THE RELATIONSHIP BETWEEN CEO COMPENSATION AND FIRM PERFORMANCE OF DUTCH LISTED FIRMS

Master Thesis

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Abstract

The impact between executive compensation and firm performance has been widely studied around the globe for decades. However, there still is ambiguity among results. Different studies show no effect, negative effects and positive effects as well. This study examined the relationship between executive compensation and firm performance. The sample which is used in this study consist of Dutch listed firms on the Amsterdam Euronext over the period 2012 – 2018.

The results of the ordinary least squares (OLS) regression analyses show that the effect of executive compensation on firm performance is positive and statistically significant. Most cases the results remain robust. The effect of market – based and accounting based firm performance on executive compensation on firm performance is positive. To add, results show that the number of employees, firm age and leverage are related with executive compensation and firm financial performance.

Keywords: executive compensation, firm financial performance, listed firms, The Netherlands, Amsterdam Euronext.

Table of contents

1. Introduction

1.1 Background

Executive compensation, in particular, performance-related compensation is frequently discussed in public opinion, especially, after the recent financial crisis. It affected many investors to lose their invested money and employees losing their jobs. Nevertheless, directors received large rewards which have led to social outrage. However, the economy began to rise again in 2012. In that year, the economic prospect had improved again and CEO compensation has risen.[1] Due to the fact that in the last several decades global competitiveness has increased, organization demanded that there should be an improvement in performance.

According to one of the most used theories in the pay performance research, the agency theory. As of the agency theory states, there can be conflicts of interest between agents, which have the control of the firm (managers) and principals (shareholders). One solution to align this interest and reduce the agency conflicts between the shareholders and managers is to adjust the compensation of the agents towards the firm results (Smirnova & Zavertiaeva, 2017).

Therefore, it is interesting to research to see if executive compensation is in relation with the change in firm performance. The relation is known in the academic literature as pay for performance relationship. The critic is that the level of compensation of top executive is too high, especially in poor financial times we have had in recent years. As mentioned by Couwenberg in the FD stated the phrase pay-for-performance is not the best way to cover the deal, instead, pay-for-failure is a better phrasing than pay-for-performance[2]. That is because, there is a negative relationship between executive compensation and firm performance.

Although, there is a lot of academic research on pay for performance done globally, there has not been much research done in the Netherlands, some research what has been done is for example done by Duffhues & Kabir (2008) and van der Laan, van Ees & van Witteloostuijn (2010). However, Duffhues & Kabir (2008) had their sample period in the years 1998 and 2001, van der Laan et al, had their sample period in the years 2002-2006. Duffhues & Kabir (2008) did not find a positive relationship between compensation and firm performance. Moreover, van der Laan et al, (2010) found that some of the components of executive compensation to be positively correlated with firm performance variables. In line with van der Laan et al., (2010), Weenders (2019) did find a positive relationship over the variable compensation over the years 2014– 2016 but the results were not robust. Opposed to

[1] https://www.dnb.nl/binaries/DNB_Economische_crisis_v03_tcm46-363812.pdf
[2] P, C. (2007b, december 17). Halt aan extreme beloningen. Recht.nl

this, Spoor (2020) did a find a positive and significant effect of firm performance on short term incentive compensation, however these were not robust either.

Because of the conflicting results, it clears a way to do a research for the Netherlands after the recent economic crisis over the years 2012-2018, and contrast it to the already existing literature. According to van der Laan et al., (2010), the results of the US studies are translated into policy directions throughout the world, whereby they do not respect the local conditions that apply for in my example the Netherlands. Furthermore, the Dutch case is much more representative for Europe, whereby in comparison to the U.S. compensation is not so much dominated by stock-based pay components. Lastly, in The Netherlands, rewards are often made with the condition that pre-specified performance targets are met, which means that they cannot be exercised or allowed before a pre-specified date.

Moreover, there are some different institutional examples for The Netherlands. As for example, the CEO of Unilever has seen his renumeration increase as much as 51% over the year of 2017. The Supervisory Board of Unilever announced his compensation increase. Nevertheless, this dealt with a lot resistance by shareholders. The explanation to increase the CEO his renumeration was that 'he did deliver truly outstanding performance over the full five years'. The above-mentioned example shows there is an agency conflict between the managers and shareholders of the firm. Another one is by the ING-Bank. The Supervisory Board of the ING-Bank wanted to increase the renumeration of the CEO by 50%. However, this also dealt with a lot of resistance by shareholders, the media and even the national government. After all this resistance, the Supervisory Board revoked the increase for the CEO. The explanation to increase the compensation for the CEO was that the CEO was underpaid in benchmark with other CEOs from other similarly companies. This research intends to investigate the impact of executive compensation on firm performance of Dutch firms listed on the Amsterdam Euronext between 2012 and 2018.

1.2 Research objective

As described above, there has been a lot of research towards the relationship between CEO compensation and firm performance in various contexts. However, there is still vagueness among the results. As described later, the results vary from a positive relationship, no relationship to even a negative relationship. If we look at the agency theory, there should be a positive relationship between CEO compensation and firm performance. This is due the fact that the interest of shareholders and managers can come together by aligning different compensation packages for the managers/executives. The different compensation packages for CEOs can contain multiple pieces, for example, annual bonus, base salary, long term incentive pay, short term incentive pay and other benefits (Murphy, 1999). As mentioned above, these compensation packages should be aligned between the managers/executives and shareholders. Because, the manager has the incentive to maximize his own personal wealth, there is a reason to include firm-performance based remuneration to as well increase the shareholders' value. This will align the interest of the managers and shareholders. Alternatively, the managerial power theory, states that executives would like compensation packages that are more in the interest of the executives, and which are less sensitive towards firm performance. Meaning eventually that there is no to a negative relationship between the CEO compensation and firm performance.

As mentioned above, there are two main reasons to do this research. First, to my best knowledge, there is not done any research for the period between 2012 and 2018 in for Dutch listed firms in The Netherlands. Secondly, because there still is ambiguity about the overall results, and in this case The Netherlands, between the relationship of CEO compensation and firm performance. In order to achieve the objective of this study, the mentioned research question will be answered:

''To what extent does executive compensation influence the firm performance for Dutch Firms on the Amsterdam Euronext between the years 2012 and 2018?''

1.3 Contributions

The scientific contribution of this research is that there is no new study done over the last couple of years in the Netherlands. Adding to this, there is still vagueness in the literature about the relationship between executive compensation and firm performance. Moreover, I will examine the CEO compensation on firm performance where most other researcher examined the firm performance on CEO compensation relationship for example Spoor, (2020).

1.4 Thesis outline

This thesis is outlined as follows. The next chapter consists of a literature review which includes the three main theories, empirical evidence and components of executive compensation to better understand the relationship between CEO compensation and firm performance, at the end of the next chapter the formulated hypothesis will be mentioned. The third chapter defines the methodology for this study and how the variables will be measured in this study. In the fourth chapter the sample will be described in detail and along with the data collection method. Moreover, in chapter five the results will be discussed and described in detail. In the final chapter, the conclusion of the analysis will be given, including the limitations of this thesis and recommendations for future research.

2. Literature review

In this chapter, a literature review is done. This literature contains several definitions and explains different terms. It has been divided into four subsections. Firstly, three important essential theories, particularly the agency theory, the stakeholder theory and the managerial power theory. Lastly, the third part will be used for empirical evidence regarding CEO compensation and firm performance, eventually the hypothesis will be formed, and there will be given a tabulated overview of this.

