

The European Foundation for Quality Management (EFQM) Excellence Model and the Czech Organizations

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Doctoral Thesis Summary

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**The European Foundation for Quality Management
(EFQM) Excellence Model and the Czech
Organizations**

**Evropská excellence modelu evropské nadace pro řízení kvality
(EFQM) a české organizace**

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ABSTRACT

Total Quality Management (TQM) is an approach that seeks to improve the performance and quality of organizations. It is a continuous process of increasing the quality of production by reducing waste. The EFQM (European Foundation for Quality Management) Excellence Model is an implementation to measure this approach, well known for European quality awards worldwide. There are many levels to obtain the Global Awards from the Foundation. These levels, points, and certificates are very important to be on the Finalist list and obtain the Global Award Winner and Prize Winner. Different publications showed that the award-winner organizations perform better and achieve significantly better results than their competitors. Up to now, research has not been conducted about these levels and quality certificates. Therefore, this study filled the gap and investigated the impacts of the quality certificates from the EFQM Model at Czech organizations.

The study's main goal is to examine the performance of certified firms from the EFQM Model and compare them with non-certified firms. Moreover, the research also explored why the Czech organizations are so little interested in this Model and did not receive the EFQM Excellence Award/Prize Winner. The data triangulation approach is employed to check the reliability and validity of the data. For the quantitative study, seven hypotheses were formulated to obtain the main goal of this study. The secondary data is obtained from the Albertina database of 307 Czech firms, including 20 certified firms that have obtained quality certificates from the EFQM Model. The gained data covered the time period from 2015 to 2019, and it was obtained from the three sectors: manufacturing, construction, and automobile. A dummy variable is employed to explore the effects of the quality certificates on organization performance. Two different regression techniques were employed to test the hypotheses: pooled ordinary least square (OLS) and maximum likelihood estimation (MLE). The findings of the dummy variable are significant and positive, which confirms that the organizations having quality certificates perform better than their competitors' organizations. Like the quality awards, the organizations also perform better if they have quality certificates. The outcomes of the qualitative method exposed that mostly Czech organizations are not aware of the benefits/importance of quality certificates and awards and don't implement the EFQM Excellence Model in their organizations. Overall, this research focused on the Czech organizations; however, the study's findings could be generalized to all organizations that are (or will try) trying to obtain the EFQM Excellence Award/Prize Winner. Hence, the current study results contribute theoretical and practical knowledge of the quality certificate for the organizations.

ABSTRAKT

Total Quality Management (TQM) je přístup, který se snaží zlepšit výkonnost a kvalitu organizací. Jde o kontinuální proces zvyšování kvality produkce snižováním plýtvání. EFQM (European Foundation for Quality Management) Excellence Model je implementován pro podporu tohoto přístupu, který je známý po celém světě v rámci posuzování národní/globální ceny za kvalitu. Ocenění za kvalitu dle EFQM modelu Evropské nadace lze získat v ČR v mnoha úrovních. Tyto úrovně, body a certifikáty jsou velmi důležité pro to, aby se organizace dostaly na seznam finalistů a získaly národní cenu nebo ocenění certifikátem. Různé studie ukázaly, že organizace, které získaly ocenění, dosahují lepších výkonů a mají výrazně lepší výsledky než jejich konkurenti. Doposud nebyl proveden výzkum o těchto úrovních ocenění kvality. Tato studie proto vyplnila mezeru a zkoumala dopady ocenění (cena, certifikát) kvality, vycházejících z modelu EFQM, na české organizace.

Hlavním cílem práce je prověřit výkonnost certifikovaných firem na základě požadavků modelu EFQM a porovnat je s necertifikovanými firmami. Výzkum se navíc zabýval otázkou, proč se české organizace o tento model tak málo zajímají a dosud neobdržely světovou cenu kvality EFQM Global Award. Ke kontrole spolehlivosti a platnosti dat byl použit přístup triangulace dat. Pro kvantitativní výzkum bylo formulováno sedm hypotéz, aby se naplnil hlavní cíl této práce. Sekundární data z 307 českých firem (včetně 20 certifikovaných firem, které získaly ocenění kvality na základě modelu EFQM) byla získávána z databáze Albertina. Získaná data se týkala období 2015 až 2019 a byla získána ze tří sektorů: výroba, stavebnictví a automobilový průmysl. K prozkoumání účinků ocenění kvality na výkon organizace byla použita fiktivní proměnná. K testování hypotéz byly použity dvě různé regresní techniky: obyčejná metoda nejmenších čtverců (OLS) a metoda maximální věrohodnosti (MLE). Zjištění fiktivní proměnné jsou významná a pozitivní, což potvrzuje, že organizace s certifikáty kvality fungují lépe než organizace jejich konkurentů. Výsledky kvalitativního výzkumu odhalily, že si většinou české organizace neuvědomují výhody/důležitost certifikátů kvality a národních cen za kvalitu a ve svých organizacích neimplementují model EFQM excellence. Celkově se tento výzkum zaměřil na české organizace, avšak dá se předpokládat, že výsledky výzkumu by bylo možné využít u všech organizací, které se pokoušejí (nebo se o to pokusí v budoucnu) získat ocenění za kvalitu dle modelu EFQM Excellence. Současné výsledky práce proto přispívají teoretickými a praktickými poznatky k získání ocenění kvality v organizacích.

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1. INTRODUCTION

1.1 Background

TQM is a continuous process of improving the quality of the output by reducing waste and the non-value-adding activities in the system (Yousefie et al., 2011; Zink, 2012). It is an approach that seeks to improve quality and performance, and it exceeds customer satisfaction and expectations. Continuous improvement must deal with improving results and, more crucially, with improving capabilities to produce better results in the future (Davies, 2004). Several TQM models have been established to be used as a framework to evaluate organizational performance and to achieve it, such as the European Foundation for Quality Management (EFQM) Excellence Model, the Deming Management Model, and the Malcolm Baldrige National Quality Award (MBNQA). The EFQM Excellence Model is one of the effective and implementations to measure the TQM approach.

Magd et al. (2021) argued that TQM is to assimilate all the efforts to improve overall quality. An empirical study is conducted by Bou-Llusar et al. (2009) to reveal whether quality award models represent TQM. After analyzing the data from 446 firms, the authors concluded that the EFQM Excellence Model replicates TQM, and a firm could attain TQM implementation by implementing the EFQM framework. In the European context, Boulter et al. (2013) argued the equivalent of MBNQA is the EFQM Excellence Model, as both models include TQM structures.

Periañez-Cristobal et al. (2020) argued that the most widespread Models of Excellence are MBNQA in the USA, EFQM in Europe and the Deming Prize in Japan. These models are very similar in terms of the criteria they use for evaluation and in fundamental concepts. According to del Alonso-Almeida & Fuentes-Frías (2012), MBNQA and EFQM have been used as a guide to implementing the TQM in many organizations. Westlund (2001) claimed that the EFQM Excellence Model had become the most commonly applied Model for TQM in Europe.

The Awards process is an effective stimulator of business excellence for award-winner organizations. In EFQM Excellence Global Index, there are many levels and certificates such as Committed to Excellence, Recognised for Excellence, Committed to Sustainability, and Recognised by EFQM. Moreover, there are four categories of recognition: Platinum, Gold, Silver, and Bronze, and all these categories relate to different EFQM scoring levels between 300 and 700+ points. These levels and certificates are very important to be on the EFQM Award Finalist list and then obtain the EFQM Excellence Award Winner and EFQM Excellence Prize Winner. The overall level in the index of the organizations is determined by Results, Approach, Deployment, Assessment, and Review (RADAR) scoring.

It is clear from the earlier research that organizations with quality awards perform better than their comparison organizations. The Czech-based organizations do not compete in the context of the quality awards with their neighbour countries' organizations. EFQM Excellence Model is very popular not only in Europe but also in the whole world. But the Czech organizations are very little interested in implementing the Model. What are the reasons behind this?

