J. B. (1985). International supply chain management. *International Journal of Physical Distribution & Materials Management*, *15*(1), 22-38.

Hugos, M. H. (2011). *Essentials of supply chain management* (Vol. 62): John Wiley & Sons.

King, A. P., & Pitt, M. C. (2009). Supply chain management: A main contractor's perspective. *Construction Supply Chain Management: Concepts and Case Studies*, 182-198.

Li, Z., Cheng, S., & Meng, Q. (2010). A modelling framework for construction supply chain simulation based on multi-agent. *ICLEM, 2010*, 4691-4698. doi: 10.1061/41139(387)657

Morledge, R., Knight, A., Grada, M., & Pryke, S. (2009). The concept and development of supply chain management in the uk construction industry. *Construction Supply Chain Management, 3*, 23. doi: 10.1002/9781444320916.ch2

O'brien, W. J. (1999). *Construction supply-chain management: A vision for advanced coordination, costing, and control.* Paper presented at the NSF Berkeley-Stanford Construction Research Workshop, Stanford, California.

Serpell, A., & Heredia, B. (2004). Supply chain management in construction: Diagnosis and application issues. *Globalisation and Construction*, 455.

Song, S., & Fan, M. (2010). *Research on a construction project supply chain.* Paper presented at the ICCTP 2010 Integrated Transportation Systems: Green, Intelligent, Reliable.

Vrijhoef, R., & Koskela, L. (2000). The four roles of supply chain management in construction. *European Journal of Purchasing & Supply Management*, *6*(3), 169-178. doi:10.1016/S0969-7012(00)00013-7

Wang, S., Fang, J., Jiang, W., & Xie, Y. (2011). *Delays in construction project supply chain.* Paper presented at the Proceedings of 2011 International Conference on Information Management and Engineering (ICIME 2011).

Xue, X., Li, X., Shen, Q., & Wang, Y. (2005). An agent-based framework for supply chain coordination in construction. *Automation in Construction*, *14*(3), 413-430. doi:10.1016/j.autcon.2004.08.010

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

MACROECONOMIC FACTORS AND STOCK PRICES – A CASE OF REAL ESTATE STOCKS ON HO CHI MINH STOCK EXCHANGE

Vo Thi Quy, Dang Thi Ngoc Loi

ABSTRACT

This study investigates the relationship of selected economic factors such as inflation rate, 10-year Government bond yields, GDP growth rate, exchange rate, and stock trading volumes and real estate stock price of 38 real estate companies listed on HOSE in period 7 years, from January 2009 to September 2015.The study found that 3 economic factors (inflation rate, GDP growth rate, and exchange rate) impact significantly on real estate stock prices; but the relationship between 10-year Government bond yield and trading volume, and real estate stock prices was not found. The research's results imply that these factors should be taken into account as predictors of the movement of real estate stock price in Vietnamese stock market.

Key words: *Macroeconomic Factors, Market Factors, Stock Prices, Real Estate Companies, HOSE*

JEL Classification: C33

1 INTRODUCTION TO THE RESEARCH PROBLEM

Since 1986 with the introduction of the Reform policy, Vietnamese Government has applied many different measures to speed up the development of Vietnamese economy. Before 2007, the average growth rate of GDP was around 7 percent. However, being negatively affected by the financial crisis originated from the US (October, 2008), the average growth rate of Vietnam GDP was around 6 percent in period from 2009 to 2014. Now, Vietnam has achieved significant breakthrough in the economic growth. Especially, in the last two quarters of year 2015, the GDP grew 6.47 percent and 6.81 percent, respectively. The inflation rate in the economy has decreased rapidly. It was 6.6 percent in 2013 and reduced to 4.09 percent in 2014. The figure released by General Statistics Office of Vietnam on 24 December 2015 was at a record low, 0.63 percent in 2015. At the same time, many Vietnamese real estate companies have faced to lot problems such as high inventory balance, and financial distress. To recover the real estate sector the Government tried to improve the legal framework and offered many bailouts, for example issuing the Real Estate Trading Law (No.66/2014/QH13), or the Law on Housing (No.65/2014/QH13). From 2014, real estate stocks belong to the most liquid stocks list of Ho Chi Minh Stock Exchange. Five of the ten most liquid stocks in 2014 are of real estate stocks - FLC, ITA, HAG, HQC, and KBC (Cafef.vn). The trading volume of real estate stocks account for about 18.7% with 12% of total market capitalization according to ViettinbankSc' s report (2015). In such a scene, a question may arise "How economic factors impact on the price of real estate stocks in Vietnamese stock exchange, and whether the relationship between trading volume of the stocks and their price exists?".

Actually many studies on the relationship between economic factors and stock prices have been conducted in different markets, however to our knowledge in Vietnam no study related to the research issue was conducted in real estate sector. Therefore, this research was conducted to

understand the effect of economic factors and trading volume on stock price of 38 real estate companies listed in HOSE in the period from 209 to 2015. The research findings may bring about the meaningful implications to potential investors in real estate sector in the market.

2 LITERATURE REVIEW

2.1 Selected macroeconomic factors and stock price movement

In the economic view, the presence of inflation affects companies' future cash flows because it influences on companies' revenue, operating costs, in turn they impact on companies' profit, return on equity, and existing projects' NPV. Many researchers have studied on the relationship of inflation and stock index and provided evidence of the existence of the relation. Pradhan, et. al., (2013) investigated the link between stock market and inflation of 16 Asia countries (HongKong SAR, China, India, Israel, Jordan, Korean, Pakistan, Sri Lanka, Bangladesh, Indonesia, Japan, Kuwait, Malaysia, Philippines, Singapore, Thailand, and Turkey) over 1988 to 2012, and showed that stock market and inflation of 16 countries had the long run equilibrium relationship. Granger causality test confirmed existence of a multitude of causal relations between two variables. Tripathi and Kumar (2014) studied the long term relationship between stock prices of BRICS markets and their inflation rates by utilizing Panel Co-integration test from March 2000 to September 2013, and indicated the significant negative relationship between stock index and inflation rate for Russia and Brazil. There was an inverse result in case of India and China. Based on evidence above we propose that *the relationship between inflation and stock price in case of real estate sector exists*.

Most of investors believed that the bonds are the direct substitute for stocks and the prices of stocks and bonds move in the opposite direction. The stock price goes down in recession economy stage; meanwhile bond investments become safer, especially for government bonds. It is expected that investors will shift their investment from stocks to government bonds, and as a result the bond price will increase, and the bond price has the inverse relationship with its yield, so there is a positive correlation between government bond yield and stock price. Over 20th century, the correlation between US stocks and long term US treasury yields was negative, but this relationship was strongly positive in the 2000s in explanation of increasing in economic growth and expected dividends (Dick et al., 2013). In Japan, bond yields had a slightly negative liaison with stock prices in mid 1990s and relatively inverse correlation in the period of low inflation and economic saturation. Ewan, and Muhammad (2014) discovered the tendency of association of stock prices and bond yields in US and some developed countries such as Australia, Japan positively. From the argument mentioned above, we propose the hypothesis there is a significant relationship between bond yield and stock price.

The relation between stock prices and exchange rates has received concern of many researchers on the world. However, their studies have been divergent and failed to establish a clear relation between stock prices and exchange rates. The relationship is explained base on two models, "Flow oriented" and "Stock oriented". Flow oriented model estimates association of two variables base on the macroeconomic view (Dornbusch – Fisher, 1980). In particular, the changes in exchange rates affected international competitiveness and trade balance because the appreciation and depreciation of national currency affect export and import values of companies. Cash flows of companies with multinational activities would be affected as the exchange rates changed leading the change of stock value that determined as a present value of future cash flows of companies. Thus, flow oriented model implies a positive relationship between exchange rates and stock prices. In the contrary, according to Branson et al (1977) stock oriented model assumes the change in stock prices is affected by exchange rate negatively.

Saadet Kasman (2003) employed daily closing prices of four aggregate indices: National 100, Financial Sector Index, Production Sector Index, Service Sector Index and daily TL/U.S. dollar exchange rate to analyze the relationship between stock price and exchange rate in Turkey from 1990 to 2002. By using unit root test, the co-integration result provided evidence of the same direction of exchange rate and stock prices and this relation existed stably in long run. Noel Dilrukshan Richards, JohnSimpson (2009) examined the nexus between stock prices and exchange rates through collecting the daily Australian stock prices and Australian – USD exchange rate from January 2003 to June 2006. This paper concluded that there is the short-term positive relationship between Australian exchange rate and stock prices during the sample period. Otherwise, Granger causality tests provided a unidirectional causal relationship between these variables with the significance level of 5%.HakanAltin (2014) explored the relation between Borsa Istanbul (BIST 100) index and exchange rate of Turkey national currency and other currencies - EURO (EUR), United States Dollar (USD), Pound Sterling (GBP), Japanese Yen (JPY), Australian Dollar (AUD), Canadian Dollar (CAD), and Swedish Krona (SEK) from 2001 to 2013. By using Vector Autoregressive Model (VAR), the study showed the significant long term relationship between BIST 100 and exchange rates. In particular, there is a positive correlation between BIST 100 stock market index and GBP and JPY at 5% significant level. There is a negative correlation between BIST 100 stock market index and EUR and USD at 5% significant level. There is no relationship between BIST 100 stock market index and other currencies at 5% significant level. Based on these above arguments, we develop the hypothesis: *the relationship between exchange rates and stock price exists.*

Trading volume of certain stock reflects the liquidity risk of the stock; therefore it is a main concern of potential investors. Brailsford (1994) investigated the relation between trading volume and price movement in Australian stock market from April 1989 to December 1993 by applying GARCH model to analyze daily data. The result showed that there is significant correlation between trading volume and price change in both aggregate market and individual stocks. Kumar, Singh, and Pandey (2009) used the stock prices and trading volumes of 50 stocks in 21 sectors of the Indian economy to examine the causal relationship between two variables. The study found the positive and asymmetric association between volume and price changes. Moreover, VAR and Granger causality proved volume and returns of 50 Indian stocks had a bi-directional relation. Manex Yonis (2013) used 2600 observations of daily stock price indices and corresponding trading volume series from stock markets of four Asia Tiger economies (Hong Kong, Korea, Singapore, Taiwan), and USA stock market to discover the dynamic liaison between trading volume and stock returns. Using OLS and GMM test, the research determined the positive correlation between absolute returns and trading volume in U.S and four Tiger economies. MAGARCH model was employed to consolidate the positive relation between two variables in all countries, except for the case of Korea. In addition, VAR showed there was the bi-causal relationship between stock returns and trading volume in Singapore and Korea. Based on this evidence we propose the hypothesis *that there is a significant relationship between stock trading volume and real estate stock price*.

2.2 The overview of selected economic factors and real estate sector in Vietnam (2008 – 2014)

The change of selected economic factors: GDP, CPI, 10 year Government bond's interest rate, and exchange rate from 2008 to 2014 is described in Table 1, Figure 1 &2 as below:

Tab. 1 - GDP, CPI of Vietnam economy from 2008 to 2014. Source: http:// www.gso.gov.vn/ default.aspx?tabid=621&ItemID=14244

Years/Items	2008	2009	2010	2011	2012	2013	2014
GDP	6.18%	5.32%	6.78%	5.89%	5.25%	5.42%	5.98%
CPI	22.97%	6.88%	9.19%	18.58%	9.21%	6.6%	4.09%

Fig. 1 - Vietnam interest rate from 2008 – 2015. Source: http:// www. tradingeconomics.com/ vietnam/interest-rate

Fig. 2 - USD/VND exchange rate in period 2009 -2015, Source: http:// www.xe.com/ /currencycharts/?from=USD&to=VND

Before 1990 Vietnamese economy was a centralized economy and less developed one. Real estate market was almost non-existent, so real estate transactions were implicit activities. In 1993, "First Fever" of the demand of residential houses and land happened and leading to the birth of the Land Law (1993). To prevent the speculation in real estate market, the Government issued two Decrees 18 and 87 (1995) on transferring the privilege of land use and land rental. Under the effect of the two Decrees, the wave of selling off land and house of speculators made real estate market fall into oversupply state, and plunged into debt. Meanwhile, the occurrence of Asia economic crisis originated from Thailand led to a large number of property projects invested by foreigners had failed and contributed significantly to the downturn of real estate market. In 2003, the number of successful real estate transactions decreased 28%, and 56% in 2004, and continued went down 78% in 2005. The growth of FDI capital flows made the impressive economic growth from 2003 to 2007. In the period of (2006 – 2007), Vietnamese stock market developed strongly, and the harvesting of winner - investors in the market moved to the real estate market, especially apartment and villa segments. In 2008, Real estate market bubble happened along with the increasing of inflation terribly. Government regulated market by monetary policy on tight control credit, especially non-production credit to stabilize market and curb inflation. The tight fiscal policy leaded to sharply decrease in both price and transaction in real estate market. Decree 71 and 69 were born in 2010 which guided the

implementation of the Land Law with amendments in 2009 and land tax collection made market more quietly. In 2011, Government issued Decree 11 to control inflation and stabilize macroeconomic environment. In addition, reduction in credit growth made the real estate market gloomier. In 2012, the number of bankruptcy and dissolution enterprises was highest in compared with previous years (VCCI [2012]).The competition in real estate industry in this year was really fierce. However, the sector has recovered rapidly from 2013 to now. In the Report on Business Registration in the first 7 months of 2015 of the State Administration for Business Registration under the Ministry of Planning and Investment, the real estate sector had 320enterprises to suspend operations (down 25.1% from same period last year), 63 enterprises were dissolved (down 25% with the same period last year) and 175 enterprises came back in operation (not change). The number of new registered business operating in the real estate sector in the first seven months of 2015 rose 67.8% in comparing with the first six months of 2014. According to the Foreign Investment Agency, Ministry of Planning and Investment, on July 20th 2015, there were 1,068 new projects in the country with total registered capital amounted to 6.92 billion USD. Moreover, real estate field attained 19.3% of total investment capital, attracted 1.7 billion USD of FDI capital and became the second sector attracted the highest FDI capital in Vietnam.

3 RESEARCH MODEL AND VARIABLE MEASUREMENT

To test the relationship between variables, the research model was developed as below:

$$SR_{i,t} = \beta_0 + \beta_1 * INF_{i,t} + \beta_2 * BO.Yie_{i,t} + \beta_3 * GDP_{i,t} + \beta_4 * EXC_{i,t} + \beta_5 * Tra.Vol_{i,t} + \varepsilon_{i,t}$$

Where:

β_0: is the mean of y, when all independent variables equal zero

β_1, β_2,β_3, β_4, β_5, β_6: correlation coefficients, indicate the relationship between independent variables and dependent variable.

$\boldsymbol{\varepsilon_{i,t}}$: random error.

In which:

- $SR_{i,t}$: the monthly closing prices of 38 listed Real estate companies on HOSE in sub-sectors list 2014 of HOSE
- $INF_{i,t}$: measured by the monthly CPI index of Vietnam
- BO.Yie: the monthly yields of Vietnam 10-year Government bond
- $GDP_{i,t}$: the monthly GDP growth rate of Vietnam
- $EXC_{i,t}$: is the USD/VND Exchange rate (EXC)
- $Tra.Vol_{i,t}$: is the monthly trading volumes of 38 listed Real Estate companies on Ho Chi Minh stock exchange in subsectors list 2014 of HOSE

3.1 Choose the fitted model

AIC (Akaike information criterion) is a measure of the relative quality of statistical models for a given set of data. Given a collection of models for the data, AIC estimates the quality of each model, relative to each of the other models. The model with the lowest AIC is preferred. In statistics, the Bayesian information criterion (BIC) is a criterion for model selection among a finite set of models; the model with the lowest BIC is preferred. Running the statistic tests resulted that the log – log model has the lowest AIC and BIC value in four proposed models, it is 2.033 and -19096.73, respectively. Therefore, log – log model is preferred to test the

relationship between macroeconomic factors, stock trading volume and real estate stock prices. The model is presented as below:

$LogSR_{i,t} = \beta_0 + \beta_1 * logINF_{i,t} + \beta_2 * logBO.Yie_{i,t} + \beta_3 * logGDP_{i,t} + \beta_4 * logEXC_{i,t} + \beta_5 * logTra.Vol_{i,t} + \varepsilon_{i,t}$

The distribution of variables with the number of observation of 2583 is presented in Table 2.

Variable	Obs	Mean	Std. Dev.	Min	Max
logsr	2583	2.755332	.8570428	.5068176	5.280408
logcpi	2583	4.611077	.0123609	4.564244	4.677491
logbondyie	2583	2.240839	.2001135	1.84055	2.516082
loggdp	2583	1.746055	.1422457	1.144223	2.017566
logexc	2583	9.931628	.0573628	9.580938	10.02194
logtravol	2583	10.54767	2.46231	1.004302	15.8612

Fig. 3 - Descriptive Statistics. Source: Stata

Stationary checking: TheIm – Pesaran – Shin test was employed to test for stationarity. The test results showed that all variables are stationary (Table 3) as a result of P-value smaller than 0.05.

Tab. 3 - The Unit root test result. Source: Stata

H0: All panels contain unit roots Ha: Some panels are stationary AR parameter: Panel – specific Panel means: Included Time trend: Included ADF regression: 2 lags	Number of panels = 38 Avg. number of periods = 68.68 Asymptotics: T, N → Infinity sequentially
Im – Pesaran – Shin unit root test for logsr	
Statistic	p - value
W-t-bar -6.2061	0.0000
Im – Pesaran – Shin unit root test for logcpi	
Statistic	p - value
W-t-bar -17.9261	0.0000
Im – Pesaran – Shin unit root test for logbongyie	
Statistic	p - value
W-t-bar -12.2381	0.0000
Im – Pesaran – Shin unit root test for logtravol	
Statistic	p - value
W-t-bar -7.9737	0.0000
Im – Pesaran – Shin unit root test for logexc	
Statistic	p - value
W-t-bar -4.9998	0.0000
Im – Pesaran – Shin unit root test for loggdp	
Statistic	p - value

W-t-bar	-8.3134	0.0000

3.2 Correlation analysis and Multicollinearity testing

The correlation matrix (Figure 4) shows that almost correlation coefficient less than 0.5, or most independent variables are not highly correlated except for the case of logexc and logsr.

	logsr	logcpi	logbon~e	loggdp	logexc	logtra~l
logsr	1.0000					
logcpi	0.0991	1.0000				
logbondyie	0.2959	0.3090	1.0000			
loggdp	0.2043	0.1064	-0.1202	1.0000		
logexc	-0.5891	-0.1309	-0.4993	-0.0235	1.0000	
logtravol	0.0869	0.0671	0.2677	-0.0564	-0.2958	1.0000

Fig. 4 - Correlation matrix. Source: Stata

The testing result shows that no variable has VIF>10, so there is no multicollinearity in the model (Figure 5).

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
  logbondyie |      1.53    0.653681
      logexc |      1.40    0.713339
      logcpi |      1.13    0.881920
   logtravol |      1.12    0.891467
      loggdp |      1.05    0.950791
-------------+----------------------
    Mean VIF |      1.25
```

Fig. 5 - VIF test. Source: Stata

3.3 Regression results

3.3.1 The Pooled OLS Regression results (Figure 6)

R-squared and adjusted R-squared of model is fairly good. The model explains around 39.15% of the variation in the dependent variable. Durbin Watson test is used to recognize the presence of autocorrelation between independent variables from a regression analysis. The Durbin Watson statistics is always between 0 and 4. In this study, Durbin Watson has a value of 0.1063 which approaching 0 indicate that the positive correlation exists.

```
Linear regression                               Number of obs =    2583
                                                F(  5,  2577) =  468.29
                                                Prob > F      =  0.0000
                                                R-squared     =  0.3915
                                                Root MSE      =  .66802

------------------------------------------------------------------------------
             |               Robust
       logsr |      Coef.  Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      logcpi |  -.5891842   1.232538    -0.48   0.633    -3.006049     1.82768
  logbondyie |   .2267488   .0772967     2.93   0.003     .0751789    .3783188
     loggdp  |   1.159281   .0856132    13.54   0.000     .9914033    1.327158
     logexc  |  -9.689421   .2518121   -38.48   0.000    -10.1832    -9.195646
   logtravol |  -.0308675   .0053871    -5.73   0.000    -.0414311    -.020304
       _cons |   99.51391   6.141119    16.20   0.000     87.47188    111.5559
------------------------------------------------------------------------------

. dwstat

Number of gaps in sample:  74

Durbin-Watson d-statistic(  6,  2583) =  .1063754
```

Fig. 6 - Regression with Pooled OLS model, source: Stata

3.3.2 The Fixed and Random Effect Models Regression results (Figure 7 and 8)

The fixed effects model is used to analyze the impact of variables over different time. The assumption of model is the correlation between entity's error term and predictor variables. Moreover, the model removes the effect of the time-invariant characteristics. If there are the differences across entities influencing on the dependent variable, random effects model should be used. In model, the variation across entities is assumed to be random and uncorrelated with the predictor or independent variable. To choose the fixed or random effects, Hausman test was run to test whether the unique errors (u_i) are correlated with the regressors.

```
Fixed-effects (within) regression               Number of obs      =      2583
Group variable: co                              Number of groups   =        38

R-sq:  within  = 0.6393                         Obs per group: min =        30
       between = 0.2634                                        avg =      68.0
       overall = 0.3856                                        max =        79

                                                F(5,2540)          =    900.54
corr(u_i, Xb)  = 0.0978                         Prob > F           =    0.0000

------------------------------------------------------------------------------
       logsr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      logcpi |  -.4733262    .581094    -0.81   0.415    -1.612792     .6661401
  logbondyie |   .4054279   .0428851     9.45   0.000     .3213346     .4895212
     loggdp  |   1.188916   .0490393    24.24   0.000     1.092755     1.285077
     logexc  |  -8.088764   .1639891   -49.33   0.000     -8.41033    -7.767198
   logtravol |  -.0454775   .0048574    -9.36   0.000    -.0550024    -.0359526
       _cons |   82.78105   3.084141    26.84   0.000     76.73336     88.82874
-------------+----------------------------------------------------------------
     sigma_u |  .58538158
     sigma_e |  .34421304
         rho |  .74307377   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(37, 2540) =   193.68                 Prob > F = 0.0000
```

Fig. 7 - Regression with fixed effect model. Source: Stata

```
Random-effects GLS regression                   Number of obs      =      2583
Group variable: co                              Number of groups   =        38

R-sq:  within  = 0.6393                         Obs per group: min =        30
       between = 0.2641                                        avg =      68.0
       overall = 0.3857                                        max =        79

                                                Wald chi2(5)       =   4491.47
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

logsr	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
logcpi	-.4737664	.5825386	-0.81	0.416	-1.615521	.6679882
logbondyie	.4037773	.0429711	9.40	0.000	.3195556	.487999
loggdp	1.188791	.0491592	24.18	0.000	1.092441	1.285141
logexc	-8.099889	.1642914	-49.30	0.000	-8.421894	-7.777883
logtravol	-.0453098	.0048392	-9.36	0.000	-.0547943	-.0358252
_cons	82.86714	3.092315	26.80	0.000	76.80631	88.92796
sigma_u	.50251394					
sigma_e	.34421304					
rho	.68064232	(fraction of variance due to u_i)				

Fig. 8 - Regression test with Random effect model. Source: Stata

Hausman test's result showed that p-value smaller than 0.05, the fixed effects model was chosen. This result is consolidated again by xtoverid command in stata software (0.0032).

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
logcpi	-.4733262	-.4737664	.0004402	.
logbondyie	.4054279	.4037773	.0016506	.
loggdp	1.188916	1.188791	.0001249	.
logexc	-8.088764	-8.099889	.011125	.
logtravol	-.0454775	-.0453098	-.0001677	.0004207

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =    -1.28    chi2<0 ==> model fitted on these
                                    data fails to meet the asymptotic
                                    assumptions of the Hausman test;
                                    see suest for a generalized test

. xtoverid

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re
Sargan-Hansen statistic  17.840  Chi-sq(5)    P-value = 0.0032

.
```

Fig. 9 - Hausman test result. Source: Stata

3.3.3 Heteroskedasticity testing in fixed effects model

Heteroskedasticity appears when the standard deviations of an observed variable over specific time period are non-constant.

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (38)  =    1274.58
Prob>chi2 =      0.0000
```

Fig. 10 - Heteroskedasticity Result. Source: Stata

The test result shows that null hypothesis is rejected at 5% significant level or the changes in variance of observations exist.

3.3.4 The adjustment of the errors in fixed effects model

The model met Heteroskedasticity and the positive correlation that easily lead to the bias in the research result. To solve these problems, the fixed effects model was tested again with robust, wls0, and prais commands in stata.

Step 1: Run robust standard errors in fixed effects model

```
Fixed-effects (within) regression               Number of obs      =      2583
Group variable: co                              Number of groups   =        38

R-sq:  within  = 0.6393                         Obs per group: min =        30
       between = 0.2634                                        avg =      68.0
       overall = 0.3856                                        max =        79

                                                F(5,37)            =     64.41
corr(u_i, Xb)  = 0.0978                         Prob > F           =    0.0000

                                    (Std. Err. adjusted for 38 clusters in co)
------------------------------------------------------------------------------
             |               Robust
       logsr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      logcpi |  -.4733262   .3905506    -1.21   0.233    -1.264657    .3180045
  logbondyie |   .4054279   .1298429     3.12   0.003     .1423411    .6685146
      loggdp |   1.188916   .0911519    13.04   0.000     1.004225    1.373607
      logexc |  -8.088764   .7255132   -11.15   0.000    -9.558793   -6.618734
   logtravol |  -.0454775   .0168432    -2.70   0.010    -.0796051   -.0113499
       _cons |   82.78105   7.670868    10.79   0.000      67.2384    98.32371
-------------+----------------------------------------------------------------
     sigma_u |  .58538158
     sigma_e |  .34421304
         rho |  .74307377   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Fig. 11 - The fixed effects model, robust. Source: Stata

There is the difference between two results before and after robust standard errors. It considers the heteroskedaticity in this model.

Step 2: Weighted least squares provides one method for dealing with the existence of heterosdasticity in the model.

The test result showed that the heterosdasticity problem is solved with p-value of 0.668, greater than 0.05. Thus, the changes in variance of observations do not exist.