2.1 Executive compensation

Shareholders rely on CEOs to adopt policies that maximize the value of their shares. Nevertheless, CEOs favor activities that increase their own well-being. One of the most critical roles of the board of directors is to motivate the CEO that makes him do what is in the best interest of the shareholders. There are a few policies that create the right motivation for the CEO to maximize the value of the shares of the shareholders. One of them is that salaries, bonuses and stock options are designed to provide rewards for the CEO, on the other hand, there are penalties if there is poor firm performance (Jensen & Murphy, 1990). Furthermore, Murphy (1999) adds to this that there are mainly four components of CEO compensation, namely: base salary, long-term incentive pays, short-term incentive pays and other benefits. These four main components will be discussed briefly down below.

2.1.1 Base salary

Firstly, the base salary is the most common part of CEO compensation. The base salary is a monthly payment that does not depend on the company's results (Jepson, Smith & Stone, 2009). Most of the time it is benchmarked primarily on general salary surveys. Moreover, the base salary is a critical component of CEO compensation, adding to that base salaries does represent the 'fixed component' in the CEOs contract. (Murphy, 1999) Because managers are risk averse, CEOs would like to have a more substantial base salary comparing to their variable component, this is in line with the agency theory which will be described further in this literature review (Boyd, 1994; Murphy, 1999). The base salary only consists of one part, which is the annual pay towards the CEO (Basu, Hwang, Mitsudome & Weintrop, 2007)

2.1.2. Annual bonus/short-term incentive pay (STIP)

The annual bonus is based on performance which is in addition to the base salary of the CEO (Jeppson et al, 2009). Moreover, according to Murphy (1999), roughly every for-profit company has an annual bonus plan which covers the CEOs. Most of the time, the bonus is paid annually and paid in the form of cash. Firms traditionally use financial metrics such as return on equity or return on assets. However, some firms use non-financial (such as: market share, product quality, customer satisfaction) measures in performance. Other words for an annual bonus is short-term incentive pay (abbreviated STIP). Usually the STIP/annual bonus is paid out annually, this means that financial and non-financial measures are mainly focused on short term performance. This means that the CEO will most likely look at the short-term performance instead of the long-term performance of the company. Those performance components are for the short-term can be influenced by the CEO to ensure his bonus. This can mean that the CEO can steer for a change in the denominator or nominator, just to ensure his bonus (Ittner, Larcker & Rajan 1997; Murphy 1999; Jackson, Lopez & Reitenga 2008).

2.1.3 Long-term incentive pay (LTIP)

Long-term incentive pay signals commitment to the shareholders interest. Typically, the long-term incentives are comprised of two major compensation arrangements, which are: stock options and restricted stock. Also, is that the LTIP can substantively change the agency problem between top managers and the owners (Westphal & Zajac, 1993). According to Buck, Bruce, Main & Udueni (2003) the difference with the STIP is that a long-term incentive pay is most likely for a period between three and five years. Also, the LTIP offers a minimum (mostly zero) and a defined maximum positive value which is included in the contract of the CEO. Down below is a brief description of stock options and restricted stock.

2.1.3.1 Stock options

The right to buy a share of stock at a pre-specified exercise or strike price for a pre-specified price are called stock options (Murphy, 1999). Stock options are an incentive by many firms as types of equity compensation to motivate the CEOs to work in the shareholders best interest. Moreover, a disadvantage of stock options for the CEO, is that there is no income to report at the time, unless the stock is sold at the same time it is exercised (Sigler, 2011). Agreeing with Sigler (2011), Frydman & Jenter (2010) examined that the purpose of a stock option is to tie the compensation directly towards share prices and by this giving the CEO an extra incentive to increase the shareholders wealth. However, there is a limitation towards stock options, meaning that when the stock price fall, the managers will not lose money.

2.1.3.2 Restricted stock plans

Just as stock options, restricted stock is a form of equity-performance based pay and is also linked at the stock price. Restricted stock is another form of stock ownership which allows the interest of the CEOs and shareholders to come together. A restriction of this type of stock is that it requires a period to pass before a specific goal can be achieved before the CEO a sell the stock on the market (Sigler, 2011). Nevertheless, according to Frydman & Jenter (2010) the restricted stock grants have replaced stock options as the most popular form of equity compensation.

2.1.4 Other benefits

Furthermore, after the base salary, short term incentive/annual bonus, long term incentive, stock options and restricted stock options there are other benefits the CEO can enjoy during his time as executive at a certain company. There are a lot of other benefits which can be a part of the CEO compensation. This can be, for example, a retirement plan, golden parachute, life insurance, health insurance, car allowance, travel reimbursements and company cell phone (Sigler, 2011; Frydman & Jenter, 2010). Moreover, eventually adding to this, according to Larcker & Tayan (2015) the CEO can use, for example, private company jets, pay for club memberships, company car and company cell phones. The thinking behind this is that the CEO improve his/her managerial productivity and can increase the value for the shareholders (Rajan & Wulf, 2006).

2.2 Theories on executive compensation

This thesis investigates the effect of CEO Compensation on firm performance in the Netherlands during the period 2010-2017. Therefore, considerable theoretical perspectives should provide this study's theoretical rationale for the investigation of the effect of CEO compensation on firm performance. Different theories possibly can substantiate the relationship between CEO compensation and firm performance.

2.2.1. Agency theory

Top managers, most likely individuals, are described in the literature as being risk-averse. Managers want their compensation structured so that they bear less personal risk in terms of less risk in their personal wealth or income. Given a certain level of compensation, managers should prefer fixed cash compensation over equity-based compensation. In order to reduce their compensation risk, managers may engage in activities which reduce the firm's risk (Jensen & Meckling, 1976; Amihud & Lev, 1981). These activities can affect shareholders wealth eventually (Mehran, 1995). On the other hand, shareholders, are considered risk-neutral because they can diversify over firm-specific risk simply by having a diversified portfolio. While there are several ways to reduce this conflict over risk, managers'

compensation to firm performance motivates them to make more value-maximizing decisions (Holmstrom, 1979; Harris and Raviv, 1979; Grossman and Hart, 1983)

This theory is called the agency theory. This theory primarily concerned with the relationship between managers and stockholders (Hill & Jones, 1992). An agency relationship as defined by Hill & Jones (1992) & Guilding, Warnken, Ardill & Fredline (2005) is as one in which one or more persons (the principal) engages another person (the agent) to perform some kind of service on their behalf which involves assigning some decision-making authority to the agent. Besides, the foundation of the agency theory is the assumption that both the interests of the principal and the agent deviate from each other. Furthermore, defined by Eisenhardt (1989), aligning with above mentioned researchers, is that there is a risk-sharing problem that arises when cooperating parties have different attitudes towards risk.

When problems arise between the principal and the agent, it eventually can lead to more mediocre firm performance. There are different reasons that there are problems between the principal and the agent. It can be due to the different desires or goals of the principal and agent have or it is difficult or expensive for the principal to verify what the agent is actually doing (Eisenhardt, 1989; Hill & Jones 1992). Adding to this Guilding et al., (2005) mentioned that conflict of interest between the principal and agent has four main reasons; 1) the principal and the agent may prefer different actions because of the different risk preferences. 2) the agent can use his work situation as an opportunity to divert resources towards his own personal benefit. 3) the principal and agent can have different time horizons, i.e. the principal and agent have different opinions about long-term relationships meaning that in the example the principal wants to look at a time-horizon of ten or more years, while the agent just has little concern over the long-term relationship because he does not expect to be there in the long term. 4) there is a potential for effort aversion by the agent (a manager may well experience a desire not to apply an optimal effort when completing his/her work).

