THE PROJECT OF VALUING VIET NAM DAIRY PRODUCTS JOINT STOCK CO. USING SELECTED VALUING MODELS

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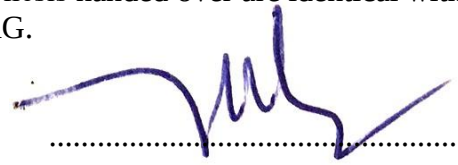

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ABSTRAKT

Cílem předložené diplomové práce je ocenit kótovanou společnost na vietnamském akciovém trhu- akciovou společnost Vietnam Dairy Product Stock (Vinamilk), poté, co státní akcionář zažádal o cenovou nabídku za uvolnění státních akcií ve firmě Vinamilk. K ocenění firmy existují různé metody, které však mohou generovat odlišné výsledky. Diplomová práce poskytuje stručný přehled literatury o běžných metodách oceňování, které jsou používány akademiky i v praxi, předně se pak zaměřuje na metodu diskontovaných cash flow, jenž mimo jiné vyžaduje tvorbu předpokladů z pohledu firemní výkonnosti či makroekonomických podmínek. V praktické části diplomové práce jsou nejprve před samotným oceněním firmy analyzovány ekonomické podmínky a mlékárenský průmysl ve Vietnamu. Na závěr je provedeno srovnání mezi použitými metodami ocenění a na základě zjištěných výsledků jsou vyvozena doporučení.

Klíčová slova: Ocenění, vietnamské mléčné výrobky, diskontovaný peněžní tok, volné peněžní toky

ABSTRACT

The thesis aims to determine a value of a listed corporation on the Vietnamese stock market- Vietnam Dairy Product Joint Stock Company (Vinamilk), after the state shareholder asked a price for the offer of release the state shares in Vinamilk. To determine a value of a firm, several valuation methods can be used while each method can generate different results. The thesis provides a brief literature review to common valuation methods used by academics and in the practice, in particular, is mainly oriented on the discounted cash flow method which, inter alia, requires to make one assumptions on firm's performances as well as the macro economic conditions. In the practical part before the valuation, the economic conditions and the dairy industry in Vietnam before valuation Vinamilk is analysed. Finally, a comparison among different valuations is applied and recommendations are given based on the findings.

Keywords: Valuation, Vietnamese Dairy Products, Discounted Cash Flow, Free cash flow.

"*We are in danger of valuing most highly*
those things we can measure most accurately,
which means that we are often precisely
wrong rather than approximately right"
Sir John Banham,
Director General of the Confederation
of British Industry from 1987-2005

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Content

INTRODUCTION

Recognized as an emerging market, Vietnam has recent attracts more foreign investors into the financial market, that encourages the dramatically growth of the stock market with large international funds recently. As the consequence of the transformation from the centrally oriented regime to market oriented regime, Vietnam has many state-owned enterprises which need to leave out of the State umbrella and the government should release their shares to the other investors. In 2017, the government planned to sell the state-owned shares to the public for the 10 listed corporations with $7 billion as the market value and holds $3 billion approximately (source: SCIC, 2017), the Vietnamese stock market pays more attention to foreign investors due to many institutional investors planning to be the strategic investors or major shareholders in those state-owned corporations, but there were some failed calls because of the over ask price for the state shares and the government's plan has not finished as designed.

The objectives of the government plan are to increase the budget resulting from the selling shares as well as to make a fair competition in the market; corporations have less support and compete to others without taking any advantage from the policy as before. Some listed corporations are selected to perform the government's plan that focused on banking sector and some líted corporations such Vietnam Dairy Product Joint Stock Company, Petro Vietnam Oil Corporation, Saigon Beer Alcohol-Beverage corporation etc. Those listed corporations are profitable and key players in their industry. The Vietnam Dairy Product Joint Stock Company is known as the most profitable and has achieved amazing results previous years.

Vietnam Dairy Products Joint Stock Company (Vinamilk or the company) was recognized as the biggest listed company on the Vietnamese stock market with the market value up to 182,299 billion Vietnamdong (more than $9 billion approximately) and the government held 60.47% of shares of the company after privatization at the end 2003 (Vinamilk, 2006). The proportion of state owned shares reduced to 45% of the company shares after that. In 2016, the government planned to reduce the proportion to 36%, but it was not success -the government still had 39.34% of the company shares at the end of 2016 and has another plan to hold only 36% of shares at the end of 2017. Indeed, in 2016, the plan has been failed due to a fall of market price (offer price was 144,000 dong per share while

the market price was 133,700[1] dong per share). The SCIC (an agency of the government which is in charge of managing state-owned shares after the privatization of state-owned enterprises) argued that due to different valuation methods, the offer prices should be different; then they had reasons to believe that the value of share was higher than the market expectation, that why there were two foreign institutional investors, who were successful bidding at 144,000 dong per share in 2016, since they can see the potential of Vinamilk. To release out the rest (3.33%) of the plan, SCIC set a new call at the end of 2017 with the offer price the market value in the 3rd quarter of 2017 (150,000 dong per share). Resulting from the hot-tempered stock market at the 4th quarter of 2017, the call was successful with only one foreign bidder as 186,000 dong per share higher than the market price (173,800 dong per share) for all state-owned shares of the call (3,33% or 48,333,333 shares) on November 10th 2017. Those auctions were not attracted by individual investors and two auctions gave different results, it showed that the ask prices did not adapt to individual investors' expectation and the value of Vinamilk can be influenced by the external factors. And each period, investors can have different expectation to the growth of the company and generates different values of a firm depending on time and the economic condition. The thesis would like to discuss on these issues and make some proposes to the case of Vinamilk. Next section describes the objectives and how the thesis processes.

[1] The prices were collected from the stock database at the call day December 12 2016, the offer price was settled as the bid price by the investors. The market price was collected by the close price of Vinamilk on December 12 2016.

OBJECTIVES AND METHODS OF MASTER THESIS PROCESSING

This research would like to apply different valuation methods to compare the firm value i.e. Discounted Cash Flow or the quickly valuation methods by using the forward price to earnings ratio (Forward P/E method) and forward enterprise value (EV) to Earnings before interest, taxes, depreciation and amortization (EBITDA) (Forward EV/EBITDA method). Based on those different valuation methods, the research would like to compare and propose suitable value of Vinamilk's share.

1. Privatized firms and the financial market in Vietnam

Vietnam was recognized as a transitional economy, which was transformed successful from the centrally oriented to the market oriented regime from 1986. The whole economy was suffered by the inefficiency of the centrally economic regime as well as the state-owned enterprises were a heavy burden to the government's budget. Resulting from the changed regime, Vietnam was accepted the ownership structures of enterprises or firms can be diversified instead of the state-owned enterprises (SOEs) in the economy; and then a privatization program was established to reduce the inefficient SOEs in 1992. At the first stage, the privatization program was performed slowly and a few firms would like to be privatized till 2000s. There were many reasons but the most important reason was how to determine the firm value and the financial market had not developed yet- the stock market established in 2000. The government would like to withdrawn the state shares from state-owned firms can reach some objectives, it does not only reduce the burden on the government budget due to inefficient firms, but also provides financial sources to the government, financial instruments to the financial market (shares on the stock market) and support the financial market to develop. Consequently, the government set a target to release all their shares in the listed companies over the period 2010-2017 (see in the table 1).

Table 1: Number of firms privatized from 1992 to 2016

Period	Content	Number of firms privatized
1992-1996	Pilot program	5
1996-1998	Extension of pilot program (1996-1998)	25
1999-2011	Official privatization program (According to the Circulation 44/1998/ND-CP, 64/2002/ND-CP, 109/2007/ND-CP)	3,946
	From 1999-2002	909
	From 2003-2006	2,649
	From 2007-2010	376
	In 2011	12
2012-2016	Privatization program for restructure state-owned enterprises (According to Circulation 59/2011/ND-CP and 189/2013/ND-CP)	507
	In 2012	13
	In 2013	74
	In 2014	143
	In 2015	222
	In 2016	55

Source: doimoidoanhnghiep.chinhphu.vn

In the pilot period, the number of privatized firms was 30 over 6,000 state-owned firms approximately due to a problem of valuation processes; many firms could not determine the value of their assets or calculated only land use right certificates as firms' assets to privatize. The valuation processes were defined by the guidelines of the government (such as Circulations no. 28/CP and 44/1998/ND-CP in 1998 and 64/2002/ND-CP in 2002), which were evaluated on the book values of firms instead of the future cash flows of firms and firms' potential. The firm valuation was focused on the fixed assets such real estates, machines, location of firms .etc. which could be generated with different values due to no available information or different point of views on the accounting records (Tran, 2015). This method also was a weakness to attract foreign investors to buy if firms having not disclosed much information and the asymmetric information existed. It required a reform for the financial market and released to other types of financial firms to provide valuation services such as the investment banking of foreign banks, some securities corporations and other financial institutions instead of only the Vietnam valuation center[2] playing as a monopolistic service provider.

[2] a subsidy of the Ministry of Finance

Although firms were privatized, the government or local government/ government agencies still hold a large proportion of firm shares as the major shareholders, it means that firms, in somehow, are under control of the state. The executives can have their own interest instead of increasing firm values or of serving as a representative of the state-ownership, it forced the government to reduce their stakes in privatized firms and less involving to firms, it also sends a signal to the public that every firm is the same and there is no umbrella to a specific firm to get advance in competition with other firms.

2. Research questions

The research aims to answer the following questions:

1. What are the commonly used valuation methods employing to value a company?
2. What are the most concerns of Vietnamese financial market?
3. What are the trend and situation of Vietnamese dairy market?
4. Can be the firm value calculated by the DCF suitable in compared to the market value of Vinamilk?
5. Whether the DCF method is different with the quick valuation methods.

The thesis will review the available literature sources to provide a brief overview of the valuation methods commonly used in the books, articles and in practice from the official resources. The Vietnamese financial market and the stock market is discussed, based on sources from the secondary data and reports. The trend and situation of Vietnamese dairy is analyzed by using market reports of the market research corporation such Stoxplus, Euromonitor International, Hochiminh Securities Corporation etc. The valuation of Vinamilk is applyed in the practical part, it employs the data collecting from the annual reports, financial reports of Vinamilk as well as the industry reports published by securities corporations in Vietnam or by market research corporations.

Limitation:

The thesis aims to provide the literature and valuation of a specified corporation listed on the Vietnamese stock market. The calculation and any assumption are according to the point of view of the author. So the author tries to make a projection based on the available information.

The thesis contains the following contents: **Chapter 1- Introduction**- reviews briefly the situation of the withdrawn program of the government to release the state-owned shares to other investors in the stock market. **Chapter 2- Theoretical part**- describes the commonly valuation methods used in literature as well as the practical methods. The review

is going through each method to obtain the value of a firm. The next chapter- c**hapter 3: Practical part**- aims to apply a valuation method (DCF) to the chosen corporation, in which the valuation process will be assessed based on the assumptions and the available information. The last chapter- **Chapter 4: Conclusion**- makes some remarks and the conclusion after comparing the main valuation method with other methods as well as giving some recommendations on the finding.

I. THEORY

1 BACKGROUND ON VALUATION

Damodaran (2012) shows that every asset (financial or real) has its own value; in some cases, an asset can be determined by different valuation methods and then its value can vary due to the different valuation methods.

Due to the valuation process is based on the information that serves for the valuation process, then the value can be biased and it can be driven by the opinion of the person who is underwriting the process and determines the value of assets (Imam et al., 2008). Damodaran (2012) concludes that "valuation model are quantitative and valuation is objective" and "in many valuations, the price gets set first and the valuation follows". It explains that the final value of valuation process is affected by many things and since the valuation is an objective then it can be representative for the person or the institution provides services of the valuation; then assets can be over or under value. Because of the pressure to make more attractive investors or the portfolio management, the analysts intend to look for the under-valued firms to recommend instead of over-valued firms (Imam et al., 2008). Otherwise, the valuation process can be biased from the missed information or the asymmetric information; then the target firm can have different value. So that the updated information is the important factor to the valuation process and it depends on the market situation and the specified firms as well as the experience of the person who is in charge of the valuation process. Moreover, the valuation process needs to predict the potential and assume the future growth of the firm based on current trends or the position of the firm in the industry or the uncertainty of the economy; and the forecast of firm performance in the future can be uncertainty, then it can be reflected that the valuation being changeable from time to time. Although the valuation processes can vary but the final result needs to be more reliable based on the source of information of firms.

The valuation is defined as a key role in the finance and serves to the corporate finance, merger and acquisitions or portfolio management. While the first objective is to provide to shareholders, executives or creditors to have a view of firm value- especially for the shareholders to know whether the executives maximize the firm value, it can be a fundamental factor to decide the firm restructure or make any decision for the firm such the capital structure, dividend policy, investment decision etc. In the second objective, it serves to the acquisition analysis; the bidding side has to know the fair value of the target firm before making a bid as well as the target firm needs to propose a reasonable value before

making any decision relevant to the offer. So it is very important to the both parties and convince their shareholders that the offer is reliable and reasonable, that is a highly pressure to valuation process if both parties can generate different values. The last objective is for the portfolio management, it seems be a simple requirement for the investors in the financial market. On the one hand, the valuation plays different role in the financial market (or the stock market), it could be having a minimal role for the passive investors. But on the other hand, it has a important role for the active investors.

To sum up, the valuation is a wide purpose in the finance and is necessary to support investors, shareholders to know the fair value before making any decision related to their investment, takeover or operating decision in a corporation. Since there are different valuation methods and the results are based on the projection of firm future performance as well as the market situation, then the outcome can be different. The next section will discuss the valuation methods in literature.

2 VALUATION METHODS IN THE ACADEMIC LITERATURE

In the modern life, firms would like to develop overtime and increase their values even that their forms of activities can be different, firms need to maximize their profitable performance to generate higher value for the firm-owners (Ross et al. 2012, chapter 1). Actually, the valuation can be differently depending on the purposes of users and this task plays a crucial role for firms to know their potential or to provide information to owners, lenders or the public. There are some firm (or company) valuation methods which can be known as balance based methods, income statement-based methods, mixed methods or cash flow discounting-based methods (Fernandez, 2007).

The firm value definitely is different to the price of firm shares, it can be easy to see that each investors will have different point of views on the firm value as well as they can have different prices to buy firm shares. For example, if an investor predicts that a firm is potential and can grow in the near future, then the valuation process can convince him to set the highest price he could pay. In contradiction, other investors discusses that firm will be slow the growth rate and they would like to sell in which the firm valuation should be considered as the lowest value they want to sell. Indeed, the firm valuation is not only helpful to buyers or sellers of firm shares, it also serves to firm executives to decide the firm capital structure (Brealy et al. 2010), or even that they can decide to attract strategic investors to show that the firm value is a goodwill to them. It also serves for acquisitions and mergers (M&A) when executives need to know how each division or firm worth to negotiate with the buyers. The necessary of firm valuation irritates that the valuation methods need to be considering carefully fulfilling the requirements of each purpose. The research will present some methods that are commonly used in academic literature in which the research will, inter alia, concentrate to discuss in more detail the definitions, contents and the how to calculate the firm value, based on different valuation methods.

2.1 Balance sheet-based methods

The main approach of these methods is to use company assets to estimate company values, in other word; it employs the items in balance sheets for firm valuation. This method does not take into account the future of firms or the time value of the money. It illustrates that firms can be same if their total assets are the same levels, and forget to see the potential development or the future of firms; some other important factors such as market shares,

human resources or the good relationship with customers are not mentioned to evaluate the firm values.

Fernandez (2007) shows that the balance sheet-based methods also refer to shareholders' equity that contains different valuation methods such as book value, adjusted book value, liquidation value and substantial value.

As mentioned above, the balance sheet based methods are namely as shareholders' equity- so in the book value method- it takes value of shareholders' equity in the balance sheet as the firm's book value. Or in other words, this criterion can be picked from the difference of total asset and liabilities; this implies that the book value only pays attention to shortcoming criteria (at the period of the balance sheet mentioned). It can be seen that the book value of a firm does not match the market value and the potential of the firm.