```
WLS regression -  type: proportional to abs(e)

(sum of wgt is   6.8456e+03)

      Source |       SS       df       MS              Number of obs =    2583
-------------+------------------------------           F(  6,  2576) =   75.07
       Model |  266.419508     6  44.4032513            Prob > F      =  0.0000
    Residual |  1523.77533  2576  .591527692            R-squared     =  0.1488
-------------+------------------------------           Adj R-squared =  0.1468
       Total |  1790.19484  2582    .6933365           Root MSE      =  .76911

------------------------------------------------------------------------------
       logsr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      logcpi |  -219.4836   92.29736    -2.38   0.017    -400.4682   -38.49907
  logbondyie |   1.324468   .0847447    15.63   0.000     1.158293    1.490642
     loggdp |   1.426101   .1158585    12.31   0.000     1.198916    1.653286
   logtravol |   .0056303   .0062961     0.89   0.371    -.0067156    .0179762
    logcpisq |  -10732.64   4566.673    -2.35   0.019    -19687.36   -1777.914
 logtravolsq |   -.272066   .1589288    -1.71   0.087    -.5837072    .0395751
       _cons |   1514.083   640.4596     2.36   0.018     258.2154    2769.951
------------------------------------------------------------------------------
(495 missing values generated)

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of logsr

         chi2(1)      =     0.18
         Prob > chi2  =   0.6688
```

Fig. 12 - Weighted Least Squared Regression. Source: Stata

Step 3: The autocorrelation was corrected with research option of prais to search for the p-value that minimizes the sum-of squared of the Cochrane-Orcutt transformed equation. Normally, the default Prais-Winsten transformations is used with such a small dataset, but the less-efficient Cochrane-Orcutt transformation allows us to demonstrate an aspect of the estimator's convergence. The original Durbin Watson is 0.1063 which approaching 0 indicate the positive correlation. The transformed Durbin Watson is 1.809 which approaching 2 indicate no autocorrelation.

```
Iteration 0:  rho = 0.0000
Iteration 1:  rho = 0.9514
Iteration 2:  rho = 0.9607
Iteration 3:  rho = 0.9609
Iteration 4:  rho = 0.9609
Iteration 5:  rho = 0.9609

Prais-Winsten AR(1) regression -- iterated estimates

Linear regression                               Number of obs =    2583
                                                F(  5,  2577) =   51.49
                                                Prob > F      =  0.0000
                                                R-squared     =  0.4576
                                                Root MSE      =  .20354

------------------------------------------------------------------------------
             |               Semirobust
       logsr |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      logcpi |   .5171464   .2274651     2.27   0.023     .0711135    .9631794
   logbondyie |   .0594623   .0915749     0.65   0.516    -.1201055    .2390301
      loggdp |   .3870862   .0901817     4.29   0.000     .2102503    .5639221
      logexc |  -6.576157   .4161792   -15.80   0.000    -7.392237   -5.760078
   logtravol |  -.0012778   .0046107    -0.28   0.782    -.0103189    .0077633
       _cons |   64.98842   4.091483    15.88   0.000     56.96549    73.01135
-------------+----------------------------------------------------------------
         rho |   .9609238
------------------------------------------------------------------------------
Durbin-Watson statistic (original)    0.106375
Durbin-Watson statistic (transformed) 1.809897
```

Fig. 13 - Prais-Winsten transformations result. Source: Stata

4 FINDINGS AND DISCUSSION

The study has some empirical finding as following:

There is a significant positive relationship between real estate stock prices and inflation rate ($\beta = .517$, $p<0.05$). Examining the effect of inflation rate on stock price was done by many researchers, and brought about the differences in research's results. Most studies concluded that the expected inflation could either positively or negatively impact on stock prices, which depends on the performance of hedge funds and government's monetary policy. For real estate stock price, the relation could be explained by the positive effect of expected inflation on house price, in turn on the stock performance.

There is no a significant relationship between real estate stock prices and long-term government bond yield ($p =0.516 >0.05$). The result is explained by the absence of developed corporate bond market in Vietnamese financial market.

There is a significant positive correlation between real estate stock prices and GDP growth rate ($\beta = .387$, $p <0.01$). The stock investors always try to look into the future economic growth to find opportunities and prevent riskiness. The stock prices reflect the investor's expectations for future economic growth. The GDP growth rate reflects the improvement of residents' wealth, in turn increases the demand of housing, and positive impact on real estate firms, then on real estate stock prices.

There is a significant negative relationship between real estate stock prices and USD/VND exchange rate (β = -6.576, $p<0.01$). Actually, real estate stocks are held by organizational foreign investors. As the exchange rate increases their portfolio's value decreases in USD. The foreign investors will sell their portfolio to prevent the value depreciated, in turn affect negatively on the stock prices.

There is no a significant relationship between real estate stock prices and stock trading volume ($p>0.05$).

5 CONCLUSION AND RECOMMENDATION

This study investigates the relationship of selected economic factors and real estate stock price with 2583 observations consist of 38 real estate companies listed on HOSE in period 7 years, from January 2009 to September 2015. After using Pooled OLS regression model, fixed effects model, random effects model, Hausman test, the study recognized the fixed effect model is the most feasible model to describe the relationship between real estate stock prices and the independent variables after satisfying the regression assumptions. The study found that 3 economic factors(inflation rate, GDP growth rate, and exchange rate)impact significantly on real estate stock prices; the relationship between Vietnam 10 years government bond yields and trading volume, and real estate stock prices no found.

Based on the research's result, we recommend that investors investing real estate stocks should consider these factors as predictors of real estate stock price movement.

REFERENCES

Brajesh Kumar, Priyanka Singh, and Ajay Pandey (2009). The Dynamic Relationship between Price and Trding Volume: Evidence from Indian Stock Market. *Research and Publications Paper*, Vol.12, No.4, p. 2-35.

Branson, W., Halttunen, H. and Masson, P. (1977). Exchange rate in the short run: the dollar Deutsche mark rate. *European Economic Review*, 10, pp. 303-324.

Dornbusch, R. and Fischer, S. (1980). Exchange Rates and The Current Account. *American Economic Review*, Vol.70, No.5, pp. 960 – 971.

Ewan Rankin, Mulhummed Shah Idil (2014). A Century of Stock – Bond Correlations. *Reserve Bank of Australia*, Bulletin, 3rd quarter 2014, pp. 67-74

HakanAltin (2014). Stock Price and Exchange Rate: The Case of BIST 100. *European Scientific Journal*, Vol.10, No.16, p. 65 – 78.

Manex Yonis (2013). Trading Volume and Stock Return: Empirical Evidence for Asian Tiger Economies. *Master Thesis*, 30 ECTS, p.1-68.

Noel Dilrukshan Richards, John Simpson (2009). The Interaction between Exchange Rates and Stock Prices: An Australian Context. *International Journal of Economics and Finance*, Vol.1, No.1, p. 3-23.

Pradhnan, et.al. (2013). The Impact of Stock Market Development on Inflation and Economic Growth of 16 Asian Countries: A Panel VAR Approach. *Applied Econometrics and International Development*, Vol.13, No.1, p. 203-220.

Saadet Kasman (2003). The Relationship between Exchange Rates and Stock Prices: A

Causality Analysis. *Cela Bayar University*, p. 70-79.

Timothy J. Brailsford (1994). The Empirical Relationship between Trading Volume, Returns and Volatility. *Research Paper*, Vol.94, No.1, p. 1-20.

Tripathi, V. & Kumar, V. (2014). Relationship between Inflation and Stock Returns – Evidence from BRICS markets using Panel Co integration Test. *International Journal of Accounting and Financial Reporting*, Vol. 4, No. 2, p. 647-58.

Vanita Tripathi, Arnav Kumar (2014). Relationship between Inflation and Stock Returns – Evidence from BRICS markets using Panel Co integration Test. *International Journal of Accounting and Financial Reporting*, Vol.4, No.2, p. 647-658.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

EVALUATING VIETNAMESE DOMESTIC COMMERCIAL BANK PERFORMANCE WITH A CAMEL APPROACH AND THE IMPACT OF FIVE CAMEL COMPONENTS ON THE BANK'S PROFITABILITY

Vo Thi Quy, Nguyen Quoc Khanh

ABSTRACT

Banking industry has taken an important role in the growth of Vietnamese economy since Vietnam applied the "Doi Moi" Policy and especially with the integration of Vietnamese economy with other economies through the Free Trade Agreements such as AEC, TPP. In the context, this study applied CAMEL approach to evaluate the performance of Vietnamese domestic commercial banks. The data was collected mainly from 9 domestic commercial banks' annual reports in the period from 2008 to 2014. They are Vietinbank, BIDV, Vietcombank, MBbank, Sacombank, ACB, Techcombank, SHB and Eximbank) that together occupy a significant market share of Vietnamese banking industry. The results have showed that each bank has been holding a specific position based on a particular CAMEL component. The overall performance with the highest ranking belongs to MB Bank while the lowest position belongs to BIDV. The study also found that internal capital generation (ICG) and equity to total assets have a positive impact on these banks' ROA, while CAR and loans to total assets have a negative impact on their ROA. ICG and bad debt have a positive relation to their ROE, while Loans to total assets has a negative relation to the banks' ROE.

Keywords: *Bank Performance, CAMEL Approach, Vietnamese Domestic Commercial Banks*

JEL Classification: G21

1 INTRODUCTION

Vietnamese banking industry has opened and taken an important role in the growth of Vietnamese economy since Vietnam applied the "Doi Moi" Policy (1990). The "Open policy" has imposed both opportunities and challenges for the banking sector. With such open capital market, domestic commercial banks have had not only competed with themselves but also with the foreign banks to capture the market share and retain their market position. As a result, commercial banks' performance becomes a main concern of both bank managers and investors in Vietnamese capital market. For most Vietnamese domestic commercial banks, their performance is assessed mostly by the requirement of the Central Bank and the proposed target that each bank has set up for its own operation. Moreover, ranking of commercial banks is mainly assessed by international credit institution with the concentration on specific aspect of bank's characteristic such as capital or credit quality. The application of some common methods in assessing commercial bank performance from investors' point of view such as CAMEL model has not been completely utilized. Therefore, this research carried out aims to evaluate performance of 9 domestic commercial banks including Vietinbank, Techcombank, Sacombank, MBBank, BIDV, SHB, Eximbank, ACB and Vietcombank that together occupy a large market share of the banking industry by applying CAMEL model group ranking for analysis. This research also applied regression analysis with panel data to identify which factors of CAMEL model have significant impact on the commercial bank profitability and efficiency,

especially ROA and ROE. The next sessions will present literature review, research methodology and findings with discussion.

2 LITERATURE REVIEW

There are many approaches to evaluate bank performance. According to Anna Buriak (2014), common approaches that have been used for bank evaluation are coefficient analysis, analytical (DuPont method), rating analysis and value-based. Compared to other approaches, rating analysis or CAMEL approach has some advantages in term of evaluating aspects by focusing on five components; however to have a better result, this approach must be combined with specific standards and criteria based particular characteristic of the country and regulation.

CAMEL model was firstly developed in US with the purpose of monitoring the financial intermediary condition and performance. Five main components are capital adequacy, asset quality, management quality, earning and liquidity. The sixth component which is "S" or sensitive to market risk had been added in 1997. However, the analysis and evaluation of many researches were mostly based on the first 5 main components.

Many researchers applied CAMEL model to evaluate bank's performance. Mohi-ud-Din and Tabassum (2010) focused on evaluating financial performance of 2 banks in India from 2001 to 2005 and showed that the position of 2 banks were sound and satisfied in accordance to 5 components of CAMEL. Md Anwarul Kabir and Suman Dey (2012) applied CAMEL approach to evaluate the performance of IFIC and EXIM Bank with the comparative analysis and showed the superior results in performance and some of the limitation of the assessed banks. Similarly, the research conducted by Atikogullari M (2009) focused an analysis of banking sector in the Northern Cyprus through CAMEL model on 5 major banks in the post period of 2001 with the implied results of improvement in profit and management quality while liquidity and capital adequacy needed to be considered.

According to Lace and Stephen (2001), there is a relationship between bank efficiency score and financial ratio used to proxy bank's CAMEL rating. From the point of view of Barr et al (2002), CAMEL rating criteria has become a concise and indispensable tool for examiners and regulators.

Capital adequacy is based on 2 tiers of capital in accordance to risk weighted assets. This reflects the level of safety of commercial bank in term of satisfying the obligation to depositor by repaying debt with various terms and period when the unexpected condition occurs.

Asset auality measures the size of the bank in term of operation and activities. A higher asset quality will contribute to the stability of the bank and maintain its competitive position in the intense and highly competitive market.

Management quality has a significant impact on firm performance for not only regular company but also credit institutions as commercial banks. This component reflects how efficient in management activities of commercial bank in term of utilizing the potential sources and benefits from employees to generate return and profit. Moreover, the balance between the cost and benefit is also an important and necessary thing for commercial banks maintain their operation at an efficient rate in turn contributing to the position and profitability as much as possible.

Higher earnings reflect the efficient in operation and activities of commercial bank, especially with a strong and stable return based on their initial invested capital. On the other aspect, this component also indirectly implies how efficient management practices are and in turn to contribute to the profitability of bank.

A strong asset-based and high rate of earning and efficient in operation must be parallel to the safety condition in case on unexpected outcomes or circumstances occur. Liquidity can be viewed as an important factor of commercial bank in term of risk prevention and provision. High earning is necessary but not enough for commercial bank to maintain its stable operation and activities. Instead, it must be parallel to a strong level of safety with a sufficient provision for loss or liquid assets in order to compensate to the negative impact from the unexpected condition and outcome of the economy such as loans turn bad or continuous withdrawal (bank run) in turn helping the bank to overcome difficulties and an increase its sustainable development.

3 METHODOLOGY

3.1 Performance assessment

Based on the 5 components of CAMEL model, the evaluation and assessment process were conducted on 9 chosen commercial banks through average group ranking method. The higher the rank of commercial bank is the more efficient in its operation, safety level and activities. Each component of the model is measured by ratios (see Table 1) and used for assessing the performance of these banks.

Tab. 1 - Ratios of CAMEL components and benchmarks synthesized by the authors

Component	Ratios	Formula	Symbol	Benchmark/Regulation
Capital adequacy	Capital adequacy	(capital tier1 + capital tier2)/risk weighted assets	CAR	>= 9%
	Debt to equity	Total debt/shareholder's equity	LEV	Lower is better
	Internal capital generation	Retained earnings/capital tier1	ICG	Higher is better
	Equity capital	Equity/total assets	E_TA	Higher is better
Assets quality	Loans to assets	Loans/assets	L_TA	Depends
	Bad debt	Non-perform loans/total loans	BD	=< 3%
	Fixed assets	Fixed assets/capital tier1	F_E	<50%
Management quality	Operating expenses	Operating expenses/total assets	OE_TA	Lower is better
	Income per employee	Net income/number of employees	PPE	Higher is better
	Operating expense per employee	Operating expense/number of employee	OEPE	Lower is better
Earning	Return on asset	Net income/total assets	ROA	1%
	Return on equity	Net income/equity	ROE	10%-20%

	Net interest margin	(interest income-interest expense)/total assets	NIM	Higher is better
	Net non-interest margin	(noninterest revenues-noninterest expense)/total assets	NNIM	Higher is better
	Earnings per share	Net income/number of shares outstanding	EPS	Higher is better
Liquidity	Liquid assets to total assets	Liquid assets/total assets	LA_TA	20%-30%
	Liquid assets to total deposit	Liquid assets/total deposits	LA_D	30%-45%
	Total loans to total deposit	Total loans/total deposits	L_D	80%

3.2 Regression test

To identify which variables belong to CAMEL components have a significant impact on chosen commercial banks‘ profitability and efficiency, especially ROA and ROE, a regression model for panel data was applied. Table 2 presents variables in regression model.

Tab. 2 – Variables in regression model

Dependent variables (Y)	Independent variables (X)	
	Variables name	Item
ROA (Y1)	CAR	CAR (X1)
	ICG	ICG (X2)
	Equity to total assets	E_TA (X3)
	Total loans to total assets	L_TA (X4)
ROE (Y2)	Bad debt	BD (X5)
	Fixed assets to equity	F_E (X6)
	Operating expense to total assets	OE_TA (X7)
	Total loans to deposits	L_D (X8)

4 RESULT AND DISCUSSION

4.1 Capital adequacy assessment

The regulation of Vietnam Central Bank requires commercial banks maintain CAR equal to or greater than 9%. The results of ranking analysis showed that each commercial bank has held a specific position in relation to a particular component of capital adequacy; however, 9 Vietnamese commercial banks have maintained and kept their CAR at the requirement. The highest position in CAR is EXB with the average of 0.21 while the lowest position belongs to BIDV with the average CAR 9.7%. EXB has maintained its high level of CAR mostly due to a somewhat decrease in its total assets in the research period from 2008 to 2014. Banks holding at the middle rank are MBB, ACB and VCB.

Regarding to the leverage component (LEV), the highest rank to EXB (8.06). Followed by the order compared to the first position are SCB, MBB, SHB, TCB, VCB, VTB, ACB and the lowest position is BIDV (16.39).

Internal capital generation (ICG) is based on the retained earnings from operation of the bank compared its capital tier1. The higher ICG the better the bank peration. The results showed that VCB at the top rank with average ICG of 0.168, followed by the others in order being SCB (0.136), TCB (0.134), MBB (0.110), VTB (0.094), ACB (0.092), SHB (0.080) and BIDV (0.072). The lowest position belongs to EXB (0.057) due to the significant decrease in its retained earnings in turn reduces its ICG.

Similarly to ICG, equity to total asset also measure the percentage of bank capital utilized for investment or increase the level of safety in case of unexpected outcome and condition occur. Highest position can be viewed as EXB (13.27%). This result mostly due to the expansion and increase in shareholder equity that the bank has engaged in the process of restructuring the capital structure in turn boosting up its percentage of equity to total assets as a highest level compared to other competitors. The position of other banks that have high equity to total assets are SCB (10.01%), SHB (8.94%), MBB (8.43%), TCB (7.90%), VCB (7.73%), VTB (6.72%), and ACB (6.40%). And the lowest position is BIDV (5.78%).

Combining them together, the results from group ranking have showed that EXB is at the top rank followed by SCB at second and MBB, SHB, TCB at the third rank, VCB is at fourth rank, ACB at fifth rank, VTB at sixth rank and finally is BIDV. The results of Capital adequacy assessment are presented in Table 3 below.

Tab. 3 - Composite ranking for capital adequacy assessment. Source: authors' calculation

Bank	CAR		LEV		ICG		E_TA		Group ranking	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
VCB	0.110	6	12.27	6	0.168	1	7.73%	6	4.75	4
ACB	0.120	4	15.21	8	0.092	6	6.40%	8	6.5	5
BIDV	0.097	9	16.39	9	0.072	8	5.78%	9	8.75	7
EXB	0.211	1	8.06	1	0.057	9	13.27%	1	3	1
MBB	0.112	5	11.00	3	0.110	4	8.43%	4	4	3
SCB	0.107	7	9.04	2	0.136	2	10.01%	2	3.25	2
SHB	0.154	2	11.04	4	0.080	7	8.94%	3	4	3
TCB	0.129	3	11.89	5	0.134	3	7.90%	5	4	3
VTB	0.106	8	14.58	7	0.094	5	6.72%	7	6.75	6

4.2 Assets quality assessment

Taking as a part of commercial bank assets loans contribute to bank profit; however, if loans take a significant percentage of the bank's assets, it will be somewhat risky in term of liquidity issue. Table 4 shows that TCB holds the first position (40.61%) in term of safety level. TCB has maintained its total loans to total assets ratio at a very stable rate of approximately 40% in turn contributed to its safety position compared to others. Other banks such as MBB, ACB, EXB and SHB have also maintained this ratio at average of approximately over 40% compared to the first position. The next position are VCB (54.71%), SCB (59.20%) and VTB (64.23%). And finally the lowest position is BIDV (68.14%) that needs to be considered.

To meet the requirement of the Vietnam Central Bank, commercial banks have to maintain bad debt below 3%. According to the regulation bad debts are categorized based on the types of non-performing loans (NPL) such as type 3 (below-standardized loan), type 4 (doubtful loan)

and type 5 (potential loss loan). Most of 9 chosen commercial banks have kept their bad debt lower 3% except for the case of SHB (3.31%) due to the M&A deal with HaBuBank. After the merger SHB sold bad debt to VAMC (Vietnam Asset Management Company) to reduce its bad debt ratio below 3% in year 2014. In summary, the first position for the lowest bad debt is SCB (1.00%) next are VTB, ACB, MBB, EXB, BIDV, TCB, VCB and SHB (3.31%).

For the fixed assets investment to equity ratio, as the regulation of the Vietnam Central Bank, it must not exceed 50%. The top position belongs to TCB (8.97%) and followed by the next rank in order are VCB, MBB, ACB, BIDV, VTB, EXB, SCB and finally is SHB (38.48%).

Combining the results together, MBB and TCB is holding the same top position while ACB is at the second, VCB, EXB, SCB, VTB are at the third, BIDV is at the fourth position and finally SHB (see Table 4).

Tab. 4 - Composite ranking for asset quality assessment. Source: authors' calculation

Bank	TL_TA		BD		FA_E		Group ranking	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
VCB	54.71%	6	2.77%	8	9.15%	2	5.33	3
ACB	47.55%	3	1.45%	3	13.30%	4	3.33	2
BIDV	68.14%	9	2.63%	6	15.65%	5	6.67	4
EXB	47.79%	4	2.19%	5	17.12%	7	5.33	3
MBB	43.00%	2	1.91%	4	12.65%	3	3.00	1
SCB	59.20%	7	1.00%	1	27.32%	8	5.33	3
SHB	48.33%	5	3.31%	9	38.48%	9	7.67	5
TCB	40.61%	1	2.69%	7	8.97%	1	3.00	1
VTB	64.23%	8	1.03%	2	16.95%	6	5.33	3

4.3 Management quality assessment

The study's results indicated that EXB holds the first position with the lowest operating expenses to assets (1.186%), the next are SHB (1.310%), MBB (1.357%), VCB (1.385%), BIDV (1.391%), TCB (1.562%), ACB (1.656%), VTB (1.838%) and SCB (2.152%).

Net Income or profit per employee (PPE) reflects the efficiency in using the human resource of bank. Table 5 shows that MBB take the leading position with the highest profit per employee (419.23) and the next positions belong to VCB, EXB, VTB, SHB, ACB, TCB, BIDV and the lowest PPE is SCB's.

Regarding to operating expenses per employee (OEPE), EXB holds the first rank with the lowest cost on its employee (308.37), the second SCB (320.02), and the third SHB (322.00), and the next are TCB, BIDV, ACB, MBB, VTB and the ninth rank held by VCB.

Taking them all into consideration, EXB is holding the first rank in management quality, SHB is the second, MBB is the third, VCB is the fourth, TCB is the fifth, and the rest in order are BIDV, ACB, and SCB and VTB hold the same rank (see Table 5).

Tab. 5 - Composite ranking for management quality assessment. Source: authors' calculation

Bank	OE_TA		PPE		OEPE		Group ranking	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
VCB	1.385%	4	317.43	2	414.20	9	5	4
ACB	1.656%	7	236.20	6	354.41	6	6.33	7
BIDV	1.391%	5	198.04	8	346.10	5	6	6
EXB	1.186%	1	285.07	3	308.37	1	1.67	1
MBB	1.357%	3	419.23	1	402.97	7	3.67	3
SCB	2.152%	9	188.45	9	320.02	2	6.67	8
SHB	1.310%	2	236.23	5	322.00	3	3.33	2
TCB	1.562%	6	235.02	7	333.96	4	5.67	5
VTB	1.838%	8	244.24	4	409.34	8	6.67	8

4.4 Earning assessment

ROA measure the profitability of commercial bank in specific period of time. Table 6 shows that most chosen commercial banks having the ratio with average over 1% except for the case of BIDV (0.801%). The first position belongs to MBB (1.44%) followed by the other banks in order are SCB, TCB, EXB, VTB, VCB, ACB, SHB and finally BIDV (0.80%).

ROE measures the return on shareholder's capital, which also indicates the profitability of banks. The top rank is MBB (17.29%) and followed by VTB, ACB, TCB, VCB, BIDV, SCB, SHB and finally the lowest rank belongs to EXB due to the decrease in its profit in year 2014.

Regarding to NIM, the top rank belongs to MBB with the ratio of average over 3%. The second rank is VTB (3.24%), third is SCB (3.20%). Next in orders are TCB (2.80%), ACB (2.55%), VCB (2.489%), BIDV (2.487%) and EXB (2.43%). Finally, SHB held the lowest position.

NNIM measures the earnings in relation to costs and expenses. The only different is that this ratio focuses on non-interest items rather than interest items. The data shows that the highest position belongs to TCB (1.08%) followed by the other banks in order are VCB, SCB, BIDV, SHB, ACB, MBB, and VTB and finally is EXB (0.56%).

EPS can be mentioned as a useful indicator for assessing bank operation results in term of investor's attraction. This ratio is one of the main indicators for investor's decision whether to buy the stock of the bank or not. The first rank belongs to MBB while the other following in order are TB, ACB, SCB, TCB, VCB, EXB, BIDV and SHB.

Taking the results together, they show that MBB is holding the first rank with the highest earning generation. At the second rank is TCB, the third rank belongs to VTB and SCB, next rank in order are: ACB, VCB, BIDV, EXB and finally is SHB (see Table 6).

Tab. 6 - Composite ranking for earnings assessment. Source: authors' calcu;ation

Bank	ROA		ROE		NIM		NNIM		EPS		Group ranking	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
VCB	1.076%	6	14.40%	5	2.489%	6	1.00%	2	1861.3	6	5	5
ACB	1.023%	7	16.87%	3	2.546%	5	0.66%	6	2188.9	3	4.8	4
BIDV	0.801%	9	13.80%	6	2.487%	7	0.81%	4	1223.3	8	6.8	6
EXB	1.132%	4	9.21%	9	2.431%	8	0.56%	9	1225.4	7	7.4	7
MBB	1.439%	1	17.29%	1	3.327%	1	0.65%	7	2666.6	1	2.2	1
SCB	1.271%	2	12.62%	7	3.201%	3	0.96%	3	2053.6	4	3.8	3
SHB	1.009%	8	11.46%	8	1.894%	9	0.77%	5	1200.7	9	7.8	8
TCB	1.203%	3	15.60%	4	2.798%	4	1.08%	1	1890.7	5	3.4	2
VTB	1.078%	5	16.93%	2	3.238%	2	0.61%	8	2328.4	2	3.8	3

4.5 Liquidity assessment

Table 7 shows that all chosen commercial banks have kept their liquid asset to total assets ratio over 20%. TCB holds the first position with the ratio of 45.51%, the second position belongs to MBB (42.07%), the third VCB (35.79%) and the rest in order are SHB (31.91%), SCB (30.84%), EXB (30.27%), VTB (27.83%), ACB (24.79%) and finally BIDV (22.32%).

Liquid assets to deposits ratio measures the safety level of commercial bank to avoid a negative outcome from unexpected withdraw of depositors. Most chosen commercial banks have the ratio average above 40% except for the case of ACB and BIDV. From the ranking assessment, TCB holds the first position (61.44%) followed by its competitors: MBB, VCB, SCB, EXB, VTB, SHB, ACB and finally is BIDV (34.12%).

According to the regulation of Vietnam Central Bank, loans to deposits ratio must not exceed 80%. Table 7 indicates some of commercial banks have loans to deposits ratio much greater than 80% such as BIDV, VTB and SCB, especially the case of BIDV is 105.09%. As a result, the lowest rank is BIDV, the highest rank belongs to MBB (53.90%) followed by the other banks are TCB, SHB, ACB,VCB, EXB, SCB,VTB.

Taking them all into consideration, for liquidity assessment, TCB is at the first rank, followed by the second is MBB, the third rank is VCB and the next in order are SHB, SCB, EXB, ACB, VTB and the ninth rank is BIDV (see Table 7).

Tab. 7 - Composite ranking for liquidity assessment. Source: authors' calculation

Bank	LA_TA		LA_D		TL_D		Group ranking	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
VCB	35.79%	3	46.39%	3	71.22%	5	3.67	3
ACB	24.79%	8	36.04%	8	64.74%	4	6.67	7
BIDV	22.32%	9	34.12%	9	105.09%	9	9	9
EXB	30.27%	6	45.41%	5	71.24%	6	5.67	6
MBB	42.07%	2	52.84%	2	53.90%	1	1.67	2
SCB	30.84%	5	46.13%	4	85.08%	7	5.33	5
SHB	31.91%	4	40.50%	7	61.07%	3	4.67	4
TCB	45.51%	1	61.44%	1	54.17%	2	1.33	1
VTB	27.83%	7	42.30%	6	97.71%	8	7	8

4.6 Overall performance

The overall ranking by combining 5 component of CAMEL model together is showed in Table 8. The result indicated that MBB is ranked at the first position which implies that MBB has managed and balanced 5 components of CAMEL model well compared to its competitors. Second position belongs to TCB which closely follows to MBB, third rank is EXB, fourth rank is VCB, fifth rank is SCB, sixth rank is SHB, seventh is ACB, eighth rank is VTB and finally is BIDV.

Tab. 8 - Overall ranking. Source: authors' calculation

Bank	C	A	M	E	L	Group ranking	
						Average	Rank
VCB	4.75	5.33	5	5	3.67	4.75	4
ACB	6.5	3.33	6.33	4.8	6.67	5.53	7
BIDV	8.75	6.67	6	6.8	9	7.44	9
EXB	3	5.33	1.67	7.4	5.67	4.61	3
MBB	4	3	3.67	2.2	1.67	2.91	1
SCB	3.25	5.33	6.67	3.8	5.33	4.88	5
SHB	4	7.67	3.33	7.8	4.67	5.49	6
TCB	4	3	5.67	3.4	1.33	3.48	2
VTB	6.75	5.33	6.67	3.8	7	5.91	8

4.7 Regression results

To find out the true relationship of variables included in CAMEL model with panel data, before running regression test the assumpltion of linear regression need to be checked. the correlation matrix showed that most correlation coefficient less than 0.5 except for the case of CAR and E_TA; L_TA and L_D; thus the significant correlation between independent variables does not exist. For multicollinearity testing, no variable has VIF>10, so there is no multicollinearity in the model. To test heteroscedasticity for model, Hettest and White test was used, and result in p-value greater than 0.05. Thus there is no heteroscedasticity in the model for both ROA and ROE. Hausman test was applied to choose an appropriate regression model resulted in p-value <0.05 (0.0271); Thus fixed-effect model is suitable for the model of ROE and ROA.

Fixed-effects (within) regression — Number of obs = 63
Group variable: bankname — Number of groups = 9

R-sq: within = 0.5924 — Obs per group: min = 7
between = 0.5172 — avg = 7.0
overall = 0.4228 — max = 7

F(8,46) = 8.36
corr(u_i, Xb) = -0.7403 — Prob > F = 0.0000

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CAR	-.0799301	.0287554	-2.78	0.008	-.1378118	-.0220484
ICG	.040541	.0102284	3.96	0.000	.0199523	.0611297
E_TA	.1662333	.0478374	3.47	0.001	.0699415	.262525
L_TA	-.0291406	.0106115	-2.75	0.009	-.0505005	-.0077808
BD	.0705287	.0443444	1.59	0.119	-.018732	.1597894
F_E	-.0146263	.010586	-1.38	0.174	-.0359348	.0066823
OE_TA	-.1512445	.1396524	-1.08	0.284	-.4323501	.1298611
L_D	.0015196	.0071296	0.21	0.832	-.0128316	.0158707
_cons	.0208571	.0048295	4.32	0.000	.0111358	.0305784
sigma_u	.00332767					
sigma_e	.00300753					
rho	.55040394	(fraction of variance due to u_i)				

F test that all u_i=0: F(8, 46) = 2.50 — Prob > F = 0.0240

Fig. 1 - Fixed-effect model regression of ROA. Source: STATA outpout

The regression resulted that CAR, ICG, E_TA and L_TA impact significantly on ROA of chosen banks. The relationship can be expressed as equation as below:

ROA = 0.02 – 0.0799CAR + 0.04ICG + 0.166E_TA – 0.02914L_TA

Similarly, in order to generate the final result for ROE model, same process has been conducted. The result for Fixed-effect model of ROE is presented in Figure 2 as followed:

```
Fixed-effects (within) regression               Number of obs      =        63
Group variable: bankname                        Number of groups   =         9

R-sq:  within  = 0.6054                         Obs per group: min =         7
       between = 0.0631                                        avg =       7.0
       overall = 0.2877                                        max =         7

                                                F(8,46)            =      8.82
corr(u_i, Xb)  = -0.6577                        Prob > F           =    0.0000
```

ROE	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CAR	-.7116494	.3797389	-1.87	0.067	-1.476024	.0527252
ICG	.5697827	.1350744	4.22	0.000	.2978921	.8416733
E_TA	.7287257	.6317322	1.15	0.255	-.5428852	2.000337
L_TA	-.4772966	.1401336	-3.41	0.001	-.7593709	-.1952222
BD	1.214354	.5856039	2.07	0.044	.0355946	2.393114
F_E	-.1144761	.1397971	-0.82	0.417	-.3958731	.166921
OE_TA	-3.107286	1.844223	-1.68	0.099	-6.819514	.604941
L_D	.0467006	.0941525	0.50	0.622	-.1428186	.2362198
_cons	.3717	.0637774	5.83	0.000	.2433227	.5000772
sigma_u	.05292726					
sigma_e	.03971689					
rho	.6397511	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(8, 46) =     3.42                 Prob > F = 0.0036
```

Fig. 2 - Fixed-effect model regression of ROE. Source: STATA output

The regression resulted in that ICG, L_TA and BD impact significantly on ROE of chosen banks. The relationship can be expressed as the equation below:

$$ROE = 0.3717 + 0.5697ICG – 0.477L\_TA +1.214BD$$

The results indicated that CAR has a significant negative impact on bank ROA, similar to the results of Chitan G. (2012) studying determinants of Romania banks‘ performance. ICG variable has a positive relation with both ROA and ROE.

Equity to total assets has a significant positive impact on ROA, however ROE insignificantly. This result is somewhat different from the findings of John Goddard et al. (2004) whose research focused on the analysis of the profitability of European banks and finding a positive relationship between capital to assets ratio and profitability (ROE).

The total loans to total assets ratio has a significant negative impact on bank profitability of 9 chosen commercial banks similar to what Deger Alper & Adem Anbar (2011) found when

studying on the impact of bank specific and macroeconomic determinants on bank profitability in Turkey.

Bad debt variable has a positive relationship with ROE, while operating expenses to total assets ratio is not affect to ROE significantly. This result is contradicted to the finding of Athanasoglou (2008) whose study focused on banks, industry specifics and macroeconomic determinant of profitability with the implied result of negative relationship between operational expenses to bank profitability.

There is no evidence to show the relationship between fixed assets investment and loan to deposit ratios with bank profitability.

5 CONCLUSION

Under the strict regulation of Vietnamese Central Bank (VCB) and the increasing competitive pressures in banking industry as the results of the Open Policy and the integration of Vietnamses economy with regional and global economy, domestic commercial banks have made a great change in their operation, structure and management. In this context, this study was carried out on 9 chosen domestic commercial banks in Vietnam and showed that all 9 commercial banks have maintained CAMEL criteria at the requirement of VCB. Additionally, the results of group ranking by combing 5 components of CAMEL model together indicated that MBB is at the top position implying the bank‘s efficiency in term of operation and management. Second position is TCB, third is EXB, fourth rank is VCB, fifth rank is SCB, sixth rank is SHB, seventh is ACB, eighth rank is VTB and finally is BIDV.

On the other aspects, this study has also identified ratios that have significant impact on ROA of 9 chosen commercial banks are CAR, ICG, E_TA and L_TA, and for ROE are ICG, L_TA and BD. The results are somewhat similar and different compared to previous studies due to the specific characteristic of the assessed banks and condition of the economy. The findings could bring some implications for bank managers for managerial decision making and investors for investment decision making.

REFERENCES

Anna Buriak (2014). Performance in banking: theory and practice peculiarities. *Central European journal for science and research,* No. 1(3): 61-76.

Athanasoglou et al (2008). Bank specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institution and Money.* Vol.18 (2).

Atikogullari M (2009). Analysis of the Northern Cyprus banking Sector in the Post - 2001 period: CAMEL approach. *Journal of Finance and Economics.* ISSN 1450-2887, Issue 32.

Barr, Richard S. et al. (2002). Evaluating the Productive Efficiency and Performance of U.S. Commercial Banks, *Engineering Management,* Vol. 28, No.8, pp. 19.

Chitan G. (2012). Corporate governance and bank performance in Romania banking sector, *Procedia Economic and Finance*, No.3: 549-554.

D. Alper & A. Anbar (2011). Bank specific and macroeconomic determinants of commercial bank profitability: Empirical evidence from Turkey. *Business and Economics Research Journal.* Vol. 2. No.2. ISSN: 1309-2448.

John Goddard et al (2004). The profitability of European banks: a cross-sectional and dynamic panel analysis. *The Manchester school.* Vol. 72. No.3.

Lace, Well and Stephen, Kent (2001). Are all bank rated equitably? The association between bank characteristics, efficiency and financial performance. Ph.D. dissertation Mississippi State University, USA. (Publication No. AAT 3030271)

Md. Anwarul Kabir & Suman Dey (2012). Performance Analysis through CAMEL Rating: A Comparative Study of Selected Private Commercial Banks in Bangladesh. *Journal of Politics & Governance,* Vol.1, No.2/3:16-25.

Mohi-ud-Din Sangmi & Tabassum Nazir (2010). Analyzing financial performance of commercial banks in India: Application of CAMEL model. *Pakistan Journal of Commerce*. 4(1), 40-55.

The congress of Vietnam (2010). *Law of credit organization* (number: 47/2010/congress 12). Hanoi, HN: Vietnam.

The state bank of Vietnam (2005). Decision of regulation on loan categorizes and provision for loan/credit loss in the activity of the credit organization (number 493/2005/Decision-The state bank). Hanoi, HN: Vietnam.

The state bank of Vietnam (2010). *Circular of regulation on proportional safety in activity of credit organizations* (number 13/2010/Circulars-The state bank). Hanoi, HN: Vietnam.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

DO JOB SATISFACTION AND CUSTOMER SATISFACTION AFFECT FIRM'S OVERALL PERFORMANCE? A NEW EMPIRICAL EVIDENCE

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ABSTRACT

Because of their significant impacts on firm's performance nowadays, the effects of qualitative/nonfinancial measures have attracted attentions of many researchers in recent years. In a similar vein, this study examines the effects of job satisfaction and customer satisfaction on firm's overall performance with a new approach. Using the two-stage Data envelopment analysis (DEA) approach and a sample of 129 large U.S. companies, this study aims to provide new empirical evidence probing that job satisfaction and customer satisfaction significantly affect firm's overall performance and competitiveness. Especially, customer satisfaction shows its moderation effects which strengthen the influences of other variables on firm's performance.

Keywords: *customer satisfaction, job satisfaction, financial measures, nonfinancial measures, Data envelopment analysis (DEA), firm's overall performance.*

JEL Classification: M10, M20, M31.

1 INTRODUCTION

It might be well accepted nowadays that intensive competitiveness, dynamic business environments and the increasing of customer powers have pushed firms toward the customer-focused strategy (Perera, Harrison, & Poole, 1997). As a result, excellent business process and intangible assets such as brands, customer satisfactions and powerful human resources might become the most essential sources for sustainable competitive advantages (Roos & Roos, 1997; Teece, 2007; Wang & Ahmed, 2007). These fundamental trends together with the invisible and hard-to-observe characteristics of qualitative/nonfinancial measures have raised the questions of whether nonfinancial measures such as customer satisfaction, job satisfaction do have the real and significant effects on firm performance and how they do it. There are several reasons why nonfinancial measures are useful as the supporters for financial measures when explaining the firm's performance. First, the use of nonfinancial measures is also justified by the desired of firms to focus on and leverage their core competencies. In order to remain competitive, firms need to focus on service/product quality, customer responsiveness and their capability of adapting, absorbing and innovating (Teece, Pisano, & Shuen, 1997; Wang & Ahmed, 2007). Second, nonfinancial measures are well accepted to be more forward-looking than short-term profit figures as indicators of progress towards a firm's long-term goals. The increasingly popular of nonfinancial measures is attributed to the fact that they are directly connected to firm's competitive advantages which in turn explain the long-term firm's performance (Kaplan & Norton, 1992). Finally, nonfinancial measures are believed to be less susceptible to manipulation, and therefore have much power as early warning indicators for firm's performance. Nonfinancial measures can often be produced almost instantly and give an early warning if there is a serious issue about the firm's competitiveness (Singleton-Green, 1993). Especially, in dynamic business environment, nonfinancial measures are more useful than financial measure for detecting changes in external markets (Teece, 2007). Among nonfinancial

measures, customer measures and human resources measures have been considered as the most essential ones because of their close relationship to financial performance (customer satisfaction) and importance as sources for long-term competitiveness (human resources). Therefore, in this papers, customer satisfaction and job satisfaction are selected for investigating their effects on firm's overall performance. Not as similar as previous studies, this paper takes a new approach in measuring the overall firm's performance by using Data envelopment analysis (DEA). In addition, the moderation effects of customer satisfaction is also examined in this study for partly explaining how customer satisfaction interacts with other variables in explaining firm's performance. Using a sample of more than 120 large firms in the U.S. and a new approach for measuring firm's overall performance, this study aims to provide new empirical evidences for the effects of customer satisfaction and job satisfaction on firm's performance.

The rest of this study is divided into sections as following. First, the next section provides the theoretical background and develops the hypotheses for this study. Second, the research methodology is developed and executed. Third, in order to test the hypotheses, data analysis and results are presented. Finally, the findings of this study are concluded and managerial implications, and limitations are discussed.

2 LITERATURE REVIEW AND HYPOTHESES

2.1 Customer satisfaction

In today market-oriented business environment, it can be said arguably that the question how to satisfy customers becomes the ultimate concern of most of the companies in any kind of business. As the context of this study is about overall firm performance, customer satisfaction in this study is considered as the overall evaluation of a customer about firm's product/service quality, rather than a discretionary transaction. In this case, customer satisfaction is described as the result of a comparison of the customers' expectations and his or her subsequent perceived performance of product/service quality (Zeithaml, Berry, & Parasuraman, 1996). According to this conceptualization, perceived product/service quality is the antecedents to overall customer satisfaction. Other studies also showed the evidence support this relationship between customer satisfaction and service quality (Crosby & Stephens, 1987; Parasuraman, Zeithaml, & Berry, 1985). Regarding the consequences, consistently providing high customer satisfaction is well acknowledged to be associated with higher customer loyalty and enhanced reputation (Fornell, 1992; Anderson & Sullivan, 1993; Wangnheim & Bayon, 2004). The relationship between customer satisfaction and the economic return is also explored in the previous studies. Anderson, Fornell and Lehmann (1994) attempted to explore the relationship between customer satisfaction and financial returns using a national customer satisfaction index (NCSI) and ROI (return on investment). They found the significantly positive association between ROI and customer satisfaction but not immediately realized. Ittner and Larcker (1998) found that customer satisfaction is a leading indicator of customer purchasing behavior, growth in the number of customers, and accounting performance. Banker, Potter and Srinivasan (2000) used operating profits per available room to measure financial performance and verified its lead-lag relation with customer satisfaction for 18 hotels managed by a hotel corporation. In conclusion, most of the previous studies found the support for positive correlation between customer satisfaction and firm's financial performance. However, there were also quite a few of studies found no positive relationship between CS and economic returns. Yu (2007) found that "higher CS leads to higher customer revenue and higher customer costs at the same time, and thus customer profits remain unaffected". Regarding one of the main objectives of this study is to

test the effects of customer satisfaction on overall firm's performance, the following hypothesis is suggested for testing:

H1: Customer satisfaction is positively correlated to firm's overall performance.

2.2 Job satisfaction

Job satisfaction and their effects on employee's performance have been the subjects for researching for decades. Job satisfaction as a research term was started to be noticed with the popular and influence of customer satisfaction body of research in the academic. It was just the matter of time before the ideas behind customer satisfaction transferred to the study of satisfaction of employees (Wright, 2006). Although it was operationalized into many different constructs and measurements in previous studies (Judge, Bono, Thoresen, & Patton, 2001) job satisfaction is usually referred as an attitude (Wright, 2006). Suggesting by Wright and Cropanzano (2000), "job satisfaction is based partially on what one feels and partially on what one thinks." By far, job satisfaction is the most popular constructs using for predicting employee efficiency. It widely becomes the proxy for employee attitude for studies which interested in investigating the popular norm in management research: the happy/productive worker thesis (Weiss, 2002). In this stream of research, there is still no consistent and consensus conclusions about the effects of job satisfaction on outstanding performance of employees. Early empirical studies about this issues indicate not strong correlation between job satisfaction and employee performance (Brayfield & Crockett, 1955; Iaffaldano & Muchinsky, 1985). More recent studies are more supportive to the relationship. Judge et al. (2001) in their meta-analysis study found the mean true correlation between overall job satisfaction and job performance to be 0.30 which much larger than the number of early researches (0.14 – 0,17). More importantly, there are recent empirical evidences about the positive relationship between employee-related measures such as employee training, employee loyalty, employee satisfaction and firm's performance (Chi & Gursoy, 2009; Dotson & Allenby, 2010; Huang, Li, Meschke, & Guthrie, 2015; Molina & Ortega, 2003). Therefore, this study argues that job satisfaction is positively correlated to firm's overall performance. The following hypothesis is offered:

H2: Job satisfaction is positively correlated to firm's overall performance.

2.3 The theoretical frameworks for the relationship between operational factors, job satisfaction, customer satisfaction and firm's performance.

2.3.1 The Balanced Scorecard

The Balanced Scorecard (BSC) was designed and introduced by Kaplan and Norton (1992). It is distinct from other strategic measure systems in the way that it is more than an ad hoc collection of financial and nonfinancial measures. But they are allocated into four perspectives and on top of all, they are closely and directly connected to each other for achieving a particular strategy's objective. The financial perspective identifies how the company wishes to be viewed by its shareholders. The customer perspective determines how the company wishes to be viewed by its customers. The internal-business-process perspective describes the business processes at which the company has to be particularly adept in order to satisfy its shareholders and customers. The organizational learning and growth perspective involves the changes and improvements which the company needs to realize if it is to make its vision come true (Kaplan and Norton, 1996). The most important concept of the BSC is the connection of measures in a causal chain which pass through all four perspective (Nørreklit, 2000). There were a great deal of researches about the application of the BSC into practice. Davis and Albright (2004) investigated the effectiveness of the BSC in improving financial performance by comparing bank branches implementing the BSC and the ones without BSC. They found evidence of

superior financial performance for branches implemented the BSC when compared to non-BSC implemented branches. Braam and Nijssen (2004) developed a model to test the effectiveness of using the BSC in the Dutch organizations. They found empirical evidences from Dutch firms suggesting that the BSC use will not automatically improve company performance, but that the manner of its use matters: the BSC use that complements corporate strategy positively influences company performance, while the BSC use that is not related to the strategy may decrease it. So far, Balanced Scorecard can be referred as the most popular and the most completed framework which both financial and nonfinancial performance measures are incorporated closely and intentionally for achieving business objective. The framework is also verified by empirical evidences from previous researches which reinforce the importance of nonfinancial measures in predicting financial performance, especially the human resources in learning and growth perspective and customer value and satisfaction in customer perspectives.

2.3.2 The Service-profit chain and others

The service-profit chain (SPC) integrates service operation, employee management and customer management into a single framework for achieving firm's profitability (Heskett, Jones, Loveman, Sasser Jr., & Schlesinger, 2008). As a final result of the relationship chains, profit and growth are gained from customer loyalty. Loyalty is the direct result of customer satisfaction. Customer satisfaction is largely influenced by the excellent value of the service provided. Value is provided by the satisfied, loyal and productive employees. Then at the start of the chains, employee satisfaction or job satisfaction, in turn, results primarily from high quality support services and policies that enable employees to deliver result to customers (Heskett et al., 2008). Silvestro and Cross (2000) applied the SPC to a single organization to test the links inside the framework. They found that there were correlations to support most of the links in the chain. But they also suggested the contingency approach to apply SPC into a specific context. In a similar vein, Chi and Gursoy (2009) also examined the link between employee satisfaction and customer satisfaction, and to examine the impact of both on a hospitality company's financial performance utilizing service-profit-chain framework as the theoretical base. They found that while customer satisfaction has positive significant impact on financial performance, employee satisfaction has no direct significant impact on financial performance. Instead, there is an indirect relationship between employee satisfaction and financial performance, which is mediated by customer satisfaction.

Others frameworks based on the same concepts of the BSC and SPC frameworks are also developed and tested in previous studies. Epstein and Westbrook (2001) proposed the Action-Profit Linkage model (APL) which helps firm to identify, measure and understand the causal links between action and profits. Rust, Zahorik, and Keiningham (1995) proposed an approach and framework for linking the service quality with financial accountability, named The Return on Quality (ROQ). The ROQ framework helps to evaluate the financial impact of quality improvement efforts; thus enables quality to be considered as an investment.

To sum up, these theoretical frameworks for the relationships between operational factors, job satisfaction, customer satisfaction and firm’s performance illustrate the proposed causal linkages between these constructs for explaining the mechanism how they can affect to firm’s performance. Especially, all of them stress the importance of customer perspectives as the necessary and precedential factors for achieving the final economic returns. All other factors such as human resources, service/product quality, business processes are supposed to conjoin customer satisfaction for achieving firm’s performance. Thus, customer satisfaction and other related customer measures can be conceptualized as the moderators for the relationships between other factors and firm’s performance. It means that customer satisfaction might

increase or decrease the effects of other factors on firm's performance. In this study, customer satisfaction are hypothesized to moderate the effects of job satisfaction, operating cost and firm's total assets on firm's overall performance. Thus, the following hypotheses are raised for testing:

H3a: Customer satisfaction moderates the effect of job satisfaction on firm's overall performance.

H3b: Customer satisfaction moderates the effect of operating cost on firm's overall performance.

H3c: Customer satisfaction moderates the effect of firm's total asset on firm's overall performance.

2.4 Data envelopment analysis

In recent years, DEA became an important measurement tool for analyzing the performance of different types of entities. What used to be a statistical aproach used exclusively in production economics became one of the standard techniques widely adopted in different scholarly fields. Likewise, the various DEA models put forward to solve a multitude of linear programming problems demonstrate the depth and range of its real world applications. One needs only to peruse peer-reviewed journals to find papers on DEA as applied in a gamut of subjects such as banking (Fethi & Pasiouras, 2010), insurance (Eling & Luhnen, 2010), healthcare (Worthington, 2004), and agriculture (Atici & Podinovski, 2015). Particular interest lies on the fundamental difference of DEA and traditional analytical metrics. Compared to as financial statement ratios, DEA served as a powerful alternative that aggregates multiple inputs and multiple outputs, both financial or nonfinancial in nature, to produce a single composite meaure. An earlier study by Smith (1990) applied DEA to financial statement of pharmaceutical companies where equity and debt were used as inputs with earnings, interest, and taxes as outputs. He noted that the composite measure, while arbitrary, augmented the financial information provided by ratios. Later studies by Yeh (1996) and Feroz, Kim, and Raab (2003) confirmed Smith's findings about the complementarity of information given by the two sets of performance indicators.

Another inquiry concerns how DEA models can allow inclusion of nonfinancial/qualitative metrics such as customer satisfaction and job satisfaction. Bayraktar, Tatoglu, Turkyilmaz, Delen, and Zaim (2012) proposed a DEA model based on the European Customer Satisfaction Index where image, customer expectation, perceived quality, and perceived value were used as inputs while customer satisfaction and loyalty are used as outputs. In absence of a rating framework on service quality and employee productivity, a fairly common approach involves treating them as inputs or outputs on the assumption that firms use financial and nonfinancial resources to produce other financial and nonfinancial resources. Reynolds and Biel (2007) measured the operating efficiency of U.S. restaurants using cost of goods sold, labor cost, and employee satisfaction as controllable inputs, taxes and insurance and number of seats as non-controllable inputs, and controllable income and retention equity as outputs. They suggested that employee satisfaction played a key role in boosting retention equity and in turn improved restaurant productivity., Pantouvakis and Mpogiatzidis (2013) sampled Greek hospitals to measure clinical department efficiency. They selected the number of nursing staff, medical specialists and department beds, pharmaceutical expenditure and clinical leadership job satisfaction as inputs and the number of hospitalized patients was outputs. They noted that job satisfaction likewise explained the variation in efficiency of hospitals. As regards to customer satisfaction, Donthu and Yoo (1998) measured the retail productivity of U.S. fast food

restaurants using a model with environmental conditions, customer factors, retail firm's managerial efforts, and employees' personal factors as inputs and behavioral outcomes and financial or economic outcomes as outputs. Lastly, a study by Assaf and Magnini (2012) adopted two DEA models for U.S. hotels where (1) the first model used number of outlets, number of full time employees, and other operational costs as inputs and total revenues and occupancy rate as inputs and (2) the second model includes customer satisfaction as output in addition to the inputs and outputs used in the first model. Their research findings led them to conclude that customer satisfaction led to higher levels of operating efficiency.

3 METHODOLOGY AND DATA COLLECTION

3.1 Model development

This paper develops a two-stage DEA approach to determine how nonfiancial metrics such as customer satisfaction and job satisfaction affect a firm's overall performance. In the first stage, the technical efficiency scores of sample U.S. firms are estimated. In the second stage, the Tobit model is used to regress the DEA scores against a set of explanatory variables.