Those problems should be aligned between the agent and principal otherwise there can be agency loss, this is due to the fact there is a lack of alignment between them. To prevent this, the principal and agent should align the interest between them and between agents (Donaldson & Davis, 1991). To diminish the agency problems there is a threesome of solutions, these are: the monitoring by directors of managers and the ownership of agents must be improved. They are backing the third reasons of Donaldson & Davis (1991) who suggested to apply incentive schemes for the managers. These schemes give managers financial rewards when they are enlarging the shareholders interest.

2.2.2. Stakeholder theory

Another theory is the stakeholder theory. The term stakeholder is any person or group that can influence or is influenced by the achievement of the organization. A firm can have many different stakeholders: employees, managers, investors, shareholders, the government, customers, suppliers, etcetera. The stakeholder theory assumes that organizations must not only be accountable to shareholders, but also to stakeholders who have a direct interest or are involved in the organizational process (Hill & Jones, 1992).

There are two different stakeholders, the internal and external. Managers are the internal ones and customers, suppliers are the external stakeholders. As the stakeholder theory suggests, every individual stakeholder creates or holds value for the company. Considering that managers are stakeholders, the CEO of the company is also counted as a stakeholder. This means that the outcomes of the firms also means that the CEO is affected in this. A positive (negative) firm performance then will make the CEO position stronger (weaker). Everything together, a difference in the structure of the compensation towards the CEO can give a positive (negative) firm performance.

2.2.3 Managerial power theory

The third, and last theory, which will have a prior following during this research is the managerial power theory. The managerial power is closely linked with the priorly mentioned agency theory in section 2.2.1. This is because the managerial power theory also has the basis of differences between the executives and shareholders of a firm (Tosi et al,. 1999). At the core of the framework of the managerial power theory is directly a challenge, this challenge is an assumption within the agency theory of optimal contracting. That is, boards are involved in 'arm's-length' transactions with managers/executives over compensation packages and such transaction help to mitigate the agency problems, which is, creating compensation packages that are more aligned in the interest of shareholders and executives (Bebchuk & Fried, 2004; Bebchuk, Fried, & Walker, 2002). However, Bebchuk & Fried (2004) disagree that boards do not engage in 'arm's-length' transaction because executives have power over board-level decision making processes about the compensation for the executives. Moreover, it does create a few incentives for executives to threat the compensation packages, the managerial power theory states that executives would like compensation packages that are more in the interest of the executives, and which are less sensitive towards the firm performance.

Before the financial crisis hit the world, the trend in executive compensation was that to improve the correlation between the pay and performance so that the interest of top executives and shareholders would be aligned. Adding to this, Schneider (2013) described the managerial power theory as a crucial factor shaping executive compensation. Different backers of the managerial power theory show managerial influence over the design of pay

arrangements has produced significant distortions in those pay arrangement. Eventually, resulting in costs towards investors. Finally, this resulted in compensation arrangements that weakened the executive's incentives to increase the value for the shareholders (Schneider, 2013). The empirical evidence which indicates that executives with higher forms of power are able to influence the composition of their compensation package. For example, Hill, Lopez and Reitenga (2016) found in their research that when CEOs are more powerful have higher compensation without any explanation. Adding to this, Tian, Choe and Yin (2014) found that the power of the CEOs affects the CEO compensation package, in example with higher base salaries, more significant increases in total compensation and a larger amount of stock-based compensation regarding less powerful CEOs

2.3. Empirical evidence on CEO compensation and firm performance

2.3.1 Positive relationship between CEO compensation and firm performance

There are many studies done with CEO Compensation and firm performance as the main interest of their study, moreover studies have concluded that there is a positive relationship between CEO compensation and firm performance. For example, Brick, Palmon & Wald (2006) find a significant and positive relationship between the CEO compensation and firm performance when using a sample of 1163 to 1441 firms (they omitted certain variables). According to their study, one possible reason that CEO compensation and firm performance is related to each other is towards firm complexity and the talent and effort to manage and direct such companies.

Adding to this Kato & Kubo (2006), provided the first estimates on pay-performance relations for CEO's cash compensation in Japan. They used a 10-year panel data on individual CEO's monthly base salary of 51 Japanese firms. Kato & Kubo (2006) found a positive and significant relationship between CEO compensation and a measure of firm performance (Return on Assets).

Moreover, Buck, Skovoroda and Liu (2008) studied the relationship between CEO compensation and firm performance in the Chinese market. They have used a total sample of 601 Chinese listed firms on the Shengzhen and Shanghai stock markets. Furthermore, they investigated if pay influences performance. The results of their research confirm that there is a relationship between CEO compensation and firm performance. The researchers showed that the base salary and bonus per annum has a significant positive effect on their firm performance measures for example; return on assets, shareholder return, pre-tax-profit and shareholder value.

Furthermore, Spoor (2020) studied the relationship between short- and long-term incentive pay and firm performance for listed firms on the Amsterdam Euronext. He used a sample over the years 2015 – 2018 and found a positive and significant effect. Contrary, when examining on industry classification, some significant effects disappeared. Therefore, he found a positive and significant effect for the manufacturing sector and other services sectors. Spoor (2020) examined these results using ROA, ROS, RET and Tobin's Q. Also, the researcher split the sample into accounting based firm performance and market-based performance, he stated thereby that he found a positive and significant effect for the accounting based firm performance. Yet, the study did not find statistically significant and robust positive effect for market based firm performance.

Finally, Carpenter & Sanders (2002) did research between the relationship between Top Management Team (where the CEO is part of) and explore the relationship between pay for firm performance. They used a sample of 250 selected firms from the S&P 500.They found that CEO pay is positive related to firm performance (i.e. return on assets and Tobin's Q) when the interest of the managers are aligned with the shareholders interest.

2.3.2 Negative relationship between CEO compensation and firm performance

On the contrary, there are also a lot of studies who have found a negative relationship between CEO compensation on firm performance. For example, Core, Holthausen & Larcker (1999) found a statistically significant relationship between CEO compensation and firm operating and stock return performance. Adding to this, Core et al, (2009) find that firms with weaker corporate governance have greater agency problems; saying that CEOs at firms with greater agency problems receive greater compensation and that firms with greater agency problems perform poorer.

Moreover, studied by Basu et al., (2007) studied the relationship between excess pay towards the CEO, the researcher found a negative relationship on accounting performance. The researcher did this research for 174 firms during the time period of 1992 – 1996. The researcher defined accounting performance as the average return on assets for three years and stock market performance for three years.

2.3.3. No relationship between CEO compensation and firm performance

There are a few studies with CEO Compensation on firm performance where there is no relationship between those two variables. For example, Ozkan (2011), investigated the relationship between CEO compensation and firm performance for a sample of 390 UK non-financial companies. However, they did not find a significant relationship between CEO compensation and firm performance.

Furthermore, as mentioned by Boyd (1994), CEO compensation was not significantly related to profitability (profitability is related towards the firm performance. The CEO compensation is composed by the researcher of three elements, namely; 1) base salary, 2) bonus and 3) long-term or deferred income.

Moreover, Izan, Sidhu and Taylor (1998) examine the relationship between CEO compensation and firm performance in Australia. They did examine the relation between the CEO pay and accounting and share price performance indicators. Their sample included the years 1987 till 1992. In their research the researchers found no evidence of a linkage between CEO pay and firm performance. The measurement of firm performance was return on assets and return on equity. Return on assets was in the research because the results are qualitatively the same as those reported with return on equity.

Furthermore, Weenders (2019) conducted a research on the levels of CEO pay on firm performance for Dutch listed firms on the Amsterdam Euronext over the years 2014 – 2016. The study did not find any statistically and robust answer if CEO pay does lead to higher firm performance on the next year. The researcher found several statistically significant results, but they did not remain robust.