1.2 Research Purpose, Research Questions, and Objectives

1.2.1 Research Purpose

Before coming to the research methodology, it is important to address the research objectives first (Saunders et al., 2016). **The study's main goal is** to investigate the performance of the Czech organizations that have a quality certificate from the EFQM Model and compare them to non-certified organizations. However, the reasons why did the Czech organizations not receive the EFQM Excellence Award Winner and Prize Winner are also explored. Prior studies revealed that award-winning organizations perform better than their competitors. Thus, there are three possible scenarios are expected of the current research. **First**, the findings might be similar to the quality awards that the certified organizations from EFQM Model perform better than their competitors. Therefore, it will be suggested to Czech organizations to participate and implement the Model. In this way, they could gain more benefits. **Second**, the

findings may be possible to expose that the quality certified organizations do not perform better than competitors. It means that Czech organizations should not waste their time, energy, and resources to implement the Model. **Third**, the outcomes show that there is no role of the certification from the Model at the organizations' performance at all. Then the second option will be suggested to the Czech organizations.

1.2.2 Research Questions

The main goal has been subdivided into the following research objectives and research questions in order to obtain a holistic view of the research. Each question and objective cover different aspects that need to be explored to reach the main goal.

- 1- What are the impacts of leverage (LDR) on the performance of the Czech organizations if they have a quality certificate from EFQM Model?
- 2- What are the effects of tangibility (FATA) on the performance of the certified organizations?
- 3- What are the impacts of the firm size (FS) on the performance of the certified organizations?
- 4- How sale growth (SG) affects the performance of the certified organizations from the EFQM Model?
- 5- What is the relationship between the capital turnover ratio (CTOR) and the performance of the certified organizations?
- 6- How does physical capital intensity (PCI) affect the performance of the organizations?
- 7- What is the impact of the quality certificate from the EFQM Excellence Model on the organization's performance?
- 8- What are the reasons that Czech organizations did not receive any EFQM Excellence Winner/Prize Award?

1.2.3 Research Objectives

1. To explore the role of leverage (LDR) on the organization's performance
2. To sort out the role of tangibility (FATA) in the performance of the certified organization
3. To examine the effects of the firm size (FS) on the performance of the Czech organization
4. To investigate the role of sales growth (SG) at the organization performance
5. To check the impacts of capital turnover ratio (CTOR) on the organization's performance

6. To examine the effects of Physical Capital Intensity (PCI) on the performance of the certified organization
7. To sort out the impact of the quality certificates on the organization's performance.
8. To study the factors why the Czech organizations did not receive the EFQM Excellence Winner/Prize Award.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This chapter reviews literature related to the current study to provide a theoretical framework to develop the research model. This chapter is divided into three sections. (i) The first section highlights the background of the EFQM Excellence Model concerning its history, mechanisms, and consequences (ii) The second section states the benefits of quality awards (iii) The last section focuses on the development of hypotheses.

2.1 History and Background of the EFQM Excellence Model

MBNQA (Malcolm Baldrige National Quality Award) was established in 1987 in the United States, and the European Foundation for Quality Management (EFQM, Foundation) was founded in October 1989 in Belgium. The Foundation set up a team of experts from different sectors to develop the EFQM Excellence Model. According to Hides et al. (2004), the first European Quality Award was held in 1992. The EFQM Model was updated by the Foundation in 1999 and changed in 2003 (Blackmore et al., 2003). EFQM modified and improved the Model in 2010, 2013, and 2019.

Hoyle (2007) stated that EFQM Excellence Model had been modified for the requirements of self-evaluation and improvement of organizations to obtain "Excellence". The Model is defined as "self-assessment", an all-encompassing regular and systematic process of reviewing organization activities and their outcomes. Excellence is understood as a comprehensive practice in quality management. Effective implementation of the Model needs special training and long-term experience of so-called internal evaluators. The RADAR logic is a powerful management tool and dynamic assessment framework that provides a structured approach to questioning the performance of an organization to achieve sustainable Excellence. According to Zhang et al. (2019), the EFQM Excellence Model is an advanced tool for quality self-assessment by organizations. The Model can be used to gain a holistic overview of any organization and supports

stakeholders and managers to identify the main aspects to be improved for attaining Excellence (Espín et al., 2020).

The EFQM Excellence Model can be used as a business-wide framework in a holistic, focused, and practical way. So, the Model provides not only the basis for sustainable Excellence but also provides a complete framework that covers the whole organization. The Model is a useful framework for self-assessment and a good system for recognizing improvement initiatives (Rodríguez-González et al., 2020). The Model has adapted and evolved with the passage of time to reflect changes in the global world. Hundreds of organizations, regardless of size, structure, sector, or maturity, have participated in the EFQM Excellence Awards and have contributed to the knowledge and experience of Excellence. **The Foundation's main goal is to raise the competitiveness of European organizations and support the sustainable development of European economies.** Even though EFQM focuses on Europe, it also supports all organizations from the rest of the world. The China Quality Association (CQA) and EFQM Association signed a cooperation agreement in May 2016. The CQA proposed to push to implement the EFQM Excellence Model all over the country. Presently, the EFQM Excellence Model is broadly applied in China (Zhang et al. 2020; Zhang et al. 2019). EFQM Excellence Model also supports the United Nations 17 Sustainable Development Goals (SDG). The United Nation's 17 SDG calls for action by all countries to promote social equity, sound governance, and prosperity while protecting the planet. The Foundation announced on the official website for recognizing the role that organizations can perform in supporting the goals of the United Nations.

The EFQM Excellence Model (2013) was replaced by EFQM Excellence Model (2020) in 2019 (Nenadál, 2020). In the EFQM 2020 Model, there are three complete logics: "Direction", "Execution", and "Results". According to Nenadál (2020), the EFQM Excellence Model (2020) illustrates a connection between an organization's purpose and strategy and how it supports sustainable value creation for their key stakeholders and generates excellent results. The Foundation is an independent and not-for-profit, committed to helping its members in their journey towards Excellence (Turisová et al., 2021).

2.2 Benefits of the Quality Awards

Different publications explained that different quality awards help to improve the organization's performance. According to Stiglitz (1987), quality depends on price, so the higher quality products will sell at higher prices. If chances are higher for winning the award, then improvement in the quality and prices of products will be higher in the future. Santos et al. (2012) exposed that the industrial enterprises with having International Organization for

Standardization (ISO) 9001 are investing more fast than other enterprises. The scholars examined that 66.39% of industrial organizations had returned to ISO 9001 in less than three years. Additionally, at the same time, organizations (both production and non-productive) that have implemented ISO 9001 invest faster than others organizations (Santos et al., 2012). Leonard (2006) exposed that when an organization effectively uses the MBNQA, it improves the organization's financial and non-financial performance. According to Asadi (2020), there are numerous achievements and advantages to implementing the EFQM Excellence Model in organizations, including the creation of competitive advantage, attention to customer demands, and needs in all dimensions.

Prior studies showed that award-winning organizations perform better than their competitors' organizations, even though the sample sizes were small in these studies. For example, Subedi and Maheshwari (2007) took 15 firms, Przasnyski and Tai (2002) took 17 firms, and Jacob et al. (2004) took 18 firms as a sample size in their studies. For instance, Jacob et al. (2004) took a sample of 18 Baldrige Award winners' firms from 1988 to 2002 and exposed that award winners' firms significantly performed better in terms of asset utilization and profitability. Subedi and Maheshwari (2007) investigated a sample of 15 Baldrige Award winners' firms and 30 control firms from 1989 to 2003. The authors explored that the award-winning firms had better sales growth and earnings than the control firms. According to Zhang and Xia (2013), the award-winning organizations have better results after receiving awards and have superior performance records before the award. In the current research, the sample size is small to assess the organization's performance (20 certified organizations out of 307; see chapter 4 for more details).