The adjusted book value seems be better than the book value by considering the market value of each item in the balance sheet and makes them to close the real values. It also takes into account the detail of each item to isolate the fluctuation and the bad items can affect to the market value of each item in the balance sheet. For example, instead of using the book value of fixed asset, this item needs to be recalculated to obtain the real value based on the market value or the account receivable can contain some bad debts and need to be dropped out to valuation.etc

The liquidation value is a firm value if it is liquidated. It means that all assets of the firm are sold out and debs are paid off. It is represent a minimum value of a firm which is operating and having a value greater than its liquidation value. The last method of the balance sheet-based methods is the substantial value (or replacement cost method), this method applied to calculate the investment value which ought to apply for maintaining the firms' operations. In details, it only counts the operating investments and excludes assets which are not used for the firms' operations such as unused real estates, machines.etc. or the assets are being held by other firms.

To sum up, the balance-sheet based methods focus on the items in the balance sheets or some specified items which are adjusted with the market values, they still miss some potential or the positions of firms in the industry sectors. Obviously, these methods are not

possible to provide a good valuation to the public or company, and then it is not applied widely in the academic researches or practice.

2.2 Income statement – based methods

In contradiction to the balance-sheet based methods, these methods are using the income statements at the main items for firm valuation. These methods also consider the future expectations as well as the market performances; these employ some items such as the size of earnings, sales or other indicators for firm valuation. To do so, some practical ratios or multiples are multiplied with the main items. There are 4 different methods defined in these methods:

+ Value of earnings: it shows that the equity's value is from a formula, which is multiplied the annual net income with a ratio of a price earnings ratio (P/E), this method employs both the market item (prices of shares) and an accounting item (earnings). Moreover, it is flexible to apply for a specific time or period.

+ Value of dividends: Ross et al. (2012) and Brealey et al. (2010) show that the value of dividends is complex since we cannot be surely the dividends paid in the future, then it needs to assume a form of dividends in order to firm valuation. To ease the regime for dividends, it needs to assume that the dividends are fixed forever in the perpetuity case or Gordon Growth Model or mixed growth rate. These methods are argued that dividends are paid too much will have a reversed effect on the growth rate of firms, since firms try to pay more dividends, it illustrates that firms will have less money to re-invest into firms' performance.

Besides that, there are several methods relevant to the income based methods i.e. sale growth which is broken down by the P/E ratio and the return on sales (earnings/sales) or the ratio of firm value to earnings before interest and taxes (EBIT) or to earnings before interest, taxes, depreciation and amortization (EBITDA) etc.

2.3 Goodwill based-methods

These methods are generally related to the above mentioned methods, they state that the goodwill based-methods are setting the firm value above the book or adjusted book values due to a represent of the intangible assets which are not recorded in the balance sheets. These methods argue that the intangible assets are playing a critical role for the firm

operating since these assets can contribute to the future development of firms such the market (or industry) position, quality of human resources, quality of customer base.etc.

To determine the value of firms by these methods, there can be problems to estimate the value of intangible assets because of unclear calculating methods and criteria. But these methods have strengths while considering the future earnings based on some "coefficients" or ratios. These methods can be better practice if there is available information of firms in the same industry/sector, the available information is referred to estimate the potential growth or determine a certain coefficient to estimate the future unpredictable intangible assets. These methods are usually applied in the European Continent, for example Union of European Accounting Experts (UEC) methods or Anglo-Saxon Methods. Since they are not suitable to developing countries due to asymmetric information and low levels of regulations; this research introduce briefly and does not study deeply these methods.

2.4 Cash flow discounting-based methods

The aim of these methods is to estimate the cash flows of a firm in the future then discounting them at a discount rate (which is including risks of firm operations) to determine the firm value. These methods are different with above mentioned methods that focus on the past information or unclear items as goodwill based methods, the cash flow discounting-based methods are concentrating to estimate the future cash flows of firms based on some criteria relevant to past performance of firms. Indeed, firms are recognized as the cash flow generators and those cash flows are discounted to present by employing a suitable discounted rate which can cover firms' risks and other expectations. The DCF model is chosen as a better valuation model by Kaplan and Ruback (1995); it also employs to be a popular method in firm valuation and capital decisions in Graham and Harvey (2001) or Imam et al. (2008).

Generally speaking, the cash flow discounting-based methods intend to employ the possible cash flows which are generated for the firms' operations, these flows conceptually are similar to the cash budget in the future of the firms. All of these flows are discounted as the present to see whether the future value of those operations cash flows is profitable to the investors or shareholders at the present, the most important factor which needs to be verified is the discounted rate. Basically, the discounted rate could be covered all expectation of firms and/or shareholders and is adjusted by the uncertainty conditions (or cash flows' risks). According to different approaches, the appropriate discounted rates should be considered to

serve different cash flows: the free cash flow, the equity cash flow and the capital cash flow. The cash flows are collecting from the balance sheets or the economic balance sheet. In the next section, the discounted cash flow models are discussed more detail for each method of cash flows.

3 THE DISCOUNTED CASH FLOW MODELS (DCF MODELS)

As mentioned above, the discounted cash flow models are composed into 3 different approaches. In this section, each approach will be discussed clearly to provide a background of the DCF models. The general form of cash flow models are expressed as follow equation:

$$\boldsymbol{VALUE} = \frac{\boldsymbol{CF_1}}{\boldsymbol{1+R}} + \frac{\boldsymbol{CF_2}}{\boldsymbol{(1+R)^2}} + \frac{\boldsymbol{CF_2}}{\boldsymbol{(1+R)^2}} + \cdots + \frac{\boldsymbol{CF_n}}{\boldsymbol{(1+R)^n}} \quad (1)$$

in which:

+ VALUE: value of a firm.

+ CF_i: Cash flow generated by the firm at the time i.

+ R: an appropriate discounted rate of the firm.

+ n: number of periods that the firm operates.

The n years show that we need to know the certain period of firms operation, assume that the firm will have an indefinite duration. The problem is that how to find a suitable growth models of the future cash flows for firms. Brealey et al. (2010) show that it needs to assume some "specified growth rate" for the cash flow (or dividends as the book states) i.e. "constant growth rate" or "varying growth rates". Indeed, the "varying growth rates" need to be simple by assuming that the rate is stable at a certain year to infinite that makes the forecast future cash flows of firms easier and the present values decrease dramatically with the further time horizon. Additionally, the competitive of firms will change overtime, and the uncertainty can make firms to have disadvantage in their sectors, so it needs to decide a finite time horizon to estimate the cash flows.

3.1 The free cash flow

The definition of the free cash flow (FCF) is defined by employed the operating cash flow of a firm to valuate. The main flow is generated by the firm operations after tax, without taking into account the debts. The FCF takes into account all money that is available in the firm, including investments into fixed assets and working capital requirements, in an assumption that, there is no debt; or in the other word, the financial expenses are not existed for the firm.

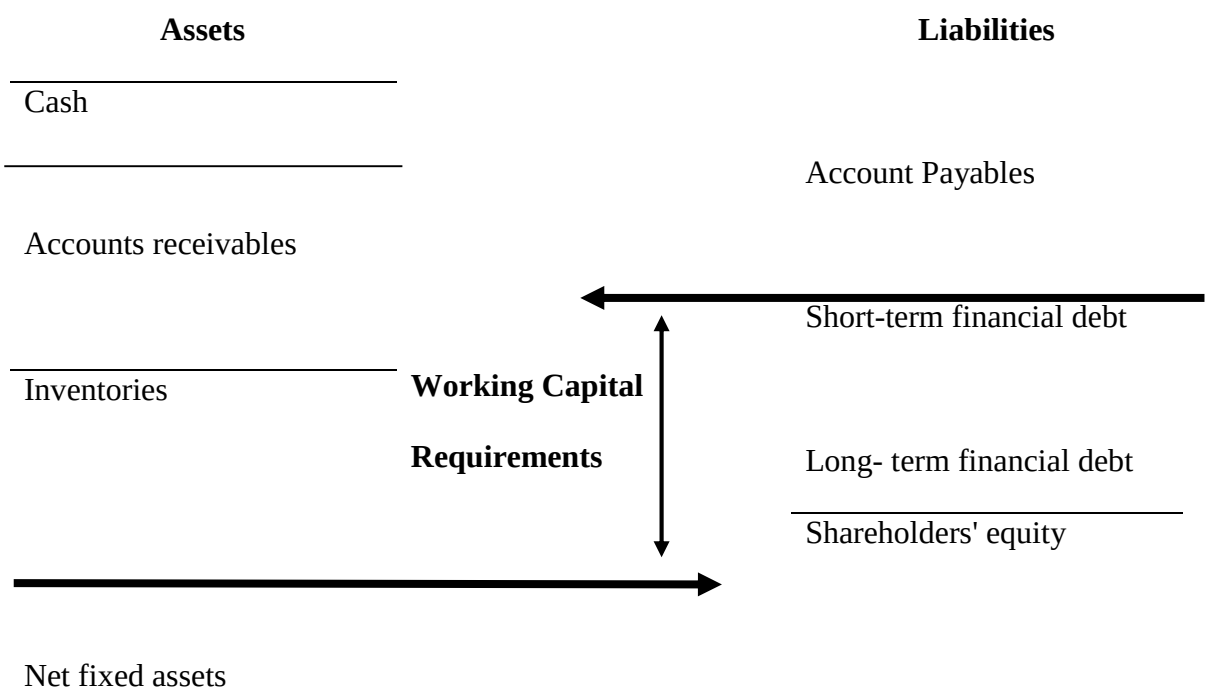
The free cash flow calculation can be an extension of cash budgeting. While the cash budgeting should be predicted in short whereas the free cash flow needs to be forecasted further. This assignment cannot be done with the basically accounting method. Since for each future time period, it needs to predict by using the accrual approach, however, if the accounting approach can be adjusted to recognize all items such as revenues, costs and expenses under the "cash" point of view (it means the cash from payment and collection), so the cash free flow can be selected by this calculation.

In this method, working capital requirements can be affected by the cash flow, this item is collected from the balance sheet indirectly via the following function:

Working Capital Requirements= Cash+ Account Receivable+ Inventories - Account payables

In short, the figure 1 and 2 compare the balance sheets with or without working capital as the economic balance sheet and the accounting balance sheet.

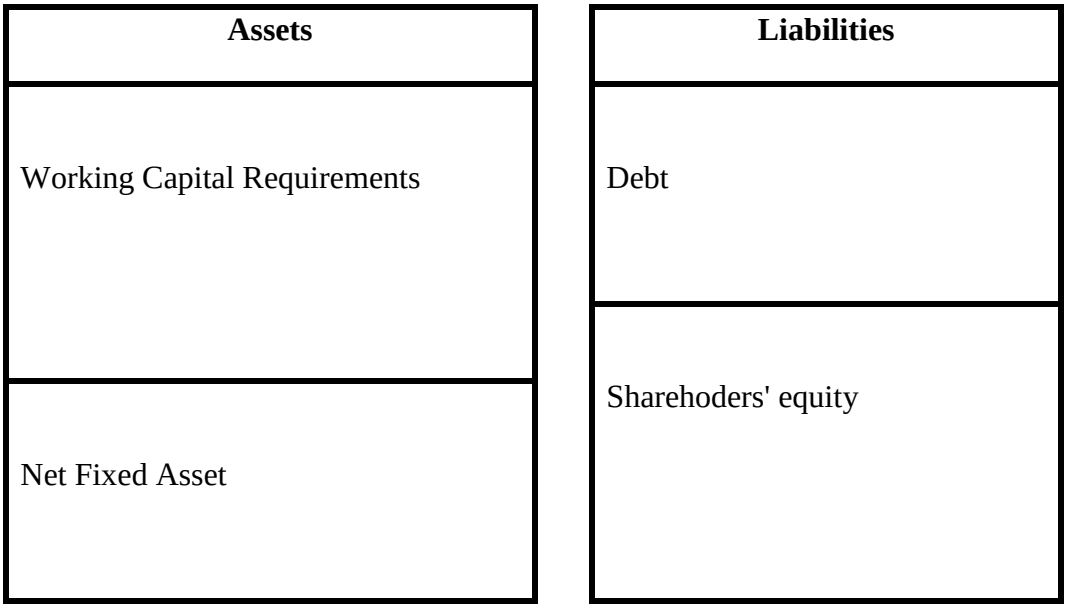
Figure 1: The balance sheet



Source: Fernándo (2007)

If the balance sheet is transformed to the economic balance sheet, it could be present as:

Figure 2: The economic balance sheet



Source: Fernándo (2007)

In the economic balance sheet, we need to focus on the what (available assets) and how those assets can be more profitable in the future (growth of assets). The most important in the free cash flow is how to determine the future activities to verify the sum of actual received and paid money in each period. To do so, there are some questions need to be answered such which assets the firm currently has? How much their values are? And there is any risk for those assets and if the risks exist, which levels they are. Additionally, the firm also needs to clarify which assets are able to grow and their risks.

To identify the components of a free cash flow, the information is given in the firm income statement in which the free cash flow is obtained from earnings before interest and tax (EBIT) and excluded the payment to fund providers (dividend and interest expenses should not be present in the free cash flow). The procedure can be explained as:

Figure 3: Procedure from the income statement to free cash flow

	Year 2xxx
Sales	
- Cost of goods sold	
- General expenses	
- Depreciation	
Earnings before interest and tax (EBIT)	XXX
- Interest expenses	
Earnings before tax	
- Tax	
Net income	
- Dividend	
Retained earnings	

	Year 2xxx
Earnings before interest and tax (EBIT)	XXX
- Tax on EBIT	
Net income without debt	
+ Depreciation	
- Increase in fixed asset	
- Increase in working capital requirements	
Free cash flow	

Source: Fernándo (2007)

from the *earnings before interest and tax* (EBIT) in the income statement, net income without debt is subtracted by the tax on EBIT which is called tax payable on EBIT and must be defined directly by the tax rate with the EBIT. Then *the net income without debt* must be added by *depreciation* since this amount is actually not a payment of the year, the

accounting perspective record it for a payment in the past. In the last step, a reduction from the sum of new investment into fixed asset and new working capital requirements of the year should be performed to obtain the free cash flow.

As the equation (1), to calculate the value of a firm, the free cash flow will be discounted to the present value by a weighted average cost of debt and equity or weighted average cost of capital (WACC). The WACC can be obtained via the following equation:

$$\boldsymbol{WACC = W_D k_D (1 - T) + W_E k_E} \qquad (2)$$

whereas:

+ $W_D = \frac{D}{D+E}$ the proportion of debt in the firm capital.

+ $W_E = \frac{E}{D+E}$ the proportion of equity in the firm capital.

+ E: the amount of equity and D: the amount of debt.

+ T: Corporate tax rate.

+ k_D: cost of debt before tax (or required return on debt), k_E: cost of equity (required return on equity).

As the equation (2), the WACC is obtained by weighting the cost of debt (kD) and the cost of equity (kE) depending on the firm capital structure, we need to consider the required return on debt and equity that can be appropriate calculated by capital asset pricing model (CAPM) (Ross et al., 2012):

$$\mathbf{E(R) = R_f + \beta(R_m - R_f)} \qquad (3)$$

E(R): expected return of an asset.

β: the beta of the asset.

R_f: risk free rate (it can be employed by the rate of a government bond).

R_m: expected return on the market.

=> (R_m-R_f): risk premium.

To obtain the WACC, the cost of equity is rarely existed since the investors/shareholders can have a volatile required return rate, so the CAPM can be an appropriate method to get the cost of equity.

In order to analyze more detail the capital structure, the valuation process using the free cash flow approach can be discussed on the case that the firm has no debt, the required return on assets is exactly the same the required return on equity- since if having debt, the investors can see more risks on their invested capital, hence they require high required risk premium on equity.

On the contradiction, if a firm has debt in the capital structure, it needs to turn on the firm's advantages: the tax shield should be mentioned each year; the free cash flow needs to adjust from the present value of tax shield of the interest paid off. The cost of debt can be selected by the debt's market rate instead of interest rates at the borrowing contracts. This also defines as the adjusted present value (APV). Then the value of firms can be shown as:

Firm value= PV(FCF|WACC)+ value of the debt's tax shield (4)

PV(FCF|WACC): present value of the free cash flow discounted by the WACC.