Conceptually, DEA computes the efficiency score of firms or decision making units (DMU) by constructing a piecewise linear frontier based on the input-output combination of best performing DMUs and measuring the distance of the input-output combination of other DMUs from said frontier. The efficiency scores range from 0 to 1, with efficient firms receiving a score of 1 and inefficient firms receiving a score less than 1. The basic output-oriented DEA model, the CCR model named after Charnes, Cooper, and Rhodes (1978), used the ideas of Farrell (1957) to develop the mathematical foundation to estimate the production frontier of nonprofits and public sector firms. Suppose that a firm *k* has *n* inputs and *m* outputs. The efficiency score is computed as follows:

$$Efficiency\ score = \frac{weighted\ sum\ of\ ouputs}{weighted\ sum\ of\ inputs} = \frac{\sum_{i=1}^{m} s_i\, y_{ik}}{\sum_{j=1}^{n} t_j\, x_{jk}} \quad (1)$$

subject to the constraints

$$\frac{\sum_{i=1}^{m} s_i\, y_{ik}}{\sum_{j=1}^{n} t_j\, x_{jk}} \leq 1; s_i > 0; t_j > 0 \quad (2)$$

Where y_{ik} is the amount of output *i* produced by firm *k*, x_{jk} is the amount of input *j* used by firm *k*, and s_i and t_j are the output and input weights, respectively, i=1,2,3…m, j=1,2,3…n, and k=1,2,3…o.

The CCR model operated under constant returns to scale which assumed a proportionate increase in outputs for every increase in inputs. Because of the restrictive character of the CCR model, Banker, Charnes, and Cooper (1984) subsequently proposed a DEA model, later termed the BCC model, which followed the assumption of variable returns to scale. The BCC model allowed efficiency scores to be decomposed into pure technical efficiency score and scale efficiency score. Thus, the overall technical efficiency score corresponds to the CRS assumption while the pure technical efficiency score corresponds to the VRS assumption. The value of scale efficiency is computed by dividing technical efficiency score with the pure technical efficiency score. Where overall and pure technical efficiency scores reflected the ability of firms to produce outputs using the least amount of inputs under CRS and VRS assumptions, respectively, scale efficiency scores could be interpreted as the ability of firms to produce units at an optimal scale size.

As a nonparametric technique, it doesn't require a priori assumption on the functional form relating inputs to outputs. It is an objective estimation technique that can handle multiple inputs and multiple outputs. The downside is that random noise such as measurement errors can cause significant problems in estimation. Aside from this, its nonparametric nature prevents it from applying statistical hypothesis tests. Finally, DEA scores are particularly sensitive to outliers and to input and output specification and the size of the sample. Despite these shortcomings, DEA continues to evolve methodologically through a number of extensions and refinements to the basic model, the goal of which is to develop robust approaches that will estimate more precise measures of efficiency.

Since technical efficiency scores lie between 0 and 1, the Tobit regression model as a second-stage DEA procedure is suitable for examining the determinants of operating performance. This censored regression model restricts the value of the dependent variable to be non-negative and clustered at zero. Hoff (2007) claimed that the Tobit approach proved sufficient for estimating the relationship between efficiency scores and environmental variables in contrast to existing regression models.

3.2 Data collection

3.2.1 Sample

This study uses the sample of 129 firms in the United State (U.S.) which are among the biggest firms in their industries for investigation. A wide and diversified range of industries in the sample can reduce the potential bias in the findings of the study which strengthen their generalization purpose. Industries in the sample include: Automobiles and Light Vehicles, Airline, Banks, Supermarkets, Food Manufacturing, Department and Discounted Stores, Hotel, Insurances, Apparel, Footwear and Accessories, Consumer Shipping, Household Appliances, Restaurants, Internet Social Media, Internet Investment Services, Cellular Telephones, Fixed-Line Telephone Service, etc. Number of firms distributed in each industry can be seen in Table 2. This study also focus on large firms in the U.S. in which most of them listed on NASDAQ or New York Stock Exchange. The reason for choosing large firm for investigation can be justified by their available of reliable data about financial measures and nonfinancial measures using for this study. More importantly, large firms are more favorable for investigating the impact of qualitative/nonfinancial measures on firm's overall performance because of their importance and vital roles in building competitive advantages for large firm in order to compete and thrive in nowadays business environment. For example, most of the market value of Coca-Cola is come from their intangible assets comparing to their value of total assets on balance sheet.

3.2.2 Data collection procedures

The financial data used for analysis are collected from official audited annual reports published in firm's website. Most of the annual reports are available as the 10-K Form filling for the United State Security and Exchange Commission (SEC). The firms' financial data recorded in the end of 2014 financial years are used. Net revenue, total assets, operating costs and operating income are extracted from the Financial Statements and Supplementary sections in the 10-K Form. In addition, number of employees for each company are also collected from the 2014 annual reports and firm's websites. From these measures, the return on assets (ROA), operating margin and revenue per employee are derived.

The job satisfactions are collected for each firm in the sample from the job reviews website named Glassdoor. Glassdoor is the biggest and trusted job reviews website for employees in

the markets nowadays. Employees can evaluate the jobs and companies to express their satisfaction or dissatisfaction based on the 5 point Liker-scale for different categories which are: overall rating, Work/life balance, Culture and Values, Career Opportunities, Compensation and Benefits, and Senior Managers. An automated method is used for obtaining all the ratings in 2013 and 2014 for each firms from Glassdoor website. In total, there are more than 64500 reviews are collected for 129 firms in the sample in two calendar year 2013 and 2014. Then the job satisfaction rating for each employees is calculated as the average score of all the categories rating. Finally, the final job satisfaction for each companies are obtained by using the average score of all the reviews of all employees.

The customer satisfaction rating are collected from the 2014 recodes of The American Customer Satisfaction Index (ACSI). The ACSI was founded in the United State in 1994 by researchers from University of Michigan. Using the American customer satisfaction index model (Fornell, Johnson, Anderson, Cha, & Bryant, 1996) which are derived from the Swedish Customer Satisfaction Barometer (SCSB) (Fornell, 1992), every year ACSI survey more than 70,000 customers about the products and services they used the most. Then, the final results is an index based on 100 points scale for measuring customer satisfaction for each firm. This study adopt the ACSI model for measuring customer satisfaciton and the rating for each firms in the sample are collected.

For this paper, output-oriented DEA was used with number of employees (x_1), job satisfaction rating (x_2), operating costs (x_3), and assets (x_4) as inputs and customer satisfaction (y_1), return on assets (y_2), operating margin (y_3), and revenue per employee (y_4) as outputs. Table 1 provides the summary description of variables while table 2 provides the summary statistics of variables.

Tab. 1 - Data descriptions. Source: own research

Variables	Definition
Θ	Technical efficiency under VRS or pure technical efficiency
x_1	Total number of full-time and part-time employees
x_2	Average rating for job satisfaction on a five-point scale where 1 is the minimum possible score and 5 is the maximum score
x_3	Total operating costs, measured in thousand USD
x_4	Total asset, measured in thousand USD
y_1	Average rating for customer satisfaction where 0 as the minimum possible score and 100 is the maximum score
y_2	Return on assets, measured in terms of net income after interest and taxes as a percentage of total assets
y_3	Operating margin, measured in terms of operating income as a percentage of net revenues
y_4	Revenue per employee, measured in terms of net revenues divided by the total number of full-time and part-time employees

Tab. 2 - Descriptive statistics. Source: own research

Variables	Mean	Standard deviation	Minimum	Maximum
Technical efficiency (Θ)	0.923	0.060	0.694	1.000
Number of employees (x_1)	112167.8	212209.1	1300	2200000
Job satisfaction rating (x_2)	3.199845	0.3889187	2.18	4.44
Operating costs, USD 000 (x_3)	11366.37	16340.54	100	93418
Asset, USD 000 (x_4)	159295.1	377953.3	376	2570000
Customer satisfaction rating (y_1)	77.0155	5.175037	54	87
Return on assets (y_2)	0.0738414	0.0662265	-0.1141646	0.3307573
Operating margin (y_3)	0.1422372	0.1382702	-0.0483364	0.9709507
Revenue per employee (y_4)	0.5256372	0.5552124	0.0233571	5.00709

4 DATA ANALYSIS AND RESULTS

For the first-stage DEA, the technical efficiency scores under CRS and VRS are computed using the software Win4Deap 2. Table 3 shows the mean technical efficiency scores of firms grouped according to industry. Under CRS assumption, the total sample has a mean technical efficiency score of 75.8% wherein 14 firms or 17% of sample size are technically efficient. In contrast, the mean score on pure technical efficiency is 92.3% where 22 firms or 17% of the total sample are technically efficient. From these many industries, the investment brokerage industry ranks first in having the highest mean technical efficiency while the airline industry ranks last under CRS assumption. The food manufacturing industry has the maximum mean efficiency score while the nonfinancial services industry has the minimum efficiency score under VRS assumption. Technical efficiency scores under CRS allow firms to benchmark their performance against other firms within the same industry while technical efficiency under VRS allow benchmarking of firms of similar size.

Tab. 3 - Average efficiency scores per industry. Source: own research

Industry	Observations	CRS	VRS	SE
Airline	8	0.696	0.875	0.791
Apparel, Footware, and Accessories	5	0.725	0.936	0.773
Automobiles	13	0.712	0.943	0.753
Banks	13	0.735	0.884	0.832
Communication Equipment	5	0.765	0.916	0.833
Department and Discounted Store	9	0.840	0.949	0.884
Food Manafacturing	11	0.790	0.972	0.812
Hotel	8	0.820	0.956	0.854
Insurance	16	0.769	0.917	0.837
Internet Information Providers	6	0.666	0.893	0.745

Investment Brokerage	5	0.891	0.970	0.914
Nonfinancial services	9	0.715	0.872	0.820
Supermarket	11	0.731	0.899	0.814
Others	10	0.797	0.955	0.829
Overall	129	0.758	0.923	0.820

For the second-stage DEA, the relationship of pure technical efficiency and environmental variables, i.e. the four inputs and four outputs, is estimated and tested for significance. For this paper, the basic Tobit regression equation is as follows:

$$\theta_{VRS} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 y_1 + \beta_6 y_2 + \beta_7 y_3 + \beta_8 y_4 + \varepsilon \quad (4)$$

Table 4 reports the results of the Tobit estimation. Since the technical efficiency scores under VRS serve as the dependent variable in the model, an explanatory variable with a positive beta coefficient implies that any marginal increase in that variable results to an increase in pure technical efficiency. Based on table 4, the three profitability indicators (return on assets, operating margin, and revenue per employees) have a significant positive relationship with efficiency. This confirms previous findings such as that of Yeh (1996) in which firms deemed profitable are likely to operate more efficiently. On the other hand, operating costs exhibit a significant negative relationship with efficiency, suggesting that excessive costs can adversely affect firm performance.

As regards to the qualitative metrics, customer satisfaction rating has a positive coefficient at .01 level of significance. Given this figure, hypothesis H1 is accepted, that is, customer satisfaction has a positive impact on a firm's overall performance. This is hardly surprising since a higher level of consumer confidence on company products and services leads to higher levels of patronage which in turn increases revenues. Chi and Gursoy (2009) suggested that customer satisfaction is one of the critical success factors for businesses. It might even be possible to consider that superior customer satisfaction yields higher future earnings. In such a case, investment in service quality can improve perceptual consumer metrics as well as attract new customers and retain existing ones.

Job satisfaction rating also significantly affects efficiency but its coefficient is negative, thus, rejecting hypothesis H2 that job satisfaction is positively correlated to firm performance. Taris and Schreurs (2007) argued that the difference in performance of organizations with high employee morale maybe no different from those with low morale. One likely explanation maybe that the sample large multinationals, because of their scale of operations, are not able to take advantage of increasing the productivity of employees despite having high well-being. It might even be the case that investments in promoting higher employee welfare whether in terms of pay and benefits are likely to be counterproductive, especially where employees view their contributions as part of a large-sized organization as insignificant. Best management practice might recommend provision of key worker incentives to promote higher productivity. However, management should evaluate from time to time how far these key incentives to employees benefit the company the company in the long run.

Tab. 4 – Result of Tobit regression. Source: own research

Explanatory variables	Beta coefficient	Standard error	t-value	p-value
Number of employees (x_1)	3.170e-08	2.230e-08	1.42	0.157
Job satisfaction rating (x_2)	-0.027	0.008	-3.23	0.002

Operating costs, USD 000 (x_3)	-1.59e-06	3.62e-07	-4.40	0.000
Asset, USD 000 (x_4)	1.640e-08	1.290e-08	1.28	0.204
Customer satisfaction rating (y_1)	0.007	0.001	11.22	0.000
Return on assets (y_2)	0.278	0.052	5.39	0.000
Operating margin (y_3)	0.091	0.025	3.65	0.000
Revenue per unit (y_4)	0.019	0.006	3.24	0.002
Constant	0.435	0.052	8.33	0.000

Having considered the positive influence of customer satisfaction and negative influence of job satisfaction on pure technical efficiency, succeeding inquiry dictates that its moderation effect on financial inputs be investigated. For this reason, fifteen other Tobit equations based on equation (4) were constructed to account for the interaction between job satisfaction and customer satisfaction on one hand and operating costs and total assets on the other. These moderating variables help explain how a financial element indirectly affects corporate performance by directly influencing a qualitative metric. Table 5 provides summary results of some selected Tobit equations which accounts for those moderating variables. Out of these equations, equation 14 stands out as the model having almost all explanatory variables estimated to have a significant impact on the efficiency.

The moderating variable y_1x_2 corresponds to the interaction between job satisfaction and customer satisfaction. Inclusion of this variable in the Tobit model yields a positive beta coefficient; consequently, its impact on firm efficiency is estimated to be significant to some respect. Therefore, hypothesis H3a that customer satisfaction moderates the effect of job satisfaction on firm's overall performance is acceptable but on certain grounds. Given the finding that establishes in this paper the inverse relationship between job satisfaction and firm performance, it might be inferred that there is still considerable likelihood that job satisfaction on certain occasions indirectly explain variation in efficiency. Tempered employee morale can lead them to provide quality service to its customers and ultimately higher productivity.

Tab. 5 - Results of selected alternative Tobit regression. Source: own research

	1	4	5	6	8	9	10	11	12	13	14	15
x_1	+	+	+*	+	+*	+	+	+	+*	+	+*	+
x_2	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*	-*
x_3	-**	-**	-	-*	-**	-**	-**	-**	-**	-**	-**	-**
x_4	+	+	+	-	+*	-	-	-	+	+	+*	+
y_1	-	-	-	-	-	-	-	-	-	-	-	-
y_1x_2	+*	+	+	+	+*	+*	+	+*	+	+	+*	+*
y_1x_3	+**	+*		+*	+**		+**		+**	+**	+**	
y_1x_4	-*		-		-*			-	-*		-*	-
y_2	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**
y_3	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**
y_4	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**	+**

Note: ** - significant at $p < .01$, * - significant at $p < .05$

The next moderating variable, y_1x_3, accounts for the interaction between operating costs and customer satisfaction. This moderating variable is estimated to have a significant positive, such that hypothesis H3b that customer satisfaction moderates the effect of operating cost on firm's overall performance is accepted. While it might be the case that incurring costs well beyond the allowable maximum can contribute to firm inefficiency, certain operating costs particularly those related to improving service quality have a positive indirect impact. Costs which, for instance, cut waiting service times, provide satisfactory post-sales services, and improve channels of exchange and delivery are justified when benefits derived from these initiatives exceed the corresponding costs.

The last moderating variable, y_1x_4, captures the interaction between total assets and customer satisfaction. This moderating variable has a negative beta coefficient but its significance in explaining efficiency variation is occasionally negligible. Therefore, hypothesis H3c that customer satisfaction moderates the effect of firm's total asset on firm's overall performance is rendered acceptable again on certain occasions. Although it generally does not have any significant direct relationship with efficiency, total assets as a proxy for company size indirectly has an adverse effect to company performance through customer satisfaction. It might be that corporate bureaucracies and underutilized resources, especially in the case of multinationals, hinder effective service quality. Effective downsizing and making institutional arrangements to achieve optimal asset size could allow firms to improve asset quality and eliminate risks associated with holding excessive resources.

5 CONCLUSION AND MANAGERIAL DISCUSSION

This study attempts to evaluate the role of job satisfaction and customer satisfaction in explaining firm's overall performance. Especially, this study highlight the importance of the interaction between customer satisfaction and other variables by examining customer satisfaction as the moderators for the relationship between job satisfaction, operating cost and total asset with firm's overall performance. Findings in this study lead to some practical implications which can be useful for managers who are interested in linking the investments in employees and customer satisfaction to firm's competitiveness. First, customer satisfaction is found to be positively correlated with firm's overall performance in this study. This finding confirms the trending approach in the market that persuading customer-orientation strategy will pay off. Especially, the technical efficiency score from DEA analysis are used as the measures for firm's overall performance so that the customer satisfaction does not only positively affect firm's performance but also the firm's competitiveness comparing to competitors. Therefore, managers should consider the investment in customers as one of the important sources for firm's competitiveness. Secondly and more importantly, this study also finds the significant moderation effects of customer satisfaction on the relationships between assets, operating costs and job satisfaction with firm's overall performance. This finding partly answers the questions how customer satisfaction can affect firm's performance and competitiveness. Customer satisfaction does not only directly influence firm's overall performance but also have indirectly effects by interacting with other factors such as job satisfaction, operating cost, assets. This again confirms the vital roles of customer investments and customer orientation strategy in nowadays business environment. Managers then need to align all the most important strategic business process toward to the customer-related objectives, especially for the large scale companies when it seems that the customer satisfaction in larger companies is not so effective. Finally, this study highlights the need of manager to direct the investment in employees in the ways that helps to better deliver value to customers and improve the customer experiences when interacting with firms. It can be seen that the interaction between job satisfactions and customer

satisfactions significantly and positively influences firm's performance while job satisfactions negatively influences firms' performance when standing alone in this study. It might express the phenomena of unprofitable employees' investment in which employee can be satisfy about their jobs but there is no direct impact on performance because employees' efforts are distributed to wrong objectives. In this case, managers should direct all the employees' investment to serve customer better by spending costs on training courses, aligning the rewarded and incentive system to customer-related objectives or investing in the information and communication systems empowering employee and customer communication. This is what exactly suggested by the theoretical framework such as Balanced Scorecard (BSC) or Service-Profit Chain (SPC) and that's why an approach for enterprise system called Customer Relationship Management (CRM) is so popular today. CRM can be described as a set of cross-functional strategic business processes requesting to transform all firms' activities from product-centric orientation toward customer-centric orientation (Payne & Frow, 2005). Developed by the practitioners but CRM has also been supported by researchers when investigating its relationship with firm's performance (Minami & Dawson, 2008; Reinartz, Krafft, & Hoyer, 2004). In short, this study confirms the essential role of nonfinancial measures in explaining firm's performance and competitiveness, then urges managers to focus more on these measures, especially on the interaction between nonfinancial and financial measures.

Limitation and further researches

As is the case of most of research project, this study also represents some limitations should be considered. First, the data used for job satisfactions are not based on the best mehtods for collecting these data. Although reviews from Glassdoor website have their credit on some degree but they can also be affected by several unexpected uncontrolable factors which make them less reliable. The best way to collect this data is conducting the survey of employees of each firms. Unfortunately, because of limited resources, such data are too difficult and costly to collect in this study. Second, the model for measuring the technical efficiency score as a proxy for firm's overall performance is not so optimal. There is also possibility to include intermediate inputs into the models which makes the efficiency scores more appropriate for investigating the causal relationship between qualitative/non-financial metrics and economic outcomes. So that further researches can explore how Network DEA models can be designed to assess the interaction of financial and nonfinancial performance of firms.

ACKNOWLEDGEMENTS

The authors are thankful to the Czech Science Foundation (GA CR), project No 16-25536S, which provided financial support for this study.

The research for this paper was also financially supported by the Internal Grant Agency of Faculty of Management and Economics, Tomas Bata University in Zlín, grant No. IGA/FaME/2016/020.

The research also was financially supported by the European Regional Development Fund under the Project CEBIA-Tech No. CZ.1.05/2.1.00/03.0089 and Tomas Bata University Internal Grant (IGA/CebiaTech/2016/007).

REFERENCES:

Assaf, A. G., & Magnini, V. (2012). Accounting for customer satisfaction in measuring hotel efficiency: Evidence from the US hotel industry. *International Journal of Hospitality Management*, 31(3), 642–647. doi:10.1016/j.ijhm.2011.08.008

Atici, K. B., & Podinovski, V. V. (2015). Using data envelopment analysis for the assessment of technical efficiency of units with different specializations: An application to agriculture. Omega, 54, 72–83. doi:10.1016/j.omega.2015.01.015

Banker, R. D., Charnes, A., & Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. Management Science, 30(9), 1078–1092. doi:10.1287/mnsc.30.9.1078

Bayraktar, E., Tatoglu, E., Turkyilmaz, A., Delen, D., & Zaim, S. (2012). Measuring the efficiency of customer satisfaction and loyalty for mobile phone brands with DEA. Expert Systems with Applications, 39(1), 99–106. doi:10.1016/j.eswa.2011.06.041

Braam, G. J. M., & Nijssen, E. J. (2004). Performance effects of using the balanced scorecard: A note on the Dutch experience. Long Range Planning, 37(4), 335-349. doi:http://dx.doi.org/10.1016/j.lrp.2004.04.007

Brayfield, A. H., & Crockett, W. H. (1955). Employee attitudes and employee performance. Psychological Bulletin, 52(5), 396-424. doi:10.1037/h0045899

Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2(6), 429–444. doi:10.1016/0377-2217(78)90138-8

Chi, C. G., & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination. *International Journal of Hospitality Management*, 28(2), 245-253. doi:10.1016/j.ijhm.2008.08.003

Crosby, L. A., & Stephens, N. (1987). Effects of relationship marketing on satisfaction, retention, and prices in the life insurance industry. *Journal of Marketing Research*, 24(4), 404-411. doi:10.2307/3151388

Davis, S., & Albright, T. (2004). An investigation of the effect of balanced scorecard implementation of financial performance. Management Accounting Research, 15(2), 135-153. doi:10.1016/j.mar.2003.11.001

Donthu, N., & Yoo, B. (1998). Retail productivity assessment using data envelopment analysis. *Journal of Retailing*, 74(1), 89–105. doi:10.1016/S0022-4359(99)80089-X

Dotson, J. P., & Allenby, G. M. (2010). Investigating the strategic influence of customer and employee satisfaction on firm financial performance. Marketing Science, 29(5), 895-908. doi:10.1287/mksc.1100.0584

Epstein, M. J., & Westbrook, R. A. (2001). Linking actions to profits in strategic decision making. MIT Sloan Management Review, 42(3), 39-49.

Eling, M., & Luhnen, M. (2010). Frontier efficiency methodologies to measure performance in the insurance industry: Overview, systematization, and recent developments. The Geneva Papers on Risk and Insurance - Issues and Practice, 35(2), 217–265. doi:10.1057/gpp.2010.1

Farrell, M. J. (1957). The measurement of productive efficiency. *Journal of the Royal Statistical Society*, 120(3), 253–290. doi:10.2307/2343100

Fethi, M. D., & Pasiouras, F. (2010). Assessing bank efficiency and performance with operational research and artificial intelligence techniques: A survey. *European Journal of Operational Research*, 204(2), 189–198. doi:10.1016/j.ejor.2009.08.003

Feroz, E. H., Kim, S., & Raab, R. L. (2003). Financial statement analysis: A data envelopment analysis approach. *Journal of the Operational Research Society*, 54(1), 48–58. doi:10.1057/palgrave.jors.2601475

Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American customer satisfaction index: Nature, purpose, and findings. *Journal of Marketing*, 60(4), 7-18. http://dx.doi.org/10.2307/1251898

Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. *Journal of Marketing*, 56(1), 6. http://dx.doi.org/10.2307/1252129

Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser Jr., W. E., & Schlesinger, L. A. (2008). Putting the service-profit chain to work. *Harvard Business Review*, 86(7-8), 118-129.

Hoff, A. (2007). Second stage DEA: Comparison of approaches for modelling the DEA score. European *Journal of Operational Research*. 181(1), 425–435. doi:10.1016/j.ejor.2006.05.019

Huang, M., Li, P., Meschke, F., & Guthrie, J. P. (2015). Family firms, employee satisfaction, and corporate performance. *Journal of Corporate Finance*, 34, 108-127. doi:10.1016/j.jcorpfin.2015.08.002

Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance. A meta-analysis. Psychological Bulletin, 97(2), 251-273. doi:10.1037/0033-2909.97.2.251

Judge, T. A., Bono, J. E., Thoresen, C. J., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. Psychological Bulletin, 127(3), 376-402. doi:10.1037//0033-2909.127.3.376

Kaplan, R. S., & Norton, D. P. (1992, Jan/Feb 1992). The balanced scorecard - measures that drive performance. *Harvard Business Review*, 70, 71.

Liu, J. S., Lu, L. Y. Y., and Lu, W.-M. Research fronts in data envelopment analysis. Omega, 58, 33–45. doi:10.1016/j.omega.2015.04.004

Minami, C., & Dawson, J. (2008). The CRM process in retail and service sector firms in japan: Loyalty development and financial return. *Journal of Retailing and Consumer Services*, 15(5), 375-385. doi:10.1016/j.jretconser.2007.09.001

Molina, J. A., & Ortega, R. (2003). Effects of employee training on the performance of north-american firms. *Applied Economics Letters*, 10(9), 549-552. doi:10.1080/1350485032000100297

Nørreklit, H. (2000). The balance on the balanced scorecard - A critical analysis of some of its assumptions. *Management Accounting Research*, 11(1), 65-88. doi: 10.1006/mare.1999.0121

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41-50. doi:10.2307/1251430

Pantouvakis, A., & Mpogiatzidis, P. (2013). Measuring clinical department efficiency – the impact of clinical leadership job satisfaction. *Benchmarking: An International Journal Benchmarking*, 20(3), 305-321. doi:10.1108/14635771311318108

Payne, A., & Frow, P. (2005). A strategic framework for customer relationship management. *Journal of Marketing*, 69(4), 167-176. doi:10.1509/jmkg.2005.69.4.167

Perera, S., Harrison, G., & Poole, M. (1997). Customer-focused manufacturing strategy and the use of operations-based non-financial performance measures: A research note. Accounting, Organizations and Society, 22(6), 557-572. doi:http://dx.doi.org/10.1016/s0361-3682(96)00048-7

Reinartz, W., Krafft, M., & Hoyer, W. (2004). The customer relationship management process: Its measurement and impact on performance. *Journal of Marketing Research,* 41(3), 293-305. doi:10.1509/jmkr.41.3.293.35991

Reynolds, D., & Biel, D. (2007). Incorporating satisfaction measures into a restaurant productivity index. *International Journal of Hospitality Management*, 26(2), 352-361. doi:10.1016/j.ijhm.2006.01.003

Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. Long Range Planning, 30(3), 413-426+325. doi: 10.1016/S0024-6301(97)90260-0

Rust, R. T., Zahorik, A. J., & Keiningham, T. L. (1995). Return on quality (ROQ): Making service quality financially accountable. *Journal of Marketing*, 59(2), 58. doi: dx.doi.org/10.2307/1252073

Silvestro, R., & Cross, S. (2000). Applying the service profit chain in a retail environment: Challenging the "satisfaction mirror". *International Journal of Service Industry Management*, 11(3), 244-268. doi: 10.1108/09564230010340760

Singleton-Green, B. (1993). If it matters, measure it! Accountancy, 111(1197), 52-53.