Corbett et al. (2005) took a sample of those 554 publicly traded manufacturing firms in the United States that has an ISO 9000 certificate. The scholars found an extremely significant improvement in financial performance after the implementation of ISO 9001. Within three years of receiving certification, the firms showed significant abnormal improvements in financial performance such as return on sales, sales growth, return on assets, and profits. According to Zhang and Xia (2013), the awards simply recognize a firm's efforts to achieve developed quality and customer satisfaction. The awards are the firm's own long-term quality improvement efforts that lead to higher performance results. Zhang and Xia (2013) claimed that their study showed award-winning firms' sales consistently and significantly expanded compared to the control firms over 10-year. And it was because the consumers try to found better quality and are loyal to organizations that constantly provide high-quality products and services. Additionally, Marimon et al. (2019) argued that quality standard has become more popular among customers. After reviewing 103 articles published during 1993-2016, in the systematic literature review on TQM, Aquilani et al. (2017) concluded that customer focus had gained importance in recent times.

The study by Boulter et al. (2013) was based on 120 companies where 85 companies were European and 35 were non-European. The researchers compared award-winner companies to without awards companies and exposed that the companies with an award achieved significantly better results than other companies in terms of shareholder value, assets, growth, and profit. The same findings were reported by Augustyn et al. (2019) in the context of 4-Star and 5-Star hotels in Egypt.

A systematic literature review (SLR) about the EFQM Excellence Model was carried out from 1991 to 2019 by Yousaf and Bris (2019). The study showed that practical applications of the EFQM Excellence Model are the relationships between the criteria, case studies, the importance of the leadership criterion, etc. The researchers analyzed that the mostly authors discussed only two sectors: health and education, and the most empirical studies used analysis of variance, partial least square, T-test, and factorial analysis techniques. Moreover, most of these studies were conducted in Spain, UK, and Germany, and the organizations from these countries won the maximum EFQM Excellence Global Awards.

As discussed above, several researchers claimed that quality-award winning organizations perform better than competitors. But the Czech organizations don't participate in the quality awards like EFQM (Nenadál et al., 2018). The certified organizations from the Foundation are only 112 (actual 95 organizations, as many organizations received certificates several times). EFQM Excellence Model has become the most commonly applied Model in Europe for TQM (Murthy et al., 2021; Kim et al., 2010; Westlund, 2001). Then why do the Czech organizations not participate and obtain the quality awards from the EFQM Model, which is very popular in Europe and worldwide? Therefore, the current study is going to fulfill this gap and find out the reasons.

2.3 Hypotheses Development

The current research selected several variables based on the previous studies that impact the organization's performance. In the following subsections, the variables are discussed, and the hypotheses are developed in order to explore the research objectives and questions.

2.3.1 Leverage (LDR)

Organizations use a high debt ratio to get benefits from the tax shields; in this way, organizations improve their performance. It means that organizations choose to operate with high leverage. Organizations use debt until the optimum level of the debt is gotten. Conversely, the excess debts can raise the financial distress costs and diminution the firm value. Hillier et al. (2010) mentioned that conflicts of interest increased between bondholders and shareholders when an organization has more debts. Many empirical studies that have been conducted earlier have

reported the impact of leverage on the organizations' performance. Several authors have reported the negative relationship between LDR and organization performance (Nguyen and Nguyen, 2015; Khan et al., 2018; Al-Gamrh et al., 2020; Fernández-López et al., 2020; Mishra et al., 2020). On the other hand, a few scholars explored the positive impact of LDR on firm performance (Gulzar et al., 2020; Berger and Patti, 2006; Hadlock and James, 2002; Ghosh et al., 2000). Due to the mixed relationship between LDR and organization performance, the proposed hypotheses are:

H₁: LDR is associated with the organization's performance of non-certified firms.

H_{1A}: LDR has an impact on organization performance of the certified organizations from the EFQM Model.

2.3.2 Tangibility (FATA)

Tangibility (FATA) is measured by the ratio of net fixed assets to the total assets in the current study. Firms choose to invest in those areas where high returns are expected. Therefore, firms prefer making long-term investments which causes a decrease in fixed assets. Fixed assets alone are not appropriate to generate profits. If a firm does not produce enough funds to pay back short-term liabilities, it has to be paid out from the fixed assets. A higher value of FATA offers the stakeholders a high level of security that helps to liquidate additional assets in case of bankruptcy of the organization. Many researchers such as Maçãs et al. (2009); Getahun (2016); Nguyen and Nguyen (2015); and Gharaibeh and Khaled (2020) exposed the negative impact of FATA on organization performance. On the contrary, a few studies have reported a positive relationship between FATA and organization performance (Iltaş and Demirgüneş, 2020; Birhan, 2017). Hence, the following hypotheses are proposed about the relationship between FATA and organization performance.

H₂: FATA has a significant impact on the organizational performance of non-certified organizations.

H_{2A}: FATA has an impact on the organizational performance of certified organizations.

2.3.3 Firm Size (FS)

Firm size (FS) is also an important variable that affects the organization's performance due to economies of scale. Chandrapala and Knápková (2013) claimed that large firms enjoy economies of scale as their operational activities are more efficient. The previous literature asserted that large firms have relatively fewer adjustment costs. It is easy for them to access the credit market to obtain more debt and benefit from tax shields. Al-Gamrh, Ku Ismail, et al. (2020) investigated the positive impact of FS on firm profitability. The same results have

been explored by Farhan et al. (2021); Li et al. (2021); Al-Gamrh et al. (2020); Khan et al. (2018); Molodchik et al. (2016); Chandrapala and Knápková (2013); and Kuntluru et al. (2008). However, some researchers investigated the opposite relationship between both variables, such as Ullah et al. (2020); Gulzar et al. (2020); AttaUllah and SaifUllah (2017); Masnoon and Saeed (2014). Thus, based on the above studies about FS, the following hypotheses are proposed.

H₃: There is a significant relationship between FS and organization performance for non-certified organizations.

H_{3A}: There is an impact of FS on organization performance for certified organizations.

2.3.4 Sales Growth (SG)

The sale growth (SG) is measured by using the change in net sales. Increasing SG means that there is an increasing demand for a firm's products. A firm with a high sales growth rate is expected to have high performance on its investments. Chandrapala and Knápková (2013) found a positive relationship between SG and ROA. The authors mentioned the fact that Czech firms may keep good relations with external environmental factors. Kuntluru et al. (2008); Barbosa and Louri (2005); Deloof (2003) also investigated the same relationship. Subedi and Maheshwari (2007) reported that SG of the Baldrige Award winners' organizations is more than the non-award winners. The hypotheses about the relationship between SG and organization performance is:

H₄: SG is significantly associated with organization performance for non-certified organizations.

H_{4A}: SG is significantly associated with organization performance of the certified organizations.

2.3.5 Capital Turnover Ratio (CTOR)

Kuntluru et al. (2008) introduced the capital turnover ratio (CTOR) to measure the firm's capital intensity. The higher value of CTOR may imply lower efficiency in capital utilization, and it will result in low profitability. Kuntluru et al. (2008) find that CTOR has negatively related to the organization's performance. Chandrapala and Knápková (2013) also explored the negative impact of CTOR on organization performance. The following hypotheses are proposed for certified and non-certified organizations separately to examine the impact of CTOR on organization performance.

H₅: CTOR is associated with organization performance for non-certified organizations.

H_{5A}: There is a significant relationship between CTOR and organization performance of the certified organizations.