Lastly, Jensen & Murphy (1990) did a research of performance pay and top-management incentives among 2,000 CEO's over five decades. The relationship that was found was very small and was not statically significant. The measurement of firm performance in this research is the change in shareholder wealth, they did a research before compensation expenses and after compensation expenses. Summarizing, the empirical evidence described above found no significant relationship between CEO compensation and firm performance.

Relationship	**Authors**	**Theory**	**Measurement of firm performance**
Positive	Brick, Palmon & Wald (2006)	Agency Theory	ROA_{t-1}, Mean $ROA_{t-1-t-3}$
Positive	Kato & Kubo (2006)	Agency Theory + Shareholder Theory	ROA RET
Positive	Buck, Skovoroda and Liu (2008)	Agency Theory	ROA RET
Positive	Carpenter & Sanders (2002)	Agency Theory	ROA, Tobin's Q
Positive	Spoor (2020)	Agency Theory	ROA, ROS, RET, Tobin's Q
Negative	Core, Holthausen & Larcker (1999)	Agency Theory/Problems	ROA RET
Negative	Basu, Hwang, Mitsudome & Weintrop (2007)	Managerial Power Theory / Opportunism	ROA RET
None	Ozkan (2011)	Managerial Power Theory	Tobin's Q
None	Boyd (1994)	Agency Theory	ROE
None	Izan, Sidhu and Taylor (1998)	X	ROA, ROE
None	Jensen & Murphy (1990)	Agency Theory	ΔRET
None	Weenders (2019)	Agency Theory	ROA_{T+1}, ROS_{T+1}, RET_{T+1}, Tobin's Q_{T+1}

Table 1 Empirical evidence

2.4 Hypotheses development

As mentioned above, the agency theory states that making use of incentives can mitigate or reduce the problems between agents and principal. Moreover, the goal of the agency theory is that there is an optimal contracting to align the different interest of managers and shareholders. Accordingly, making optimal contracts is crucial for reducing or mitigating the agency problems. Which therefore means that there is a positive relationship between executive compensation and firm performance. Moreover, stated by the managerial power theory, which is mentioned above, there also can be a negative and no relationship between executive compensation and firm performance. Adding to this, Van Essen et al., (2015) state that the managerial power theory is less appropriate to describe the pay for performance relationship.

Besides this, above mentioned empirical evidence (Kato & Kubo, 2006; Spoor, 2020 Brick, Palmon & Wald, 2006) between executive compensation and firm performance measurements suggest a positive impact for variable pay. Adding to this, Weenders (2019) and Spoor (2020) included short term incentive, long term incentive and other benefits as a possible variable which would explain and differs firm performance. Smirnova and Zavertiaeva (2017) found in a recent study that short and long term bonusses contribute to greater and positive firm performance. Due to the fact that the most crucial theory, the agency theory, and the majority of above-mentioned empirical evidence is positive, the following hypothesis is formulated:

Hypothesis 1:
CEO variable pay has a positive impact on firm performance

Adding to this, Sigler (2011) stated that there are different packages of CEO compensation, which include base salary, other benefits and above-mentioned variable pay (Murphy,1999; Weenders, 2019). Therefore, it is interesting to examine if the total compensation package, consisting of the above mentioned four parts, influence the firm performance positively.

To conclude, the total compensation package, consisting of base salary, other benefits, short term incentive pay and long-term incentive pay. Weenders (2019) included CEO pay as variable which would explain firm performance, this included base salary, other benefits, short term incentive pay and long-term incentive pay. Based on the agency theory and above-mentioned empirical evidence, the following second hypothesis is formulated:

Hypothesis 2:
CEO total compensation has a positive impact on firm performance

3. Research method

In this chapter, the research method will be described. Firstly, the main research methods used in prior research will be described. Secondly, the research model which will be used in this thesis will be explained. Finally, the measurement of independent, dependent and control variables will be given.

3.1 Methodology

3.1.1 OLS regression

The relationship between CEO compensation and firm performance has been studied widely. The most commonly used research method to study the relationship between CEO compensation and firm performance is Ordinary Least Squares (OLS) regression analysis. OLS method, test the relationship between one or multiple independent variables and a dependent variable. As the name suggest, the OLS technique minimize the sum of the squares of the differences between the predicted and observed values of the dependent value (Goldberger, 1964). Multiple regression is a statistical technique that analyzes the relationship between a single dependent variable and eventually several independent variables. The objective of multiple regression is to see if the independent variable predicts the dependent variable (Hair, Black, Babin, & Anderson, 2010).

If the researcher wants to use the multiple regression method, different assumptions need to be met. First of all, the multiple regression analysis can only be performed if the data (dependent & independent variable) are of the metric value. Secondly, the sample size should be large enough to manage enough power. As described by Hair et al., (2010) there should be at least twenty observations for a simple regression. Anyhow, for a multiple regression, there should be at least 50 in preference more than 100 observations to get enough power. Thirdly, multiple regression carries one disadvantage with it, this is multicollinearity. Multicollinearity can limit the interpretation of the results, in this research multicollinearity will be checked with VIF values, if the VIF value is smaller than ten there is no need to intend there is multicollinearity present. Finally, the simple assumptions of normality, which is tested through histograms and Q-Q plots, homoscedasticity, which is tested through residual plots, and, linearity should be met and checked (Hair et al., 2010; Kutner, Nachtsheim & Neter, 2004)

3.1.2. Fixed effects regression

Adding towards the regression analysis, there is also a fixed effects model. Fixed effects are suitable to control for individual differences. Moreover, when the research is examining data that last for more than two periods the fixed effects model is also applicable (Hair et al., 2010; Fernandes, 2008). Usually, in a fixed model the group means are fixed which is entirely opposite of the random effects model which the group means are chosen randomly from the data (Greene, 2011; Ramsey & Schafer 2002).

An advantage of the fixed effects regression model is that it allows for correlation between omitted variables and the independent variables. However, a disadvantage of the fixed effects regression model is that is does not grant the variant of time for the independent variable (Hair et al, 2010).

3.1.3. Random effects regression

Besides the fixed effects and regression there is also a random effects model. This is a statistical model in which the parameters that define the systematic components of the model show some form of random variation. Contrary to the fixed effect regression model, which uses a separate intercept per individual, the random effect model uses as the name suggest, a random intercept with a variance. Eventually, it means that random effects model considers that there is a variation across individuals, this variation is assumed to be random and not correlated with the independent variable (Laird & Ware, 1982). This eventually means that the random effects model will be used when there is a reason to think that there is a difference across the individuals and eventually will affect the dependent variable. Contrary to the fixed effects model, the random effects model has an advantage that the time invariant can be included. Nonetheless, a disadvantage of the random effect model is that there should not be a correlation between the variance and the predictors in the model, which is labeled as the endogeneity problem.

3.2 Research model

In order to answer the research question and get an answer to the hypothesis, an OLS regression will be conducted. This follows the empirical literature on the effect of CEO compensation on firm performance.

The standard model which is widely used in the empirical literature on executive compensation to test the relationship between CEO compensation and firm performance or firm performance and CEO compensation is (e.g. Carter, Marcus & Tehranian, (2016); Smirnova and Zavertiaeva (2017); Weenders (2019); Duffhues & Kabir (2008); Kato & Kubo (2006):

$$PERF_{i,t}=\beta_0+\beta_1 \mathrm{COMP}_{i,t}+\beta_2 CONTR_{i,t}+\varepsilon_{i,t}$$

Where:

$PERF_{i,t}$ = firm financial performance for firm i in year t.