Smith, P. (1990). Data envelopment analysis applied to financial statements. Omega, 18(2), 131–138. doi:10.1016/0305-0483(90)90060-M

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319-1350. doi:10.1002/smj.640

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. doi:10.1002/(SICI)10970266(199708)18

Thanassoulis, E., Boussofiane, A., & Dyson, R. (1996). A comparison of data envelopment analysis and ratio analysis as tools for performance assessment. Omega, 24(3), 229–244. doi:10.1016/0305-0483(95)00060-7

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31-51. doi:10.1111/j.1468-2370.2007.00201.x

Weiss, H. M. (2002). Deconstructing job satisfaction, separating evaluations, beliefs and affective experiences. *Human Resource Management Review*, 12(2), 173-194. doi:10.1016/S1053-4822(02)00045-1

Worthington, A. C. (2004). Frontier efficiency measurement in health care: A review of empirical techniques and selected applications. *Medical Care Research and Review*, 61(2), 135–170. doi:10.1177/1077558704263796

Wright, T. A. (2006). The emergence of job satisfaction in organizational behavior: A historical overview of the dawn of job attitude research. *Journal of Management History*, 12(3), 262-277. doi: 10.1108/17511340610670179.

Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, 5(1), 84-94. doi: 10.1037/1076-8998.5.1.84.

Yeh, Q. (1996). The application of data envelopment analysis in conjunction with financial ratios for bank performance evaluation. *The Journal of the Operational Research Society*, 47(8), 980–988. doi:10.2307/3010406

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31. doi: 10.2307/1251929.

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

AUTOMOBILE INDUSTRY: RECENT DEVELOPMENT IN CAR PRODUCTION OF CZECH MARKET

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ABSTRACT

The primary goal of this paper is to present a framework that enables one to obtain estimates on production for a Czech Republic automotive market. This paper firstly reviews previously selected studies on the Czech automotive sector while discusses the importance of automotive industry at the global level, as well. Secondly, this paper declares evidence of yearly development in the production of Czech automotive sector and sales since 2005 and previously trends in relation to GDP per capita and CCI, covering periods before, during and after crisis (GFC) period. Our sample is based on the observation of the production of finished vehicles between the period 2005 to 2015. For this case study, we have investigated companies involved in the Automobile Industry Association. Our findings suggest potential future research directions with respect to production that could be potentially helpful for the automotive sector and for developing predictive business models in this industry.

Keywords: *automotive industry, car production, Czech Republic, crisis period, case study*

JEL Classification: L62, E23, G01, D24, L16

1 INTRODUCTION

This paper reviews previous studies on production in the Czech automotive sector and presents by authors developed integrated review framework that can be useful to understand the challenges and drivers in the production stages of automobiles in the Czech Republic. The topic of the paper is highly important nowadays, because the Czech automobile industry is an important sector in the Czech Republic and is referred as one of the traditional drivers of the Czech economy. Moreover, according to Automotive Industry Association of the Czech Republic (AIA CR, 2016) the share of gross added value in the automobile industry in relation to the overall added value for all sectors in the national economy has long enabled the Czech Republic to rank in the highest positions compared to other European Union states.

2 THEORETICAL BACKGROUND

2.1 Brief summary of the automobile industry worldwide: importance and trends

With sales of passenger cars predicted as 73.9 million vehicles in 2015 in the global meaning significant increase in global vehicle production since e.g. 1975 from 33 million vehicles, the automobile industry has been studied intensively so far contrary to other industries. Nowadays countries as China, Japan, Germany, United States of America (U.S.), South Korea, and India are still counted among the largest automotive markets worldwide in terms of passenger cars production (see Tab.1 - the production of passenger cars of the main recent producers of automotive industry worldwide in 2015), while the U.S. became a key automotive market when Ford introduced assembly line car production in the early 1900s to mass-manufacture- and the Ford Motor Company still belongs among the leading manufacturers of passenger cars worldwide. In terms of revenues, major automobile makers are Toyota, Volkswagen, and

General, while companies Bosch, Continental, Denso and Magna nowadays refer to the major automotive suppliers.

Tab. 1 – Production of passenger cars in selected countries in 2015 (in millions of units). Source: Statista (2016)

CHINA	JAPAN	GERMANY	U. S.	SOUTH KOREA	INDIA
21.08	7.83	5.71	4.16	4.14	3.38
SPAIN	BRAZIL	MEXICO	UK	FRANCE	CZECH REPUBLIC
2.22	2.02	1.97	1.59	1.55	1.3
RUSSIA	SLOVAKIA	IRAN	CANADA	INDONESIA	THAILAND
1.21	1	0.89	0.89	0.82	0.77

Several scientific papers from well-known international journals focused on main features of the global automotive industry after millennium while discuss this issue from different points of view (e.g. Berry, Levinsohn & Pakes, 2004; Coe et. al., 2004; Navet et. al., 2005; Sturgeon et. al., 2009; Sturgeon, Van Biesebroeck &Gereffi, 2008; Haugh, Mourougne, and Chatal, 2010; Pallaro et al.,2015, and more). Coe et. al. (2004) stated that recent literature concerning regional development has placed significant emphasis on local institutional structures and their capacity to 'hold down' the global, while conversely, work on inter-firm networks - such as the global commodity chain approach - has highlighted the significance of the organizational structures of global firms' production systems and their relation to industrial upgrading. Authors used as an example the investments of car manufacturer BMW in Eastern Bavaria, Germany and Rayong, Thailand, and considers their implications for regional development. Authors highlighted the knowledge about the territorially specific power configurations is important also for regional institutions to take appropriate measures for transforming a region's assets and to maximize their bargaining power and impact. Finally, they concluded that governance structures in different territorial contexts are variable and hence the possibilities for development policies to impact on a region's assets will differ as well. Berry, Levinsohn and Pakes (2004) used estimates to make out-of-sample predictions about important recent changes in industry structure and found out demand systems provide an important component of incentives for market responses to many (if not most) policy and environmental changes.

Navet et. al. (2005) reviewed of the most widely used automotive networks, as well as the emerging ones, discussed current efforts of the automotive industry on middleware technologies, which may be of great help in mastering the heterogeneity as well as discussed future trends in the development of automotive communication systems. Sturgeon, Van Biesebroeck and Gereffi (2008) focused on investigating recent trends in the global automotive industry while using and applying global value chain (GVC) analysis, especially by using three its elements (1) power, 2 institutions and 3) inter-firm governance) and, inter alia, found out 1) national political institutions create pressure for local content, which drives production close to end markets, where it tends to be organized nationally or regionally; 2) in terms of global value chain governance, rising product complexity combined with low modifiability and a paucity of industry-level standards has driven buyer-supplier linkages toward the relational form; work shifted to the supply base, lead firms and suppliers were forced to develop relational linkages to support the exchange of complex uncodified information and tacit knowledge; 3) small number of hugely powerful lead firms that drive the automotive industry helps to explain why

it has been so difficult to develop and set the industry-level standards that could underpin a more loosely articulated spatial architecture. Moreover, authors discussed the distinctive characteristics of the global automotive industry and highlighted the importance of automotive industry, in general. Authors conclude that the industry can be usefully conceived of as a network of clusters, but the conceptual and methodological tools should not blind us to the importance and durability of structures that function at the level of continental-scale regions, while the need for such guideposts will only grow (i.e., debates over the relative merits and meaning of terms, such as commodity and value chains, production networks, 'value' and 'governance' will certainly continue, with a shared focus on strategies and behaviour of major firms and their suppliers, and the structuring roles of institutions, power, and place). Sturgeon et. al. (2009) discussed main features of the global automotive industry, used global value chain analysis to explain the limits of built –to-order in the industry, and identifies several important trends. Meanwhile, authors highlight how global, regional, national and local value chains are nested to create a pattern of global integration that authors saw as distinctive to the industry. Authors also stated there are some features that the automotive industry shares with other globalised industries such as electronics, apparel and consumer goods, while authors point out among others e.g. Foreign Direct Investment (FDI), global production and cross-border trade have accelerated dramatically since the late 1980s and are encouraged by trade and investment liberalisation through World Trade Organization (WTO) agreements. Haugh, Mourougne, and Chatal (2010) considered the role of automobile industry in the current cycle and pointed out the industry is economically important and its cycle is intertwined with business cycles, while they also shed some light on collapse in car sales at the start of the crisis as well as on car scrapping programmes. Authors offered an overall view across the globe in relation to car sales and their trends. Moreover they discussed e.g. automobile production in relation GDP, passenger vehicle production levels and growth in countries producing one million or more units in 2008, error-correction models for car sales growth, capacity and sales in the automobile industry, sensitivity of trend sales, value added-employment-exports in automobile sector, correlation between private consumption and car sales, car sales growth, new passenger car registrations by type in Western Europe, financial market conditions to car sales growth, average scrapping subsidy level in OECD countries, car sales and past scrapping programmes, car ownership-GDP per capita, vehicles ownership-income per capita, actual and trend car sales since 1995 and effect of a rebound in activity and financial conditions on car sales prospects. Authors also mentioned a factor of oil prices on an example of its increase up to mid-2008 that drove material costs higher and also shifted consumer preferences towards small vehicles. Sturgeon and Van Biesebroeck (2010) applied global value chain analysis also to study recent trends in the global automotive industry and paid special attention to the effects of the recent economic crisis on the industry in developing countries. Pallaro et al. (2015) derived a framework in relation to the production, consumption and main activities stages of automotive sector described in Fig. 1 and mentioned examples of activities´ drivers as legislation in case of manufacturing, buyer pressure in purchasing activities and new technology in vehicle use activities.

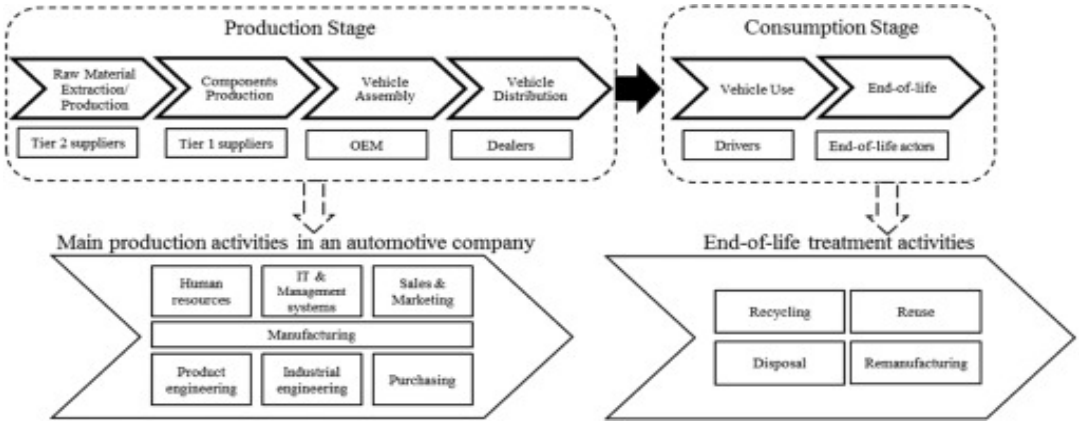
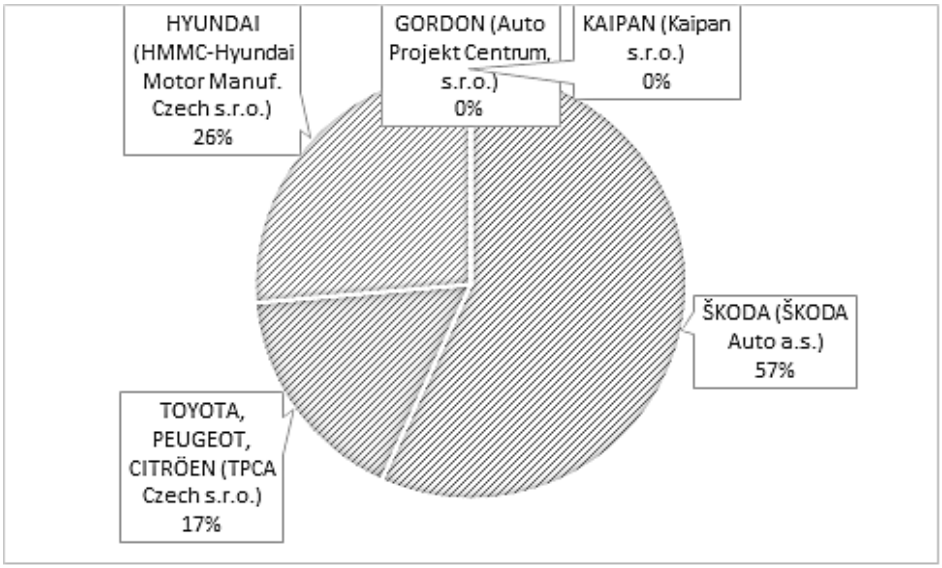


Fig. 1 – Simplified lifecycle for the automotive sector. Source: Pallaro et al. (2015)

2.2 Recent studies on the C.R. automobile industry

In this paper we focus on the automobile industry in the Czech Republic, thus after the previous worldwide brief intro to the automobile industry, the second part of the theoretical background is given to a new review framework of selected recent studies discussing the automotive industry in the Czech Republic. The Fig. 2 illustrates highlights of Czech automotive industry production since new millennium and declares the fact that the Czech automotive sector is largely based on three carmakers namely Škoda Auto, Toyota Peugeot Citroën Automobile (TPCA) and Hyundai Motor Manufacturing Czech (HMMC) while these producers, according to CzechInvest investment and business development agency, draw resources from a well-developed Tier 1 to Tier 3 supplier network which includes firms such as Aisin, Bosch, Continental, Denso, Faurecia, Johnson Controls, Magna, TRW Automotive and many others. The Czech automotive industry has thus a strong passenger manufacturing base but the sector consists of more than just the passenger car segment, however this segments is predominant (99 % of all motor vehicles produced in the Czech Republic are personal vehicles). Trucks, buses and motorcycles are also manufactured here. According to heavy-duty trucks, these are manufactured mainly by the company Tatra, which is one of the world's bestselling vehicle manufacturers. Avia produces medium- duty trucks in the city of Prague and was acquired by an Indian company, Ashok Leyland, in 2006. Bus manufacturers include Irisbus Iveco (the former Czech company Karosa), SOR Libchavy, Ekobus and Evobus, a Daimler Buses subsidiary. (CzechInvest, 2013; AIA, 2016).



Production of automobile industry in the Czech Republic since new millennium. Source: Own with usage of AIA	
2001 - 2004	annual production remained stably at around 450 thousands vehicles
2005	production grew sharply due to the arrival of new automobile prouction platns (TPCA and Hyundai)
2011	the production double the quantity of 2005 and the most personal vehicles (1.195 millions) were produced in the Czech republic ever
2001 - 2012	less than 10 million personal vehicles were manufactured in the Czech Republic
2003 - 2012	a total of 1,471,180 newly produced automobiles were registered in the Czech Republic
2013	the automobile industry has been fully affected by the economic crisis and all three major automobile firms in the country registered significant production declines
2015	Manufactures share 2015: ŠKODA 56.77%, TPCA 16.87% and HYUNDAI 26.36%.
Note. 99% of all motor vehicles produced in the Czech Republic are personal vehicles (1 % is divided among production of buses, service vehicles and motorcycles), while major brands in 2012 were i) ŠKODA, ii) TOYOTA, PEUGEOT, CITROEN (joint venture "TPCA") and iii) HYUNDAI.	

Fig. 2 – Production – Czech automobile manufacturers share 2015; and selected Czech automobile industry production highlights. Source: Own processing.

Several investigators discussed this topic from the different point of views (see Tab. 2. Which represent selected contributions related to our research published after the year 2005, while other papers might be part of the future research).

Tab. 2 – Selected contributions mentioning the Czech automotive (since 2005). Source: own

	TITLE OF THE CONTRIBUTION	**Author/Authors**	**Year**
1	Linkages and spillovers in global production networks: firm-level analysis of the Czech automotive industry	Pavlínek, P. & Žížalová, P.	2016
2	Value creation and value capture in the automotive industry: Empirical evidence from Czechia	Pavlínek, P.	2016
3	Market entry strategies of passenger carmakers - the Case study of the Czech republic	Machkova H. & Collin, P.-M.	2015
4	Processi di internazionalizzazione della conoscenza: il caso	De Martino, A.	2015
5	Sources of GVA growth in divisions of manufacturing sector after crisis	Volek, T. & Novotná, M.	2015
6	Labour as a factor of production in the context of gross value added growth in sector	Novotná, M. & Volek, T.	2014
7	The Internationalization of Corporate R&D and the Automotive Industry R&D of East-Central Europe	Pavlínek, P.	2012
8	Upgrading in the automotive industry: Firm-level evidence from Central Europe	Pavlínek, P.& Ženka, J	2011
9	Do foreign firms crowd out domestic firms? Evidence from the Czech Republic	Kosova, R.	2010
10	Analysis of Total factor productivity contribution to economic growth of the Czech republic	Hájek, M. & Mihola, J.	2009
11	Innovation policy challenges in transition countries: foreign business R&D in the Czech Republic and Hungary	Lengyel, B., & Cadil, V.	2009

12	Regional restructuring of the Škoda auto supplier network in the Czech Republic	Pavlínek, P.& Janák, L.	2007
13	Production disintegration and integration of Central Europe into global markets	Kaminski, B., & Ng, F.	2005

Kaminski and Ng (2005) provided strong empirical support that Central Europe countries have become integrated into global, mostly EU-based networks of production and distribution explained network-related trade experienced a very strong growth. Pavlínek and Janák (2007) examined the regional restructuring of the supplier base of the Czech vehicle manufacturer Skoda Auto and found out the tiered structure of the Škoda suppliers in Czechia by classifying 232 Czech-based Škoda suppliers in three distinct tiers and comparing the differences in the distribution between the foreign-owned and domestic suppliers in these tiers. Pavlínek and Janák (2007) also analysed the relationships between the location of the Škoda suppliers within Czechia and their basic characteristics such as their size, ownership, age and position in the supplier tier. Lengyel and Cadil (2009) focused on R&D expenditures and stated that they considerably decreased in the transition period of Central-Eastern European economies. They concluded that in the middle of the 1990s, business R&D started to grow in the Czech Republic and Hungary due to investments in foreign affiliates and restructuring of domestic companies. Authors also presented a case study of the Czech automobile industry among others in connection to innovation systems. In the same year, Hájek and Mihola (2009) published the analysis of total factor productivity contribution to economic growth of the Czech Republic. They stated total factor productivity is defined as a relation of product to total factor inputs (those can be measured by production function) and its growth is the result of qualitative changes, i.e. intensive factors of growth. However, this contribution is not directly about the automobile industry, the retrospective implications of dynamic factors of intensity and total factor productivity during different periods can be beneficial. A year later, e.g. Kosova (2010) investigated how foreign presence could affect the growth and survival of domestic firms and discussed crowding out and positive technology spillovers as well. The author by using 1994–2001 firm-level Czech data concluded however, crowding out is only short term; after initial entry shakeout, growing foreign sales increase domestic firm growth and survival, indicating domestic demand creation effect. In another year, Pavlínek and Ženka (2011) discussed differences among process, product and functional upgrading and the effect of government policies on the upgrading of Czech-based automotive firms. Authors also focused on evaluation of the differences between the domestic- and foreign-owned automotive firms and changes in the relative position of Czechia in European automotive value chains and their results indicate the selective nature of industrial upgrading at the firm level, based on the sample of 490 Czech-based automotive firms during the period of significant inflows of foreign direct investment into the Czech automotive industry between 1998 and 2006. According to these authors primary indicators of industrial upgrading were 1) turnover per employee, 2) factor productivity (measured by average of gross value-added per employee and gross value-added per unit of tangible assets), 3) wages and salaries (measured to employee or month) and 4) R&D intensity (measured as share of total R&D expenditures in value-added), while secondary indicators were: 1) capital intensity (i.e. tangible assets per employee), 2) value-added in production (represented by share of value-added in turnover), 3) labour productivity (measured as gross value-added per employee) 3) capital productivity (gross value-added/tangible assets) and 4) R&D employment (i.e. share of R&D employment in total employment). Another useful knowledge connected to the automotive industry, concretely in relation to R&D presented Pavlínek in 2012 while covering East-Central Europe region. Novotná and Volek (2014) focused on sector-level in the context of gross value added growth and especially on labour as a factor of production. Volek and Novotná in 2015 enlarged the research and published an

article about sources of GVA growth in divisions of manufacturing sector after crisis period. They pointed out manufacturing consists of different divisions with the different development of economic performance while the most significant factor that affects these divisions of manufacturing can be considered business cycle (Marchetti, 2002). Volek and Novotná (2015) added a basic indicator for measuring sector performance is gross value added and pointed out the dynamics of GVA in manufacturing is influenced by the business cycle. Authors also described the manufacturing sector in the Czech Republic that is divided into many divisions and found out that source of economic growth was not the same in all of manufacturing divisions while they pointed out the main source of GVA growth in the post-crisis period was an intensive growth of manufacturing divisions that prevailed in the automotive industry. De Martino (2015) stated that a theoretical basis show the increasing role of the transnational corporations in managing several phases of the global value chain, described the knowledge internationalisation process within the multinational enterprises, and offered two case study within the automotive industry (Delphi and Škoda, respectively in Mexico and in Czech Republic) in order to demonstrate the importance of the multinational enterprises as driver of the knowledge diffusion. Machková and Collin (2015) applied a case study of the Czech automotive industry market (authors focused on Volkswagen group and its acquisition of the manufacturer Škoda, Hyundai and TPCA joint venture in the Czech Republic) and analysed different entry strategies into the Czech market and compare the results of different strategic approaches for both foreign private investors and the recipient country. Moreover, their case studies show examples of good practices and prove that foreign direct investment (FDI) had the potential to generate employment, raise productivity, transfer skills and technology, enhance exports and contribute to the long-term economic development of the country. Pavlínek and Žížalová (2016) investigated linkages and spillovers in global production networks and applied the firm-level analysis of the Czech automotive industry. They especially focused on analysing the linkages between and spillovers from foreign-owned (foreign) to domestic-owned (domestic) firms in the Czech automotive industry and found out based upon unique data collected by the authors through a questionnaire completed by 317 foreign and domestic firms in 2009 and on-site interviews with 100 firms conducted between 2009 and 2011 a low share of domestic suppliers in the total supplies of Czech-based foreign firms and diverse spillover effects from foreign to domestic firms. Finally, but not lastly, Pavlínek and Ženka (2016) in this article investigated how distinct tiers of firms contribute to value creation and value capture in the automotive industry and employed firm-level indicators to evaluate the value creation and capture of distinct supplier tiers in the Czech automotive industry, while differences between foreign-owned and domestic firms were considered.

3 METHODOLOGY AND DATA

Data were collected for last decade of 2005-2015, that included also the pre-crisis, crisis and after crisis period. The micro-level data on production of automotive were obtained from annual summaries of Automobile Industry Association ("AIA"). AIA covers together 149 companies (for the number of company members of AIA development between 2005-2015 see Fig. 4) which employ more than 112 000 employees and represent more than 86% of total production of automotive sector (while this result corresponds to a share of over 6.5% for the Czech GDP, for the year 2014). Firstly, we estimate while using AIA data (see appendixes 1-4) yearly production of automotive for 4 main sections: 1) Cars (cat. M1) + LCV /car derived/ (cat. N1) 2) CVs (cat. N2 and N3), 3) Buses (cat. M2 and M3) and 4) Motorcycles. (See Fig. 3)

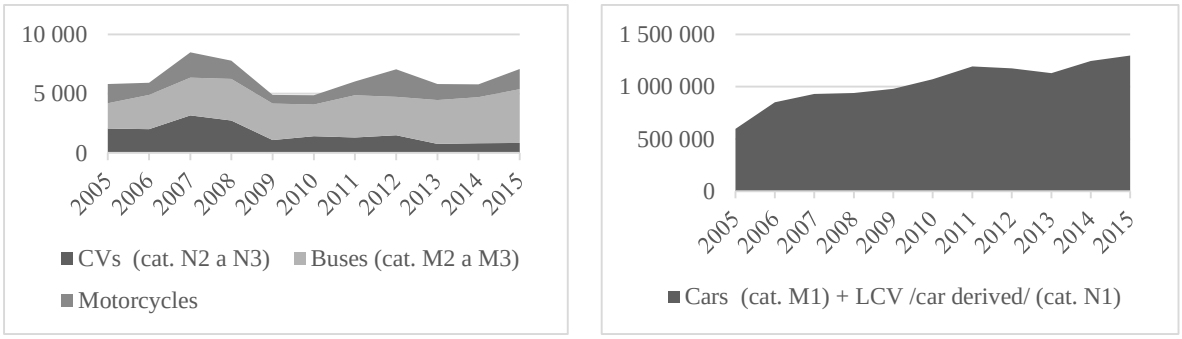


Fig. 3 – Production by categories. Source: Own processing

Secondly, for further analysis, we selected only the group Cars (cat. M1) + LCV /car derived/ (cat. N1) "cars", because of the fact that this group represents more than 99 % of total Czech automotive production. Thirdly, we collect selected macroeconomic-level data (in order to calculate GDP per capita by production method and Consumer confidence index) over a past ten-year period. These data were obtained from the Czech Statistical Office and OECD. All data used are publicly available.