In this section, the free cash flow forecasts the further time ahead and assumes that the businesses continued operating next years.

3.2 The equity cash flow

The equity cash flow, sometime namely free cash flow at the shareholders' point of views. In this method, the equity cash flow is subtracted by the interest and principal payment (after tax), then added by the new debts, the following equation expresses the calculation:

ECF= FCF - [interest payment*(1-T)] - principal payment + new debt (5)

ECF: Equity Cash flow.

FCF: Free cash flow.

T: Tax rate.

The ECF derives the financial structure in each period, the interest payment is corresponding to the existence of debts, installments of principal are paid at the maturity. Any fund from new debts is received. The rest will belong to the shareholders for further decision that they pay as dividends or to buy back shares. This method illustrates that the cash flow is focused on the firm's equity; meanwhile, the discount rate can be taken by the

required return on equity (kE). Then the firm's total value needs to add the market value of the existing debt to the value of equity (or D+E).

The required return on equity is estimated by using the Gordon model, whereas a constant growth rate of dividends is assumed or by employing the CAPM as mentioned above.

The Gordon constant growth model (Brealey et al., 2010; Ross et al., 2012):

$$\boldsymbol{P_0 = \frac{D_1}{R-g}} \quad (6)$$

P_0: Share's current price

D_1: the dividend can be received in the next period. ($D_1=D_0x(1+g)$)

R: expected return on equity.

g: constant dividend growth rate.

=> the expected required return on equity: $R = \left[\frac{D_1}{P_0}\right] + g$

In addition, the equation (6) can be estimated by other different dividend growth rate which does not discuss in the thesis.

3.3 The capital cash flow

The term capital cash flow defines as the sum of equity cash flow and the debt cash flow, in which the debt cash flow is decomposed by the sum of interest payment and principal repayment. Then the capital cash flow is:

$$\begin{aligned} \textit{Capital cash flow (CCF)} &= \textit{Equity cash flow (ECF)} + \textit{Debt cash flow (DCF)} \\ &= \textit{ECF+I-deltaD} \end{aligned} \quad (7)$$

I: interest payment => I= D*k_D (D: debt and k_D: cost of debt) .

The expression in (7) can be equations as:

Market value of a firm = E+D = present value[CCF|$WACC_{BT}$]

E: equity; D: Debt and $WACC_{BT}$: Weighted Average Cost of Capital before Tax. $\boldsymbol{WACC_{BT} = W_D k_D + W_E k_E}$

4 SOME SELECTED INCOME- BASED METHODS

In this section, the thesis would like to discuss some selected income- based methods to recalculate the value of a firm. The forward P/E and EV/EBITDA will be chosen to compare the value which obtains from the DCF method mentioned above. Those methods are quick and commonly employed by securities corporations. The "forward" states that the components are focused on the forecast of items in the projection instead of using the historic values. The base methods are using the market value as a reference point to compare the accuracy of a model, it is recommended to use by Penman (2012) and Hoover (2006). Baker and Ruback (1999), Imam et al. (2008) and Titman and Martin (2008). They argue that the multiples method is used widely in practice that could yield valuation closely to the DCF value, that makes the thesis would like to apply this to measure the accuracy of the DCF model in the case of Vinamilk.

Forward P/E (forward price to earnings) is a measure of the price to earnings ratio using the future earnings for the P/E calculation. The main idea of this method is the projection of EPS at the end of current fiscal year by comparing the P/E of other corporations in a sector/industry or cross-countries (Damoradan, 2012). While the current price to earnings ratio is used to calculate a relative value based on the corporation's level of earnings; the forward price to earnings ratio determines what the relative value of the corporation will be at a future level of earnings. If the forward P/E ratio is lower than the current P/E ratio, it means that the earning is increasing and vice versa.

The latter method is discussed on the forward EV/EBITDA (a corporation's current enterprise value- EV divided by its forecast of earnings before interest, taxes, depreciation and amortization- EBITDA- for the current fiscal year), in which the EV is calculated as the corporation's total market capitalization and preferred shares and debts; and then minus total cash. This method is used for investors to compare the value of a corporation (including debts) to the cash earnings less noncash expenses. The value of forward EV/EBITDA is served for comparing the corporation value within the same industry or other valuation methods. The method is meaning as showing how many unit currency of enterprise value a corporation is worth per unit currency of estimated EBITDA at the end of the current fiscal year.

The formulas:

$$\textbf{Forward P/E= } P_{share} / EPS_F \quad (8)$$

P_{share} : Current Share Price

EPS_F : Estimated Future Earnings Per Share- calculated based on the forecast of EPS.

$$\textbf{Forward EV/EBITDA= } EV/EBITDA_F \quad (9)$$

EV: Current enterprise's value

EBITDAF: The Projected earnings before interest, taxes, depreciation and amortization for the current fiscal year.

Summary

In the thesis, the theory of valuation is introduced briefly to provide different valuation methods of a firm. There are different definitions of valuation methods, the thesis focuses on the free cash flow methods and each method can be suitable to each kind of firms. In this chapter, some assumptions of the growth rates, adjustments of expenses/costs or the disadvantages of each method are not discussed; those will be employed during the projection of the firm valuation. The next chapter will discuss the practical valuation.

II. PRACTICAL PART

5 OVERVIEW ABOUT THE FINANCIAL MARKET AND THE DAIRY SECTOR IN VIETNAM

The section 5 serves to provide the background of the development of the financial market and the stock market in Vietnam after the transform of the economy, and the potential growth of the stock market at the present, which can be an information to see whether the ask prices are suitable to the trend of the market. Besides that, a discussion on the dairy industry in which the target corporation (Vinamilk) is operating, the industry information is argued the potential of dairy market in Vietnam and the competition of the market that Vinamilk will face on.

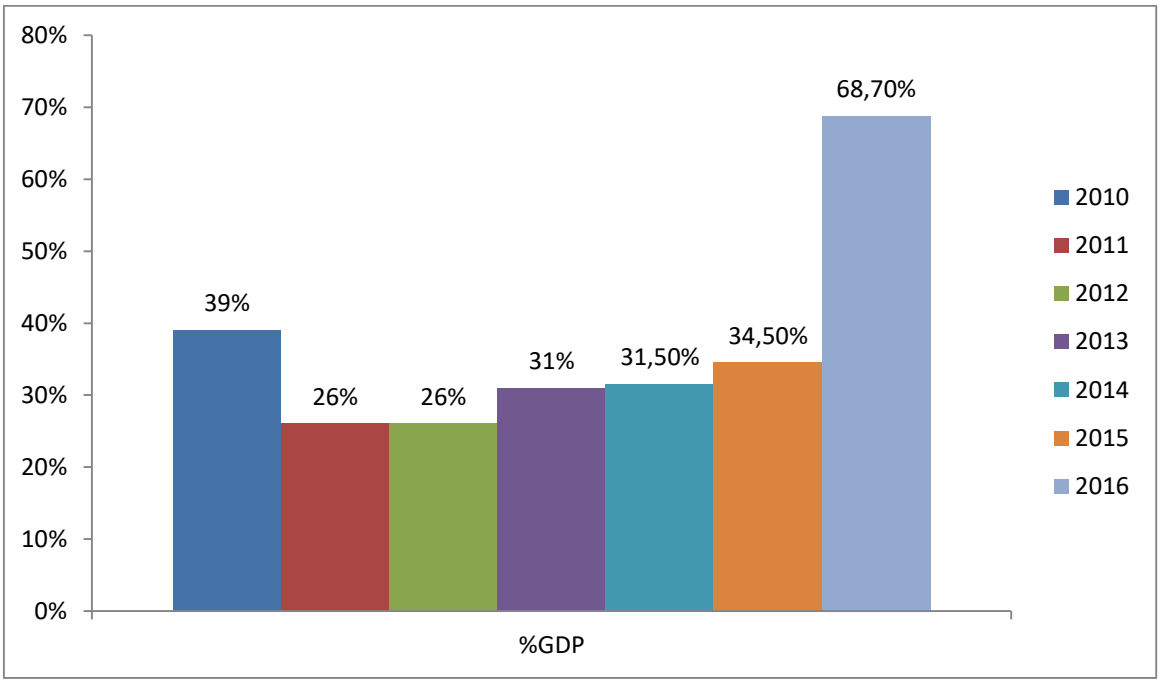
5.1 The development of Vietnamese financial market

Vietnam was a centrally oriented economy before 1986 as other communist countries and faced on different difficulties due to the inefficiency of the economic regime. The state ownership was the only regime in the economy and the individual was not applied for, the enterprises were belonged to the state. Then the investment or saving did not exist for individuals or households. After 1986, Vietnam had a lot of difficulties (low productivity, hyperinflation, high deficit and inefficiency of monetary policy); it required Vietnam to reform the financial sector and to reduce the State's investments in state-owned enterprises and it forced the state to recognize the right for individuals and households to own assets. And the privatization was launched to "equitize" the state-owned enterprises (SOEs). From 1989, the financial sector got a first trouble for financial institutions. There had been thousands of newly founded credit cooperatives (around 7,180) but they had been shut down rapidly resulting from their risky capital structure, their weak professionalism, and the inappropriate monitoring from the authorities (Vuong, 2010). Then in 1993, the number of credit cooperatives fell to around 750. Some credit cooperatives have been restructured and became private and joint-stock commercial banks (JSCB). However, most of them were unprofitable and accumulated non-performing loans granted to SOEs resulting from inefficient investments (Pham and Vuong, 2009; Vuong, 2010).

In 2000, the stock exchange was established with two listed companies (the market capitalization was VND 986 billion or 0.28%/GDP in 2000), and developed dramatically during 2005-2007. But the stock market was dominated by the "equitized SOEs" on the listing corporations due to a small number and small size of other types of corporations. In

2017, the capitalization of Vietnamese stock exchanges are VND 2,765 thousand billion ($ 120 billion- 60%/GDP). The figure 4 shows the capitalization of Vietnam's stock market from 2010-2016 (in %GDP).

Figure 4: Capitalization of the stock market in Vietnam (%GDP)



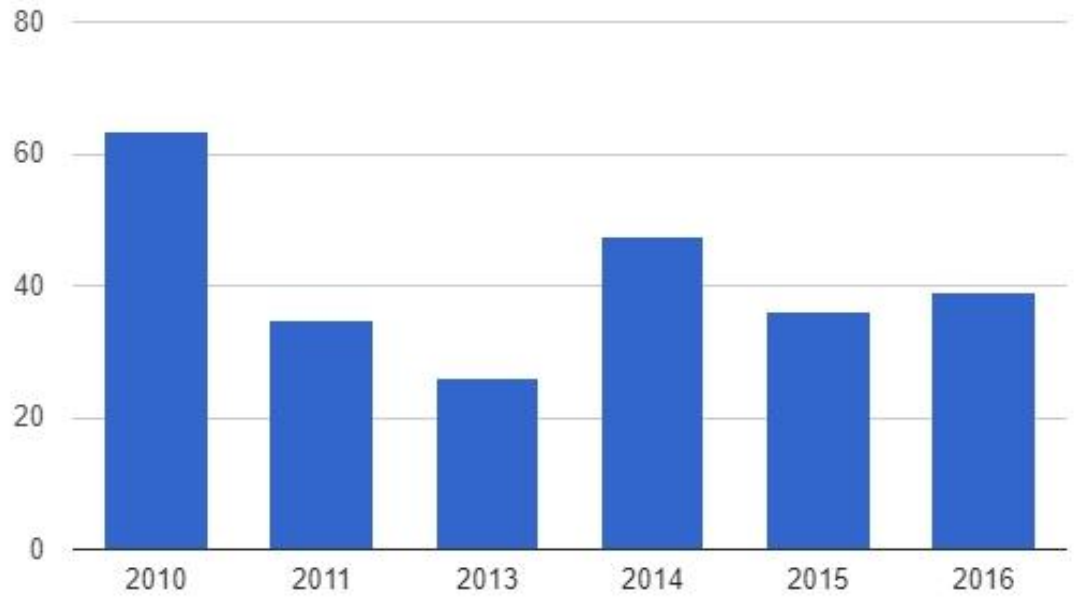
Source: Author's calculation

After a decade of privatization, listed SOEs show that they are improving governance capacity and financial transparency, more investors pay attention to listed firms on the stock market. Besides that, the Vietnam's stock market forecasts to continue growing thanks to the government's plans to expand the equitized program to other state-owned enterprises and withdraw state capital from listed companies. Moreover, the foreign indirect investment (FII) in 10 months of 2017 was surged 70% against 2016. Then Vietnam's financial markets will enjoy more favorable conditions to attract investment in the future due to Vietnam's stable economic growth and other contributions of other sectors can be improved and the regulations for the financial markets can improve to be more transparency.

The figure 5 shows the stock market turnover ratio from 2010 to 2016, this illustrates the total values of shares traded during the period on the average capitalization of the stock market on the period (end of current period and previous period), it also presents the liquidity of the whole stock market, it can be an opportunity to the state if the liquidity of shares is

high and the offer can attract more investors if the target corporation is having a great potential growth.

Figure 5: Stock market turnover ratio on Vietnamese Stock market over period 2010-2016



Source: Thegobaleconomy.com and Worldbank.org

In conclusion, the state can offer high ask prices for the withdrawn state capital plans from the equitized SOEs in such the financial market conditions. Then the ask prices of Vinamilk should be higher than the offer prices.

5.2 Dairy industry

With 60 million in 1986, Vietnam's population was about 94 million at the end 2016 (Worldbank, 2017) and is continued growing at a rate of 1.2% per annum. There is 70% of the population under 35 year of age. The middle class is around 10% of the population and expected to reach 26% by 2026 (Worldbank, 2017). It replies that the growth of Vietnam's economy is steady and can have more opportunities to corporations thank to the high proportion of the middle class. Besides that, the young population is an advantage for the dairy industry since they are potential customers as well as the new born increasing due to the new couples increasing. Moreover, the increase of middle class, the expose of the quantity and disposal income, the consumption for quality food as well as for the children is expected to continue to show high growth rate to year 2020. Changing the customers' habits

is expected to push up the demand of dairy products in Vietnam, especial for new product categories such as yogurt and cheese.

The dairy industry in Vietnam has a dramatically compounded annual growth rate (CAGR) at 16.6% and is valued at $4.1 billion of powdered and liquid milk - the two products hold a large proportion of sold dairy products in Vietnam (EVB, 2016). While the foreign producers provide 60-65% for the demand of powdered milk which imports a half of sold products approximately.

The following table illustrates some key indicators of Vietnam from 2014 to 2020 (forecasted by Worldbank, 2017)

Table 2: Some indicators of Vietnam economy from 2014-2020F

Indicators	2015	2016	2017F	2018F	2019F	2020F
Real GDP (% change)	6.7	6.2	6.3	6.4	6.4	6.5
Unemployment rate (% of total labor force)	2.3	2/3	2.4	2.4	2.4	2.4
Consumer price index (% change, annual average)	0.6	2.7	4.0	4.0	4.0	4.0
Export of good (% change)	7.9	9.0	9.0	9.5	9.9	10.1
Import of good (% change)	12.0	5.2	9.6	10.2	10.5	10.8
GDP (nominal, trillion dong)	4,193	4,503	4,987	5,517	6,095	6,747

Source: Worldbank (2017)

Farm zone of Vinamilk

Although the dairy industry is recognized as a potential growth, but there is about 30% of raw materials for dairy production that are produced domestically. Consequently, it makes a high production cost for drinking milk and other products (the prices are from VND25-30,000/liter fresh milk or $1.3/liter approximately). The map shows the dairy farm zones in Vietnam (source: Vietnam Dairy Association, 2016). The farm zones are mostly established near the 2 hub of economics in Vietnam (Hanoi and Hochiminh city). The increase of raw materials for dairy production recently causes a reduce of the import of raw milk and material for dairy production from New Zealand and other countries,

more than 50% of Vietnam's import of dairy products come from New Zealand, USA and Singapore, whereas European countries (Germany, France, Ireland, Netherland and Poland) hold only 20-30%.