2.3.6 Physical Capital Intensity (PCI)

Barbosa and Louri (2005) used the physical capital intensity (PCI) variable to measure the impact of labor intensity on the variability of profits of the organizations. The study focused on Greece and Portugal-based firms. The authors reported mixed results and suggested that Greece-based firms may improve performance to pick a labor-intensive technology. Portugal-based firms may improve their performance if they choose a capital-intensive technology. Chandrapala and Knápková (2013) also included PCI to investigate the variable's impacts on the performance of Czech organizations. But, the scholars did not find a significant relationship between the two variables. Hence, the following hypotheses are proposed based on the previous studies.

H₆: PCI has an impact on organization performance for non-certified organizations.

H_{6A}: PCI is associated with organization performance for certified organizations.

2.3.7 Dummy Variable (DV)

A dummy variable (DV) is used to investigate the impacts of the quality certificates from the EFQM Model on the organization's performance. The benefits of the quality awards are discussed in section 2.2. Based on the literature review, it is assumed that the DV has a significant impact on organizational performance. The proposed hypothesis about the DV is:

H₇: There is a significant impact of quality certificates from the EFQM Model on the organization's performance.

2.4 Variables

There are numerous measures of an organization's performance that are useful to capture the Excellence of an organization. The complete list of explained and explanatory variables is given in Table 1.

Table 1: Summary presentation of selected variables (Source: Author)

Variables	Abbreviations	Measurements
Dependent Variables		
Return on assets	ROA	(Earnings before interest and tax) / (total assets)

Return on equity	ROE	(Earnings before interest and tax) / (total equity)
Independent Variables		
Leverage (Long-term debt ratio)	LDR	(Long-term debt) / (total assets)
Tangibility (Fixed assets to total assets)	FATA	(Fixed assets) / (total assets)
Firm Size	FS	Log (Total assets)
Sales Growth	SG	(Current year sales - previous year sales) / (previous year sales)
Capital Turnover Ratio	CTOR	(Net fixed assets) / (total sales)
Physical capital intensity	PCI	Log of tangible assets per employee
Dummy variable	DV	DV = 1 if it is EFQM certified firm, 0 otherwise
Leverage of certified firms	DV*LDR	(Long-term debt) / (total assets)
Tangibility of certified firms	DV*FATA	(Fixed assets) / (total assets)
Firm size of certified firms	DV*FS	Log (Total assets)
Sales growth of certified firms	DV*SG	(Current year sales - previous year sales) / (previous year sales)
Capital turnover ratio of certified firms	DV*CTOR	(Net fixed assets) / (total sales)
Physical capital intensity of certified firms	DV*PCI	Log of tangible assets per employee

2.5 Regression Equations

The regression equations for Models 1 and Models 2 are given below. In Model 1 and Model 2, dummy interaction terms represent the variables of the certified organizations, and without dummy interaction terms are the variables of non-certified organizations.

$$\begin{aligned}
 \mathbf{ROA}_{it} = & \alpha + \beta_1(LDR_{it}) + \beta_2(FATA_{it}) + \beta_3(FS_{it}) + \beta_4(SG_{it}) + \beta_5(CTOR_{it}) + \beta_6(PCI_{it}) \\
 & + \beta_7(DV_{it}) + \beta_8(DV*LDR_{it}) + \beta_9(DV*FATA_{it}) + \beta_{10}(DV*FS_{it}) + \beta_{11}(DV*SG_{it}) + \\
 & \beta_{12}(DV*CTOR_{it}) + \beta_{13}(DV*PCI_{it}) + \eta_i + \varepsilon_{it}
 \end{aligned}$$

Model 1

$$\begin{aligned} \text{ROE}_{it} = & \alpha + \beta_1(\text{LDR}_{it}) + \beta_2(\text{FATA}_{it}) + \beta_3(\text{FS}_{it}) + \beta_4(\text{SG}_{it}) + \beta_5(\text{CTOR}_{it}) + \beta_6(\text{PCI}_{it}) \\ & + \beta_7(\text{DV}_{it}) + \beta_8(\text{DV}*\text{LDR}_{it}) + \beta_9(\text{DV}*\text{FATA}_{it}) + \beta_{10}(\text{DV}*\text{FS}_{it}) + \beta_{11}(\text{DV}*\text{SG}_{it}) + \\ & \beta_{12}(\text{DV}*\text{CTOR}_{it}) + \beta_{13}(\text{DV}*\text{PCI}_{it}) + \eta_i + \varepsilon_{it} \end{aligned} \quad \text{Model 2}$$

Where, $i=1, 2, 3, \dots, n$ (number of firms) and $t= 2015, 2016, 2017, 2018,$ and 2019 . β values represent the regression coefficients of the independent variables, and DV is a dummy variable that takes the value of 1 for EFQM certified organizations and zeroes for other organizations. DV*LDR, DV*FATA, DV*FS, DV*SG, DV*CTOR, and DV*PCI are dummy interaction terms. η_i and ε_{it} are unobserved firm-specific effects and error terms for firm i at time t , respectively.

3. RESEARCH METHODOLOGY

3.1 Research Design

According to Saunders et al. (2016), a research design is a universal plan; in what way will the researchers respond to the research questions. The current research discusses the overall research design process: research approach, research strategy, research philosophy, data collection methods, and data analysis. Saunders et al. (2016) proposed a research methodology structure that is based on the theoretical concept of “**research onion**”. The research onion model was primarily designed for business studies. The research onion consists of six main layers, and the layers give a more detailed description of the stages of a research process. To achieve the goal, the right steps must be taken consequently, and it applies in research cover one step first before proceeding to another. So, the research process is the same as the unwrapping of an onion layer by layer. However, some main layers of the “research onion” are described in the following used in the current study.

3.2 Research Philosophy (Paradigm)

Saunders et al. (2016) define research philosophy as a system of beliefs and assumptions about the development of knowledge. Many researchers discussed four main research philosophies in their research, which are (i) positivist research philosophy, (ii) interpretivism research philosophy, (iii) pragmatist research philosophy, and (iv) realistic research philosophy (Melnikovas, 2018). Two research philosophies are used in this research: positivist research philosophy and interpretivism research philosophy.

3.3 Method of Research or Research Choices and Techniques

Saunders et al. (2016) classified the research methods into two main categories, i.e., quantitative and qualitative methods. The quantitative method states to any data analysis procedure or data collection technique that uses or creates numerical data, and the quantitative method involves numbers and mathematical operations. The qualitative method mentions any data analysis procedure or data collection technique that uses or generates non-numerical data; however, qualitative methods imply a collection of vast descriptive data. The mixed-method is used when the research is focused on both quantitative and qualitative data. Though, both qualitative and quantitative research methods (or mixed-method) are used in this research.

3.4 Research Strategy

A research strategy is a method employed to complete the research; it includes archival and documentary research, experiment, survey, case study, action research, ethnography, and grounded theory (Saunders et al., 2016). The current study is a comparative case study of the Czech organizations as it compares the performance of the Czech organizations.

3.5 Research Time Horizon

Research time horizons generally refer to periods to be studied or chronological horizons of fluctuating range. Kosow and Gaßner (2008) described the three basic time horizons, which are (i) short-term – up to 10 years; (ii) medium-term – up to 25 years; and (iii) long-term – more than 25 years. The research time horizon contains two designs, (i) cross-sectional design and (ii) longitudinal design. According to Burton (2000), the longitudinal design is a design where the data are collected for separate items or variables for two or more distinct time phases. The cases or themes investigated are the same or at least comparable from one period to the next. De Vaus (2013) argued that the cross-sectional research design is mostly used in social research to gain the results quickly. The current study employed panel data for the quantitative study, and the data was collected at a limited time or short time from 2015 to 2019.

3.6 Data Collection, Sample Size, and Data Analysis Techniques

Following the research onion step-by-step, the final layer of “research onion” moves the research design towards data collection and analysis. The data collection procedure is about screening and utilizing two types of data: secondary and primary data. Both types of data are used in this research.