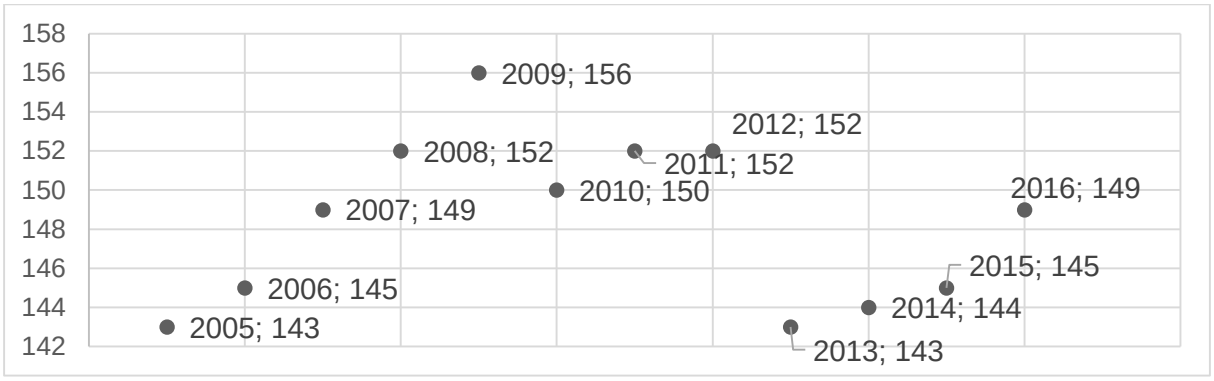


Fig. 4 – Number of Automotive Industry Association of the Czech Republic members 2005-2016. Source: Own processing

Methodology

We set the following research question at the beginning of presented research:

Q1. Has the production of automobiles in the Czech Republic significantly differed in the crisis phase, compared to non-crisis phase? We followed a tradition in order to uncover basic parameters supply so that we could obtain a detailed analysis of past events and changes in automotive industry structure. In order to answer the research question, we thus followed following major 3 steps: 1) Firstly, to identify the sample articles for our study we conducted i) in-depth research of major databases, ii) selected articles were screened for relevance to the research topic and relevant were comprehensively reviewed; and; 2) Secondly, to illustrate how the production of automobiles operated in reality, we i) provide a case study by using descriptive statistics, while the data were analysed and compared to selected macroeconomic indicators (trends in the production of the automotive industry were compared to the development of GDP). In order to provide the more relevant comparison, GDP per capita by using the production method of the base index (2000 = 100%) was calculated to reflect the potential drive the production by macroeconomic activity which is connected to macroeconomic cycles issue. Measurement of the trends in GDP per capita is based on the calculation of the monthly basic GDP per capita (the average month in 2000 = 100), from which the monthly and cumulative interannual GDP per capita values are derived. For subsequent

comparison has been used calculated values CCI. This index is published by OECD on a monthly basis, therefore for the calculation annual averages were used. Thirdly, we run Shapiro-Wilk tests for normality and based upon the results of these test, we calculate appropriate correlation coefficients and P-values that can shed some light on if statistically significant relationship exists between the variables or not during the investigated period 2005-2015. In conclusion, the collected dataset also allows to run advanced analysis in the planned future research.

4 RESULTS AND DISCUSSION

The initial analysis of total cars production of the Czech Republic between years 2005 and 2015, that covers the past ten-year period phase, while is compared to calculated GDP per capita, is shown in the Fig. 5. It is visible that the decrease in total production of cars occurred in the Czech Republic only in two years of the investigated period, i.e. in 2012 (-1.73 %) and 2013 (-3.90 %), while the decrease in GDP per capita appeared in mentioned years, as well. According to the total sales of cars of the Czech Republic, a major decline (see Fig. 6) in 2008 (-13.38%) was evident, while since 2012 the sales of cars in the Czech Republic reached the pre- crisis (pre-GFC) and nowadays in 2015 reach significantly higher values than before the crisis. The trend of sales of cars in the Czech Republic was also compared to the Consumer confidence index (CCI) which has been more volatile, moving in a range from 98.19 to 101.51.

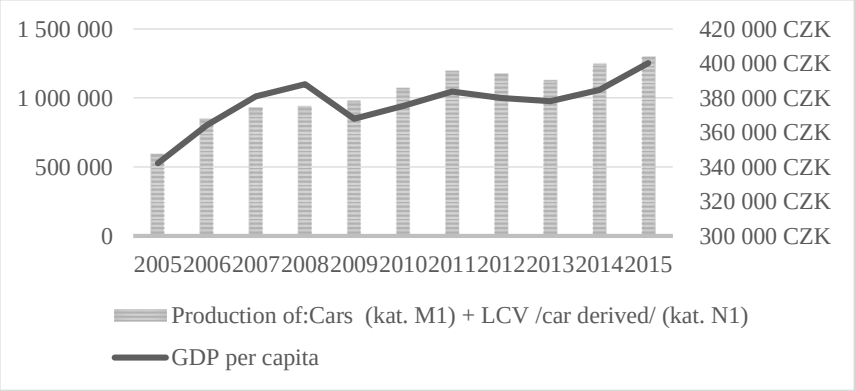


Fig. 5 – Comparison of total production and GDP. Source: Own processing with using AIA (2016) and VDB (2016)

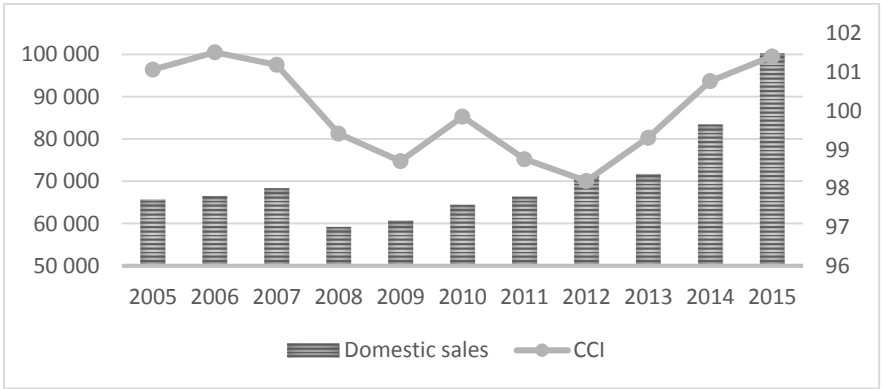


Fig. 6 – Comparison of domestic sales and CCI. Source: Own processing with using AIA (2016) and OECD (2016)

We then run S-W test for normality and find out that 1) since the smallest P-value amongst the tests performed is greater than or equal to 0.05, we cannot reject the idea that "Car Production"

(Shapiro-Wilk W 0.943009; P-Value 0.534507), "GDP per capita" (Shapiro-Wilk W 0.917997; P-Value 0.288344), and "CCI" (Shapiro-Wilk W 0.909427; P-Value 0.229375) comes from a normal distribution with 95% confidence, however, 2) since the smallest P-value amongst the tests performed is less than 0.05, we can reject the idea that "Domestic Sales" (Shapiro-Wilk W 0.794479; P-Value 0.00911738) comes from a normal distribution with 95% confidence. These findings thus influence the estimation of potential correlations. Tab. 3. shows Pearson correlations for variables that come from a normal distribution, while Spearman rank correlations were calculated for the variable ("Domestic Sales"), that does not come probably from normal distribution based on previous S-W test results, in relation to other variables.

Tab. 3 – Correlations between variables. Source: Own processing

Pearson Correlations	CCI	GDP per capita	
Car Production (corr)	-0.2934	0.8449	
(P-Value)	(0.3811)	(0.0011)	
Spearman Rank Correlations	Car Production	CCI	GDP per capita
Domestic Sales (corr)	0.6000	0.2818	0.3727
P-Value	(0.0578)	(0.3728)	(0.2385)

Correlation coefficients range between -1 and +1 and measure the strength of the association between the variables. In contrast to the more common Pearson correlations, the Spearman coefficients are computed from the ranks of the data values rather than from the values themselves. Consequently, they are less sensitive to outliers than the Pearson coefficients. Also shown in parentheses is a P-value which tests the statistical significance of the estimated correlations. P-values below 0.05 indicate statistically significant non-zero correlations at the 95.0% confidence level. The following pairs of variables have P-values below 0.05: 1) Car Production and GDP per capita, and the correlation between them is positive. Other correlations were non zero but according to estimated P-Value statistically insignificant. Using quarterly data and comparing the results to yearly data is recommended for the future research.

Discussion

The Czech auto industry, the driving force of manufacturing in the Czech Republic, has just seen a record year in 2015 (see Fig. 5 and Fig. 6) in production and sales. However, the look forward and discussion of the ongoing factors (e.g. weak Czech crown) helping Czech manufacturers to sell the cars as well as examining the risks and other related factors (e.g. low oil prices, overall age profile of passenger cars on Czech roads in one of the oldest in Europe, etc.) connected to car production and car market sales are challenging. Several investigators focus on analysing trends in automotive production, let us mention e.g. Timmer et. al. (2015) who illustrated the strengths and the limitations of the database by analyzing fragmentation and the shifts in regional and factorial distribution of value added in global automotive production; and mentioned that the automotive industry has been particularly affected by the increasing opportunities for offshoring and international fragmentation of production. Timmer et al. (2015) also pointed out, that the financial crisis in 2008 led to major restructuring, but not to domestic consolidation of production chains, and that however, Europe still has a strong position, even after the financial crisis. It is shown that income shares of capital and high-skilled workers are rapidly increasing, while medium- and low-skilled shares are declining. Authors concluded that

automotive manufacturers prefer to locate their assembly activities close to end markets, often enticed or forced by government policies, while specialized suppliers tend to cluster around these assembly activities and that production chains of automotive thus seem to fragment both globally and regionally.

According to mentioned tendency of specialized suppliers to cluster – the competitive advantage and actively finding the important factors crucial to the development of competitive advantage of enterprises - cluster organizations in which cooperate broad community of businesses, RTOs, universities and other support and associated institutions might be challenging in our opinion, i.e., for innovation. The Ministry of industry and trade CR together with the CzechInvest agency previously targeted this area with a number of support actions (e.g. the project ClusterCoop to encourage also the transnational cooperation of clusters). According to automotive clusters, in the Czech republic operate or actively participates in a number of international projects following clusters based upon value chain connecting the manufacturers of cars with their suppliers, those can be then connected with manufacturers of specialized equipment (CzechInvest, 2013) mainly Moravian-Silesian Automotive Cluster c.a. which was established to increase competitiveness and to encourage innovation and export capacity of interconnected companies, entrepreneurs and institutions in the Moravian-Silesian region. However, Plastics Cluster in relation to the Autoplast project focused on creating conditions for improving the quality of human resources in the companies making plastic products for the automotive industry and on cross-border cooperation CR-SR between years 2007-2013, is considered as related to automotive, as well. Other informative data on the individual firms of the automotive industry provide mainly Automotive Industry Association of the Czech Republic ("AIA") with currently 149 members in 2016 and covers almost the whole of the automotive sector (see Fig. 4)– vehicle manufacturers, component suppliers and special purpose firms which make up the Czech automotive and allied industries. While, main mission of AIA is to create conditions, provide necessary services and represent common interest of the AIA members aimed at development and stable competitiveness of the automotive industry in the Czech Republic. Several authors discussed how the following of recent trends and increase of focus in the clusters is important (e.g. Buchner, 2015, Timmer et al., 2015, and much more). According to European Automobile Manufacturers Association (ACEA, 2016), European automobile manufacturers are global companies those are part of international trade, while trade is vital to the prosperity of the region. From this point of view, for Czech manufacturers (the Czech Republic is a member of European Union) freer trade and further trade liberalisation can provide benefit, e.g. in terms of better market access or foster innovation by trade agreements. The number of free trade agreement (FTA) negotiations in EU could influence the exports of this strong industrial sector and its role in foreign markets (ACEA, 2016). From the macroeconomic point of view policy makers trade and industrial policy in terms of creating the conditions for automotive sector is in our opinion highly important to monitor, as well.

Another issue for discussion is whether Czech automotive industry may be challenging for foreign investors. According to CzechInvest (2013) for foreign investors mainly for: 1) its strategic location connected to entrance to European union market with highly integrated automotive value chain, 2) stable and political environment, 3) well-developed transport and telecommunications infrastructure, 4) robust supplier base, 5) skilled workforce, 6) strong innovation potential for R&D projects, 7) positive approach of the Czech government supporting investments up to 25 % of eligible costs through a transparent system of investment incentives, 8) support from Investment and business development agency- Czech Invest, 8) country's century-long engineering tradition, several articles as well as scientific papers from

well-known international journals paid attention to the Czech automotive industry, since new millennium. Finally, to conclude the discussion, we point out, the presented project is at an early stage of its development and other linkages are challenging to be discussed in the future research, (while, i.e., the production of cars is affected by or connected to other factors as buying power and demand, working productivity, prices and sales, R&D, diversity, regulations and legislations, competition, operational performance, production costs, financial performance, FDIs, etc.), as a part of investigating supply chain trends and value drivers those more or less may affect performance value of companies and that could help to plan for economic uncertainty.

5 CONCLUSION

One of the rewards of researching the C.R. automobile industry production is that it is a one of C.R. largest manufacturing industry with passenger car production at 107.5 vehicles per 1.000 persons in the Czech Republic in 2014 has maintained is supreme position also among automotive leaders in terms of per-capita output in the world. With domestic production so large, it is thus inevitable that the automobile industry is frequently discussed in relation to C.R. trade, environmental, and industrial policy. In this paper, we considered how developed the production of automobiles in the Czech Republic, while this knowledge can help to identify demand parameters in demand and business models and can be also beneficial for interested readers. Firstly, we briefly reviewed the importance and trends of the automotive industry and the literature on automobile industry of the Czech Republic. Secondly, we provided results on the production of automobiles in the Czech Republic on selected sample - we judged the production of cars in relation to GDP per capita growth and plotted domestic sales of cars in the Czech Republic with CCI development as well. We found out that in the observed years 2005-2015, there was no significant decline in the development of automobile production, except the effects of the crisis, when mainly in 2013 the automobile industry in the Czech Republic has been fully affected by the economic crisis and major automobile firms in the country registered significant declines. Based upon the Shapiro-Wilk tests for normality´ results appropriate correlation coefficients and P-values were calculated that can shed some light on investigation whether statistically significant relationship existed between the mentioned variables during the investigated period 2005-2015. Finally, but not lastly, we discussed the potential future research direction. The collected dataset and presented initial framework also allows to run advanced analysis and can be beneficial for the future research.

ACKNOWLEDGEMENT

The authors are thankful to the Czech Science Foundation (GA CR), project No 16-25536S, which provided financial support for this survey.

APPENDIXES

Appendix 1 – Production by producers (2005 -2015). Source: own (AIA.cz, 2016)

CATEGORY	PRODUCTION BY PRODUCERS	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Cars (cat. M1) + LCV /car derived/ (cat. N1)	ŠKODA (ŠKODA Auto a.s.)	736 977	735 951	639 889	656 306	673 127	576 362	528 585	603 981	622 811	556 196
	TOYOTA, PEUGEOT, CITRÖEN (TPCA Czech s.r.o.)	219 054	203 105	185 124	214 915	270 705	295 712	332 489	324 289	308 478	293 650
	HYUNDAI (HMMC-Hyundai Motor Manuf. Czech s.r.o.)	342 200	307 450	303 460	303 035	251 146	200 135	118 000	12 050	0	0
	GORDON (Auto Projekt Centrum, s.r.o.)	5	0	0	0	0	0	0	1	1	1
	KAIPAN (Kaipan s.r.o.)	0	0	0	11	3	54	11	13	8	16
	TOTAL	***1 298 236***	***1 246 506***	***1 128 473***	***1 174 267***	***1 194 981***	***1 072 263***	***979 085***	***940 334***	***931 298***	***849 863***
CVs (cat. N2 a N3)	AVIA (Avia Ashok Leyland Motors, s.r.o.)	0	0	4	1 003	600	479	283	485	737	482
	TATRA (Tatra a.s.)	850	821	763	496	702	931	808	2 252	2 431	1 511
	TOTAL	***850***	***821***	***767***	***1 499***	***1 302***	***1 410***	***1 091***	***2 737***	***3 168***	***1 993***
Buses (cat. M2 a M3)	IVECO BUS (Iveco Czech Republic, a.s.)	3 728	3 288	3 165	2 773	2 972	2 177	2 526	3 020	2 698	2 477
	SOR (SOR Libchavy spol. s r.o.)	742	554	475	418	543	478	427	368	418	411
	TEDOM (Tedom,s.r.o.)	0	0	0	0	4	0	60	47	17	15
	(Buzola Int)	47	51	0	0	0	0	4	0	0	0
	(KH motor CENTRUM Opava)	0	0	51	38	43	24	50	61	49	0
	TOTAL	***4 517***	***3 893***	***3 691***	***3 229***	***3 562***	***2 679***	***3 067***	***3 496***	***3 182***	***2 903***
Motorcycles	***TOTAL***	***1 727***	***1 075***	***1 354***	***2 319***	***1 155***	***782***	***749***	***1 561***	***2 140***	***1 015***

Appendix 2 –Export by producers (2005 -2015). Source: own (AIA.cz, 2016)

CATEGORY	PRODUCTION BY PRODUCERS	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Cars (cat. M1) + LCV /car derived/ (cat. N1)	ŠKODA (ŠKODA Auto a.s.)	970 496	967 026	860 708	879 528	820 982	704 567	627 722	616 529	563 226	484 496
	TOYOTA, PEUGEOT, CITRÖEN (TPCA Czech s.r.o.)	218 538	202 587	184 360	213 735	269 796	294 859	331 631	323 184	306 916	292 269
	HYUNDAI (HMMC-Hyundai Motor Manuf. Czech s.r.o.)	328 720	294 737	292 560	292 556	243 864	194 625	114 664	11 945	0	0
	GORDON (Auto Projekt Centrum, s.r.o.)	0	0	0	0	0	0	0	0	0	0
	KAIPAN (Kaipan s.r.o.)	0	0	0	0	0	0	0	0	0	0
	TOTAL	***1 517 754***	***1 464 350***	***1 337 628***	***1 385 819***	***1 334 642***	***1 194 051***	***1 074 017***	***951 658***	***870 142***	***776 765***
CVs (cat. N2 a N3)	AVIA (Avia Ashok Leyland Motors, s.r.o.)	0	0	2	766	446	291	164	229	305	229
	TATRA (Tatra a.s.)	555	666	454	445	586	960	655	1 286	2 067	1 167
	TOTAL	***555***	***666***	***456***	***1 211***	***1 032***	***1 251***	***819***	***1 515***	***2 372***	***1 396***
Buses (cat. M2 a M3)	IVECO BUS (Iveco Czech Republic, a.s.)	3 901	3 319	3 303	2 867	3 029	2 215	2 812	3 296	2 535	1 984
	SOR (SOR Libchavy spol. s r.o.)	301	209	209	180	128	238	170	161	158	202
	TEDOM (Tedom,s.r.o.)	0	0	0	0	1	12	30	37	15	0
	(Buzola Int)	0	0	0	0	0	0	2	0	0	0
	(KH motor CENTRUM Opava)	0	0	0	0	0	0	0	0	0	0
	TOTAL	***4 202***	***3 528***	***3 512***	***3 047***	***3 158***	***2 465***	***3 014***	***3 494***	***2 708***	***2 186***
Motorcycles	***TOTAL***	***1 640***	***996***	***1 263***	***2 253***	***1 061***	***696***	***660***	***1 416***	***1 984***	***793***

Appendix 3 –Domestic sales by producers (2005 -2015). Source: own (AIA.cz, 2016)

CATEGORY	PRODUCTION BY PRODUCERS	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Cars (cat. M1) + LCV /car derived/ (cat. N1)	ŠKODA (ŠKODA Auto a.s.)	85 005	70 200	60 042	59 674	58 202	58 033	56 504	58 001	66 806	65 171
	TOYOTA, PEUGEOT, CITRÖEN (TPCA Czech s.r.o.)	516	518	764	1 180	909	853	858	1 105	1 562	1 381
	HYUNDAI (HMMC-Hyundai Motor Manuf. Czech s.r.o.)	14 738	12 713	10 900	10 479	7 282	5 510	3 336	105	0	0
	GORDON (Auto Projekt Centrum, s.r.o.)	5	0	0	0	0	0	0	1	1	1
	KAIPAN (Kaipan s.r.o.)	0	0	0	11	3	54	11	13	8	16
	TOTAL	***100 264***	***83 431***	***71 706***	***71 344***	***66 396***	***64 450***	***60 709***	***59 225***	***68 377***	***66 569***
CVs (cat. N2 a N3)	AVIA (Avia Ashok Leyland Motors, s.r.o.)	0	0	2	237	154	157	232	256	407	256
	TATRA (Tatra a.s.)	303	184	268	86	111	122	337	676	386	440
	TOTAL	***303***	***184***	***270***	***323***	***265***	***279***	***569***	***932***	***793***	***696***
Buses (cat. M2 a M3)	IVECO BUS (Iveco Czech Republic, a.s.)	304	243	258	190	211	248	319	444	362	454
	SOR (SOR Libchavy spol. s r.o.)	441	345	266	238	415	240	257	207	260	209
	TEDOM (Tedom,s.r.o.)	0	0	0	7	14	18	11	9	2	4
	(Buzola Int)	47	51	0	0	0	0	2	0	0	0
	(KH motor CENTRUM Opava)	0	0	51	38	43	24	50	61	49	0
	TOTAL	***792***	***639***	***575***	***473***	***683***	***530***	***639***	***721***	***673***	***667***
Motorcycles	***TOTAL***	***87***	***79***	***91***	***66***	***94***	***85***	***90***	***145***	***156***	***220***

Appendix 4 –Production by categories (2005 -2015). Source: own (AIA.cz, 2016)

CATEGORY	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cars (cat. M1) + LCV /car derived/ (cat. N1)	597 948	849 863	931 298	940 334	979 085	1 072 263	1 194 981	1 174 267	1 128 473	1 246 506	1 298 236
CVs (cat. N2 a N3)	2 050	1 993	3 168	2 737	1 091	1 410	1 302	1 499	767	821	850
Buses (cat. M2 a M3)	2 149	2 903	3 182	3 496	3 067	2 679	3 562	3 229	3 691	3 893	4 517
Motorcycles	1 603	1 015	2 140	1 561	749	782	1 155	2 319	1 354	1 075	1 727
TOTAL	**603 750**	**855 774**	**939 788**	**948 128**	**983 992**	**1 077 134**	**1 201 000**	**1 181 314**	**1 134 285**	**1 252 295**	**1 305 330**

REFERENCES

Aia cr. (2016). *Statistics.* [online]. Access 04-04-2016. Available from: <http://www.autosap.cz>.

Buchner, J. (2015). Supply Chain Trends in the Automotive Industry: Implications for voestalpine in Mexico.

Berry, S.; Levinsohn, J. & Pakes, A. (2004). Differentiated products demand systems from a combination of micro and macro data: The new car market. *Journal of political economy*, 112 (1), 68-105. DOI: 10.1086/379939.

Coe, N.M., Hess, M., Yeung, H.W.C., Dicken, P. & Henderson, J. (2004). 'Globalizing' regional development: a global production networks perspective. *Transactions of the institute of British geographers.* 29(4), 468-484 p. DOI: 10.1111/j.0020-2754.2004.00142.x

Czechinvest (2013). *Czech Republic automotive industry*. [online]. Access 07-04-2016. Available from: http://www.czechinvest.org.

De Martino, A. (2015). Processi di internazionalizzazione della conoscenza: il caso (Tesi di laurea). Retrieved from http://tesi.cab.unipd.it/51018/

Hájek, M., & Mihola, J. (2009). Analysis of total factor productivity contribution to economic growth of the Czech Republic. *Politická ekonomie*, 6, 740-753. DOI: 10.1016/j.iref.2004.12.008

Haugh, D., Mourougane, A. & Chatal, O. (2010). The Automobile Industry in and Beyond the Crisis.*OECD Economics Department Working Papers,* 745 OECD Publishing.http://dx.doi.org/10.1787/5kmmp8wg6cmq

Kaminski, B., & NG, F. (2005). Production disintegration and integration of Central Europe into global markets. *International Review of Economics & Finance*, 14(3), 377-390. DOI: 10.1016/j.iref.2004.12.008.

Kosova, R. (2010). Do foreign firms crowd out domestic firms? Evidence from the Czech Republic. *The Review of Economics and Statistics*, 92(4), 861-881. doi:10.1162/REST_a_00035.

Leading indicators - Consumer confidence index (CCI) - OECD Data. (2016). *Data.oecd.org*. Retrieved 19 April 2016, from https://data.oecd.org/leadind/consumer-confidence-index-cci.htm

Lengyel, B., & Cadil, V. (2009). Innovation policy challenges in transition countries: foreign business R&D in the Czech Republic and Hungary. *Transition Studies Review,* 16(1), 174-188. DOI: 10.1007/s11300-009-0046-5.

Machkova H; & Collin, P.-M. (2015). Market entry strategies of passenger carmakers - the Case study of the Czech Republic. *Central European Business Review* 4(3), 23-34. DOI: 10.18267/j.cebr.130

Marchetti, D.J. (2002). Markups and the business cycle: evidence from italian manufacturing branches. *Open Economies Review*, 13(1), 87-103 p. DOI: 10.1023/A:1012268030232

Navet, N., Song, Y.Q., Simonot-Lion, F. & Wilwert, C. (2005). Trends in automotive communication systems. *Proceedings of the IEEE*, 93 (6), 1204-1223 p. DOI: 10.1109/JPROC.2005.849725

Novotná, M., & Volek, T. (2014). Labour as a factor of production in the context of gross value added growth in sector. *Scientia Agriculturae Bohenica*, 2, 129-135. DOI: 10.7160/sab.2014.450209

Pallaro, E., Abdulrahman, N.S.M.D., & Liu, Ch. (2015) Sustainable production and consumption in the automotive sector: Integrated review framework and research directions. *Sustainable Production and Consumption*, 4, 47-61 p. http://dx.doi.org/10.1016/j.spc.2015.07.002.