Table 3: Forecast growth rates of industry sales for milk products

Product	2018F	2019F	2020F
Condensed milk	4.0%	4.0%	3.0%
Liquid milk	10.0%	11.0%	10.0%
Powdered milk	10.0%	10.0%	9.0%
Drinking yoghurt	15.0%	12.0%	11.0%
Yoghurt (Spoonable)	12.0%	10.0%	10.0%
Whole industry	**10.0%**	**10.1%**	**9.3%**

Source: Hochiminh Securities Corporation (2016), Euromonitor International (2016) and Vietnam Competition Authority (2016)

Based on the growth rates of industry sales, the sales for the whole industry are estimated as:

Table 4: Sales of dairy products of the whole industry from 2018 to 2020

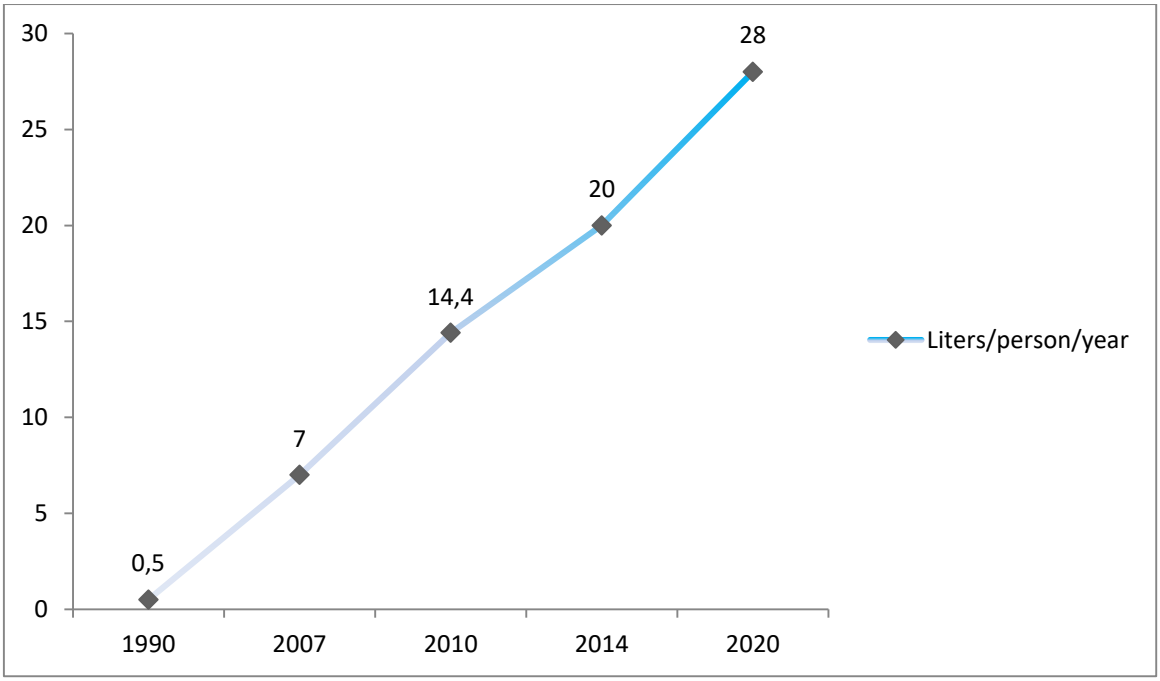
Product (million VND)	2018F	2019F	2020F
Condensed milk	5,453,058	5,562,119	5,673,362
Liquid milk	37,414,004	41,529,544	45,682,499
Powdered milk	22,794,636	25,074,100	27,330,769
Drinking yoghurt	5,434,654	6,086,813	6,756,362
Yoghurt (Spoon)	9,200,240	10,120,264	11,132,290
Total	80,296,594	88,372,842	96,575,283
Vietnam population	96,629,041	97,885,219	99,157,727
Per capita dairy consumption (VND)	830,978	902,821	973,956
Per capita dairy consumption (USD)	39.57	42.99	46.38

Source: Hochiminh Securities Corporation (2016)

According to the forecast of Hochiminh Securities Corporation (2016) on the sales for the whole industry, assume that the market shares of Vinamilk are remained as previously for 3 products: condensed, liquid milk and Yoghurt while the powdered milk and drinking yoghurt will have a slight increase due to the past 3 year growth rates: the market share of powdered milk changes from 40.60% in 2016, 41.50% in 2017, 41.70% in 2018 and 42% in 2019; the drinking yoghurt share is from 33.90% in 2016 to 38.70% in 2017, then the change is slow down to 40% in 2020.

The booming of population says that the dairy industry will potentially have a surplus of 5 million customers in 2020 comparing to 2016. At the moment, a Vietnamese consumes on average 20 liters of milk per year, and the consumption is expected as 28 liters per year from 2020. And the population also projected to consume 40% more dairy products due to changing of consumers' habits. If comparing to neighbor countries, Vietnam would have lower milk capita than Thailand: 35 liters or Singapore: 45 liters. The figure 6 presents the changes of dairy consumption per capita, it can say that the increase of liter per person per year was amazing from 2007, it can be explained that the better income and the customers' habits were changed and they consume more dairy products.

Figure 6: Dairy consumption per capita



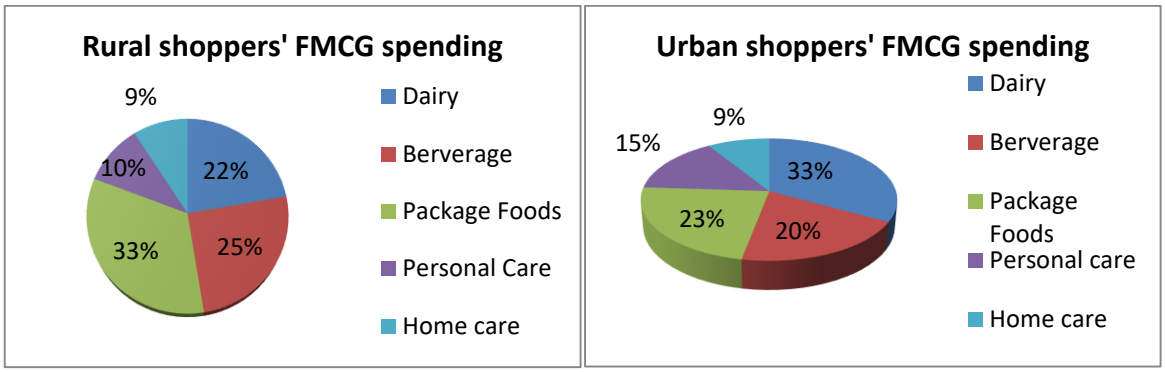
Source: Euromonitor International (2014)

In comparison to the others in Fast Moving Consuming Goods (FMCG), the dairy products have potential to grow more. The consumers spend around 27-29% of their income on FMCG products and the dairy is decided as one of among the top spending categories, it is estimated that consumers spend from 6% to 10% of their income on dairy.

As the report of EVBN (2016, page 18) states that "Vietnamese consumers have been quite open to try new dairy product as dairy is the most successful FMCG category with new product launches achieving an average 20% penetration rate and 50% repurchase rate". This is interesting for the dairy producers to supply the new products and the new entry can be

able to compete with current dairy producers. The figure 7 presents the FMCG spending of consumers in Vietnam, it shows that the consumers in the urban area save more budget for dairy in compared to the rural consumers.

Figure 7: Consumer's share of wallet and FMCG spending



Source: WorldPanel Insight Handbook (2017) and EVBN (2016)

6 VIETNAM DAIRY PRODUCTS JOINT STOCK COMPANY PROFILE

Vinamilk was established on August 20 1976 on three dairy factories from the old regime:

+ Thong Nhat Dairy Factory (formerly known as Foremost factory).

+ Truong Tho Dairy Factory (formerly known as Cosuvina factory).

+ Dielac Powdered Milk Factory (formerly known as Nestlé factory- Swiss).

After 1990s, Vinamilk was inaugurated some dairy factories and farms around Vietnam. Then Vinamilk has made its investment in a company in New Zealand manufacturing whole milk powder with a capacity of 32,000 tons per year in 2010. Additionally, Vinamilk also invested in the United States and opened more factories in several countries. At that time, the export revenue accounted for 15% of total revenue of Vinamilk and increased overtime. With the capacities and the penetration into foreign markets, Vinamilk reformed the company and applied modern production lines, established Public Health Consultant Centers in the country and launched over 30 new products in the same year to boost the sales.

In 2015, Vinamilk raised its stake in Miraka Limited Company in New Zealand from 19.3% to 22.8% and one year after, it officially launched its brand in Myanmar, Thailand and expanded operations in ASEAN.

6.1 The position of Vinamilk in the dairy market

As mentioned in chapter I, the Vinamilk is a top 30 biggest corporations on the Vietnamese stock market and the government still holds a large shares of the company. Vinamilk is recognized as a potential company to be listed on the Singaporean Stock Exchange where is believed to pay more attention of foreign investors. The government wants to release their proportion of share but it was not successful due to a mispricing.

Vinamilk was attracted much foreign investors due to its dramatically growth. The Vinamilk was listed on the Hochiminh Stock Exchange on January 19th 2006, the company information was recognized as a rapid growth rate and there are foreign institutional

investors at the listed day with 28.73% and the state-ownership was 50.01%, Although the company was privatized and listed on the stock exchange, it still is under the government's umbrella, it has more advantage than other competitors, Vinamilk had had more than 30% of market share of the milk production over the period 2005-2010, and increased over 40% from 2011 (Euromonitor, 2014, and Vinamilk annual reports from 2005 to 2016). Vinamilk was recognized as a leading state-owned company to dominate the domestic milk production market and it established subsidies through regions of the country, even-though there are some competitors for different milk products (see table 5:

Table 5: Competitors of Vinamilk for main product lines in 2016

No.	Product	Competitors	Country origin
1	**Powdered Milk**	Abbott	United State
2		Mead Johnson	United State
3		Fireslan Campina	Netherland
4	**Liquid milk**	Fireslan Campina	Netherland
5		IDP Love in Farm	Vietnam
6	**Fresh milk**	TH true Milk	Vietnam
7	**Condensed milk**	Fireslan Campina	Netherland
8	**Drinking Yaourt**	IDP Love in Farm	Vietnam
9		TH true Milk	Vietnam

Source: http://cafef.vn[3]

6.2 Overall performance of Vinamilk

Vinamilk was succesful achieved an impressive revenue and profit growth in 2016: the total revenue was VND 46,965 billion ($2.06 billion approximately) and the net profit after tax was VND 9,364 billion ($412 million approximately). In comparison to the 2006, one year after listed on Hochiminh Stock Exchange, there is a strong compound annual growth rate of 22.3% - the total revenue in 2016 is seven-fold leap from the total revenue in

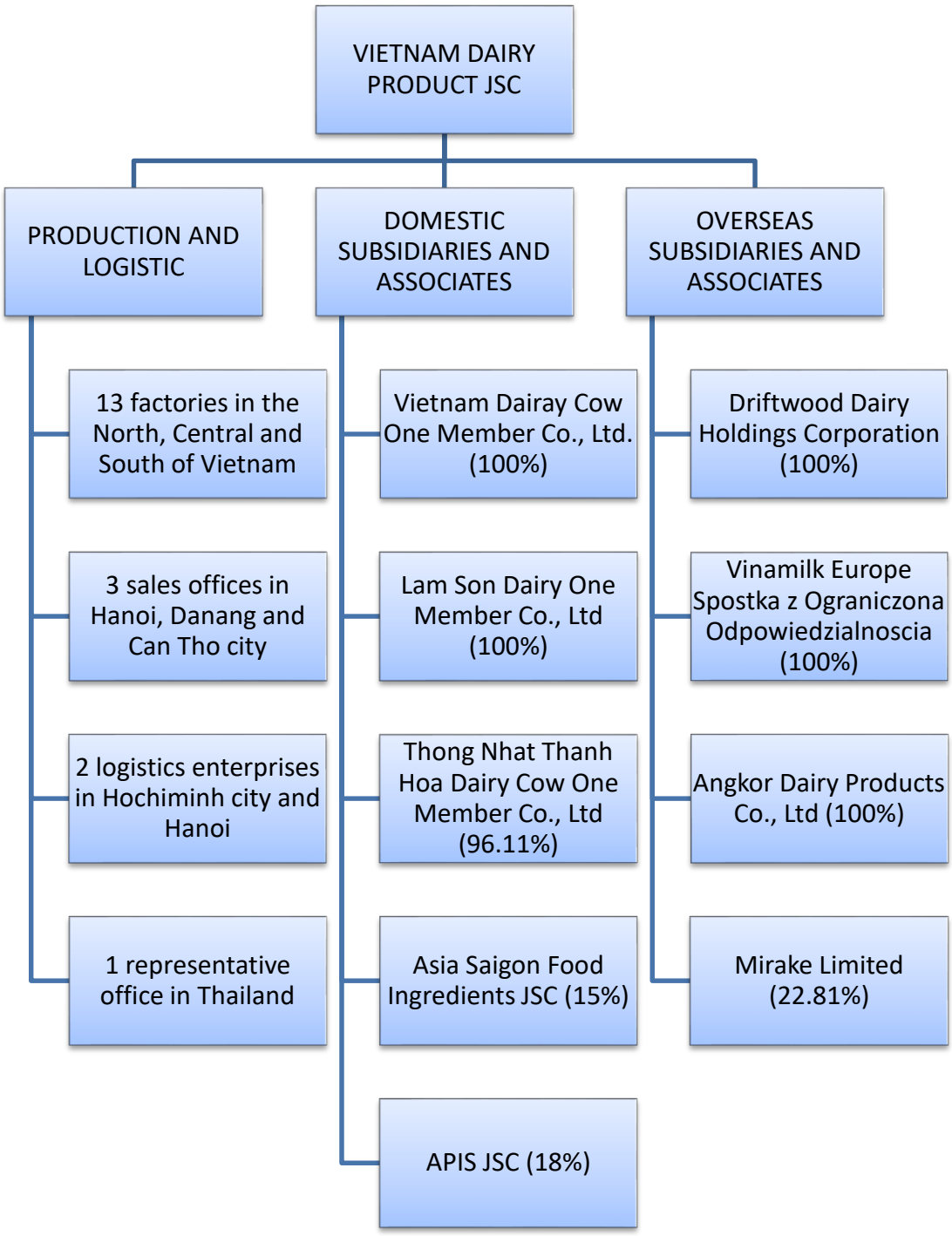
[3] http://cafef.vn/vi-mo-dau-tu/ai-la-doi-thu-cua-vinamilk-p33r2016082102483895.chn

2006. This illustrates that the Vinamilk achieves a good shape and maintains a high growth rate in the industry. After 10 years listed, Vinamilk is diversified its products from two product categories to 10 product categories to meet the market's diversified demand and improves the quality to the international high-end quality to penetrate into developed countries (United States and Europe). The company is also awarded a series of prestigious prizes such as Vienam's Top 50 Best Listed Company by Forbes, Vietnam-ASEAN Best Corporate Governance Award, Top 10 Sustainable Businesses in Vietnam 2016. Vinamilk shows a high achievement after 13 years of equitization, the market capitalization of the company grows from VND 1,500 billion in 2003 up to VND 182,303 billion at the end of 2016 ($8 billion approximately) or the change is 78.6 folds jump from the time of the equitization in 2003. In the annual report 2016, Vinamilk shows that its cummulative average growth rate (CAGR) for the period of 2012-2016 was 14.7% higher than 9% of the average growth rate of the industry; the net profit after tax CAGR was 12.6%.