$\beta_1(COMP)_{it}$ = The compensation of a CEO of a firm i in year t, which can include base salary, other benefits, variable pay or total compensation.

$\beta_2(CONTR)_{i,t}$ = Various control variables. This will be firm size, firm age, leverage of firm i in year t, plus time dummies and industry dummies

$\varepsilon_{i,t}$ = The measurement error term. It is the total amount of change that cannot be explained by the variables in the model, for firm i in year t.

The dependent variable in this model is firm performance, which will be measured by different firm performance measurements, such as ROA, ROE, ROS and Tobin's Q, as described in section 3.3.1. The compensation of a CEO of a firm is described in section 2.1 and further on.

3.3 Measurement of variables

In this part, the measurement of the dependent, independent and control variables that are involved in this research will be discussed briefly. At first, the dependent variable which is firm performance is defined. After that, the independent variable CEO compensation is also defined. Finally, the control variables, which are firm age, firm size, time dummies and industry dummies will be defined. Eventually, an overview will be given of all of the variables which will be measured in this research.

3.3.1. Measurement of dependent variables

The dependent variable in this research is firm performance. The measurement of firm performance can be separated into two different categories. These are, market-based measurement and accounting-based measurement. Both of these two measurements will be used. Accounting-based measurement is the predominantly used measurement (i.e. Kato & Kubo, 2006; Weenders 2019; Spoor, 2020). This eventually means that the results can be

compared more easily. I will use the three most used accounting-based measurements, these are Return On Assets (ROA) which is defined as Earnings Before Interest and Taxes (EBIT) divided by total assets, Return on Equity (ROE) which is defined as EBIT divided by common equity, Return on Sales (ROS), which is defined by EBIT divided by Net Sales. Adding to this, I will use a market-based measurement as in Tobin's Q (Q) which is defined as the sum of total assets minus book value of equity plus the market value of equity divided by total assets (i.e. Kato & Kubo, 2006; Brick, Palmon & Wald, 2006; Buck, Liu & Skovoroda, 2008). If the measurement of Tobin's Q is smaller than one it indicates that the market is forecasting the firm is destroying the value of the shareholders in the foreseeable future.

3.3.2. Measurement of independent variables

As mentioned in section 2.1. of this study, there are various ideas on how to measure executive compensation. For example, Duffhues & Kabir (2008) & Nourayi & Mintz (2008) used cash compensation and total compensation as a measurement for executive compensation. Considering more recent research, Smirnova & Zavertiaeva (2017) and Weenders (2019) split executive compensation in base salary, other benefits, short term incentive pay and long-term incentive pay, which equals total compensation. The most used components are in line with previously mentioned research (Murphy, 1999; Smirnova & Zavertiaeva, 2017; Weenders; 2019)

The first proxy I will use is a variable pay, consisting of the annual bonus/STIP and the long-term incentive pay. Moreover, total compensation (which consist of base salary, short term bonus, long term bonus and other benefits) is used for the proxy total compensation (Jaiswall & Bhattacharyya, 2016; Weenders, 2019; Carter et al., 2016; Brick et al., 2006; Kato & Kubo, 2006).

There are more than a few ways to use executive compensation in an OLS regression analysis. Firstly, one approach is to use to above mentioned proxies as an approach to use executive compensation in units, which for example have been done by Weenders (2019) and Smirnova & Zavertiaeva (2017). Moreover, these measurements will be shown as the natural logarithm to mitigate endogeneity issues and face the normality assumptions which are needed with a regression analysis (Weenders, 2019). Another way for measuring executive compensation is to divide the base salary, other benefits and variable pay over the total compensation, and express these as percentage points. This is in line with previously done research (Mehran, 1995; Cornett & Tehranian, 2008). The variable pay component, which includes STIP and LTIP as percentage points has previously done by another researcher (Spoor; 2020). In line with that study, expressing executive compensation in percentage points will be used as a robustness test.

To summarize, as mentioned above, the two hypotheses will firstly look at the variable pay and secondly the total compensation. The first approach to do this, is the natural logarithm of variable pay and total compensation on firm performance. The second approach is to express this as percentage points, as mentioned above, this will be used as robustness tests.

3.3.3. Control variables

Firm performance may be affected by other components than just CEO compensation. Therefore, different control variables will be included in this research. The first control variable which will be added to the models is firm size. Firm size is a commonly used control variable. According to prior literature and studies, there are several ways to measure firm size. Examples for these are the number of employees, total assets and total sales. Regarding to Van der Laan et al (2010) & Fernández et al., (2018) which used the total number of employees to measure for firm size. Moreover, other papers which examined the Dutch pay for performance relationship used total assets (de Jong et al., 2005; van Beusichem et al., 2016). Another measurement could be the market capitalization, which is used by Ozkan (2011). Contrary to these studies, Buck et al., (2008) and Fernandes (2008) used total sales as a proxy for firm size. In this research firm size will be measured as the natural logarithm of the number of employees. The size of the firm could have a relationship with firm performance, since larger firms could have more money to spend on executive compensation. Additionally, as a robustness test, total sales and total assets will be used.

The second control variable regarding firm characteristics will be firm age. To adjust for a non-normal distribution, firm age will be measured as the natural logarithm of the number of years since the establishment of the firm (Van der Laan et al., 2010; Fernández et al., 2018).

The third and last control variable regarding firm characteristics is leverage. There have been a lot of studies done in the past that stated that leverage could be identified to mitigate the problems between agent and principal as stated in the agency theory. Leading papers of the past based on Dutch samples regarding executive compensation and firm performance included leverage as a control variable. There are a few ways to measure the firm's leverage. Based on papers, who examined a Dutch sample, the most appropriate way to measure leverage is as the ratio of long-term debt divided by the book value of total assets (De Jong et al., 2005; Cornelisse & Kabir, 2005; van Beusichem et al., 2016; Spoor, 2020). To stay on track with the Dutch executive compensation and firm performance literature, leverage will be examined by long term debt divided by the book value of total assets.

Also, to control for specific year effects. A time dummy will be added to control for year effects. The data for this sample that will be used during this research will be gathered

over multiple years. Time dummies will control for time-specific effects, in example a shock which impacts a given time period. Other explanatory variables do not explain this shock. These time dummies are consistent with previous research on the executive compensation and firm performance literature (Duffhues & Kabir, 2008; Cieślak, 2018; Smirnova & Zavertiaeva, 2017).

The last control variable that will be added in this research is industry dummies, which control for industry effects. This is due to the fact that industries potentially vary among each other. The industry dummies are based on the NACE Rev. 2 classifications. The NACE Rev. 2 classifications are made up by the European Commission. Because I will use the Netherlands as a country, and the Netherlands is a member of the EU, the classifications will be in line with previous research (Smirnova & Zavertiaeva, 2017; Weenders, 2019; Spoor, 2020). In section 4.1.3. the NACE Rev. 2 classification of the initial sample will be mentioned.

3.4 Robustness tests

To verify if the OLS regression results, which are found in the model in section 3.2., also maintain under other circumstances, robustness tests will be conducted. These tests will be done to eliminate measurement differences that could affect the given results.

Firstly, another additional tests will be conducted replacing firm performance measurements by other firm performance measures. ROA will be replaced by ROE as an accounting-based measurement of firm performance. Moreover, ROS will be replaced by Tobin's Q ratio as another robustness check. Additionally, the three components (base salary, other benefits and variable pay) of total compensation will be shown in percentage points of total compensation of a CEO (Mehran, 1995; Cornett et al., 2008; Spoor; 2020)

Secondly, the proxy for firm size, which is measured now as the natural logarithm of the number of employees, will be replaced by firstly by the natural logarithm of total assets and after that the natural logarithm of total sales. This will be done to eliminate measurement differences by control variables that could affect the given results.