Pavlínek, P. & Janák, L. (2007). Regional restructuring of the Škoda auto supplier network in the Czech Republic. *European Urban and Regional Studies*, 14(2), pp. 133-155. DOI: 10.1177/096977640707610

Pavlínek, P. & Ženka, J. (2011) Upgrading in the automotive industry: firm-level evidence. *Journal of economic geography*, 11(3), 559-586 p. doi:10.1093/jeg/lbq023

Pavlínek, P. & Ženka, J. (2011) Upgrading in the automotive industry: firm-level evidence. *Journal of Economic Geography*, 11(3), 559-586 p. doi:10.1093/jeg/lbq023

Pavlínek, P. (2012). The Internationalization of Corporate R&D and the Automotive Industry R&D of East-Central Europe. *Economic Geography*, 88(3), pp. 279-310. DOI: 10.1111/j.1944-8287.2012.01155.x

Pavlínek, P. & Ženka, J. (2016). Value creation and value capture in the automotive industry: Empirical evidence from Czechia. *A Environment and Planning*, 48(5), 937-959 p. DOI: 10.1177/0308518X15619934

Pavlínek, P. & Žížalová, P. (2016) Linkages and spillovers in global production networks: firm-level analysis of the Czech automotive industry. *Journal of Economic Geography* 16331-363. doi: 10.1093/jeg/lbu041

Sturgeon, T.; Van Biesebroeck & J.; Gereffi, G. (2008). Value chains, networks and clusters: reframing the global automotive industry. *Journal of economic geography*, 8(3), 297-321 p. DOI: 10.1093/jeg/lbn007

Sturgeon, T.J., Memedovic, O., Van Biesebroeck, J. & Gereffi, G. (2009). Globalisation of the automotive industry: main features and trends. *Int. J. Technological learning, innovation and developlment*, 2(1/2), 7-24. DOI: DOI: http://dx.doi.org/10.1504/IJTLID.2009.021954

Sturgeon, T. & Van Biesebroeck, J. (2010). Effects of the Crisis on the Automotive Industry in Developing Countries: A Global Value Chain Perspective. *World Bank Policy Research Working Paper Series*. Available at SSRN: http://ssrn.com/abstract=1619694

Suits, D. (1958). The demand for automobiles in the United States. *Review of Economics and statistics.* 40. 273-280 p.

Timmer, M. P., Dietzenbacher, E., LOS, B., Stehrer, R., & Vries, G. J. (2015). An illustrated user guide to the world input–output database: the case of global automotive production. *Review of International Economics*, *23*(3), 575-605.

Vdb. (2016). *Vdb.czso.cz*. Retrieved 19 April 2016, from https://vdb.czso.cz/vdbvo2/

Volek, T. & Novotná, M. (2015). Sources of GVA growth in divisions of manufacturing sector after crisis period. *The 9th international days of statistics and economics, Prague, September 10-12.* Retrieved from: http%3A%2F%2Fmsed.vse.cz%2Fmsed_2015%2Farticle%2F107-Volek-Tomas-paper.pdf

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ICFE 2016 – The 3rd International Conference on Finance and Economics
Ton Duc Thang University, Ho Chi Minh City, Vietnam
June 15th-17th

EQUITY OVERVALUATION AND MANAGERS' CHOICES OF USING OPPORTUNISTIC UNDERLYING EARNINGS REPORTING AND ACCRUALS EARNINGS MANAGEMENT: AUSTRALIAN EVIDENCE

Yiru Yang, Indra Abeysekera

ABSTRACT

According to Jensen's (2005) agency theory of overvalued equity, firms with overvalued equity have strong incentives to engage in different opportunistic earnings management mechanisms in order to sustain overvaluation. This paper attempts to examine whether the duration of overvaluation influences manager's choice of using different earnings management mechanisms. This paper presents evidence that managers engage in accruals earnings management in the early stage of overvaluation, but at the later stage, firms are more likely to disclose underlying earnings opportunistically to sustain overvaluation. In conclusion, the results of this paper are consistent with Jensen's (2005) agency theory that the duration of firm overvaluation is an important determinant of managers' choosing to use alternative earnings management mechanisms.

Keywords: *opportunistic underlying earnings reporting, accruals earnings management, equity overvaluation, and agency theory of overvalued equity*.

JEL classification: *M41*

1 INTRODUCTION

Jensen (2005)'s agency theory of overvalued equity suggests that when a firm's stock price is becoming overvalued, these firms try to maintain their overvaluation by participating in a variety of earnings management choices. Prior researches have provided empirical evidence consistent with Jensen's (2005) conjecture. For instance, Efendi et al. (2007) demonstrated that restatement firms exhibit signs of being overvalued in the years prior to engaging in non-statutory earnings management, and provided evidence that stock compensation incentives push managers to sustain their overvalued stock prices. Badertscher (2011) presents evidence that overvaluation is an important determinant of managements' earnings management decisions. The author finds that managers participate in accruals earnings management in the early stage of overvaluation, then move to real activities earnings management at a later stage to sustain the overvaluation of the equity, and then engage in non-GAAP earnings management. Although several researches investigated the correlation between overvaluation of equity and earnings management, there is still limited empirical evidence regarding the correlation between the duration of overvaluation and management's choice of alternative earnings management mechanisms (Badertscher, 2011).

This paper attempts to examine whether the duration of equity overvaluation affects management's choice of using accruals earnings management and opportunistic underlying earnings disclosure. The results provide evidence that at the early stage of overvaluation, managers are more likely to use accruals earnings management and income-increasing accruals earnings management. At a later stage of overvaluation, they then run out of accruals earnings management choices, resort to underlying earnings disclosures and disclose them opportunistically in order to maintain overvaluation.

This paper contributes to the literature on equity overvaluation and earnings management by examining whether managers alternate between accruals earnings management and opportunistic underlying earnings disclosure to sustain the overvaluation. There are no current papers examine whether the duration of equity overvaluation incentives managers to use different earnings management tools alternatively. Second, while previous studies have examined the relationship between pro forma earnings and accruals earnings management using the absolute value of accruals earnings management, this paper examines the absolute value of accruals earnings management and also whether managers use income-increasing underlying earnings exclusions and income-increasing accruals earnings management alternatively. Third, this paper also empirically tested Jensen's (2005) agency theory of overvalued equity by investigating how the duration of overvalued firms influenced managers' to use accruals earnings management and opportunistic underlying earnings disclosure.

The remaining sections are organised as follows: Section 2 provides the literature reviews of this paper. Section 3 provides the hypothesis development. Section 4 describes the research design of this paper. Section 5 presents the descriptive statistics and regressions results. Section 6 gives the conclusion.

2 LITERATURE REVIEW

2.1 Underlying earnings

'Underlying earnings' are calculated based on the judgments of the preparer that reflect the 'core'/'recurring' business activities of reporting firms. They are voluntarily reported earnings on a basis other than IFRS or in line with IFRS and then adjusted by firm managers (AICD & FINSIA, 2009). Firms use labels to describe underlying earnings, including 'pro forma earnings', 'normalised earnings', 'underlying EBIT', 'underlying EBITDA', 'earnings before exceptional items', 'result excluding exceptional items', 'results before non-recurring items', 'results before significant items', 'results before special items', 'results before specific items', 'adjusted earnings before interest, tax, depreciation and amortisation' or 'adjusted operating earnings' (Ernst & Young, 2007; AICD & FINSIA, 2009). The underlying earnings used in this paper represents all such terms because they provide an alternative to statutory earnings. Although there is no general agreement about computing underlying earnings, significant non-recurring items and IFRS-driven unrealised gains and losses are excluded (AICD & FINSIA, 2009).

The adoption of underlying earnings is not an uncommon phenomenon in Australian firms. As an example, Woodside Petroleum Limited's 2012 annual report documented that 'underlying net profit after tax was $2,061 million, which was a 25% increase on the 2011 figure' (p.4). A study conducted by KPMG in 2009 found evidence that 84% of firms on the ASX 100 index presented underlying earnings as a response to growing dissatisfaction with the statutory earnings representative of firms' actual economic performance (KPMG, 2009). In 2012, 32 out of 50 ASX index firms chose to report results using underlying earnings of economic performance in addition to statutory earnings (KPMG, 2013). In a study conducted by FINSIA in 2005 that interviewed 24 analysts, over 80% agreed that a constant and separate disclosure of underlying earnings would be a more useful measure of firm performance (FINSIA, 2005). Recently, investors focused more on underlying earnings rather than conventional statutory earnings because underlying earnings are considered as proxy for a firm's ongoing profitability, an approach that is useful for evaluation (KPMG, 2009; AICD & FINSIA, 2009). There is ample evidence to support the fact that underlying earnings increases a firm's share price. As an example, on 21st of April 2014, shares in AMP limited increased by 42c, or 9.3 per

cent, to $4.92 with investors warming to the underlying result, a result that beat the consensus forecast of $833m (Gluyas 2014, p.19).

Prior researchers have found that managers may use their discretion in defining pro forma earnings in an opportunistic manner to shift some actual recurring expenses to non-recurring exclusions, resulting in a firm with favourable pro forma earnings in U.S. context (e.g., Doyle et al., 2003; Bowen et al., 2005; Doyle et al., 2013; McVay et al., 2006; Black & Christensen, 2009; Johnson & Schwartz, 2005; Lougee & Marquardt, 2004). By opportunistic defining the pro forma earnings (shifting recurring expenses to non-recurring items to make non-statutory earnings higher than GAAP earnings), managers can achieve their personal interests with less costs compare to real activities and accruals-based earnings managements because pro forma earnings do not subject to be audited and investors are less likely to detect such opportunistic reporting behaviour. Moreover, unlike accruals earnings management and real activities earnings management, bottom-line net income is unaffected by using opportunistic pro forma earnings disclosure (Fan et al., 2010). Studies have found that when firms have limited abilities to engage in accruals or/and real activities earnings management, they are more likely to disclose pro forma earnings opportunistically (Black et al., 2014; Doyle et al. 2013; Elshafie et al. 2010). This paper builds on previous non-statutory earnings management literature that the underlying earnings are opportunistically manipulated by managers when the underlying earnings are greater than the statutory earnings.

2.2 Agency theory of overvalued equity and earnings management

There are a number of studies have examined the management earnings management behaviours based on agency theory of overvalued equity. Chi & Gupta (2009) was the first paper to investigate the association between overvaluation and accruals management and to examine how overvaluation-induced earnings management affects a firm's future performance, by using a sample of U.S. data from 1964 to 2003. The authors found that overvaluation is statistically positively associated with subsequent income-increasing earnings management and overvaluation-induced income-increasing earnings management is negatively associated with the operating performance and future abnormal stock returns. Moreover, this negative relationship becomes more pronounced as prior overvaluations intensify confirming Jensen's conjecture that equity overvaluation induces managers to manage the earnings. Habib et al. (2013) examined the relationship between overvalued equity firms and audit fees in U.S. Their results showed that auditors charge higher audit fees for customers posing aggressive earnings management because of incentives to overvaluate. Marciukaityte & Varma (2008) examined the agency costs of overvaulting equity in earnings management by investigating a sample of 526 firms that restated their earnings from 1990 to 2001. Their results found that a considerable overvaluation of equity pushes managers to manage earnings, but when investors notice earnings restatements, they re-evaluate overvalued firms to correct them for mis-stating the overvaluation and a loss of confidence in the managers. Baderstcher (2011) examined the association between overvalued equity and management's use of alternative within-statutory earnings management and non-statutory earnings management. The study found that the longer a firm is overvalued, the greater is the amount of total within-statutory earnings management, and furthermore, managers engage in accruals earnings management in the early stage of overvaluation; they then resort to real activities earnings management to sustain their overvaluation; at later stage of overvaluation, managers are more likely to engage in non-GAAP earnings management. These results suggest that equity overvaluation plays a significant role in managers choosing to use alternative earnings management mechanisms. Coulton et al. (2014) examined the extent to which having overvalued equity motivates firms to beat earnings

benchmarks and whether beating the benchmark can be interpreted as income-increasing earnings management, by using a sample of listed ASX non-financial firms over the period from 1996 to 2007. Their study shows that overvaluation-related incentives encouraging earnings management, overvalued benchmark beaters have higher levels of abnormal accruals than other firms that beat benchmarks.

2.3 Hypothesis development

Jensen (2005) proposed that the agency costs of overvalued equity stems from managers who cannot, except by pure luck, produce an earnings performance to maintain an overvalued stock price without participating in earnings management techniques. According to him, managers of overvalued firms not only reject market correction of overvalued stock prices, they also tend to sustain overvaluation by engaging in earnings management that increases reported earnings because overvaluation is an instant step towards increasing their welfare via incentives such as bonuses and stock options that are usually connected with firm performance. The underlying assumption of this paper, which builds on Jensen's (2005) agency theory of overvalued equity, is that overvaluation induces towards earnings management and the duration of overvaluation leads to managers' using trade-off different earnings management.

There are a myriad of earnings management choices that managers can use to disguise true economic performance in order to sustain overvaluation. Indeed, the flexibility of accounting reporting policy provides opportunities for managers to engage in earnings management that makes the firm appear less risky or more profitable than it really is (Fields et al. 2001; Graham et al. 2005), so when deciding which type of earnings management to utilise, managers must consider the expected costs and benefits of alternative earnings management mechanisms. Each accounting choice has its costs and benefits, but the net incentives (benefits minus costs) will ultimately determine management's choice of alternative earnings management mechanisms (Palmrose et al. 2004; Desai et al. 2006).

Accruals earnings management is a popular choice because it has no first-order effect on cash flows, it can be completed at end of a period once the amount of pre-accrual management earnings is known, and it is less likely to destroy long-term firm value (Doukakis, 2014; Gunny, 2010). However, accruals earnings management has limitations. First, aggressive choices about accruals are at a higher risk of regulatory litigation and scrutiny because accrual accounting choices are subject to auditor scrutiny, and high levels of accrual manipulation tend to be discovered and detected by auditors and regulators (Graham et al. 2005). Second, the reversing nature of accruals earnings management can be problematic because a firm must conquer the potential reversal of last year's accruals earnings management in order to influence the current year's earnings (Badertscher, 2011). Due to the reversing nature of accruals, a firm's business operations and previous years' accruals management may limit their flexibility to apply accrual earnings management. Studies argue that firms that used accrual income management extensively in previous years tend to shift to manage other earnings management techniques in the current period, especially if they have a continued motivation to manage earnings (Gunny 2010; Alhadab et al., 2015).

Opportunistic underlying earnings disclosure is less likely to be identified by stakeholders than accruals earnings management because it is more likely to go undetected and will not be audited. Another advantage of opportunistic underlying earnings disclosure is that it enables management to manage earnings by large amounts without reversing, thus enabling management to achieve specific benchmarks and sustain overvalued equity (Black et al. 2014). However, opportunistic underlying earnings management is not without some costs. The

studied have found that the opportunistic non-statutory earnings management is most egregious forms of earnings management because of the capital market consequences and the reputational costs that managers' carry in managerial labour markets (Palmrose et al. 2004; Graham et al., 2005; Desai et al. 2006; Mizik & Jacobson, 2007).

Along with the agency theory of overvalued equity conjecture, this paper posits that duration of overvaluation induces managers to use different earnings management mechanisms. Specifically, in the early stage of overvaluation, managers are more likely to use accruals earnings management. But since accruals earnings management has limitations, this paper assumes that the longer a firm is overvalued, the greater the incentive to disclose underlying earnings and report them in an opportunistic manner to sustain the overvalued equity. Therefore, the following hypothesis is presented:

The longer firms are overvalued, the more likely it is that managers will disclose underlying earnings opportunistically.

3 RESEARCH DESIGN

3.1 Data and sample selection

This study used ASX 200 firms from years 2009 to 2012 as the sampling frame. Information related to financial data was obtained from the DatAnalysis database supplemented by the Finanalysis database. The underlying earnings data were collected from the annual reports of ASX 200 firms by hand. Following Dahmash et al. (2009) and Graham & King (2000), firms involved in banking, insurance, diversified financials, and real estate were excluded because they are subjected to different reporting requirements. ASX 200 firms were selected as the sample frame because the ASX 200 is recognised as the primary investment benchmark in Australia. ASX 200 firms cover approximately 78% of Australian equity market capitalisation. In order to collect the underlying earnings data, annual reports that are available in the Annual Reports Online database and DatAnalysis database were searched by typing the keywords 'underlying', 'adjusted', 'normalised', 'earnings before', 'profit before', and 'pro forma'. Following Black & Christensen (2009), EBIT or EBITDA were not included because they are commonly reported as standard steps in the income statement. There were 107 out of 153 firms that reported underlying earnings at least once during the study periods (2009-2012). In total, 321 firm-year observations in the sample disclosed underlying earnings over four observation years.

3.2 Measurement of Accruals earnings management

3.2.1 Accruals quality

The measure of accruals quality used in this paper is based on Dechow & Dichev's (2002) measure where the unexplained portion of the variation in working capital accruals is measured as the standard deviation in the residuals using a 5-year rolling window that ends in year 2012 for firm j, year t in the following multivariate equation (1).

$$TCA_{j,t} = \alpha_0 + \alpha_1 CFO_{j,t-1} + \alpha_2 CFO_{j,t} + \alpha_3 CFO_{j,t+1} + v_{j,t} \quad (1)$$

Where: j-firm-year observations; t-years from 2005 to 2012; $TCA_{j,t}$ is firm j's current accruals in year t, $=(\Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STD_{j,t})$, scaled by the total assets at the beginning of year t; $CFO_{j,t}$ is cash flow from operations in year t, is calculated as earnings before tax ($E_{j,t}$)

less total accruals ($TA_{j,t}$)[4], scaled by the total assets at the beginning of year t; $v_{j,t}$ is residuals from Equation (1) representing accrual quality ($AQ_{j,t}$).

3.2.2 Innate factors of firms and discretional accruals earnings management

Accruals quality is affected by two factors: those that reflect the innate features of firms and those that reflect discretionary sources Innate features are derived from business models, and the operating risk and operating environments. Discretionary sources stem from the process of financial reporting and include the quality of the information systems, managerial financial reporting implementation decisions, judgments and estimates, monitoring, governance, and regulatory scrutinies (Dechow, 2004; Dechow et al., 2010; Francis et al. 2005; Francis et al., 2006; Francis et al., 2008a). To separate the innate and discretionary accruals components from accruals quality, company size, standard deviation of cash flow from operations, standard deviation of sales, and length log operating cycle, the incidence of earnings losses and earnings variability are selected as innate factors. Those six innate factors are regressed on accruals quality ($AQ_{j,t}$) as follows:

$$AQ_{j,t} = a_0 + a_1 Size_{j,t} + a_2 Opcycle_{j,t} + a_3 NegEarn_{j,t} + a_4 Cfo_{j,t} + a_5 Sales_{j,t} + a_5 SDE_{j,t} + e_{j,t} \quad (2)$$

Where: j-firm-year observations, t-years from 2009 to 2012; $AQ_{j,t}$ is the standard deviation of residuals from equation (1) for firm j, year t-$v_{j,t}$; $Size_{j,t}$ is natural logarithm of the total assets for firm j, year t; $Opcycle_{j,t}$ is natural logarithm of days of accounts receivable plus days of inventory for firm j, year t; $Cfo_{j,t}$ is standard deviation of cash flows from operations scaled by beginning total assets, computed using a 5-year rolling window ended in year 2012 for firm j, year t; $Sales_{j,t}$ is standard deviation of sales revenue scaled by beginning total assets, computed using a 5-year rolling window ended in 2012 for firm j, year t; $NegEarn_{j,t}$ is firm's proportion of losses over the prior 5 years for firm j, year t. $SDE_{j,t}$ is measured by standard deviation earnings before tax using a 5-year rolling window ending in 2012 for firm j, year t. Consistent with Francis et al. (2005), equation (2) is measured by cross-sectional by industry for each year. Since the cross-sectional models require at least 10 firms in one industry (Aldamen & Duncan, 2013), this study combined the three smallest industry groups into one group, giving a total of six industries for each year. The industry type is based on GICS industry sector. 8 industries were included in the sample: energy, materials, industrials, consumer discretionary, health care, software, telecommunication services, and utilities. The telecommunication services (6 firms) and the utilities (6 firms) were combined into one group. Software was included in the health care category because they all belong to high-tech industries (3 firms) for the purpose of measuring cross-sectional Equation (2). $AM_{j,t}$ is the absolute value of residuals ($e_{j,t}$) of equation (2) presenting the discretional accruals earnings management for firm j, year t. This paper also attempts to examine the influence of income-increasing accruals earnings management on overvaluation and expects that when managers are less likely to use income-increasing accruals earnings management they tend to use income-increasing underlying exclusions to overvalue firms' equity. Thus, following previous studies (e.g., Baber et al., 2011; Laksmana &Yang, 2014), this paper measures the income-increasing accruals earnings management ($InAM_{j,t}$) by dummy variable that the positive residuals of equation (2)-$e_{j,t}$ are coded as '1', '0' otherwise.

[4] $TA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STD_{j,t} - DEPN_{j,t}$; $\Delta CA_{j,t}$ = firm j's change in current assets between year t-1 and t, scaled by total assets at the beginning of year t; $\Delta CL_{j,t}$ = firm j's change in current liabilities between year t-1 and t, scaled by total assets at the beginning of year t; $\Delta Cash_{j,t}$ = firm j's change in cash between year t-1 and t, scaled by total assets at the beginning of year t; $\Delta STD_{j,t}$ = firm j's change in debt in current liabilities between year t-1 and t, scaled by total assets at the beginning of year t; $DEP_{j,t}$ = firm j's depreciation and amortization expense in year t, scaled by total assets at the beginning of year t.

3.3 Measurement of Overvaluation

Following Habib et al.'s (2013) study, this paper measures the value of equity using positive lagged P/E ratios and positive lagged P/B ratios as proxy for equity overvaluation[5]. The P/E ratio was traditionally used to value companies because P/E valuation is basically a substitute for the well-established discounted earnings model. Voluminous studies have supported evidence that P/E ratios and P/B ratios can be used for equity valuation (e.g., Beaver, 1968; Easton & Harris, 1991; Kim & Ritter, 1999; How & Howe, 2001). The valuation of equity is measured by the average of lagged P/E ratios and lagged P/B ratios in this paper. This research design is framed to be consistent with Jensen's (2005) view that overvaluation drives managers to manipulate earnings. Specifically, to identify overvalued firms, firms are ranked based on the $PEPB_{j,t}$ ratio for each year, where firms in the highest quartile rank[6] of $PEPB_{j,t}$ indicate they are overvalued. To capture the notion of sustained overvaluation or duration of overvaluation, this paper identifies firms that have been in the top quartile of $PEPB_{j,t}$ for 0 ($Over_{0j,t}$), 1($Over_{1j,t}$), 2($Over_{2j,t}$), 3($Over_{3j,t}$) consecutive years.

3.4 Empirical model of overvaluation

The model for testing the hypothesis is designed as following:

$$\text{Earnings management}_{j,t}=a_0+\sum b_{0\text{-}3}Over_{(i)j,t}+c_1Controls_{j,t}+\text{Year effects}+\text{Industry effects}+e_{j,t} \quad (3)$$

Where: j-firm-year observations, t-years from 2009 to 2012.

Dependent variables: Earnings $management_{j,t}$ is either underlying earnings disclosure or accruals earnings management. Underlying earnings disclosures are represented by $UE_{j,t}$ and $InEx_{j,t}$. $UE_{j,t}$ is a dummy variable that equals 1 if j firm discloses a underlying earnings in year t, and zero otherwise; $InEx_{j,t}$ is income-increasing underlying earnings exclusions measured by a dummy variable that equals 1 if j firm discloses a underlying earnings number that is greater than the statutory earnings in year t, and zero otherwise. Accruals earnings management is measured by $AM_{j,t}$ and $InAM_{j,t.}$ $AM_{j,t}$ is the absolute value of discretional accruals earnings management measured by the cross-sectional residuals ($e_{j,t}$) of equation (8) for firm j, year t. $InAM_{j,t}$ is income-increasing earnings management, where equals 1 if residuals ($e_{j,t}$) of equation (8) is positive, 0 otherwise.

Interested variables: $Over_{(i)j,t}$ is dummy variable equal to 1 if j firm has been in the top quartile of $PEPB_{j,t}$ for (i) consecutive years, and 0 otherwise. Specifically, $Over_{0j,t}$ equals to 1 if j firm was overvalued once during the sample years from 2009 to 2012, and 0 otherwise. $Over_{1j,t}$ equals to 1 if j firm was overvalued by one consecutive year during the sample years, and 0 otherwise. $Over_{2j,t}$ equals to 1 if j firm was overvalued two consecutive years during the sample years, and 0 otherwise. $Over_{3j,t}$ equals to 1 if j firm was overvalued for three consecutive years during the sample years, and 0 otherwise.

Control variables**:** Following the literature, this paper includes several control variables that influenced the likelihood of firm overvaluation and earnings management.

[5] Because empirical evidence supports that equity overvaluation is positive related to the subsequent income-increasing earnings management (Chi & Gupta, 2009) and highly valued firms tend to use discretionary accruals to manage earnings upwards in the year following the overpricing (Houmes & Skantz, 2010). Thus, this paper, following Habib et al.'s (2013) study, uses the lagged measurements. Moreover, as this paper asserts that overvaluation induces earnings management, positive P/E and P/B ratios are used to measure overvaluation.

[6] Unlike Badertscher's (2011), this paper uses quartile value rather than quintile value due to the small sample size. Therefore, following Habib et al.'s (2013) study, this paper measures overvalued equity using quartile values.

Accruals-specific controls: following prior studies (e.g., Badertscher, 2011; Cohen & Zarowin, 2010; Black et al., 2014), this paper includes an indicator variable $Litigation_{j,t}$ which equals to 1 if j firm is in a high litigation risk industry to capture the litigation penalties. This paper includes $Litigation_{j,t}$ as a specific control variable because accrual earnings management is more likely than opportunistic underlying earnings disclosure to be detected and punished, so greater perceived litigation penalties should decrease the tendency for accruals earnings management. Another specific control variable for accruals widely recorded in accounting literature is the Big4 auditors. Following prior studies (e.g., Doukakis, 2014; Badertscher, 2011; Black et al., 2014), this paper includes $Big4_{j,t}$ as a specific control variable that is measured by a dummy variable that equals 1 if j firm's auditor comes from Big 4 audit companies, and 0 otherwise. This variable is included because prior literature suggests that auditors play a monitoring role and the presence of a Big 4 auditor restricts accrual earnings management practices (Francis & Wang, 2008). This paper expects that increased scrutiny enhances the probability of discovering accrual earnings management, but it should not affect a manager's decision to opportunistically disclose underlying earnings because it typically falls outside an auditor's responsibility.

Underlying earnings-specific controls: prior research indicates that meeting the earnings targets and avoiding the current statutory losses are a useful tool to explain pro forma earnings disclosures and suggest that mangers have strong incentives to manipulate non-statutory earnings when firms miss their earnings target or make current statutory earnings losses (e.g, Black & Christensen, 2009; Barth et al., 2012; Hitz, 2010; Isidro & Marques, 2014; Doyle et al., 2013; Elshafie et al., 2010). This paper includes the dummy variable $Loss_{j,t}$ which equals to 1 if j firm make current statutory earnings loss in year t, and 0 otherwise, while the dummy variable $Meet_{j,t}$ which equals to 1 if j firm's current statutory earnings is greater than or equal to previous statutory earnings, and 0 otherwise.