6.3 Ownership and organization

In the 2016 annual report, foreign investors are the main shareholders in which the foreign shareholders are 53.9% of shares and the local shareholders are 46.91% (where the State holds 39.33% of local shareholders). This says that the company is more attractive to foreign investors thank to the potential and good corporate governance in comparison to other listed corporations. Moreover, the company is one of pioneer companies to remove the foreign ownership limit from July 2016 based on the circulation number 60/2015/ND-CP on June 25th 2015 of the government to increase the foreign ownership from 49% to 100% while others are remained the limit of foreign ownership to 49%. The remove of foreign ownership send a strong commitment of the company to investors and that is a good signal to the market value of the company on the stock market. The following diagram shows the corporate model of Vinamilk

Figure 8: Organization structure of Vinamilk



Source: Annual report (2016) and Vinamilk (2006)

parentheses: the proportion of ownership of Vinamilk in the subsidiaries and associates

6.4 Facts of Vinamilk from 2015-2017F

According to the financial statements, Vinamilk has a good growth rate for the domestic sales that generates a good result for the company in 2016 and the table 6 shows

the sales growth rates of Vinamilk for each production line in both domestic market and export.

Table 6: Growth rates of Vinamilk over the period 2015-2017F

Sales growth	2015	2016	2017F[4]
Domestic	**9.79%**	**18.46%**	**13.29%**
Condensed milk	1.87%	11.38%	-8.01%
Liquid milk	19.87%	17.11%	15.34%
Powdered milk	7.21%	13.36%	13.46%
Drinking yoghurt		27.95%	30.14%
Yoghurt (spoon yoghurt)	12.97%	0.95%	21.56%
Other products (soy milk, ice cream, cheese, soft drinks)			7.00%
Export	**78.22%**	**9.03%**	**-10.00%**
Powdered milk	78.20%	9.03%	-10.00%
Condensed milk	78.20%	9.03%	-10.00%
Yoghurt (spoon yoghurt)	78.20%	9.03%	-10.00%
Domestic +export sales growth	**16.06%**	**17.13%**	**10.24%**
Oversea subsidiaries sales growth	**-2.83%**	**11.34%**	**7.47%**
Total sales growth		**16.75%**	**10.07%**
Price growth	**4.65%**	**-5.59%**	**3.00%**

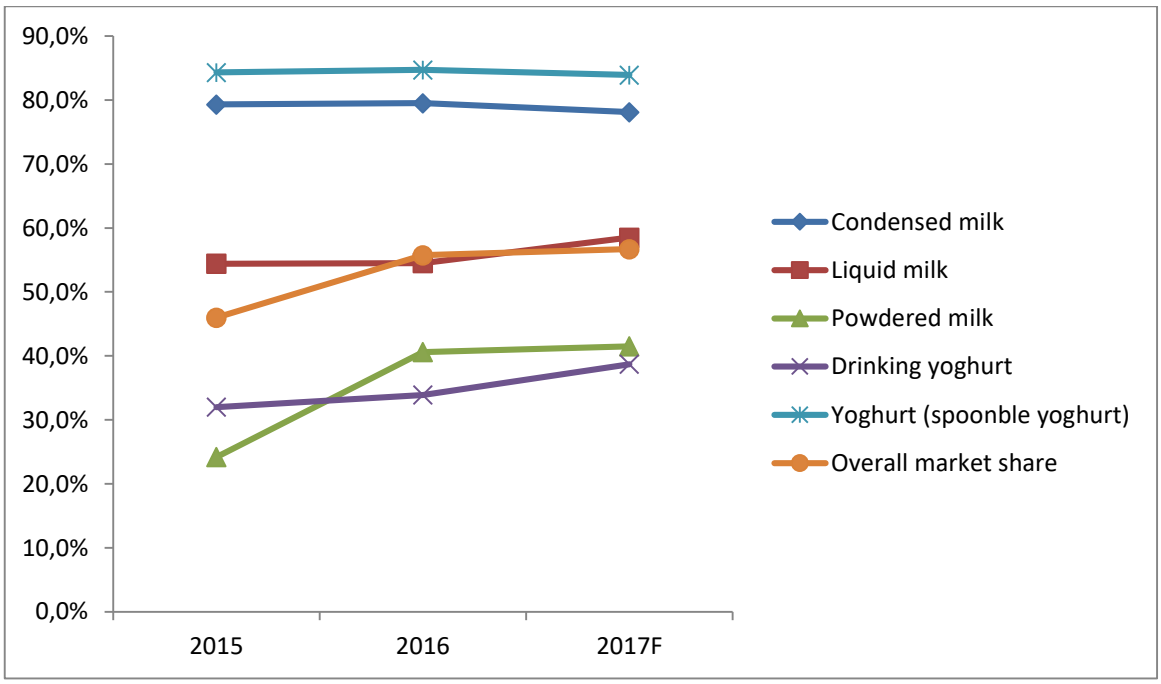
[4] As above information, Vinamilk discloses its information in the annual report clearly and the accounting statements (balance sheet, income and statement of cash flows) are available from 2005. Moreover, the industry has available information in English about the competitors and consumers that can support to the projection of the Vinamilk's cash flows. Then the thesis employs all the yearly audited data from 2005 to June 2017 to make a forecast for the whole 2017 since the information is available for the 3rd quarter in the stock market (the official audit reports).

Volume growth	**10.91%**	**23.66%**	**6.86%**

Source: Author's calculation

Even though the sales growth rates of each production line are slower than previous years, but they are recognized higher than the average growth rates of the whole industry. The dramatically growth of Vinamilk brings the company to become a leading company in the sector i.e. market share of liquid milk reaches to 54.5%, drinking yogurt holds 33.9% of market shares and the yogurt production takes 84.7% of the market shares. The figure 9 will provide market shares for each product of the company.

Figure 9: Market shares of Vinamilk (by product)



Source: Annual reports (2015,2015) and the Hochiminh Securities Corporation, 2016

The above table illustrates that Vinamilk is playing as a key leader for the milk productions in Vietnam in which the liquid milk, condensed milk and yoghurt are the leading sales in the industry; consequently, the oversall market share of Vinamilk changes from 46% in 2005 to over 55% in 2016 and 56% in 2017. The two lower market shares of Vinamilk are the powdered milk and the drinking yoghurt due to a historic situation in this market (especially for the baby under 6 years old). The foreign brand names were playing leading roles in the market: the Friesland Campina, Abbott and Mead Johnson were recognized as

the strong competitors to Vinamilk and hold a large market share of those two products in compared to Vinamilk.

6.5 The business strategy of Vinamilk

+ Continue to focus on the corporation's principal business activities such as producing dairy products and expanded to new production category in healthy beverages.

+ Continue to strengthen and expand the distribution system by establishing additional retail outlets and increasing coverage of distribution in Vietnam and oversea.

+ Invest in the expansion of factories in order to increase production capacity to meet market needs for long-term development. The company will maximize the production capacity of existing factories by investing and optimize in the construction of new factories with the world’s most advanced technologies in order to maintain product quality in accordance with international standards.

+ Invest in development of dairy material zones through the investing in increases of cows on existing dairy farms and searching for and developing new domestic and overseas dairy farms.

Based on the information of the whole dairy industry, the economic condition and the Vinamilk background- it needs to find out some threats, opportunities, strengths and the weaknesses of the corporation. The following diagram will illustrate the SWOT analysis (Strength- Weaknesses- Opportunities- Threats) of Vinamilk. The SWOT analysis is focused on analyzing some internal and external factors for the corporation's business, whereas the Strengths are internal and positive elements of the corporation, the Weaknesses are the internal and negative factors that the corporation is faced on. The external terms are threats and opportunities. The corporation can analyze their strategy based on the combination of each pair of SWOT to improve the corporation's business and position in the market.

Figure 10: SWOT analysis

STRENGTHS

+ Good management with focus strategy.

+ Huge product range covers all base.

+ Loyality with local dairy farmers.

+ Reasonable prices

+ Strong brand name supported by proper attension to marketing and financial strength

WEAKNESSES

+ High dependence on imported raw meterials

+ Volatile raw materials prices.

OPPORTUNITIES

+ Vietnam dairy market still has promising outlook.

+ Per capita consumption of dairy products in Vietnam is very low compared to other Asian countries, rising incomes of Vietnames will lead to higher consumption.

THREATS

+ Tougher competition from both domestic rivals and multinationals.

Source: Author's design

According to SWOT, the company can have some strategies as following:

+ Strength- Opportunity strategy: As a key player in the dairy market, Vinamilk can take in advantage on its brand name explore the partners/factories covering the whole country and increase the market shares by diversified products as well as the distribution channels.

+ Strength- Threat strategy: Continue sustainable development the trade mark and the financial strength as well as focusing on the main products, which can help the corporation compete to foreign and local competitors.

+ Weakness- Opportunity strategy: need to stabilize the raw materials resources by increasing the cow farm as well as the loyalty of the suppliers.

+ Weakness- Threat strategy: reduce the imported raw materials and increase the high quality products for the potential market that can save the cost of goods sales and improve competitive in the market.

7 THE VALUATION OF VINAMILK

In this section, the thesis illustrates the process to collect the data and makes some assumptions for the valuation and the valuation of Vinamilk is performed.

7.1 Estimation of the financial statements for the fiscal year 2017

In the first step, the industry information will be collected from the Euromonitor data (access via the Hochiminh Securities Corporation)-HSC- at the access period, the thesis cannot obtain the information about the milk industry report in 2017, then a forecast of the market share is picked up from the Euromonitor drinking milk report in April 2014, September 2016 and the quarterly report of Vietnam Competition Authority.

The data will be analyzed for the 1st and 2nd quarters and unaudited financial report in the 3rd quarter then the fiscal year 2017 is predicted based on available information. Based on the projection of Vinamilk for two subsidies in Cambodia (Angkor Dairy was acquired all by Vinamilk in March 2017) and Driftwood in United States (Driftwood was a 100% owned by Vinamilk in May 2016), the revenues of those two subsidies are collected by the HSC reports on the acquisition plan of Vinamilk from 2016 to 2020 (in USD and convert to Vietnamese dong-VND).

According to the Euromonitor International (2016), the forecast of the industry sales and Vinamilk will be obtained as mentioned above. Then a projection for all income statements from 2017-2020 will make. Then the projection will have a constant growth rate after 2020. Thus calculations will be employed to obtain the needed information for the DCF model and for valuation as mentioned in Chapter I.

7.2 Forecast of the Free Cash Flow to Firm (FCFF)

As mentioned in Chapter I, the thesis will employ the Adjusted model to the firm valuation in which the DCF model forecasts future free cash flow to firm (FCFF) by looking into each forecast fiscal year to find the WACC and discounting back to the present time (period 0, or at the moment of this thesis- the year 2017). The reason to apply this method is that the sales are expected differently year to year and there are some components might be changing so if we only employ the historic growth rate as the theory is simplistic and can be inaccurate, since FCFF is affected by many components as mentioned above.

To estimate the financial statements from 2018-2020, the thesis employs the calculation of Euromonitor International (2016) and Vietnam Competition Authority (VCA), in which the estimated consumption for a Vietnamese is from 18 litter in 2015 to 28 litter per year in 2020. From the estimations of Hochiminh city Securities Corporation (HSC), the forecast of Euromonitor International (2016) and VCA, the growth rates of the milk industry are shown as following table:

Table 7: Market shares of Vinamilk over 2018-2020

Product	2018F	2019F	2020F
Condensed milk	78.10%	78.10%	78.10%
Liquid milk	59.00%	58.70%	59.00%
Powdered milk	41.70%	42.00%	42.00%
Drinking yoghurt	39.50%	39.80%	40.00%
Yoghurt (spoon yoghurt)	83.50%	83.50%	83.50%
Overall market share	**56.87%**	**56.72%**	**56.81%**

Source: Author's calculation

To calculate the sales/revenues of Vinamilk from 2018 to 2020, the following formula will be applied:

Vinamilk's Domestic Sales= market share of each product x sales of the whole industry for each product (10)

whereas: market share of each product is from the table 7 and sales of the whole industry is come from the table 4.

From the table 7, we can see that the export holds a small proportion of the sales of Vinamilk. Based on the disclosure and annual report in 2016, the Vinamilk expects that the growth rates of export will be at 3% for each product till 2020. Then the Vinamilk's total sales are the sum of domestic sales and export.

From the sales, assume that the price of raw fresh milk is similarly to the price in 2016 for the 4th quarter of 2017 and 2018F-2020F since the prices were unchangeable from 2015-2016. The prices of raw milk powdered are collected by a prediction of VCA (2017) and the projection of Driftwood plans of Vinamilk. The sugar prices are collected from the Vietnamese Sugar Association. Other prices such as packaging, favors and material prices are assumed to be unchangeable.

According to the Vinamilk profile and its disclosure, the thesis employs the calculation of material costs which were calculated by HSC, this calculation is shown the raw materials which Vinamilk developed via its own farms and the local farms.

The raw materials are calculated for the production cost (which is excluding the Driftwood, since the Driftwood production cost was calculated by the Vinamilk) and the thesis will combine two different production costs of the parent corporation and Driftwood (see in the Appendix 2 - the raw material cost from 2015-2020F). Assume that all other costs will be the same proportion as the proportion of sales in the fiscal year 2016 to predict from 2017 except the depreciation cost which is increased 5% in 2017 compared to 2016, so, the thesis applies this growth rate to the changes of depreciation from 2018F-2020F, then the percentage of depreciation to sales will be slightly reduced in 2019-2020 (see in the table 8). The ratios of production cost are shown as:

Table 8: Cost of goods sold (parent company -excluding Driftwood)

Item	2015	2016	2017F	2018F	2019F	2020F
Raw materials/Sales	48.5%	42.3%	43.4%	42.9%	43.6%	45.3%
Labor cost/sales	1.70%	1.62%	1.70%	1.70%	1.70%	1.70%
Depreciation/sales	2.6%	1.8%	1.7%	1.7%	1.6%	1.6%
Outsourcing cost/sales	1.46%	1.58%	1.58%	1.58%	1.58%	1.58%
Other cost/sales	0.30%	0.14%	0.14%	0.14%	0.14%	0.14%

Source: Author's calculation

The sales and general administration expenses are calculated as same as the cost of goods sold. Based on the ratios of each item, assume that the growth rates of each item over the cost of goods sold and the sales are remained as same as before, then the estimated item can be obtained. According to the costs and expenses are estimated as above, the investment and the depreciation need to obtain via the 5 year plan of the corporation, the author cannot find any new investment for the cow farm or factory next to 5 years. For two subsidies- Driftwood and Angkor Dairy- all information is collected from the disclosure of Vinamilk sent to the shareholders to obtain their approval.

The last item in the table 8, Gross margin, is the result based on the following formula:

Gross margin= 100%-(cost of goods sold/sales) (11)

where the **cost of goods sold/sakes= COGS/sales** in the table 8

The table 9 shows the ratios of each item of the sales and general administration expenses.

Table 9: Sales and General administration expenses

SGA (including Driftwood)	2015	2016	2017F	2018F	2019F	2020F
Labour cost/Sales	1.33%	1.25%	1.25%	1.25%	1.25%	1.25%
Raw materials/Sales	0.11%	0.08%	0.08%	0.09%	0.09%	0.09%
Tools for sales activity/Sales	0.21%	0.23%	0.23%	0.16%	0.16%	0.16%
Depreciation cost/Sales	0.09%	0.08%	0.06%	0.06%	0.05%	0.09%
Warranty cost/Sales	0.07%	0.08%	0.08%	0.08%	0.08%	0.08%
Outsourcing cost/Sales	0.67%	0.70%	0.70%	0.70%	0.70%	0.70%
Other cost/Sales						
Transportation cost/sales	1.50%	1.28%	1.28%	1.28%	1.28%	1.28%
Advertising cost/sales	4.51%	4.43%	3.70%	3.70%	3.70%	3.70%
Market research cost/sales						
Promotion, displaying, product launches, sales support cost/sales	7.14%	14.85%	14.20%	14.20%	14.20%	14.20%
Distributors support and commission/sales	5.84%	6.20%	6.20%	6.20%	6.20%	6.20%
Displaying cost	1.19%	2.00%	2.00%	2.00%	2.00%	2.00%
Promotion cost/sales	0.11%	6.65%	6.00%	6.00%	6.00%	6.00%
Selling expense/Sales	15.61%	22.99%	21.52%	21.40%	21.38%	21.40%
Adjusted selling expense/Sales (including COGS promotion costs)	**20.70%**	**26.60%**	**23.52%**	**23.40%**	**23.38%**	**23.40%**

Source: Author's calculation

From the item of the gross margin in the table 8, the thesis assumes that gross margins of each items will be the same rates with the rate in 2016 except the condensed milk since we do not have much information about the producing process and the costs for this product. Then the gross margin for the condensed milk will be formula as:

Gross margin of condensed milk= Gross margin overall- gross margin (liquid, powdered milk, Yoghurt and other products) (12)

whereas the Gross margin overall= gross margin in the table 8.

gross margin (liquid, powdered milk, Yoghurt and other products): the similar margin as in the FY2016.