3.7 Data Triangulation

Triangulation is a method that uses in the research to check and establish the validity of the studies. In qualitative research, validity refers to whether the findings of a study are certain and true. According to Carter et al. (2014), there are many types of triangulation: data triangulation, investigator triangulation, theory triangulation, methodological triangulation, and environmental triangulation; however, data triangulation is used in this research. The researchers use different sources in data triangulation, so this type of triangulation is the most popular and easiest to implement. (Guion et al., 2011 and Johnston et al., 2010). A data triangulation approach is employed to check the reliability and validity of the data. It is a maintained practicing accepted mechanism in research methodology in the process of data collection and processing. Hence, the data triangulation method is used to check the validity and reliability of the data used in the current research. The complete detail about the research methodology that is used in the current study is given in Table 2.

Table 2: Summary of Research Methodology (Source: Author)

Research Paradigm	Positivism	Interpretivist
Research Methodology or Research Approach	Mixed Methods	
	Qualitative	Quantitative
Research Strategy or Research Methods	Case study	Case study
Data Collection Technique	Interviews	Secondary Data
Sample Size	4 organizations (3 certified from EFQM, 1 non-certified)	307 organizations (20 certified from EFQM, 287 non-certified)
Study Context	Czech Republic	Czech Republic
Data Analysis Techniques	All interviews contents were retyped and saved in a Microsoft Word file - word cloud - content code - code co-occurrence	Measurement assessment - descriptive statistics - correlation analysis - regression analysis

4. QUANTITATIVE AND QUALITATIVE STUDIES

4.1 Quantitate Study and its Results

Two different regression estimations are employed to test the hypotheses, i.e., pooled ordinary least square (OLS) and maximum likelihood estimation (MLE). After diagnosing different tests, it is found that the data is free from multicollinearity, heteroskedasticity, and panel unit-roots.

4.1.1 Pooled OLS and MLE Results

The models (Model 1 and Model 2) are estimated by Pooled OLS and MLE techniques. MLE is included in the current study as Hsiao et al. (2002) argued that MLE appears to be an excellent model in almost all cases. Binder et al. (2005) described that the MLE performs much better even when the data are generated by small sample size and non-normal disturbance. The same findings are reported by Ramírez-Rondán (2020) and argued that MLE performs well even the sample size is small in the panel data. Table 3 revealed the outcomes of Model 1 and Model 2.

Table 3: Pooled OLS and MLE results (Source: Author's calculations)

Methods	Pooled OLS		MLE	
	ROA (Model 1)	ROE (Model 2)	ROA (Model 1)	ROE (Model 2)
LDR	-4.64** (2.02)	11.34*** (4.22)	-3.25 (2.18)	8.08 (4.94)
FATA	-5.32*** (1.77)	-14.24*** (3.63)	-10.88*** (2.30)	-19.21*** (4.70)
FS	2.51*** (0.60)	5.03*** (1.22)	3.84*** (0.92)	5.77*** (1.71)
SG	0.39 (0.61)	0.05 (1.34)	0.92** (0.42)	-2.39** (1.15)
CTOR	-0.83** (0.38)	-0.55** (0.78)	-0.84 (0.55)	-0.62 (1.70)
PCI	1.01** (0.45)	1.24 (0.92)	1.00*** (0.36)	1.46* (0.89)
DV	23.66** (10.70)	47.57** (21.52)	28.07 (17.13)	52.98* (30.17)
DV*LDR	-27.26* (14.53)	-51.78* (28.30)	-46.22** (20.39)	-77.80** (39.15)
DV*FATA	30.04 (31.72)	58.72 (58.76)	70.77** (41.77)	131.11* (78.94)
DV*FS	-0.48	-3.82	-2.07	-4.86

	(1.70)	(3.22)	(2.62)	(4.52)
DV*SG	-11.07 (11.50)	-2.74 (23.41)	3.49 (7.78)	18.92 (19.75)
DV*CTOR	-1.24* (1.10)	-3.86* (2.24)	-1.12 (1.59)	-3.35 (2.98)
DV*PCI	-4.33** (2.10)	-3.38 (4.04)	-3.07* (1.71)	-3.87 (4.05)
Intercept	-9.44*** (3.43)	-18.47*** (7.03)	-14.83*** (5.34)	-20.58*** (9.96)
N	1171	1159	1171	1159
P-Value	0.000	0.000	0.000	0.000
R ²	0.083	0.057		
Adj R ²	0.073	0.046		
AIC	8303.825	9871.589	9668.842	7755.452
BIC	8374.743	9942.363	9749.727	7836.502

Note: Standard Errors are in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The results of the pooled OLS and MLE are presented in Table 3. If DV = 0 for non-certified firms, then DV and all interaction terms will be zero. Model 1 and Model 2 of the pooled OLS for the non-certified organizations will be like this:

$$ROA_{it} = \alpha + \beta_1(LDR_{it}) + \beta_2(FATA_{it}) + \beta_3(FS_{it}) + \beta_4(SG_{it}) + \beta_5(CTOR_{it}) + \beta_6(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROA_{it} = -9.44 - 4.64(LDR_{it}) - 5.32(FATA_{it}) + 2.51(FS_{it}) + 0.39(SG_{it}) - 0.83(CTOR_{it}) + 1.01(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = \alpha + \beta_1(LDR_{it}) + \beta_2(FATA_{it}) + \beta_3(FS_{it}) + \beta_4(SG_{it}) + \beta_5(CTOR_{it}) + \beta_6(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = -18.47 + 11.34(LDR_{it}) - 14.24(FATA_{it}) + 5.03(FS_{it}) + 0.05(SG_{it}) - 0.55(CTOR_{it}) + 1.24(PCI_{it}) + \eta_i + \varepsilon_{it}$$

Model 1 and Model 2 of the MLE for the non-certified organizations will be like this:

$$ROA_{it} = -14.83 - 3.25(LDR_{it}) - 10.88(FATA_{it}) + 3.84(FS_{it}) + 0.92(SG_{it}) - 0.84(CTOR_{it}) + 1.00(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = -20.58 + 8.08(LDR_{it}) - 19.21(FATA_{it}) + 5.77(FS_{it}) - 2.39(SG_{it}) - 0.62(CTOR_{it}) + 1.46(PCI_{it}) + \eta_i + \varepsilon_{it}$$

If DV =1 for the certified organizations, then Model 1 and Model 2 for the pooled OLS can be written as follows.

$$ROA_{it} = (\alpha + \beta_7) + (\beta_1 + \beta_8)LDR_{it} + (\beta_2 + \beta_9)FATA_{it} + (\beta_3 + \beta_{10})FS_{it} + (\beta_4 + \beta_{11})SG_{it} + (\beta_5 + \beta_{12})CTOR_{it} + (\beta_6 + \beta_{13})PCI_{it} + \eta_i + \varepsilon_{it}$$

$$ROA_{it} = (-9.44 + 23.66) + (-4.64 - 27.26)LDR_{it} + (-5.32 + 30.04)FATA_{it} + (2.51 - 0.48)FS_{it} + (0.39 - 11.07)SG_{it} + (-0.83 - 1.24)CTOR_{it} + (1.01 - 4.33)PCI_{it} + \eta_i + \varepsilon_{it}$$

$$ROA_{it} = 14.22 - 31.90(LDR_{it}) + 24.72(FATA_{it}) + 2.03(FS_{it}) - 10.68(SG_{it}) - 2.07(CTOR_{it}) - 3.32(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = (\alpha + \beta_7) + (\beta_1 + \beta_8)LDR_{it} + (\beta_2 + \beta_9)FATA_{it} + (\beta_3 + \beta_{10})FS_{it} + (\beta_4 + \beta_{11})SG_{it} + (\beta_5 + \beta_{12})CTOR_{it} + (\beta_6 + \beta_{13})PCI_{it} + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = 29.10 - 40.44(LDR_{it}) + 44.48(FATA_{it}) + 1.21(FS_{it}) - 2.69(SG_{it}) - 4.41(CTOR_{it}) - 2.14(PCI_{it}) + \eta_i + \varepsilon_{it}$$