General control variables include $leverage_{j,t}$ (e.g., Watts & Zimmerman, 1986; DeFond & Jiambalvo, 1994; Doukakis, 2014; Francis & Wang, 2008); firms' growth measured by market to book ratio and sales growth (e.g., Lougee & Marquardt, 2004; Doyle et al., 2013; Black et al., 2014; Zang, 2012); firms' profitability which is measured by return of equity (e.g., Doyle et al., 2007a; Doyle et al., 2013; Frankel et al., 2011; Doukakis, 2014); Capital intensity ($Capital_{j,t}$) (e.g., Baginski et al., 1999; Lev, 1983; Francis et al., 2004); Net operating assets ($NOA_{j,t}$) have been included as general control variables for equation (3) and equation (4) which is measured by shareholders' equity less cash, and cash equivalent plus total debt at the beginning of the year divided by lagged sales. The measurement of firm size has been replaced by $Mktcap_{j,t}$, which is measured by the as a natural logarithm of market capitalisation at the beginning of year t. This paper uses the market capitalisation as the measurement of firm size rather than the total assets because market capitalisation is a more precisely proxy for firm size in the overvaluation context (Doukakis, 2014).

This study includes underlying earnings disclosure (accruals earnings management) because control variables since previous literature indicated that accrual earnings management and non-statutory earnings disclosures are substitute mechanisms of earnings management (Black et al., 2014; Doyle et al., 2013; Elshafie et al., 2010), that is, if the dependent variable is accruals earnings management ($AM_{j,t}$ and $InAM_{j,t}$), then it controls for the underlying earnings disclosures ($UE_{j,t}$ and $InEx_{j,t}$), and the contrary applies because firms may follow an overall earnings management strategy and utilise a mix of underlying earnings disclosure and accruals earnings management tools, or they can choose between the two earnings management mechanisms and apply the one that is least expensive for them (Cohen et al., 2008; Doukakis, 2014).

4 ANALYSES AND RESULTS

4.1 Descriptive summaries

Table 1 documents descriptive statistics for the variables used in the multivariate analysis equation (3) and shows the differences between the top and bottom quartiles. For the four earnings management mechanisms ($AM_{j,t}$, $InAM_{j,t}$, $UE_{j,t}$ and $InEx_{j,t}$), the mean (median) of $AM_{j,t}$ is 0.467 (0.183), with an interquartile range of (0.076) to (0.425). The mean amount of $UE_{j,t}$ is high (0.523) compared to the three other earnings management mechanisms. The median of $InAM_{j,t}$ (0.000) is lower than the median of $InEx_{j,t}$ (1.000), which means that sample firms are more likely to use income-increasing underlying earnings exclusions than income-increasing accruals earnings management. Looking at the overvaluation variables, the mean and median of $P/E_{j,t}$ (0.218 and 0.145, respectively) are higher than the mean and median of $P/B_{j,t}$ (0.046 and 0.020, respectively), but the number of observations of $P/E_{j,t}$ (471) is much lower than the number of observations of $P/B_{j,t}$ (561). The mean (median) of $PBPE_{j,t}$ is 0.133 (0.085), with an interquartile range of (0.064) to (0.119). This paper also presents the descriptive statistics of $PBPE_{j,t}$ for each individual year. Compared to the three other years, $PBPE_{j,t}$ in 2009 had data with the most variations, with a standard deviation of 0.221, and then the variation declined in the following years.

Tab.1 - Descriptive statistics for variables

Variable	Obs	Mean	LowQ	Median	TopQ	Std. Dev.
$AQ_{j,t}$	566	0.195	0.046	0.085	0.196	0.267
$AM_{j,t}$	566	0.467	0.076	0.183	0.425	1.309
$InAM_{j,t}$	566	0.472	0.000	0.000	1.000	0.500
$UE_{j,t}$	566	0.523	0.000	1.000	1.000	0.500
$InEx_{j,t}$	566	0.360	0.000	1.000	1.000	0.481
$PE_{j,t}$	471	0.218	0.110	0.145	0.190	0.365
$PB_{j,t}$	561	0.046	0.012	0.020	0.037	0.197
$PBPE_{j,t}$	469	0.133	0.064	0.085	0.119	0.264
$PBPE2009_{j,t}$	107	0.122	0.064	0.082	0.115	0.221
$PBPE2010_{j,t}$	114	0.117	0.057	0.073	0.112	0.166
$PBPE2011_{j,t}$	123	0.115	0.072	0.090	0.129	0.081
$PBPE2012_{j,t}$	121	0.097	0.070	0.086	0.112	0.044

Note: $AQ_{j,t}$ is accruals quality measured by the standard deviation of five-year windows rolling of residuals from Equation (1) for firm j, in year t. $AM_{j,t}$ is absolute 'abnormal' accruals measured by residuals from Equation (1) for firm j, year t. $InAM_{j,t}$ is positive of 'abnormal' accruals (the positive of residuals ($e_{j,t}$) from Equation (2)), which represents income-increasing accruals earnings management for firm j, year t. $UE_{j,t}$ is dummy variable which equals to 1 if j firm disclose underlying earnings in year t, 0 otherwise. $InEx_{j,t}$ is dummy variable which equals to 1 if j firm disclose underlying earnings greater than statutory earnings in year t, 0 otherwise. $PE_{j,t}$ is price to earnings ratio at the beginning of year t, for j firm which is collected from DatAnalysis database. $PB_{j,t}$ is price to book ratio at the beginning of year t, for j firm which is collected from DatAnalysis database. $PBPE_{j,t}$ is average of $PE_{j,t}$ and $PB_{j,t}$ for firm j, at the beginning of year t. $PBPE\ 2009_{j,t}$ is average of $PE_{j,t}$ and $PB_{j,t}$ for firm j at beginning of year 2009. $PBPE\ 2010_{j,t}$ is average of $PE_{j,t}$ and $PB_{j,t}$ for firm j at beginning of year 2010. $PBPE\ 2011_{j,t}$ is average of $PE_{j,t}$ and $PB_{j,t}$ for firm j at beginning of year 2011. $PBPE\ 2012_{j,t}$ is average of $PE_{j,t}$ and $PB_{j,t}$ for firm j at beginning of year 2012.

4.2 Regression results for Hypothesis

Table 2 Panel A shows the results of hypothesis using the year industry fixed-effects regression model with the $AM_{j,t}$ and $UE_{j,t}$ as dependent variables. The model 1 is tested using year industry fixed-effects panel model with $AM_{j,t}$ as dependent variable, while the model 2 is measured by year industry fixed-effect logit model with $UE_{j,t}$ as dependent variable. The result of model 1 shows that only $Over_{0j,t}$ was significantly positive related to $AM_{j,t}$ (coefficient=0.455, p-value=0.052), while the result of model 2 shows that $Over_{1j,t}$ and $Over_{2j,t}$ were significantly positively related to $UE_{j,t}$ (coefficient=0.985, p-value=0.048) and (coefficient=2.748, p-value=0.000), respectively. The coefficient on $Over_{2j,t}$ was greater than $Over_{1j,t}$ which suggests that the longer a firm is overvalued the more likely it is to disclose underlying earnings. It appears that overvalued firms used $AM_{j,t}$ once for the first year and then it levelled off. By commencing overvaluation for one consecutive year, firms begin to engage in underlying earnings disclosure. Table 2 Panel B provides the results of hypothesis by using year industry fixed-effects regression with $InAM_{j,t}$ and $InEx_{j,t}$ as dependent variables. The model 3 and model 4 are tested using year industry fixed-effects logit models with dependent $InAM_{j,t}$ and $InEx_{j,t}$ respectively. The results of model 3 show that $Over_{0j,t}$ was positively and significantly related to $InAM_{j,t}$ (coefficient=0.927, p-value=0.056), while $Over_{2j,t}$ and $Over_{3j,t}$ were significantly negatively associated with $InAM_{j,t}$ (Coefficient=-1.169, p-value=0.011), (Coefficient=-0.788, p-value=0.050), respectively. These results suggested that in the early stage of overvaluation, firms are more likely to engage in income-increasing accruals earnings management, at the later stage of overvaluation, and managers are less likely to use income-increasing accruals earnings management. This could be explained by the reversing nature of accruals earnings management where managers' abilities to use income-increasing accruals earnings management have decreased. Table 2 panel B model 4 presents evidence that $InEx_{j,t}$ was positively and significantly associated with $Over_{1j,t}$ (Coefficient=0.848, p-value=0.065), $Over_{2j,t}$ (Coefficient=2.444, p-value=0.000), $Over_{3j,t}$ (Coefficient=0.740, p-value=0.084), and therefore after a firm has been overvalued once at an early stage using income-increasing earnings management, firms sustain their overvaluation by engaging in opportunistic underlying earnings disclosure to define underlying earnings as being higher than statutory earnings. This result, coupled with the finding in Panel A of table 2, suggests that after an extended period overvaluation, firms are unable to engage in further accruals earnings management and therefore resort to opportunistically reporting underlying earnings.

Tab.2 - Results for hypothesis

Panel A: the regression results for hypothesis with $AM_{j,t}$ and $UE_{j,t}$ as dependent variables

	Model 1 with $AM_{j,t}$ as dependent variable				Model 2 with $UE_{j,t}$ as dependent variable			
	Coef.	Std. Err.	t	P>t	Coef.	Std. Err.	z	P>z
$Over_{0j,t}$	0.455*	0.233	1.950	0.052	0.469	0.461	1.020	0.309
$Over_{1j,t}$	-0.081	0.237	-0.340	0.733	0.985**	0.499	1.970	0.048
$Over_{2j,t}$	-0.100	0.219	-0.460	0.648	2.748***	0.647	4.240	0.000
$Over_{3j,t}$	-0.128	0.210	-0.610	0.543	0.517	0.418	1.240	0.216
AM specific								
$Big4_{j,t}$	-0.084	0.254	-0.330	0.742				
$Litigation_{j,t}$	0.434	0.371	1.170	0.242				
UE specific								
$Meet_{j,t}$					0.122	0.261	0.470	0.641

$Loss_{j,t}$					1.350***	0.454	2.980	0.003
General controls								
$UE_{j,t}$	-0.305**	0.122	-2.490	0.013				
$AM_{j,t}$					-0.614***	0.218	-2.820	0.005
$Leverage_{j,t}$	0.827***	0.207	4.010	0.000	1.345**	0.637	2.110	0.035
$SalesG_{j,t}$	-0.515**	0.230	-2.240	0.026	-1.216**	0.499	-2.440	0.015
$MtoB_{j,t}$	0.019	0.085	0.220	0.827	-0.659***	0.188	-3.500	0.000
$Mktcap_{j,t}$	-0.065	0.045	-1.440	0.151	0.468***	0.093	5.020	0.000
$NOA_{j,t}$	-0.053	0.088	-0.600	0.547	0.310	0.261	1.190	0.234
$ROE_{j,t}$	0.101	0.485	0.210	0.835	2.242**	1.085	2.070	0.039
$Capital_{j,t}$	-0.182	0.121	-1.500	0.133	0.394	0.264	1.490	0.135
_cons	1.320**	0.550	2.400	0.017	-4.494***	1.144	-3.930	0.000
Year effects	YES				YES			
Industry effects	YES				YES			
Number of obs	469				469			
R-squared	9.77%			Pseudo R2	19.64%			

Panel B: the regression results for hypothesis with $InAM_{j,t}$ and $InEx_{j,t}$ as dependent variables

	Model 3 with $InAM_{j,t}$ as dependent variable				Model 4 with $InEx_{j,t}$ as dependent variable			
	Coef.	Std. Err.	z	P>z	Coef.	Std. Err.	z	P>z
$Over0_{j,t}$	0.927*	0.486	1.910	0.056	0.291	0.499	0.580	0.559
$Over1_{j,t}$	-0.340	0.434	-0.780	0.433	0.848*	0.460	1.840	0.065
$Over2_{j,t}$	-1.169**	0.458	-2.550	0.011	2.444***	0.487	5.020	0.000
$Over3_{j,t}$	-0.788**	0.402	-1.960	0.050	0.740*	0.428	1.730	0.084
AM specific								
$Big4_{j,t}$	-1.069**	0.495	-2.160	0.031				
$Litigation_{j,t}$	0.822	0.723	1.140	0.256				
UE specific								
$Meet_{j,t}$					-0.024	0.254	-0.090	0.925
$Loss_{j,t}$					1.863***	0.403	4.630	0.000
General controls								
$InEx_{j,t}$	-0.560**	0.223	-2.520	0.012				
$InAM_{j,t}$					-0.626***	0.229	-2.730	0.006
$Leverage_{j,t}$	0.315	0.402	0.780	0.434	0.961*	0.523	1.840	0.066
$SalesG_{j,t}$	-0.227	0.439	-0.520	0.605	-0.662	0.496	-1.330	0.182
$MtoB_{j,t}$	-0.259	0.159	-1.620	0.104	-0.578***	0.166	-3.490	0.000
$Mktcap_{j,t}$	0.068	0.082	0.830	0.405	0.305***	0.088	3.460	0.001
$NOA_{j,t}$	0.071	0.164	0.430	0.665	0.264	0.206	1.280	0.200
$ROE_{j,t}$	1.755*	0.939	1.870	0.061	1.652*	0.934	1.770	0.077
$Capital_{j,t}$	-0.468*	0.243	-1.930	0.054	0.823***	0.254	3.230	0.001
_cons	1.719	1.061	1.620	0.105	-4.873***	1.113	-4.380	0.000

Year effects	YES	YES
Industry effects	YES	YES
Number of obs	469	469
Pseudo R2	10.93%	17.83%

* ***p* < 0.10, ** *p* < 0.05, *** *p* < 0.01**

5 CONCLUSION

This study tests and extends the assumption developed by Jensen's (2005) agency theory of overvalued equity. The purpose of this paper is to examine how duration of overvaluation affects managers' choices of using accruals earnings management and opportunistic underlying earnings reporting. Jensen (2005) predicts that overvaluation leads managers to engage in alternative earnings management techniques to sustain the firm's overvalued stock price. This paper provides evidence that consistent with this reasoning. Specifically, this paper finds that managers of overvalued firms engage in the accruals earnings management in the early stage, as the duration of overvaluation continues, overvalued firms are more likely to disclose underlying earnings and disclose them in the opportunistic manner.

There are several limitations should be considered when interpret the results. Firstly, the limited sample size constrains this paper to use precise overvaluation measurements. Moreover, since underlying earnings disclosure management is a new area in earnings management literature, the specific controls of underlying earnings discloses management have not been examined by the current literature, so the specific controls for underlying earnings are not supported by literature and do not comprehensively explain underlying earnings disclosure. Results of this paper provide several avenues for future academic research. As the paper only examined the relationship between overvaluation and managers' decision to use accruals earnings management and underlying earnings disclosure alternative, researchers can extend this result to examine the effect of real activities earnings management on overvaluation and managers' choices on using accruals earnings management, real activities earnings management, and underlying earnings disclosures. Finding specific explanations for underlying earnings would also be an attractive area for researchers. Future research could also examine what factors cause firms to become overvalued and what are the solutions to the agency costs of overvalued equity, including the role of governments, regulators, and other constraints on earnings management mechanisms.

REFERENCES

Aldamen, H., & Duncan, K. 2013. Pricing of innate and discretionary accruals in Australian debt. *Accounting and Finance*, 53(1): 31-53.

Alhadab, M., Clacher, I. & Keasey, K. 2015. Real and accrual earnings management and IPO failure risk. *Accounting and Business Research*, 45(1): 55-92.

Australian Institute of Company Directors (AICD) & Financial Services Institute of Australasia (FINSIA). 2009. *Underlying profit: principles of reporting of non-statutory profit information*. AICD and FINSIA, Sydney.

Baber, W.R., Kang, S. & Li, Y. 2011. Modeling Discretionary Accrual Reversal and the Balance Sheet as an Earnings Management Constraint. *The Accounting Review*, 86(4): 1189-1212.

Badertscher, B. A. 2011. Overvaluation and the Choice of Alternative Earnings Management Mechanisms. *The Accounting Review*, 86(5): 1491-1518.

Baginski, S., Lorek, K., Willinger, G. L., & Branson, B. 1999. The relationship between economic characteristics and alternative annual earnings persistence measures. *The Accounting Review*, 74(1): 105-120.

Barth, M., Gow, I. & Taylor, D. 2012. Why do pro forma and Street earnings not reflect changes in GAAP? Evidence from SFAS 123R. *Review of Accounting Studies*, 17(3): 526-562.

Barton, J. & Simko, P. 2002. The balance sheet as an earnings management constraint. *The Accounting Review*, 77 (Supplement): 1–27.

Beaver, W. 1968. The information content of annual earnings announcements. *Journal of Accounting Research*, 6(sup.): 67−92.

Black, D. E. & Christensen, T. E. 2009. US Managers' Use of 'Pro Forma' Adjustments to Meet Strategic Earnings Targets. *Journal of Business Finance & Accounting*, 36(3-4): 297-326.

Black, E., Christensen, T., Joo, T. & Schmardebeck, R. 2014. The relation between earnings management and pro forma reporting, Unpublished working paper, Available from: http://ssrn.com/abstract=2259379.

Botosan, C. & Plumlee, M. 2005. Assessing alternative proxies for the expected risk premium. *The Accounting Review*, 80(1): 21-53.

Bowen, R. M., Davis, A. K., & Matsumoto, D. A. 2005. Emphasis on Pro Forma versus GAAP Earnings in Quarterly Press Releases: Determinants, SEC Intervention, and Market Reactions. *The Accounting Review*, 80(4): 1011-1038.

Chi, J. & Gupta, M. 2009. Overvaluation and earnings management. *Journal of Banking and Finance*, 33(9): 1652–1663.

Cohen, D. A. & Zarowin, P. 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics*, 50(1): 2-19.

Cohen, D.A., Dey, A. & Lys, T. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes Oxley Periods. *The Accounting Review*, 83 (3): 757-787.

Coulton, J., Saune, N. & Taylor, S. L. 2014. Overvalued Equity, Benchmark Bearing and Unexpected Accruals. UNSW Australian School of Business Research Paper No. 2012 ACCT 08. Available at SSRN: http://ssrn.com/abstract=2141700

Dahmash, F.N., Durand, R.B., & Watson, J. 2009. The value relevance and reliability of reported goodwill and identifiable intangible assets. *The British Accounting Review*, 41(2): 120-137.

Dechow, M. S. C. 2004. *Earnings Quality*: Research Foundation of CFA Institute.

Dechow, P., & Dichev, I. 2002. The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The accounting review*, 77: 35-59.

Dechow, P., Ge, W., & Schrand, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50(2–3): 344-401.

Dechow, P.M., Sloan, R.G. & Sweeney, A.P. 1995. Detecting earnings management. *The Accounting Review*, 70(2): 193-225.

DeFond, M. L. & Jiambalvo, J. 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1–2): 145-176.

Desai, H., Hogan, C. & Wilkins, M. 2006. The reputational penalty for aggressive accounting: Earnings restatements and management turnover. *The Accounting Review*, 81 (1): 83–112.

Doukakis, L. C. 2014. The effect of mandatory IFRS adoption on real and accrual-based earnings management activities. *Journal of Accounting and Public Policy*, 33(6):551-572.

Doyle, J., Ge, W. & McVay, S. 2007a. Accruals quality and internal control over financial reporting. *The Accounting Review*, 82(5): 1141–1170.

Doyle, J., Jennings, J. & Soliman, M. 2013. Do mangers define non-GAAP earnings to meet or beat analyst forecasts. *Journal of Accounting and Economics*, 56(1): 40–56.

Doyle, J., Lundholm, R. & Soliman, M. 2003. The predictive value of expenses excluded from non-GAAP earnings. *Review of Accounting Studies*, 8: 145–174.

Easton, P. & Harris, T. 1991. Earnings as an explanatory variable for returns. *Journal of Accounting Research*, 29(1): 19−36.

Easton, P. 2004. PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review*, 79(1): 73-95.

Edwards, E. O. & Bell, P. W. 1961. The Theory and Measurement of Business Income. Berkeley, CA: University of California Press.

Efendi, J., Srivastava, A. & Swanson, E. 2007. Why do corporate managers misstate financial statements? The role of in-the-money options and other incentives. *Journal of Financial Economics*, 85(3): 667– 708.

Elshafie, E., Yen, A. & Yu, M. 2010. The association between pro forma earnings and earnings management. *Review of Accounting and Finance*, 9(2): 139-155.

Ernst & Young 2007. *Reported earnings-trends, analysis and predictions*. Ernst and Young, Australia.

Fan, Y., Barua, A., Cready, W. M. & Thomas, W. B. 2010. Managing earnings using classification shifting: evidence from quarterly special items. *Accounting Review,* 85(4):1303-1323.

Fields, T., Lys, T. & Vincent, L. 2001. Empirical research on accounting choice. *Journal of Accounting and Economics*, 31(1-3): 255–308.

Financial Services Institute of Australasia (FINSIA) 2005. *Company reporting—the equity analyst's perspective*. FINSIA, Sydney.

Francis, J. & Wang, D. 2008. The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemporary Accounting Research*, 25(1): 157–191.

Francis, J., Huang, A. H., Rajgopal, S. & Zang, A. Y. 2008a. CEO Reputation and Earnings Quality. *Contemporary Accounting Research*, 25(1):109-147.

Francis, J., LaFond, R., Olsson, P.M., & Schipper, K. 2004, Costs of Equity and Earnings Attributes. *The Accounting Review*, 79(4): 967-1010.

Francis, J., LaFond, R., Olsson, P.M., & Schipper, K. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics*, 39(2): 295-327.

Francis, J., Olsson, P. & Schipper, K. 2006. *Earnings quality*. Foundations and Trends in Accounting.

Frankel, R. & Lee, C. 1998. Accounting valuation, market expectation, and cross-sectional stock returns. *Journal of Accounting and Economics*, 25(3): 283–321.

Frankel, R., McVay, S., & Soliman, M. 2011. Non-GAAP earnings and board independence. *Review of Accounting Studies*, 16(4): 719-744.

Gebhardt, W., Lee, C. & Swaminathan, B. 2001. Toward an implied cost of capital. *Journal of Accounting Research*, 39(1): 135-176.

Gode, D. & Mohanram, P. 2003. Inferring the cost of capital using the Ohlson-Juettner model. *Review of Accounting Studies*, 8(4): 399-431.

Graham, J., Harvey, C. & Rajgopal, S. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1-3): 30–73.

Graham, R.C., & King, R.D. 2000. Accounting practices and the market valuation of accounting numbers: evidence from Indonesia, Korea, Malaysia, the Philippines, Taiwan, and Thailand. *The International Journal of Accounting*, 35(4): 445-470.

Gunny, K. 2010. The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, 27(3): 855–888.

Gluyas, R. 2014. *Underlying profit lifts AMP stocks*. The Australian Business Review.

Habib, A., Gong, R. & Hossain, M. 2013. Overvalued equities and audit fees: a research note. *Managerial Auditing Journal*, 28(8): 755-776.

Harris, T., Huh, E. & Fairfield, P. 2000. Gauging profitability on the road to valuation, Global Valuation and Accounting, New York, NY: Morgan Stanley Dean Witter.

Hitz, J. M. 2010. Information versus strategic reporting: determinants of the disclosure of pro forma earnings by large German corporations. Unpublished working paper, Available from: http://ssrn.com/abstract=1549675.

Houmes, R. E. & Skantz, T. R. 2010. Highly valued equity and discretionary accruals. *Journal of Business Finance & Accounting*, 37(1-2): 60-92.

How, J. & Howe, J. 2001. The use of warrants in Initial Public Offerings. *Journal of Business*, 74(3): 433−458.

How, J., Lam, J. & Yeo, J. 2007. The use of the comparable firm approach in valuing Australia IPOs. *International Review of Financial Analysis*, 16(2): 99-115.

Isidro, H., & Marques, A. 2014. The Role of Institutional and Economic Factors in the Strategic Use of Non-GAAP Disclosures to Beat Earnings Benchmarks. *European Accounting Review*, 24(1): 1-33.

Jensen, M. 2005. Agency costs of overvalued equity. *Financial Management*, 34(1): 5-19.

Johnson, W. B. & Schwartz, W. C. 2005. Are Investors Misled by 'Pro Forma' Earnings? *Contemporary Accounting Research*, 22(4): 915-963.

Kim, M. & Ritter, J. 1999. Valuing IPOs. *Journal of Financial Economics*, 53(3): 409−437.

Kothari, S. P., Leone, A. & Wasley, C. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1): 163–197.

KPMG 2009. *Underlying profits survey report*. KPMG, Australia.

KPMG 2013. *ASX50 financial reporting insights*. KPMG, Australia.

Laksmana, I. & Yang, Y.W. 2014. Product market competition and earnings management: Evidence from discretionary accruals and real activity manipulation. *Advances in Accounting*, 30(2): 263-275.

Lev, B. 1983. Some economic determinants of the time-series properties of earnings. *Journal of Accounting and Economics*, 5(1): 31-38.

Li, Y., Eddie, I. & Liu, J. 2014. Carbon emissions and cost of capital: Australia evidence. *Review of Accounting and Finance*, 13(4): 400-420.

Lougee, B. A., & Marquardt, C. A. 2004. Earnings Informativeness and Strategic Disclosure: An Empirical Examination of 'Pro Forma' Earnings. *The Accounting Review*, 79(3): 769-795.

Marciukaityte, D. & Varma, R. 2008. Consequences of overvalued equity: Evidence from earnings manipulation. *Journal of Corporate Finance*, 14(4):418-430.

McVay, S., Nagar, V. & Tang, V. 2006. Trading incentives to meet the analyst forecast. *Review of Accounting Studies*, 11(4): 575–598.

Mizik, N. & Jacobson, R. 2007. Myopic Marketing Management: Evidence of the Phenomenon and Its Long-Term Performance Consequences in the SEO Context. *Marketing Science*, 26(3): 361-379.

Ohlson, J. A. 1995. Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, 11(2): 661–687.

Palmrose, Z., Richardson, V. & Scholz, S. 2004. Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics*, 37(1): 59–89.

Verbeek, M. 2004. *A Guide to Modern Econometrics (second edition)*. John Wiley&Sons, Ltd.

Watts, R. Z., J. & Zimmerman 1986. In: Positive Accounting Theory: Prentice-Hall Inc.

Zang, A. 2012. Evidence on the trade-off between real activities manipulation and accrual based earning management. *The Accounting Review*, 87(2): 675-703.

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PROCEEDINGS OF THE

3RD INTERNATIONAL CONFERENCE ON FINANCE AND ECONOMICS 2016

June 15th - 17th, 2016

Ho Chi Minh City, Vietnam

Published by:

Tomas Bata University in Zlín (Czech Republic)

In cooperation with:

Ton Duc Thang University (Vietnam) and The Institute of Chartered Accountants in England and Wales (ICAEW)

1st Issue

Year: 2016

ISBN 978-80-7454-599-3

(Tomas Bata University in Zlín)