Then we have the table 10 for the gross margin which is breakdown by product categories.

Table 10: Gross margin of Vinamilk from 205-2020F- breakdown by product categories

Gross margin	2015	2016	2017	2018	2019	2020
Domestic	**34.0%**	**35.2%**	**35.7%**	**36.2%**	**36.8%**	**37.5%**
Condensed milk	*25.5%*	*30.4%*	*36.3%*	*43.3%*	*51.6%*	*61.6%*
Liquid milk	*34.0%*	*34.7%*	*34.7%*	*34.7%*	*34.7%*	*34.7%*
Powdered milk	*38.4%*	*39.1%*	*39.1%*	*39.1%*	*39.1%*	*39.1%*
Yoghurt	*41.8%*	*42.5%*	*42.5%*	*42.5%*	*42.5%*	*42.5%*
Other products	*38.7%*	*39.3%*	*39.3%*	*39.3%*	*39.3%*	*39.3%*
Export	***20.2%***	***20.2%***	***20.2%***	***20.2%***	***20.2%***	***20.2%***
Overall gross margin	**40.7%**	**48.6%**	**49.4%**	**49.9%**	**49.2%**	**47.6%**

Source: Author's calculation

Resulting from the margins stated in the table 10, the next step is to take the sales which are calculated from the table 7 with the total sales of the whole industry (see in the Appendix 1 for the sales of Vinamilk based on the market shares) to calculate the "Gross Profit" for the firms. From above proportions of costs/expenses to sales, we have a financial statement as following:

Table 11: Vinamilk financial statements from 2015-2020F

Unit: million VND

Income Statement	FY2015	FY2016	FY2017F	FY2018F	FY2019F	FY2020F
1. Sales	**40,222,599**	**46,965,003**	**51,692,620**	**56,329,099**	**61,321,327**	**66,611,193**
2. Sales deductions	142,215	170,663	187,730	206,503	227,153	249,868
3. Net sales	**40,080,384**	**46,794,339**	**51,504,890**	**56,122,596**	**61,094,174**	**66,361,325**
4. Cost of goods sold	23,817,969	24,458,633	26,772,927	28,863,531	31,793,457	35,542,267
5. Gross profit	**16,262,414**	**22,335,706**	**24,731,963**	**27,259,064**	**29,300,716**	**30,819,057**
6. Financial income	648,981	722,560	752,876	754,993	788,993	822,993
7. Financial expenses	162,840	102,450	87,153	77,010	77,010	77,010
– Of which: loan interest expenses	*31,277*	*46,499*	*87,153*	*77,010*	*77,010*	*77,010*
8. Share of profit or loss from associates and JVs (after 2015)	12,898	16,478	17,302	18,167	19,076	20,029
9. Selling expenses	6,257,506	10,758,572	11,082,897	12,008,432	13,059,117	14,199,323
10. General & administration expenses	1,232,722	1,053,251	1,072,537	1,108,664	1,146,009	1,256,970
11. Net operating profit	**9,271,226**	**11,160,290**	**13,259,554**	**14,838,117**	**15,826,647**	**16,128,775**
12. Other incomes	166,272	182,321				

13. Other expenses	70,357	104,985				
14. Net other profit	**95,914**	**77,335**	**6,578**			
15. Net profit before tax	**9,367,141**	**11,237,626**	**13,266,132**	**14,838,117**	**15,826,647**	**16,128,775**
16. Corporate income tax – Current	1,471,975	1,883,267	2,152,847	2,411,932	2,571,098	2,617,770
17. Corporate income tax – Deferred	(125,612)	9,470				
18. Net profit after tax	**7,769,552**	**9,363,829**	**11,113,284**	**12,426,185**	**13,255,549**	**13,511,005**

Source: *Author's calculation*

Because of the missing information on the other income and expenses, so the thesis omits the items during2017F-2020F.

The financial income is not available in the plans of Driftwood and Angkor Dairy, this item is picked up from the deposit interest income and lending interest income, plus the income from bond investment. Those investments are provided by the HSC (2016) based on the Vinamilk information. Similarly to the financial income, the financial expenses are from the interest expenses, commission fee for stock brokers, losses on realized forex different, or losses on equity investment or provision for short/long term investment, other financial. Vinamilk depends mostly on the imported raw materials, so the fluctuation of foreign exchange rates can be a risk to the performance of corporation, so on the imported raw materials is estimated as $270 thousand, the State Bank of Vietnam has adjusted the exchange rate to 2% in 2017 and it happens to the half year, so the thesis assumes that the need of imported values is the same from year to year over 2018F-202F, then Vinamilk will lose from the fluctuate of exchange rates 50% with the proportion at 2%, the exchange rate at the end October 2017 is VND/USA= 23,025. From this estimation, the financial income and expense will be added as financial items for Vinamilk. Some deposit, interest rates or dividend etc. are remained the same as the FY2017 (see in the Appendix 3).

Next stage is to prepare to calculate the Free Cash Flow to Firm. As mentioned in Chapter I, the thesis will employ the Adjusted model to the firm valuation in which the DCF model forecasts future free cash flow to firm (FCFF) by looking into each forecast fiscal year to find the WACC and discounting back to the present time (period 0, or at the moment of this thesis- the year 2017). The reason to apply this method is that the sales are expected differently year to year and there are some components might be changing so if we only employ the historic growth rate as the theory is simplistic and can be inaccurate, since FCFF is affected by many components as mentioned above.

The process to obtain FCFF, the thesis will employ the the EBIT as mentioned in Chapter I, then the basic FCFF can be get by the following equation (Damodaran, 1994) and the figure 3 in Chapter I.

FCFF= EBIT x (1-Tax rate)+ Depreciation- Change in Net Working Capital - Capital Expenditures

* **EBIT**: Since the calculation of FCFF begins from the EBIT, it needs to look back into the profit and loss statements to forecast the EBIT for the each year ahead, it is basically to start in sales and other items in P&L statements, since it needs to calculate the consolidate income statement, then it needs to come from the net income (net profit after tax) to reverse back to the EBIT by adding the interest rates after tax, then we have the EBIT after tax.

FCFF=Net income+[interest expense*(1-tax)]+ depreciation- Change in Net Working Capital - Capital Expenditures (13)

whereas the *EBIT*(1-tax)= Net income+[interest expense*(1-tax)]*

To fulfill the formula (13), all estimations are explained as:

+ **Net income** (or net profit after interest and taxes) is from the table 11, then adds the after tax expenses.

+ **Other items in the Profit and loss (P&L) statement such as cost of goods sold, financial income and expense** are predicted by the contribution of subsidies such labor costs, capacities of production; investments (see more detail in the appendices 3 and 4). Other income and other expense are not present in 2017, so the thesis will exclude them from 2017 to 2020. Net other profit was recorded in the 2nd quarter, there is no clue to assume a growth rate since this item was decreased year to year, then it will be omitted from 2018. All the items in the Profit and loss statements are illustrated in the table 11.

* **Tax**: The effective tax rate assumes that will not change then the corporate income tax rate is applied from 2016 (16%- with the support from the government for agricultural productions). There is no information about corporate income tax deferred in 2017 so this item also is dropped off from 2017.

* **Depreciation and amortization**: the depreciation is employed from the annual report in 2016 without changing since to the end of September 2017, there is no new informed investment.

* **Change in Net Working Capital (ΔNWC)**: Since the average growth rate of sales is over 9% approximately, so it assumes that the Net Working Capital has a growth rate at

10%. The delta NWC can be obtained from the differences among net working capital in two years. The NWC can be obtained as:

NWC= Current asset-Cash- Short term investment-Current liabilities-Short term borrowings and financial lease (14)

All three items mentioned above are picked up from the balance sheet and from the financial incomes which serve for the calculation of income statements (see in the Appendix 3).

There are some assumptions for the balance sheet statements as shown in the table 12:

Table 12: Assumptions for the balance sheets from 2015-2020F

ASSUMPTIONS	*2015*	*2016*	*2017F*	*2018F*	*2019F*	*2020F*
Sales/Receivables	14.9	16.3	17.0	17.0	17.0	17.0
COGS/ Inventories	6.2	5.4	6.0	6.0	6.0	6.0
Sales/ Other Current Asset	191.5	265.6	265.6	265.6	265.6	265.6
COGS/ Trade accounts payables	10.9	9.5	9.5	9.5	9.5	9.5
COGS/ Advances from customers	1,197.9	680.3	680.3	680.3	680.3	680.3
COSG/Payables to the state	110.4	95.7	95.7	95.7	95.7	95.7
COGS/ Payables to employees	52.6	127.2	127.2	127.2	127.2	127.2
COGS/ Accrued expense	43.3	47.5	47.5	47.5	47.5	47.5

Source: Author's calculation

All assumptions are based on the proportions of the item in the balance sheets of 2016, except the Sales/Receivable is slightly increased for 3 quarters in 2017, then this ratio is remained from 2017F-2020F. The balance sheets are shown in the Appendix 4. Then the capital expenditures are showed in the table 13.

Table 13: Assumptions for the balance sheets from 2015-2020F

Unit: million VND

	2015	***2016***	***2017F***	***2018F***	***2019F***	***2020F***
Working capital	(774,860)	(225,508)	(287,577)	(23,702)	273,365	600,407
Change in working capital ((ΔNWC)	(568,543)	549,351	(62,068)	263,875	297,067	327,042

Source: Author's calculation

* **Net Capital Expenditures (capex)**: This is calculating from changes of the costs on fixed assets and the long-term asset in progress. Under the corporation's announcements, from 2017-2020, there are expenditures need to provides for material supply (cow and farms). The net capital expenditures are the different the investment between two years for: the cost of the tangible assets, cost of intangible assets, the construction cost of long-term assets in progress and the investment in joint-ventures and associates. All items are listed in the table 14.

Table 14: Net Capital Expenditures from 2015-2020F

Unit: Million VND

	2015	***2016***	***2017F***	***2018F***	***2019F***	***2020F***
Cost of the tangible assets	13,059,721	14,257,738	15,250,850	18,250,850	21,250,850	24,050,850
Cost of the intangible assets	553,684	557,891	557,891	557,891	557,891	557,891
Construction cost of long-term assets in progress (after 2015)	761,285	865,440	3,000,000	3,000,000	2,800,000	2,800,000
Investments in joint ventures and associates	397,130	419,909	428,560	437,644	447,182	457,197
Net Capital Expenditures		**(1,329,158)**	**(3,136,323)**	**(3,009,084)**	**(2,809,538)**	**(2,810,015)**

Source: Author's calculation

From the information obtained in the previous parts, the FCFF is built, since the FCFF is from 2017F-2020F, we need to choose the terminal period to estimate the potential development of the corporation. Since the thesis constructs to the fiscal year 2020, then it is necessary to have a value of FCFF after that.

Damoradan (2012) shows that a firm valuation needs to have a termination and the terminal value can be depending on the potential of firms. In the valuation of Vinamilk, there

are assumptions that the dairy market will be more competitive since customers are easy to go for new products and potential due to an increasing customer base.

The young population and the improving wealthy of the middle class are motivated to new entries to penetrate into the market, especially for foreign investors- they can take in advance for some modern categories in Vietnam such cheese, yoghurt etc. Moreover, from 2018, there is a release for the taxation barrier to zero in ASEAN and the ASEAN Australia New Zealand Free Trade Area (AANFTA) for the agricultural productions, the competition is intense and the growth rate is forecast at over 9% for the industry but the Vinamilk is a leading in the industry and always has higher growth rate in the past (around 14%- Euromonitor International, 2016). Additionally, there are more imported dairy products penetrated into Vietnam's market. Consequently, Vinamilk can be influenced then the growth rate of Vinamilk reduces. The thesis assumes that the growth rate of FCFF after 2020 will be 7%- since the average growth rate of FCFF over the period 2015-2020F is 6.6%, but the Vinamilk is playing as a key player in the dairy market and it is continuing expanding the domestic and international market, it can benefit from their investments after that then the thesis adjusts the rate to 7% of average growth per year after 2020 instead of the forecast of 9% for the whole industry or the average of 6.6% over the period 2015-2017F.

Based on the Gordon Growth Model, the value of the cash flow with a constant growth rate is

$$P_{2020F} = \frac{FCFF_{2021F}}{R-g} \quad (15)$$

whereas: P_{2020F}: value of the terminal of the FCFF in 2020F.

$FCFF_{2021F}$: the forecast of FCFF in 2012 which $FCFF_{2012F} = FCFF_{2012F}*(1+0.07)$

R: is WACC of the corporation.; g: growth rate of FCFF after 2020 (7%).

7.3 Weighted Average Cost of Capital (WACC)

The WACC is formulated at the equation (2), in which the thesis has some assumptions such as:

*** Debt**: the debts are collected from the short-term payables, short-term borrowing and financial lease plus other long term payables. In the fiscal year 2017, the debt is collected

from the provision to semi-annual report of Vinamilk and adjusted with the ratio that is explained for the fiscal year 2018. From 2018, the thesis assume that the ratio of Cost of goods sold to Other short term payables and to Long-term trade payables are the same to the ratio in 2016 and 2017.

*** Equity**: this item is assumed that does not change over next three years.

*** Cost of debt**: since the company is a state-owned company and working in the agricultural sector, it can access attractive loans from the government and the Vietnam Development Bank with low interest rate at 5.1% per year. The interest rate is the same in 2015, 2016 and 2017 (to the semi-annual report), then we assume that it will not change from 2018-2020.

*** Cost of equity**: from the equation (3), the CAPM can capture the investors' expectation on required return rate, in which the risk free rate is collected from the 10 years treasury bond in Hanoi Stock Exchange, the beta is not available, but it can obtain from some securities corporations or estimate by using the historic stock price, where the market required returns are the index of VN30 (the 30 blue-chip stocks in Vietnam Stock Market). The obtained beta is 0.75 for Vinamilk. While the expected return of VN30 in the fiscal year 2017 is 15%. Then the cost of equity is calculated from the capital asset pricing model (CAPM) as:

Cost of equity= risk free rate+ Beta*(market rate of return - risk free rate)

+ The risk free rate here is employed by the rate that the government provides to the agricultural sector instead of the Treasury bond rate. It is as mentioned above: 5.1% per year.

+ From previous projection for debts and the equity, we assume the market value will be the same for the period 2018F-2020F. From the balance sheets (Appendix 4), the market value of debts and market value of equity are assumed being the same with the projection. Then we can the following table (see in the table 15).