Thirdly and finally, to control for endogeneity issues, a one-year lagged executive compensation will be used. Accordingly, the effect of CEO compensation in year t-1 will be regressed on firm performance in year t. These checks are in line with various other previously done research (Spoor, 2020; Croci, Gonenc & Ozkan, 2012)

VARIABLE	EXPECTED SIGN	DEFINITION	SOURCES
ROA		$\frac{\text{EBIT}}{\text{Total Assets}}$	(Smirnova & Zavertaeva, 2017; Sun, Wei & Huang 2013; Jalbert, Furumo & Jalbert 2010;)
ROE		$\frac{\text{EBIT}}{\text{Equity}}$	(Jalbert, Furumo & Jalbert 2010; Lam, McGuinness & Vieito 2013)
ROS		$\frac{\text{EBIT}}{\text{Total Sales}}$	(Duffhues & Kabir, 2008)
TOBIN'S Q		$\frac{\text{MV Equity} + \text{BV Total Debt}}{\text{BV Total Assets}}$	(Ozkan, 2009; Duffhues & Kabir, 2008)
EXECUTIVE COMPENSATION			
LN_CEO_BS	+	Natural logarithm of the total base salary	(Nourayi & Mintz, 2008; Smirnova & Zavertaeva, 2017; Weenders, 2019)
LN_CEO_OB	+	Natural logarithm of the total other benefits (a retirement plan, golden parachute, life insurance, car allowance)	(Nourayi & Mintz, 2008; Smirnova & Zavertaeva, 2017; Weenders, 2019)
LN_CEO_VP	+	Natural logarithm of the total variable pay (Short term incentive pay & long-term incentive pay)	(Nourayi & Mintz, 2008; Smirnova & Zavertaeva, 2017; Weenders, 2019)
LN_CEO_TC	+	Natural logarithm of the total compensation (including, base salary, other benefits and variable pay)	(Nourayi & Mintz, 2008; Smirnova & Zavertaeva, 2017; Weenders, 2019)
%_BS_TC		$\frac{\text{Base Salary}}{\text{Total compensation (BS + OB + VP)}}$	(Mehran, 1995; Cornett, Marcus & Tehranian, 2008)
%_OB_TC		$\frac{\text{Other Benefits}}{\text{Total compensation (BS + OB + VP)}}$	
%_VP_TC		$\frac{\text{Variable pay (STIP + LTIP)}}{\text{Total compensation (BS + OB + VP)}}$	(Mehran,1995; Cornett, Marcus & Tehranian, 2008; Spoor 2020)
CONTROL VARIABLES			
LN_EMPLOYEES	+	A natural logarithm of the number of employees	(Van der Laan et al., 2010; Fernández et al., 2018)
LN_AGE	+	A natural logarithm of the firm's age	(Fernández et al., 2018)
LEV	-	$\frac{\text{Long Term Debt}}{\text{Book Value Total Assets}}$	(De Jong et., 2005; van Beusichem et al., 2016; Spoor, 2020)
INDUSTRY DUMMIES		Dummy variable to control for industry classification based on the NACE Rev. 2 classification	(Smirnova & Zavertaeva, 2017; Lam, McGuinness & Vieito, 2013)
TIME DUMMIES		Dummy variable to control for year effect from 2012-2018	(Duffhues & Kabir, 2008; Cieślak, 2018; Smirnova & Zavertiaeva, 2017)

Table 2 Variable overview

4. Data

In this chapter, the sample will be described. Next to that, the sample will be discussed and parameters which are settled will be described. After that an overview will be given of parameters and the sample size.

4.1 Sample

4.1.1 Sample size

This research will investigate the relationship between CEO compensation on firm performance on Dutch listed firms, the firms which are listed on the Amsterdam Euronext are used to create the sample. The sample will be created per 1 February 2020, a list of all listed firm and equities on the Amsterdam Euronext are retrieved from ORBIS. This resulted in an initial sample of 106 firms. After that, there were set some parameters, to get the right sample on track. First of all, some firms that had registered more than one stock on the Amsterdam Euronext (Heineken Holding N.V., Kempen Orange Participaties). Regarding this, the stock that did not represent the firm was excluded from the sample. The double registration was excluded from the sample. In this exclusion, different funds from banks and pension funds were also excluded from the sample (e.g Kempen Orange Fund N.V., Nederlandse Beleggingsmaatschappij, NN Equity Investment Fund). This resulted eventually in removing 13 double registration or funds from the sample. Adding to this, there were also firms which were excluded from the initial sample because there was a lack of information. In an example, SIF Holding, Signifiy, Value8 and MKBNedsense N.V went public in 2016 or 2017 and so they have no annual reports before 2016/2017. Therefore, the executive compensation and eventually other benefits and annual bonusses could not be found in the annual report. Taken everything together, it results in a total sample of 88 Dutch Listed firms on the Amsterdam Euronext. The table down below will give a summarization of it.

Initial Sample	All firms listed on the Amsterdam Euronext	Number of excluded firms -/-
106	Firms with more than one listing	5
101	Exclusion of firms that is a fund with no annual report	8
93	Exclusion of firms that have unusable, or not data for the period of 2012-2018	5
88	Final Sample Size	

Table 3 Initial sample with reason of exclusion

The initial sample has reduced from 106 to 88, all of those firms are listed on the Amsterdam Euronext, but not all firms have the data for every sample year between 2012 and 2018. For example, Novisource N.V. and Lucas Bols N.V., went both public in 2013. Because of that there was no annual report available, this means that there is no executive compensation and other benefits available. However, for the years of 2014 till 2018 the data was available and included into the sample. Because of that, the number of firms differentiate between the different years. It ranged from 63 in 2012 to 88 in 2018. A total of 539 firm-year observations is present. Table 4 shows the number of firm observations per year. In the Appendices, Appendix A1 shows a list per firm per year.

Table 4 Amount of firm observations per year

Year	Number of firm's observations
2012	63
2013	68
2014	73
2015	78
2016	82
2017	87
2018	88
Total observations	**539**

4.1.3 Industry classification

As mentioned in section 3.3., in this research the regression models will control for industry effects by industry dummies. The industry dummies which are included in this research are based on the NACE Rev. 2 classifications. The European Commission makes the NACE REV .2 and as mentioned above the Netherlands is a member of the European Union, because of that, the use of NACE Rev. 2 is favored.

The NACE Rev. 2 has 21 different classifications all over, it ranges from 'Public Administration and Defense' to 'Arts, Entertainment and Recreation'. However, if the researcher will control for industry, it is crucial to get an adequate amount of observations. Because the remaining sample size does not have enough observations to fill all those different categories. That is why, aligned with Smirnova & Zavertiaeva (2017) & Weenders (2019), new broader groups will be composed. The 13 diverse classification of the industries have been regrouped to only 5 categories. Firstly, 'Commodities, Retail & Transport', secondly, 'Manufacturing', thirdly 'Real Estate and Construction', fourthly 'Financial, Insurance and Administrative Services', fifthly 'Other Service Companies'. In Table 5 down below this subsection, there is an overview from the firms before to the classification and after the classification for the total sample.