Likewise, if DV = 1 for certified firms, then Model 1 and Model 2 for the MLE will be like this:

$$ROA_{it} = 13.24 - 49.47(LDR_{it}) + 59.89(FATA_{it}) + 1.77(FS_{it}) + 4.41(SG_{it}) - 1.96(CTOR_{it}) - 2.07(PCI_{it}) + \eta_i + \varepsilon_{it}$$

$$ROE_{it} = 32.40 - 69.72(LDR_{it}) + 111.90(FATA_{it}) + 0.91(FS_{it}) + 16.53(SG_{it}) - 3.97(CTOR_{it}) - 2.41(PCI_{it}) + \eta_i + \varepsilon_{it}$$

According to pooled OLS findings in Table 3, most of the results of the selected variables are statistically significant. The coefficients of LDR (-4.64 and 11.34) for non-certified firms are statistically significant at 0.05 and 0.01 significance levels. It means that LDR has a negative impact on ROA. On the other hand, the relationship between LDR and ROE (Model 2) is positive. For certified organizations, the relationship between LDR and organization performance is statistically significant and negative. The relationship between LDR and organization performance of the non-certified firms is significantly larger than the relationship between LDR and organization performance of the certified firms (-4.64 > -31.90 in Model 1 and 11.34 > -40.44 in Model 2 in pooled OLS technique). The results of LDR revealed that when the organizations accrue more debts, it causes to decrease their performance, specifically of the certified

organizations. The reason is that the excess debts raise the financial distress costs and decline the firm's value. The same relationship between LDR and organization performance of the certified organizations can be observed in the MLE technique.

The results of FATA in pooled OLS and MLE revealed that the coefficients of FATA are statistically significant at a 0.01 significance level, and all the coefficients have a negative sign which means that the relationship between FATA and organization performance of the non-certified organizations is negative. On the contrary, the relationship between FATA and the organization performance of the certified firms is significant and positive (Model 1 and Model 2 in MLE technique). This negative relationship between FATA and organization performance for the non-certified organizations show that the relationship is significantly smaller than the relationship between the variables of the certified organizations ($-10.88 < 59.89$ in Model 1 and $-19.21 < 111.90$ in Model 2 in MLE technique).

Table 3 shows a statistically significant and positive relationship between FS and organization performance of non-certified firms. All positive coefficients of FS exposed that the large Czech organizations perform better and earn more profits than small and medium organizations. However, the coefficients of FS of the certified organizations are statistically insignificant in Model 1 and Model 2 in both techniques. These insignificant outcomes revealed that the size of the certified organizations does not statistically affect their performance.

The coefficients of SG of non-certified organizations are statistically significant at a 0.05 level of significance in the MLE technique. The coefficient of SG is positive in Model 1, which means that there is a positive relationship between SG and ROA. Conversely, the coefficient of SG is negative in Model 2, which revealed a negative relationship between SG and the organization's performance. The coefficients of SG of certified organizations are statistically insignificant in all four cases. Thus, it can conclude that the higher sales growth of the certified organizations does not statistically affect their performance.

In the pooled OLS, the coefficients of CTOR for non-certified firms are negative and statistically significant at a 0.05 level of significance (Model 1 and Model 2). The negative signs of both coefficients exposed a negative relationship between CTOR and organization performance. The exact relationship between the variables could be observed for certified organizations in the same Models. However, the relationship between CTOR and organization performance for non-certified firms is significantly larger than the relationship between the variables of the certified firms ($-0.83 > -2.07$ in Model 1 and $-0.55 > -4.41$ in Model 2).

The coefficients of PCI for non-certified organizations in pooled OLS and MLE are statistically significant at 0.01, 0.05, and 0.10 significance levels. The signs of PCI coefficients are positive, which exposed the positive effect of PCI on organization performance. On the other hand, there is a significant and negative relationship between PCI and organization performance for the certified organizations in Model 1 for both techniques. The relationship between PCI and organization performance is significantly larger for non-certified firms than the relationship between the variables for certified organizations ($1.01 > -3.32$ and $1.00 > -2.07$ in Models 1).

The significant and negative CTOR and significant and positive PCI jointly show that non-certified Czech organizations use labor-intensive technology efficiently. However, the significant and negative CTOR; and significant and negative PCI of the certificate organizations jointly exposed that the certified organizations from the EFQM Excellence Model appear to use capital-intensive technology efficiently.

The coefficients of DV are statistically significant at 0.05 and 0.10 significance levels in the three cases. All significant coefficients of DV have positive signs, which exposed that quality certificate from the EFQM Excellence Model has a positive impact on organizational performance. The organizations with a certificate from the EFQM Model perform 23.66 and 47.57 units better in pooled OLS than non-certified organizations. According to the MLE technique, the organizations with having a quality certificate from the EFQM Model perform 52.98 units better than non-certified organizations. Hence, the quantitative study findings confirm that the organizations with quality certificates from the EFQM Model perform better and earn more profits than non-certified organizations.

The dummy interaction terms are included to more observe the impact of the quality certificates on organization performance. Most of the signs of significant coefficients of the dummy interaction terms are the same as of non-certified organizations except DV*FATA and DV*PCI. The significant outcomes of both interactions' terms are opposite a sign of coefficients of FATA and PCI.

The p-values of both models (Model 1 and Model 2) show the significance of the models as all the values are lower than the significance level (0.05). Hence, all the formed models are statistically significant. R^2 is the coefficient of determination that indicates how close the data are to the fitted regression line. The values of R^2 and adjusted R^2 of the current study are low in Model 1 and Model 2 (pooled OLS). However, a good model may have a low R^2 value, and a high R^2 value for a model may have a possibility that it does not fit the data (Moksony and Szemle, 1990). Therefore, the values of R^2 and adjusted R^2 do not designate whether a regression model is suitable.

In the literature, many tests and tools for detecting the best model have been suggested. However, two of them are most widely used models to evaluate the validity of the models are the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) (Rossi et al., 2020). Table 3 also reported the model fit statistics: AIC and BIC. The model with the lowest AIC and BIC values is the best (Yang, 2005; Asif et al., 2021). Model 2 (MLE) is the best prediction model to forecast the organization's performance as the AIC and BIC values are the lowest in Model 2 (MLE). The results of the tested hypotheses are described in Table 4.

Table 4: A summary of tested hypotheses (Source: Author)

Hypotheses		Conclusion	
		Model 1	Model 2
H ₁	LDR is associated with the organization's performance for non-certified firms.	Supported	Rejected
H _{1A}	LDR has an impact on organization performance of the certified organizations from the EFQM Model.	Supported	Supported
H ₂	FATA has an impact on the organizational performance of non-certified organizations.	Supported	Supported
H _{2A}	FATA has an impact on the organizational performance of certified organizations.	Supported	Supported
H ₃	There is a significant relationship between FS and organization performance for non-certified organizations.	Supported	Supported
H _{3A}	There is an impact of FS on organization performance for certified organizations.	Rejected	Rejected
H ₄	SG is significantly associated with organization performance for non-certified organizations.	Supported	Supported
H _{4A}	SG is significantly associated with organization performance of the certified organizations.	Rejected	Rejected
H ₅	CTOR is associated with organization performance for non-certified organizations.	Supported	Supported
H _{5A}	The is a significant relationship between CTOR and organization performance of the certified organizations.	Supported	Supported
H ₆	PCI has an impact on organization performance for non-certified organizations.	Supported	Supported
H _{6A}	PCI is associated with organization performance for certified organizations.	Supported	Rejected

H ₇	There is a significant impact of quality certificates from the EFQM Model on the organization's performance.	Supported	Supported
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4.2 Qualitative Study and its Results

4.2.1 Object of Analysis, Research Design, and Data Collection

For the qualitative research, four organizations were selected for interviews, where three organizations are certified from the EFQM, and one is non-certified. The gender of the interviewee, quality certificate category from the EFQM Model, size of the organization, and respondent's position in the organization were also considered before the interview. Former studies such as Luu (2017) and Chan and Hawkins (2012) have briefly discussed these requirements. Hence, random sampling was selected as a sample choice strategy. The interviews were conducted using the guidelines settled by Tong et al. (2007) for the qualitative research.