Table 15: Free cash flow to firm from 2015-2020F

Year Unit: VND million	Actual 2015	Actual 2016	Forecast FY2017F	Forecast FY2018F	Forecast FY2019F	Forecast FY2020F	Forecast Thereafter
Net income	7,773,410	9,350,329	11,113,284	12,426,186	13,255,549	13,511,005	
+ Depreciation and amortization	1,097,076	1,063,346	1,063,346	1,063,346	1,063,346	1,063,346	
+ Interest expense * (1-Tax rate)	26,362	39,059	73,209	64,689	64,689	64,689	
- Changes in Working Capital	568,544	(549,352)	62,069	(263,876)	(297,068)	(327,042)	
- Capex	(1,392,768)	(1,329,158)	(3,136,323)	(3,009,084)	(2,809,538)	(2,810,015)	
FCFF	**8,072,623**	**8,574,225**	**9,175,585**	**10,281,261**	**11,276,979**	**11,501,983**	**226,837,426**
Market value of debt			1,659,637	699,430	699,430	699,430	
Market value of equity			181,433,171	181,433,171	181,433,171	181,433,171	
Market value of firm			183,092,807	182,132,601	182,132,601	182,132,601	
Cost of debt			5.1%	5.1%	5.1%	5.1%	
Cost of equity			12.5%	12.5%	12.5%	12.5%	
WACC			**12.45%**	**12.49%**	**12.49%**	**12.49%**	

Source: Author's calculation

The market value of debts is picked up from the Appendix 4, due to a reduce of debts in 2018 as the corporation's schedule. The forecast of FCFF after 2020 follows the argument in section 7.2 by using the Gordon Growth model. The WACC in 2017F is 12.45% due to a reduction of the proportion of debts in the capital structure. The next section will show the valuation and the comparison of the value of DCF method and the forward P/E and the forward EV/EBITDA as mentioned in the chapter I.

7.4 Value of the target corporation- Vinamilk

As the DCF model description, the FCFF will be employed to valuation a firm, in which the process is using the WACC to discount the FCFF to the end of the fiscal year 2017. Since the WACC is different between 2017F and 2018F-2020F and after that, then the thesis assumes the fiscal year 2017F is year 0 (since the valuation process in Octorber 2010), then the discounted rate is WACC from 2018F-2020F. Then the present value of FCFF is:

$$P_{FCFF} = FCFF_{2017} + \frac{FCFF_{2018F}}{(1+WACC_{2018-2020})} + \frac{FCFF_{2019F}}{(1+WACC_{2018-2020})^2} + \frac{FCFF_{2020F}+P_{2020F}}{(1+WACC_{2018-2020})^3} \quad (16)$$

whereas: $FCFF_{2017}$: the free cash flow to firm in 2017.

$FCFF_{2018F...2020F}$: the free cash flow to firm in each forescast fiscal year from 2018F-2020F.

P2020F: the value of terminal value in 2020 as mentioned in the section 7.2 (equation 10).

Based on the equation (16) and the table 15, the value of the free cash flow to firm is

P_{FCFF}= 176,953,648 million VND

To calculate the ECF (Equity cash flow), it needs to employ the equation (5). then in the table 15, we have the market value of debt in FY2017, it assumes that this will need to pay back and takes the cash 2017 and the cash and bank deposit in the balance sheets- it re. So, according to the equation (5), the equation can be rewritten as:

ECF_{2017}= FCFF-$Debt_{2017}$+Cash and $Bank\ deposit_{2017}$ (17)

Then the equity value of Vinamilk:

ECF_{2017}= 185,755,850 million VND

According to Vinamilk, the number of outstanding shares is 1,451,465,364 shares. Then the value of each share is:

$$P_{share2017F} = ECF_{2017} / \text{Number of outstanding shares}_{2017} \quad (18)$$

$$\Rightarrow P_{share2017F} = 127{,}978 \text{ dong/share}$$

or it can be expressed that the value of each share at the end of 2017 is 127,978 dong (or VND) per share**.** This price of a share of Vinamilk is calculated based on the projection above. In compared to the ask price for the offer which is based on the plan of the government, the value of a share is 127,978 dong based on the available information on the stock market, there is a large gap among the valuation based on the market information and the ask price. While the market price is 151.000 dong per share (at the end of October 31th 2017) seems to close to the ask price of the offer. It can explain that the market price of Vinamilk is affected by the hot trend on the stock market since the stock market is estimated to grow 30% in 2017 and Vinamilk is recognized as a blue-chip on the stock market then investors expect to have higher value in the near future.

As in the chapter I mentioned, each valuation method can generate different value of the firm. Moreover, the available information to the valuation process also can make a different. The thesis also would like to employ the forward P/E and forward EV/EBITDA to calculate the value of Vinamilk's shares and then comparing to the DCF method.

Valuation based on the Forward P/E and Forward EV/EBITDA:

In the chapter I, the Forward P/E and Forward EV/EBITDA are preferred to compare in the industry/sector and will employ the equation (8) and (9). To do so, the thesis focuses on some dairy corporations in the ASEAN region. Vinamilk is recognized as a leading dairy company in Vietnam and it has a large capital in compared to other dairy corporations in the region as the rating of Forbes, so the thesis chooses 6 corporations which have a large capital (around $1 billion or larger), there is a dairy corporation in Indonesia having the capital less than $1 billion, but it has a good achievement with the high rate of growth with two digits. It could be a combination to compare to Vinamilk. The following table illustrates the calculation of forward P/E and forward EV/EDITDA (The Appendix 4 shows the multiples of the compared corporations and Vinamilk).

Table 16: Calculation of Forward P/E and Forward EV/EBITDA

	P/E 2017	EV/EBITDA 2017
Fair multiples	26.2	16.1
EPS_{2017F}	6,891	
$EBITDA_{2017F}$		13,855,006
Fair EV (VND million)		222,663,806
Debt (VND million)		1,659,637
Cash (VND milion)		10,856,541
Fair equity value		231,860,710
Outstanding shares		1,451,465,364
Vinamilk fair value per share	**180,474**	**159,743**

Source: Author's calculation

whereas Forward P/E= EPS_{2017F}*fair multiples P/E_{2017} (fair multiples P/E_{2017}=26.2)

Fair EV= $EBITDA_{2017F}$* fair multiples $EV/EBITDA_{2017}$ (fair multiples $EV/EBITDA_{2017}$=16.1)

Fair equity value= Fair EV- Debt+ Cash

The results give different value per share of Vinamilk, and the DCF provides the lowest value of a share at 127,978 dong per share while the Forward P/E generates the highest at 180,474 dong per share.

The 3 valuation methods have different values of Vinamilk, then the ask price and the market price are also different, the thesis proposes to combine all values of share from different methods to calculate an average price and compare to the current market price.

Table 17: Value of Vinamilk based on different methods

Method	Fair price (VND)
FCFF	127,978
Forward P/E	180,474
Forward EV/EBITDA	159,743
Vinamilk expected fair price (VND)	**156,065**
Current price (VND)	**151,000**
Potential upside (%)	**3%**

Source: Author's calculation

The expected fair price is measured by an average price of 3 methods employed. If compared to the current market price; it shows that the price of Vinamilk is possible to increase 3% more to reach the expected fair price; it is higher than the ask price for the offer

of the government[5]. It replies that the ask price of the offer can increase due to the positive expectation of investors to the growth of Vinamilk.

As the result of DCF valuation method, the market price is higher and this implies that the public is underwriting the share of Vinamilk can be a potential asset, especially in compared to other corporations in the same industry in the ASEAN countries.

According to the results of each method, it can iterate that the DCF method based on the available information is undervalue in compared to the ask price and the current price on the stock market, and the comparison to other dairy corporations in ASEAN countries. The thesis finds that this situation is usually for the smaller, younger companies with high cost of capital, and even or uncertain earnings or cash flow. But it also happens to the large, successful companies with astronomical P/E ratios. In this case, we can see that there are two possible making the value of Vinamilk lower than the market value.

+ The first reason is the investment of the corporation too high recently to the cow farm and the distribution centers as well as the factories in the North and the South of Vietnam, since it pours much money to the long-term investments while the prediction for the cash flow in the terminal value does not have any support information to motivate a prediction of high growth rate, even that the Euromonitor International (2014) forecast the growth of the dairy sector can be at 9-10%, but the highly competitive market can cause a slow rate to Vinamilk due to many uncertainty conditions.

+ The second reason is the valuation process cannot analyze the expectation of the stock market, the market prices can be driven by many factors and investors can have different expectation to target shares then they can forecast the value of the company differently. Then the DCF method is just a technique to serve the basic information if smart investors can see other indicators instead of DCF, such as the inability to sustain cash flow rates in the future to confirm the value of the company.

In conclusion, each method can be used wisely in the practice and the DCF method is a better method to see the potential of the target firm to know its potential value in the future. The method contains many weaknesses due to having some assumptions about the

[5] In the thesis, the comparison of current price of Vinamilk is compared to the expected fair price without seeing the sensitive of the change of growth rates in the assumptions.

firm performance in the future. If the information is unavailable, it can cause a different value of the target firm. Then it can be varying among the investors' point of views.

CONCLUSION

The thesis emphasis to determine the value of a firm, before that a review of the common methods is performed to discuss the valuation in the academics and practices. Each method can generate different value of firms and even for a method but if the available information is difference among persons conducted, the valuation can generate different results.

In the practical part, the thesis chooses a target corporation that is a potential and high growth rate on the stock market: Vietnam Dairy Product Joint Stock Company (Vinamilk). To do so, the thesis provides a brief introduction of the Vietnamese economy, the condition of the financial market and the stock market that can influence on the value of firms. Indeed, the thesis introduces some external conditions such as the growth of GDP, population etc. to analyze the potential of the company. Besides that, the expectation of the investors in the financial market and the development of the stock market are discussed as necessary factors for investors to see whether the offer from the withdrawn state shares is suitable.

The thesis calculates the value of Vinamilk based on the Discounted Cash Flow method and finds that the ask price of the government for their shares is higher than the DCF valuation method, the value of DCF method is derived by the available information from the Vinamilk and some assumption from the Euromonitor International (2014,2016) and VCA (2017).

To compare the accuracy of the employed DCF method with other methods, the thesis applies the quick multiplies methods which are calculated in compared to the similar competitors of the dairy sector in the ASEAN countries. The results show that there is a gap between the value of Vinamilk based on DCF method and the quick multiflies methods. This gap shows that the DCF was undervalue in compared to quick multiplies methods, it probably explains that the stock market is growing and investors expect to have high returns on the market and they are believed that the hot-tempered stock exchange recently can yield the high rates in the near future then they are willing to pay a higher value of Vinamilk's shares than the value based on the available information.

According to the review of some valuation methods and the case of Vinamilk, the thesis would like to make some recommendations to investors and the authorities.

+ Each valuation method can generate differently results, then the available information and disclosures of firms need to be accuracy and reliable.

+ The market efficiency is the most important since it can transfer the current information to the value of shares. It can support investors to avoid of any under or over underwriting the values of firms.

+ The DCF method is suitable to firms which are generally stable, positive and predictable free cash flow then the accuracy of the forecast free cash flow can be more and the value of firms can be more effectively.

+ The estimation process to the terminal value is depending on the macro-conditions, so for any fluctuation of interest rate, inflation, GDP or politics can be interfered this estimation then the stable economic environment is a priority to the financial market.

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LIST OF ABBREVIATIONS

ASEAN	Association of South East Asian Nations
CAGR	Compounded Annual Growth rate
CAPM	Capital Asset Pricing Model
Co. Ltd	Limited Company
COGS	Cost of goods sold
CP	The Government
DCF	Discounted Cash Flow
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes and depreciation and amortization.
EV	Enterprise Value
EVBN	Euro-Vietnam Business Network
FCFF	Free Cash Flow to Firm
FMCG	Fast moving Consuming Growth
FY	Fiscal Year
HSC	Hochiminh city Securities Corporation
JSC	Joint Stock Company
JV	Joint-Venture
ND-CP	The Government Circulation
NWC	Net Working Capital
P/E	Price to Earnings
P&L	Profit and loss
SCIC	State Capital Investment Corporation
SOEs	State Owned Enterprises

SWOT	Strength- Weakness- Opportunity- Threat
USA	United States of America
VCA	Vietnam Competition Associate
Vinamilk	Vietnam Dairy Product Joint Stock Company
WACC	Weight Average Cost of Capital

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APPENDICES

APPENDIX 1: : SALES OF VINAMILK

Sales value	2015	2016	2017F	2018F	2019F	2020F
Domestic sales	**32,160,905**	**38,098,773**	**43,163,404**	**47,561,237**	**52,152,408**	**57,028,808**
Condensed milk	4,074,861	4,538,744	4,175,332	4,258,839	4,344,016	4,430,896
Liquid milk	14,730,595	17,251,502	19,897,448	22,074,262	24,377,843	26,952,674
Powdered milk	6,686,252	7,579,543	8,599,795	9,505,363	10,531,122	11,478,923
Drinking yoghurt	1,098,361	1,405,300	1,828,879	2,146,689	2,422,552	2,702,545
Yoghurt (spoon yoghurt)	5,616,235	5,669,492	6,891,966	7,682,200	8,450,420	9,295,462
Other products (soy milk, ice cream, cheese, soft drinks)	(45,399)	1,654,191	1,769,984	1,893,883	2,026,455	2,168,307
Export sales	**5,269,439**	**5,745,036**	**5,170,533**	**5,170,533**	**5,325,649**	**5,485,418**
Powdered milk	4,403,608	4,801,059	4,320,953	4,320,953	4,450,582	4,584,099
Condensed milk	703,259	766,732	690,059	690,059	710,761	732,084
Yoghurt	162,572	177,245	159,521	159,521	164,306	169,235
Domestic + Export sales	**37,430,344**	**43,843,809**	**48,333,937**	**52,731,770**	**57,478,057**	**62,514,226**
Oversea subsidiaries sales	**2,650,040**	**2,950,530**	**3,170,954**	**3,390,826**	**3,616,118**	**3,847,099**
Total sales	**40,080,385**	**46,794,339**	**51,504,891**	**56,122,596**	**61,094,174**	**66,361,325**

Source: Author's calculation

APPENDIX 2: THE RAW MATERIALS FROM 2015-2020F

Year	FY2015	FY2016F	FY2017F	FY2018F	FY2019F	FY2020F
VNM's owned farms						
Cow heads	15,000	17,018	21,318	24,818	26,818	28,818
Pregnant cow heads/total heads	35%	35%	35%	35%	35%	35%
Pregnant cow heads	5,250	5,956	7,461	8,686	9,386	10,086
Yield (tonnes per head per annum)	7.2	7.2	7.2	7.2	7.2	7.2
Yield (litres per head per day)	22.2	22.2	22.2	22.2	22.2	22.2
Raw fresh milk production volume (tonnes)	37,596	42,654	53,431	62,204	67,217	72,229
Local farmers						
Cow heads	95,000	104,500	114,950	126,445	139,090	152,998
Pregnant cow heads/total heads	40%	40%	40%	40%	40%	40%
Pregnant cow heads	38,000	41,800	45,980	50,578	55,636	61,199
Yield (tonnes per head per annum)	4.71	4.71	4.71	4.71	4.71	4.71
Yield (litres per head per day)	14.6	14.6	14.6	14.6	14.6	14.6
Raw fresh milk production volume (tonnes)	178,890	196,779	216,457	238,103	261,913	288,104
VNM's owned farms + local farmers						
Cow heads	110,000	121,518	136,268	151,263	165,908	181,816
Pregnant cow heads/total heads	39%	39%	39%	39%	39%	39%
Pregnant cow heads	43,250	47,756	53,441	59,264	65,022	71,286
Yield (tonnes per head per annum)	5.0	5.0	5.1	5.1	5.1	5.1
Yield (litres per head per day)	15.5	15.5	15.7	15.7	15.7	15.7
Raw fresh milk production volume (tonnes)	**216,486**	**239,433**	**269,888**	**300,306**	**329,129**	**360,334**
VNM liquid milk production volume (tonnes)	**521,735**	**611,021**	**684,210**	**759,064**	**838,277**	**926,817**
% supplied by local raw fresh milk	**41%**	**39%**	**39%**	**40%**	**39%**	**39%**