Table 5 Number of firms in the industry classification before and after reclassification

NACE Rev 2. Classification	Firms observations prior of classification	Reclassification	Firms observations after classification
Agriculture, forestry and fishing	5	Commodities, Retail and Transport	76
Mining and quarrying	7		
Wholesale and retail trade; repair of motor vehicles and motorcycles	48		
Transportation and Storage	16		
Manufacturing	191	Manufacturing	191
Construction	28	Real Estate & Construction	63
Real Estate Activities	35		
Financial and Insurance Activities	71	Financial, insurance and administrative services	85
Administrative and support	14		
Information and communication	82	Other Service Companies	124
Professional, scientific and technical activities	25		
Arts, Entertainment and Recreation	17		
Total firms' observations	**539**	**Total firms' observations**	**539**

After that, the amount of observations per year per industry group has been mentioned in Table 6. As we can see Commodities, Retail & Transport increased in total with one observation per year, with an exclusion of two in year 2017. For Financial, insurance and administrative services the total increased from 9 in 2012 till 15 in 2018. Moreover, for manufacturing the total increased from 22 in 2012 till 32 in 2018, in absolute numbers the sizable increase. However, in relative percentages the other service companies increased from 13 in 2012 till 21 in 2018, this is the most significant relative growth for an industry group in the years 2012 and 2018. For real estate and construction, the numbers remained stable over all the years of 9 in 2012 till 9 in 2018.

Table 6 Industry Group per group per year

Industry Group/ Year	2012	2013	2014	2015	2016	2017	2018	Total
Commodities, Retail & Transport	10	10	11	11	11	12	11	76
Financial, Insurance and Administrative Services	9	10	11	13	13	14	15	85
Manufacturing	22	24	26	27	29	31	32	191
Other Service Companies	13	15	16	18	20	21	21	124
Real Estate and Construction	9	9	9	9	9	9	9	63
Total	63	68	73	78	82	87	88	539

4.2. Data collection

In this research, the impact of CEO compensation of 2012 till 2018 on firm performance will be investigated. Also, the operations of the firm should be held in The Netherlands between this period. Because of that, the CEO compensation, firm performance and control variables are collected. The data of CEO compensation (variable pay, other benefits, base salary and total compensation) are collected by hand in the firm's annual report. These reports will be collected from the firm's website or otherwise through other electronic resources. The data of the firm performance (ROA, ROE, ROS, Tobin's Q) or control variables (firm size, firm age, firm leverage, industry classification) will be collected through ORBIS. This database is founded and created by Bureau van Dijk, and consists of a broad collection of financial information. However, when the data of a specific firm is not available in ORBIS, the annual reports of the firm will be used to collect missing values.

5. Results

In this chapter the results are described. Firstly, I will mention the descriptive statistics of the specifics variables which are included in this research. After that, a correlation analysis will be conducted using the Pearson's correlation matrix. This correlation matrix gives specifics understanding into different variables in this research. Finally, the last section will give the results of the OLS regression and after that the discussion and results will be described in order to answer the hypothesis, which are mentioned in section 2.4.

5.1 Descriptive results

The data which has been collected contains 539 firms observations from the Amsterdam Euronext in the period between 2012 and 2018. To adjust the data for outliers, a technique called winsorization will be applied to this study. The technique transforms outliers in data to diminish the distorted situation. Winsorizing is an often-used method in the pay-performance literature (Carter et al., 2016; Sheikh et al., 2018; Spoor, 2020; Liang et al., 2015), however, there is no consistent percentage at which a researcher will winsorize. For this research, I will use a winsorization at the 5% level, which means 2.5% at each tail, at the 2.5% level and the 97.5% level. This is in line with previous research done by Spoor (2020), however, this research was about the years 2015 – 2018, while this research is over the years 2012 – 2018.

Table 7 describes the descriptive results of the different variables the researcher will use in the OLS regression. As what can be seen at the table down below, the four different dependent variables, ROE, ROA, ROS and Tobin's Q have 522, 535, 498 and 505 observations. The mean of the Return on Equity is 5.75%, the median is 6.37%. This indicates that the ROE is lightly left skewed, because the median is greater than the mean. Adding to this, the minimum of the ROE is minus 30.49% and the maximum value is 27.86%. To get to the Return on Assets (ROA), the mean of the ROA is 3.09%, with a median of 3.90%. This also means that the ROA is lightly left skewed because the mean is greater than the mean. Moreover, the minimum is around -17.53% and the maximum is around 16.56%. In comparison with Spoor (2020), showed a mean ROA of 5.5% with a median of 6.3%, with a standard deviation of 7.25%. This is not in line with this research, probably due to the reason that this research has a larger time span and in the years 2012 – 2015 ROA was lower. Moreover, Weenders (2019) described a mean ROA of 5.2% and a median of 5.7%. However, the data of that study was not winsorized, this researcher deleted his outliers, meaning that these observations lost their power, in comparison with this where the outliers remain their power because I do not delete outliers, only adjust them to the 2.5% tail and 97.5% tail. Looking at another measure of firm performance, the Return on Sales, which have the lowest

amount of observations with respectively 498, the mean is 5.93% with a median of 5.00%. This means that the ROS is lightly right skewed, because the mean is bigger than the median. If we compare these results to Duffhues and Kabir (2008), which used a sample of Dutch firms between the years 1998-2001. The value of their mean was 6.2% with a median of 6.8%. This eventually means that the ROS is slightly decreased in the years 2012-2018, however the median has decreased quite a bit. To compare these results with Spoor (2020), which showed a mean ROS of 7.3% and a median of 6.4% which is in line with Duffhues and Kabir (2008). The last dependent variable is the Tobin's Q, which mean is around 0.94 with a median 0.77, which means that the Tobin's Q is slightly skewed to the right. Every value of Tobin's Q which is higher than one, indicates that the value of Dutch firms is higher valued by the market than their book value. However, in this sample the mean is lower than one, meaning that book values of the firms are higher than the market values. This is not in line with previous research. Weenders (2019) stated a mean of 1.53 and median of 1.40, and Spoor (2020) stated a mean of 1.59 and a median of 1.42.

Suppose we look at Table 7, which shows the data over the years 2012-2018 of Dutch listed firms. The CEO of a Dutch listed firm earns on average around €560k as a basis salary, moreover around €220k of other benefits (which are described in section 2.1.4.). Adding to this, the variable pay (which is described in section 2.1.2 and 2.1.3.) is around €960k. Adding this up, the average total compensation of a CEO of a Dutch listed firm between the years 2012 and 2018 is around €1,740k. Furthermore, the median value of base salary is around €470k, other benefits around €110k, variable pay around €310k, and total compensation around €912k. Continuing on this, the mean of all of the variables is way higher than the median, which means that the variables are highly right skewed. That is why, these independent variables will be transformed into a natural logarithm to correct for skewness and to get a normal distribution (see Appendix C**).** Moreover, if we look at the observations, the lowest observation for the base salary is €12k with a highest of €5,250k, looking at other benefits the lowest is €0k and highest is around €5,900k. To look at the variable pay, which is the STIP and LTIP combined, the lowest observed value is €0k with a maximum of €14,089k. Essential to notice is that the values of €0k are mostly from financial institutions. A prohibition act from the government of The Netherlands does not accept financial firms to grant variable compensation towards executives if the firm received, and did not fully paid back, a state aid when the financial crisis hit in 2008. Accordingly, firms like ASR Nederland and ABN-AMRO did not receive any variable pay during the whole sample period. Moreover, ING Groep NV and NN Group NV did not receive variable compensation during the period 2012 – 2014. That is why, these observations will be excluded from the analysis when the variable pay is used. If we adding all things up, the lowest total compensation is €14k with a maximum of €16,261k. Comparing the salary with other researchers, Weenders (2019) stated

that in his research the average of base salary was around €571k, other benefits around €205k, variable pay around €1,086k and total compensation around €1,860k. This is quite in line with this research, however due to the higher observations in this study more extreme values can be present. Looking at research of Spoor (2020), who did his research over the short- and long-term incentives, we can compare our variable pay. Spoor (2020) stated a total variable compensation including pensions of €1,264k with a median of €490k. Because this data is highly skewed to the right, it is more or less in line with this study. Moreover, Janssen, Thijhaar and Volmer (2013) stated a mean value of base salary of €614k, €730k for variable pay and total compensation €1,400k. This sample period was during the years 2008 – 2010. If we take a look at our sample, we can see that the base salary has decreased over time but the variable pay has increased during the period 2012 – 2018. Looking at the European Union, which Smirnova and Zavertiaeva (2017) studied over the years 2008 – 2013, the Dutch listed firms earns a higher basis salary, variable pay and total compensation compared to other European countries.