The quality managers (QM), general managers (GM), chief executive officers (CEOs), and senior employees (SE) were selected for the interviews who understand the quality award procedure from the EFQM Model and have adequate knowledge about quality management. In this way, 11 interviews of employees, managers, and CEOs were recorded until saturation was reached, as suggested by Glaser and Strauss (1967).

All the interviews were conducted through phone calls and recorded with the permission of respondents. The anonymity of interviewees and their companies was ensured as it is really important to establish a comfortable and reliable meeting (Pham et al., 2019). Set of determining questions lead to numerous sub-questions during interview discussions. To improve the quality and credibility and reduce the bias of the research, a member checking process was applied by contacting interviewees again to confirm the information collected as proposed by Baxter and Jack (2015). Therefore, two interviewees were again telephoned to record the second interview to further explain some of the discussion in the first interview. In total 11 managers, CEOs, and employees were interviewed, out of which two of them were interviewed twice. All the interviews were conducted in English. These requirements aim to ensure that participants understand quality awards/certificates, and in this way, the reliability of our data can be assured. After completing the interviews of the selected participants, the data were analysed and summarized carefully. The analysis of the qualitative study was conducted through a qualitative data analysis software, ATLAS.ti 9.

The contents of all interviews are saved and typed in a Microsoft Word file. Data triangulation is employed to determine whether the data from all available

resources in the study converged to the same findings. To compare the qualitative data analysis cases, the content analysis is realized to the category of respondents and according to case by case (Pasciak et al., 2021). It also analysed the results to explore differences and similarities in terms of the EFQM Excellence Model.

4.2.2 Further Analysis

A *content code (or content words)* was assigned to each interview for further analysis using the above interviews' quotation. By employing the content codes, Figure 1 was prepared by using Atlas.ti software.

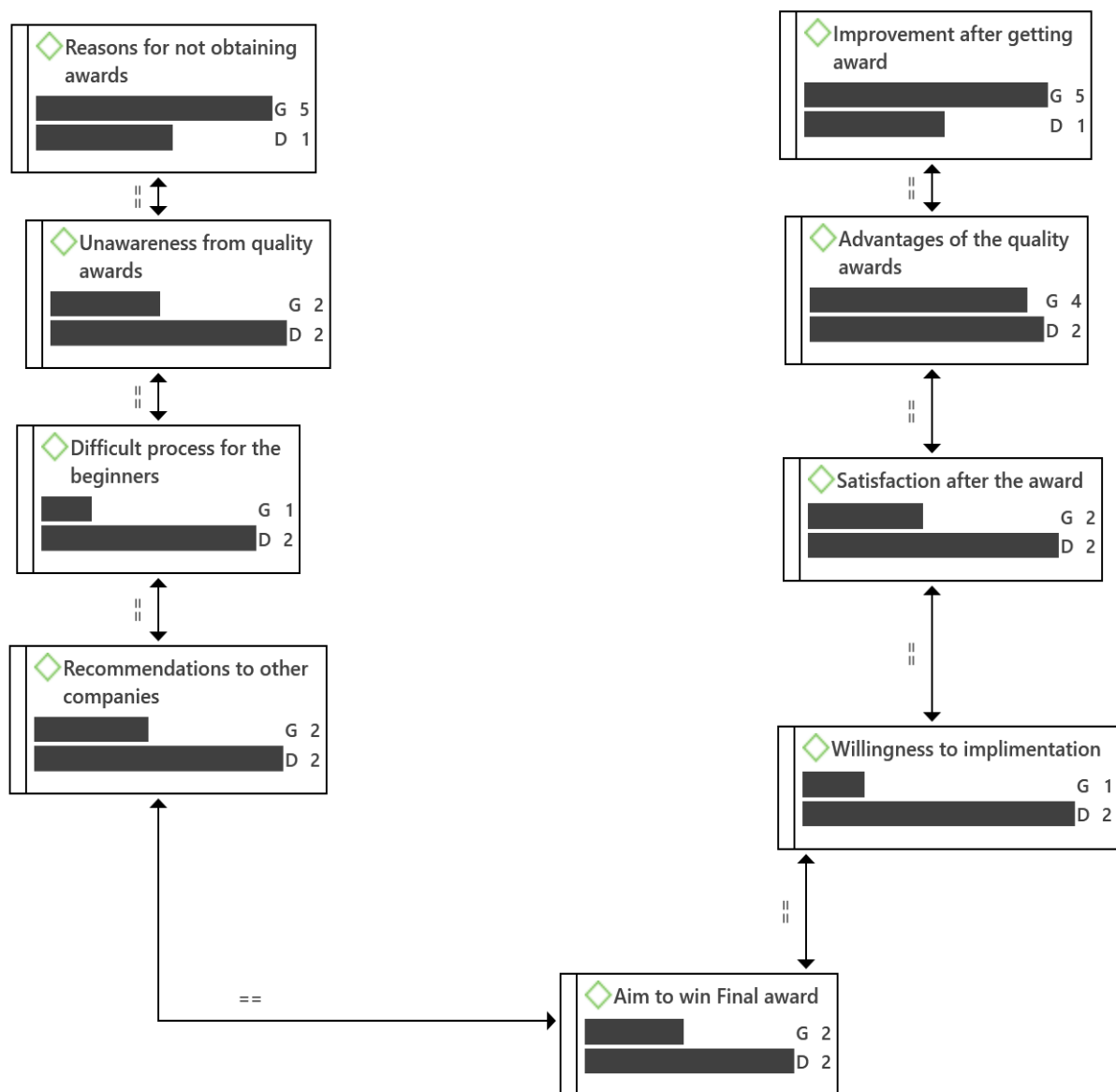


Figure 1: Analysis of the content codes (Source: Author)

In Figure 1, “D” denotes the density, and “G” represents the roundedness. D elaborates how many links of the content codes have with other content codes

within the network, whereas G tells us how many quotations are associated with each content code. The findings exposed that the content codes “reasons for not obtaining awards” and “improving after getting award” have the highest value of G (=5) and D (=1) in both cases. It means that most of the interviewees discussed the improvement after having the quality certificates from the Foundation and the reasons for not getting awards by the Czech organizations. On the contrary, the content codes “difficult process for the beginners” and “willingness to implementation” have the lowest value of G (=1) and D (=2).

4.2.3 Differences and Similarities

The study did not observe too many differences in the findings among participants. However, many similarities from interviewees were observed. For example, every participant was aware of the benefits of the quality certificates/awards. Most of the respondents recommend to other Czech organizations to implement the EFQM Excellence Model within their organizations, as their organization performed better after obtaining the quality certificates from the Foundation. The participants argued that the Czech organizations did not obtain the Global Winner/Prize Award as most organizations don't implement the Model, and the organizations are not aware of the benefits of the quality awards. However, the managers and CEOs of the selected organizations hope that the Czech organizations will obtain the EFQM Excellence Award/Prize Winner very soon.