Source: Vinamilk report and the HSC reports

APPENDIX 3: FINANCIAL INCOMES FROM 2015-2020F

Unit: million VND

Account	Actual 2015	Actual 2016	Forecasted 2017F	Forecasted 2018F	Forecasted 2019F	Forecasted 2020F
SHORT TERM INVESTMENTS	**8,666,683**	**10,453,749**	**10,442,631**	**10,942,631**	**11,442,631**	**11,942,631**
Held-to-maturity investments		**10,011,117**	**10,300,000**	**10,800,000**	**11,300,000**	**11,800,000**
+ Term deposits	8,214,592	9,711,117	10,000,000	10,500,000	11,000,000	11,500,000
+ Corporate bonds	-	300,000	300,000	300,000	300,000	300,000
Short term stock investments	**82,286**	**-**	**-**	**-**	**-**	**-**
+ An Binh Bank	82,286	-	-	-	-	-
Other short term investments	**442,000**	**443,132**	**443,132**	**443,132**	**443,132**	**443,132**
+ Bao Viet Bank	442,000	442,000	442,000	442,000	442,000	442,000
+ Others		1,132	1,132	1,132	1,132	1,132
Provision for short term investments	**(72,195)**	**(500)**	**(500)**	**(500)**	**(500)**	**(500)**
LONG TERM INVESTMENTS	**449,873**	**613,806**	**622,457**	**631,541**	**641,079**	**651,094**
Investments in subsidiaries	**481,590**	**481,590**	**481,590**	**481,590**	**481,590**	**481,590**
+ Vietnam Dairy Cow One Member Limited Company	*396,000*	*396,000*	*396,000*	*396,000*	*396,000*	*396,000*
+ Lam Son Milk Joint Stock Company	*44,000*	*44,000*	*44,000*	*44,000*	*44,000*	*44,000*
+ International Real Estate One Member Limited Companay	*45,800*	*45,800*	*45,800*	*45,800*	*45,800*	*45,800*

'+ Dielac						
+ Provision	*(4,210)*	*(4,210)*	*(4,210)*	*(4,210)*	*(4,210)*	*(4,210)*
Investments in associates and joint ventures	**422,880**	**419,909**	**428,560**	**437,644**	**447,182**	**457,197**
+ Horizon Aparments	*7,247*		-	-	-	-
+ A Chau Sai Gon Food Materials Joint Stock Company	*46,379*	*72,902*	*72,902*	*72,902*	*72,902*	*72,902*
+ Miraka Company Limited (New Zealand)	*369,253*	*338,642*	*347,294*	*356,378*	*365,916*	*375,931*
+ APIS Joint stock company		*8,364*	*8,364*	*8,364*	*8,364*	*8,364*
Held-to-maturity investments	**536,596**	**190,000**	**190,000**	**190,000**	**190,000**	**190,000**
+ Term deposits						
+ Corporate bonds		190,000	190,000	190,000	190,000	190,000
Other long term investments	**37,241**	**11,387**	**11,387**	**11,387**	**11,387**	**11,387**
+ Long term stock investments	11,602	11,387	11,387	11,387	11,387	11,387
+ Other investments	25,638					
Provision for devaluation of LT investments	**(4,740)**	**(7,490)**	**(7,490)**	**(7,490)**	**(7,490)**	**(7,490)**
Held to maturity investments						
LONG TERM DEPOSITS	8,077	8,401	8,401	8,401	8,401	8,401
Financial income	**648,981**	**719,433**	**752,876**	**754,993**	**788,993**	**822,993**
Deposit interest income and lending interest income	530,652	664,961	701,913	727,300	761,300	795,300
Income from bond investments	27,693	27,693	27,693	27,693	27,693	27,693
Dividend and interest	93	-	-	-	-	-

Gains from liquidating equity investments	77	-	-	-	-	-
Gains on realized forex diff	90,139	26,778	23,269			
Other financial income	326					
Financial income excluding provision reversal	**648,981**	**719,433**	**752,876**	**754,993**	**788,993**	**822,993**
Financial expenses	**163,113**	**65,680**	**72,795**	**62,653**	**62,653**	**62,653**
Interest expenses	31,277	33,500	33,500	-	-	-
Interest for advanced deposit	2,263	1,050	1,659			
Commission fees for stock brokers	248					
Losses on realized forex diff	141,526	28,374	37,617	62,653	62,653	62,653
Provision for short term investments	(12,278)	2,728				
Provision for long term investments	16					
Other financial expense	60	26	18			
Financial expense excluding interest expense	**131,835**	**32,180**	**39,295**	**62,653**	**62,653**	**62,653**
Net financial income	**485,868**	**653,752**	**680,080**	**692,339**	**726,339**	**760,33**

Assumptions	**2015**	**2016**	**2017F**	**2018F**	**2019F**	**2020F**
Demand deposit rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Short-term deposit rate	7.0%	7.0%	6.8%	6.8%	6.8%	6.8%
Long-term deposit rate	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Bond coupon	11%	11%	11%	11%	11%	11%
Dividend yield	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

APPENDIX 4: BALANCE SHEETS FROM 2015-2020F

Unit: million VND

Balance sheet	FY2015	FY2016	FY2017F	FY2018F	FY2019F	FY2020F
A. CURRENT ASSETS	**16,731,875**	**18,673,827**	**18,507,826**	**19,854,874**	**21,799,126**	**24,329,919**
I. CASH	**1,358,682**	**655,423**	**(28,161)**	**173,580**	**801,869**	**1,853,127**
1. Cash	1,212,517	599,923	(28,161)	173,580	801,869	1,853,127
2. Cash equivalents	146,165	55,500	-	-	-	-
II. SHORT TERM INVESTMENTS	**8,668,377**	**10,453,749**	**10,742,631**	**11,242,631**	**11,742,631**	**12,242,631**
1. Short term investments (before 2015) or Securities held for trading (after 2015)	525,980	443,132	443,132	443,132	443,132	443,132
2. Provision for devaluation of short term securities investments	(72,195)	(500)	(500)	(500)	(500)	(500)
3. Held-to-maturity investments (after 2015)	8,214,592	10,011,117	10,300,000	10,800,000	11,300,000	11,800,000
III. RECEIVABLES	**2,685,469**	**2,866,683**	**3,153,932**	**3,433,416**	**3,742,338**	**4,077,237**
1. Trade accounts receivables	2,202,396	2,191,348	2,411,940	2,628,184	2,861,000	3,107,657
2. Prepayments to suppliers	126,289	288,808	316,135	340,821	375,418	419,684
3. Short-term intercompany receivables	-	-				
4. Receivables in accordance with construction contract	-	-				

5. Short-term loan receivables (after 2015)	-	-				
6. Other short term receivables	359,995	390,619	429,940	468,487	509,988	553,956
7. Provision for short-term doubtful receivables	(3,211)	(4,168)	(4,168)	(4,168)	(4,168)	(4,168)
8. Pending assets (before 2015)	-	76	84	91	99	108
IV. INVENTORIES	**3,810,095**	**4,521,766**	**4,445,481**	**4,793,915**	**5,282,236**	**5,907,037**
1. Inventories	3,827,369	4,538,439	4,462,154	4,810,588	5,298,909	5,923,711
2. Provision for inventory devaluation	(17,274)	(16,673)	(16,673)	(16,673)	(16,673)	(16,673)
V. OTHER CURRENT ASSETS	**209,250**	**176,204**	**193,942**	**211,330**	**230,051**	**249,884**
1. Short-term pre-paid expenses	156,056	59,288	65,256	71,107	77,406	84,079
2. VAT deductibles	53,192	116,835	128,596	140,126	152,539	165,690
3. Taxes and other receivables from state	1	81	89	97	105	114
4. Government bonds repo	-	-				
5. Other current assets	-	-	-	-	-	-
B. LONG-TERM ASSETS	**10,746,300**	**10,704,828**	**12,453,687**	**13,962,844**	**15,032,957**	**15,880,036**
I. LONG-TERM RECEIVABLES	**20,898**	**21,855**	**23,237**	**24,486**	**26,236**	**28,475**

1. Long-term accounts receivables	-	-				
2. Long-term prepayment to suppliers	-	-				
3. Capital in directly controlled units	-	-				
4. Long-term inter-company receivables	-	-				
5. Long-term loan receivables	5,573	7,245	7,245	7,245	7,245	7,245
6. Other long-term receivables	15,324	14,609	15,991	17,240	18,990	21,229
7. Provision for long-term doubtful receivables	-	-				
II. FIXED ASSETS	**8,214,134**	**8,321,053**	**8,075,830**	**9,597,496**	**10,879,162**	**11,736,828**
1. Tangible fixed assets	7,795,345	7,916,322	7,689,366	9,229,298	10,529,230	11,405,162
Cost	13,059,721	14,257,738	15,250,850	18,250,850	21,250,850	24,050,850
Accumulated depreciation	(5,264,375)	(6,341,415)	(7,561,483)	(9,021,551)	(10,721,619)	(12,645,687)
2. Financial leasing fixed assets	-	-	-	-	-	-
Cost	-	-	-	-	-	-
Accumulated depreciation	-	-	-	-	-	-
3. Intangible fixed assets	418,789	404,730	386,464	368,198	349,932	331,666

Cost	553,684	557,891	557,891	557,891	557,891	557,891
Accumulated amortization	(134,894)	(153,160)	(171,426)	(189,692)	(207,958)	(226,224)
4. Construction in progress (before 2015)	-	-				
III. INVESTMENT PROPERTY	**142,368**	**136,973**	**131,578**	**126,183**	**120,788**	**115,394**
Cost	179,678	179,678	179,678	179,678	179,678	179,678
Accumulated depreciation	(37,309)	(42,704)	(48,099)	(53,494)	(58,889)	(64,283)
IV. Long-term assets in progress (after 2015)	**843,679**	**993,111**	**3,000,000**	**3,000,000**	**2,800,000**	**2,800,000**
1. Operation cost of long-term assets in progress (after 2015)	82,393	127,671				
2. Construction cost of long-term assets in progress (after 2015)	761,285	865,440	3,000,000	3,000,000	2,800,000	2,800,000
III. LONG-TERM INVESTMENTS	**940,365,**	**613,806**	**622,457**	**631,541**	**641,079**	**651,094**
1. Investment in subsidiaries	-	-	-	-	-	-
2. Investments in joint ventures and associates	397,130	419,909	428,560	437,644	447,182	457,197
3. Other Long-term investments	11,378	11,387	11,387	11,387	11,387	11,387
4. Held to maturity investments	536,596	190,000	190,000	190,000	190,000	190,000
5. Provision for devaluation of long term investments	(4,740)	(7,490)	(7,490)	(7,490)	(7,490)	(7,490)

VI. OTHER LONG-TERM ASSETS	**584,855**	**618,028**	**600,582**	**583,136**	**565,689**	**548,243,**
1. Long-term prepaid expenses	417,329	459,395	459,395	459,395	459,395	459,395
2. Deferred income tax assets	25,180	34,650	34,650	34,650	34,650	34,650
3. Long term equipments, materials and parts for replacement	-	-				
4. Other long-term assets	-	-	-	-	-	-
5. Goodwill (after 2015)	142,345	123,983	106,536	89,090	71,643	54,197
VII. Goodwill (before 2015)	-	-				
TOTAL ASSETS	**27,478,175**	**29,378,656**	**30,961,513**	**33,817,719**	**36,832,083**	**40,209,956**
A. LIABILITIES	**6,554,260**	**6,972,707**	**7,261,224**	**7,642,655**	**8,161,550**	**8,814,042**
I. CURRENT LIABILITIES	**6,004,316**	**6,457,497**	**6,748,267**	**7,129,698**	**7,648,593**	**8,301,086**
1. Trade accounts payables	2,193,602	2,561,910	2,804,320	3,023,299	3,330,193	3,722,861
2. Advances from customers	19,882	35,951	39,353	42,426	46,733	52,243
3. Taxes payables and statutory obligations	215,807	255,510	538,052	586,291	638,227	693,251
4. Payables to employees	452,476	192,349	210,549	226,990	250,032	279,514

5. Short-term accrued expenses	593,485	1,025,974	563,958	607,996	669,713	748,680
6. Short-term inter-company payables	-	-				
	-	-				
8. Short-term unrealized revenue	1,350	3,360				
9. Other short-term payables	644,468	592,099	648,769	699,430	770,428	861,271
10. Short-term borrowings and financial lease	1,475,358	1,332,666	1,332,666	1,332,666	1,332,666	1,332,666
11. Provision for short-term payables	2,420	889				
12. Bonus and welfare funds	405,464	456,785	610,597	610,597	610,597	610,597
13. Price stablizing fund	-	-				
14. Government bonds reverse repo	-	-				
II. LONG TERM LIABILITIES	**549,943**	**515,209**	**512,956**	**512,956**	**512,956**	**512,956**
1. Long-term trade account payables	-	-				
2. Long-term advance from customers	-	-				
3. Long-term accrued expenses	-	-				
4. Internal payables on capital	-	-				

5. Long-term internal payables	-	-				
6. Long-term unrealized revenue	2,598	1,663				
7. Other long-term payables	2,814	589	-	-	-	-
8. Long-term borrowings and financial lease	368,170	326,970	326,970	326,970	326,970	326,970
9. Convertible bonds	-	-				
10. Preferred stocks	-	-				
11. Deferred income tax payables	89,034	90,025	90,025	90,025	90,025	90,025
12. Provision for unemployment allowances	87,325	-	-	-	-	-
13. Provision for long-term payables		95,960	95,960	95,960	95,960	95,960
B. OWNERS' EQUITY	**20,923,915**	**22,405,949**	**23,700,289**	**26,175,064**	**28,670,533**	**31,395,913**
I. OWNERS' EQUITY	20,923,915	**22,405,949**	**23,700,289**	**26,175,064**	**28,670,533**	**31,395,913**
1. Paid in capital	12,006,621	14,514,534	14,514,534	14,514,534	14,514,534	14,514,534
– Common stocks	12,006,621	14,514,534	14,514,534	14,514,534	14,514,534	14,514,534
– Prefrerred stocks	-	-				
2. Share premium	-	260,699	260,699	260,699	260,699	260,699

3. Treasury shares	(5,388)	(1,176)				
4. Foreign exchange differences	8,329	5,654	5,654	5,654	5,654	5,654
5. Investment and develoment funds	3,291,207	1,797,019	2,908,348	4,150,966	5,476,521	6,827,622
6. Undistributed earnings	5,391,795	5,591,831	5,773,666	7,005,823	8,175,737	9,550,017
– Accumulated undistributed earnings of previous period	3,154,335	2,928,776				
– Undistributed earnings of this period	2,237,460	2,663,055				
7. Non-controlling shareholders' interests (after 2015)	231,349	237,385	237,385	237,385	237,385	237,385
TOTAL RESOURCES	**27,478,175**	**29,378,656**	**30,961,513**	**33,817,719**	**36,832,083**	**40,209,956**

APPENDIX 5: COMPARATIVE REGIONAL VALUATION TABLES FOR VINAMILK

Company name	Market capitalisation (US$m)	EBITDA margin (FY2015)	2-year sales CAGR	2 years net profit CAGR	P/E 2017	EV/EBITDA 2017
	(1)	(2)	(3)	(4)	(5)	(6)
Bright Dairy & Food Co., Ltd (SHSE:600597)	2,364.20	6.4%	7.9%	1.7%	27.6	10.3
China Huishan Dairy Holdings Company Limited (SEHK:6863)	5,056.70	34.7%	11.8%	-31.7%	31.3	18.5
Yakult Honsha Co. Ltd. (TSE:2267)	7,322.90	16.5%	-3.5%	4.8%	32.4	16.2
Nestlé (Malaysia) Berhad (KLSE:NESTLE)	4,028.70	18.3%	-9.5%	3798.7%	24.8	17.0
Ultrajaya milk Indonesisa	972.50	19.6%	-0.8%	11.2%	18.3	10.9
Fraser and Neave Holdings (Malaysia)	1,906.90	12.3%	-7.6%	7.8%	18.9	13.1
Weighted average		**19.7%**	**-0.1%**	**702.4%**	**28.4**	**15.7**
Median		**17.4%**	**-2.2%**	**6.3%**	**26.2**	**14.6**
Premium/discount					**10%**	**10%**
Vinamilk fair multiples					**28.8**	**16.1**
Vinamilk current multiples	9,453.6	25.1%	15.7%	24.1%	21.6	14.8

Weighted average=sum of [market capitalization * by the category from (2) to (6)]/ market capitalization

Assume that the premium/discount of exchange-traded fund (ETFs) is at 10% for Vinamilk on Vietnam's stock market.

The Vinamilk fair miltiples= Median of P/E_{2017} (or of $EV/EBITDA_{2017}$)* 10% of the premium/discount.