5. CONCLUSIONS

For the quantitative research, secondary data of 307 Czech companies were retrieved from the Albertina database. In the sample, 20 organizations were certified from EFQM Model, and the remaining 287 organizations were non-certified organizations. The data were gained from the three sectors: manufacturing, construction, and automobile, and the data covered the time period from 2015 to 2019. Two different regression techniques were used to investigate the main goal of the current study. Most of the significant results of the quantitative research revealed that leverage, tangibility, capital turnover ratio, and physical capital intensity are negatively correlated with organizational performance. On the other hand, sales growth and firm size have a positive effect on organization performance. The findings of the dummy variable are statistically significant and have a positive relationship with organization performance. Therefore, it is clear from the outcomes that the organizations with quality certificates perform better than non-certified organizations.

By employing the qualitative approach, this study investigated why the Czech organizations did not receive the EFQM Global Excellence Award even though Czechia has an export-oriented economy. A case study in the qualitative

research was employed and collected data through interviews from 4 organizations where three organizations were certified from the EFQM Model, and one organization was non-certified. The findings of the qualitative method exposed that the organization's performance was improved in many aspects after receiving the quality certificates from the EFQM Model. Moreover, the main reasons are not obtaining the EFQM Excellence Award Winner or/and Prize Winner by the Czech organizations are: firstly, most Czech organizations don't implement the EFQM Excellence Model in their organizations. Secondly, the Czech organizations are not aware of the benefits and importance of having a quality award from the EFQM Model. Thirdly, before going to have EFQM Excellence EFQM Excellence Award/Prize Winner (or Finalist), there are a few steps towards Excellence, and the process is very important. But many Czech organizations don't implement the Model. In this way, the Czech organizations don't receive the EFQM Excellence Prize/Award Winner.

The current study results show that the quality certificates are also the same important as the quality awards because the certificates help to improve the organization's performance. Previous studies showed that the EFQM Excellence Model needs to be consistently applied in organizations over a lengthy period (5–10 years) for its effective use. The level of knowledge and overall people awareness of the Excellence Models is very low in Czech organizations. We recommended that the Czech organizations should change organization culture towards systematic knowledge (including best practices) and participate in the quality awards.

6. CONTRIBUTION, LIMITATION AND FUTURE RESEARCH DIRECTIONS

6.1 Theoretical Contribution

This study contributes to the literature in various ways as the study is unique in many aspects. Firstly, the current research contributes to the finance literature as it covers the characteristics of non-certified and certified organizations from the EFQM Excellence Model. The study discussed comprehensively that which factors affect positively or negatively the organization's financial performance. Hence, it also provides guidelines to those organizations which are trying (or will try) to get quality awards.

Secondly, most of the previous studies were done in Germany, Spain, and the U.K. and addressed only the EFQM Excellence Model and its relationship between the criteria (Yousaf and Bris, 2019). However, the current study focused for the first time on the Czech organizations that have different quality certificates

from the EFQM Model. These quality certificates are very important to consider the Finalist in the Global Award category and obtain a Global Award from the Foundation. The impacts of the quality certificates are very positive in terms of economic and financial.

Thirdly, the literature is very limited in quality management that helps to measure and estimate the organization's performance by employing panel data. The current study also filled this gap by using pooled OLS and MLE estimation. MLE estimation is specifically used to estimate the organization's performance as the estimation was not much used in the prior studies.

Fourthly, the present study contributes to the quality management literature. The dummy variable is used to measure the certification effect on the organization's performance. The study explored that the organizations with quality certificates perform better than non-certified organizations.

Fifthly, the current study also contributes to the literature by exploring why the Czech organizations did not obtain the Global Award from the EFQM Excellence Model. The study conducts the qualitative research approach to explore the reasons.

6.2 Practical Contribution

The main results obtained in this study have important implications for certified organizations and for non-certified organizations as the policymakers and managers use these findings to improve the organization's performance in the long run. The results are useful for learning developments for other organizations that are trying (or will try) to get an EFQM Global Excellence Winner/Prize Award. Empirically and practically, the findings will help to understand the excellent way and common features and characteristics of the Czech organizations that have obtained the quality certificate (or trying to obtain the certificate) from the EFQM Model. Therefore, the findings of this study are beneficial to organizations and authorities who give certificates/awards to other organizations.

The empirical findings clearly mentioned which factors impact the organization's performance. For instance, the labour-intensive is better for non-certified organizations to improve their performance. On the other hand, the capital-intensive technology is better for certified organizations to improve their origination performance. Considering the firm size, the large non-certified firms earn more profits than SMEs; conversely, the firm size does not matter for the certified firms. Financial leverage has a negative impact on the organization's performance. All the factors should be considered by the certified and non-certified organizations which factor in which direction will be useful for improving their performance.

The current research findings are fruitful for policymakers, stakeholders, managers, academics, and investors. The results are important for investors as they consider organization performance to make investment decisions. The outcomes are significant for policymakers and managers as they make policies and decisions to improve the financial performance of the organizations. This research highlighted the impacts of quality certificates on the organization's performance; therefore, the findings are also crucial for academics.

The empirical findings also contribute to the existing literature in Statistics and Econometrics. The study used a dummy variable and dummy interaction terms to examine the impacts of different variables on the organization's performance. Existing literature briefly gives theoretical explanations, but the empirical explanations specifically interpreting the dummy variable and dummy interaction terms are very ambiguous and rare. However, the current study explains the concepts comprehensively.

6.3 Recommendations to the Czech Society for Quality (CSQ)

Czech Society for Quality (CSQ) is the authority to implement the EFQM Excellence Model and gives different quality certificates to the Czech organizations. The current study explored why the Czech organizations did not obtain the Global Awards from the EFQM Model. In the light of findings, it is recommended to the Czech Society for Quality (CSQ) that CSQ should encourage to implementation of the EFQM Excellence Model into the Czech organizations. By implementing the Model, the organizations will improve the product or service quality, be aware of considering total quality management, increase assets, raise sales, promote profits, and get EFQM Global Winner Award in the future. So, by implementing the EFQM Excellence Model in the organizations, the Czech organizations will get more benefits than their competitors and help in the growth and performance of the organizations. Therefore, the CSQ should pay considerable attention to motivating Czech organizations to implement quality models, such as the EFQM Excellence Model.

6.4 Limitations

There are a number of limitations to the current research that warrant consideration. The research focused on the performance of Czech organizations. Hence, 307 organizations are selected randomly from 3 sectors: automotive, manufacturing, and construction. These sectors are selected in the current study as it is easy to compare the financial performance within the selected sectors instead of services, educational, banking, or agriculture sectors. The gained data covered a short time period, from 2015 to 2019, due to the availability of the data from the Albertina database. The consequences and impacts of coronavirus disease (COVID-19) could be felt around the world. The Czech Republic is also severely affected by the pandemic. However, the current study did not include any factors which are related to the pandemic. There are many cultural, social, macro,

financial, and economic variables and factors that affect the organization's performance. However, only the most important variables are selected to explore the organization's performance in the present study based on the previous literature and available data.

6.5 Further Research Directions

The current study focused on investigating the relationship between quality certificates and organization performance. However, there is a lot of scopes to conduct further research on this topic. In the current study, one country and a limited time period were included. Further research can be conducted by considering more countries and a longer time period. There are many financial, cultural, social, and economic factors and variables that were not included in the current study: however, these factors impact the organization's performance. These factors can be included in further research to study a comprehensive overview of the organization's performance.

Different levels of quality certificates from the EFQM Excellence Model by involving three sectors of the Czech economy were studied in the current research. Future research can be conducted by comparison of ISO certificates and certificates from the EFQM Excellence Model. Future research is also possible to consider other dependent variables and different methodologies that are not used in this study. For example, other dependent variables can be return on capital employed (ROCE), return on invested capital (ROIC), return on sales (ROS), and total assets turnover (TAT) included; and other methodologies can be dynamic panel data models, statistic panel models, machine learning models included in the future research.

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