Finally, the control variables, which are included as the number of employees, firm age, leverage, total assets, total sales and the industry dummies which are included in the overview in Table 2. The number of employees has a mean of 22.421 with a median of 2485, which therefore is highly skewed to the right. Moreover, the minimum is 1 (LSP Life Science Fund), with a maximum of 709.720 (Randstad NV). The firm age is on average 61.69 years, with a median of 37 years. Meaning that the firm age is also skewed to the right, the minimum of firm age is 1 (Basic Fit, Signify, OCI) with a maximum of 335 (Koninklijke Brill NV) years. Moreover, total sales have a mean of 4.497 with a median of 0.936, which therefore is highly skewed to the right. The minimum is 0 (Kiadis Pharma NV) and the maximum is 75.423 (Ahold Delhaize NV). Because these values are also highly skewed, we will do a natural logarithm to get a normal distributed, non-skewed distribution. Furthermore, total assets has a mean of 35.976 and a median of 13.915, with a minimum of 0 (Signify NV) and a maximum of 153.867 (Pharming Group NV) Adding to this, leverage has a mean of 0.197 with a median of 0.146, with a minimum of 0.000 (Altice Europe NV) and a maximum of 1.149 (Boskalis Westminster NV). If we look at the industry dummies, we can see that on average there are around 35.4% firms in the ‘Manufacturing’, 15.8% in the ‘Financial, Insurance and administrative services’, 13.9% in the ‘Commodities, Retail & Transport’, 11.7% in the ‘Real Estate and Construction’ and finally, 23.0% at the ‘Other service companies’ industry. All of those different classifications are also mentioned in Table 5.

Table 7 Descriptive statistics

Variable	N	Mean	St. Dev.	Median	Minimum	Maximum
Dependent Variable						
ROE	522	0.058	0.140	0.637	-0.305	0.279
ROA	535	0.031	0.079	0.039	-0.175	0.166
ROS	498	0.059	0.208	0.050	-0.470	0.567
Tobin's Q	505	0.945	0.796	0.770	0.004	3.200
Independent Variable						
CEO_BS (x €1mln)	539	0.559	0.392	0.470	0.012	5.250
CEO_OB (x €1mln)	539	0.219	0.503	0.110	0.000	5.858
CEO_VP (x €1mln)	539	0.961	1.700	0.309	0.000	14.089
CEO_TC (x €1mln)	539	1.736	2.211	0.912	0.014	16.261
%_BS_TC	539	0.523	0.244	0.515	0.020	1.000
%_OB_TC	539	0.112	0.092	0.099	0.000	0.520
%_VP_TC	539	0.366	0.249	0.342	0.000	0.970
Control Variables						
# Employees	525	22 421	81 984	2 485	14	709 720
Firm Age	539	61.69	66.77	37.00	1.000	335
LEV	485	0.197	0.171	0.146	0.000	1.149
Total Assets (x 1mln)	538	35 976	15 243	13 915	0	153 867
Total Sales (x €1 mln)	510	4 497	9 097	0.936	0	75 423
IND_1	539	0.354	0.479	0.000	0.000	1.000
IND_2	539	0.158	0.365	0.000	0.000	1.000
IND_3	539	0.139	0.346	0.000	0.000	1.000
IND_4	539	0.117	0.322	0.000	0.000	1.000
IND_5	539	0.230	0.421	0.000	0.000	1.000

Notes: This table reports the descriptive statistics for each variable in this research. The data of the dependent and independent variables are over the years 2012 – 2018. Outliers have been removed by winsorizing the firm financial performance variables at the 2.5 and 97.5 percentile. The control variables data have been reported before the natural logarithmic transformation. IND_1 is 'Manufacturing', IND_2 is 'Financial, insurance and administrative services', IND_3 is 'Commodities, Retail and Transport', IND_4 is 'Real Estate & Construction', IND_5 is 'Other Service Companies'

5.2 Bivariate analysis

5.2.1. Pearson's correlation matrix

Also, there is a bivariate analysis conducted, the analysis which has been used is the Pearson's correlation matrix, which is presented in Table 8. The most important correlation will be highlighted. The reason to use Pearson's correlation matrix and the Variance Inflation Factors is to look at multicollinearity. As we can see in Table 8, the ROE does significantly correlate at the 1% level with all other firm performance measurements (ROA = 0.875**; ROS = 0.601**; Tobin's Q = 0.136**). This is because they measure the same thought, firm performance. ROA does also correlates significantly with ROS = 0.644** and Tobin's Q = 0.179**. However, only ROS and Tobin's Q does not correlate significantly with each other at only 0.018, with no significance. These positive and highly significant correlations have been found in other studies of pay-performance literature in the Netherlands. For example, Spoor (2020) found highly and significant correlations between their firm performance measurements variables, 0.609** and 0.293**, and Weenders (2019) found a high and positive correlation between ROA and ROS of 0.431** and also a not significant correlation between ROS and Tobin's Q of 0.027.

If we look at the correlation of the dependent variable or firm performance at the CEO base salary, other benefits, variable pay and total compensation. We can see that ROE, is positively and significantly correlated with, base salary, other benefits, variable pay and total compensation (LN_CEO_BS = 0.218**, LN_CEO_OB = 0.211**, LN_CEO_VP = 0.274** and LN_CEO_TC = 0.308**). We can conclude from these findings is that higher levels of different kind of salaries do increase the ROE all at the 1% level. Moreover, if we look at ROE towards the control variables, we can see a strong correlation between the ROE and LN_Number_Employees at the 1% level and for LN_Firm_Age also a strong positive correlation at the 1% level. The same for ROA, this measurement is positively and highly significant correlated with, base salary, other benefits, variable pay and total compensation (LN_CEO_BS = 0.201**, LN_CEO_OB = 0.159**, LN_CEO_VP = 0.220** and LN_CEO_TC = 0.255**). The correlation is lower for ROA than for ROE. Comparing this to Weenders (2019) he found a positive and significant correlation only for variable pay beta = 0.266** and total compensation beta = 0.180**. Moreover, Spoor (2020) found a positive and significant correlation between the short- and long-term incentive of respectively beta = 0.454** and 0.561**. ROA also have a positive and significant correlation with the number of employees and firm age. However, if we look at the ROS, which has a positive and significant correlation with the ROE and ROA, it does not have a significant correlation with Tobin's Q. In addition to that, the CEO compensation package still is positively and significantly related to the ROS. The control variables LN_Employees is not statically significant with ROS and Tobin's Q, whereas ROE and ROA are. Looking at the Tobin's Q, which is positively and

significantly correlated to ROE and ROA, and not with ROS. Moreover, it does correlates significantly with the variable pay and the total compensation of the CEO. However, it does correlate negatively with both the control variables, number of employees and firm age. Moreover, leverage is statistically significant with ROE, ROA and Tobin's Q, however not with ROS. Adding to this, it does correlate significantly with other benefits, variable pay and total compensation. Finally, leverage correlates negatively and significantly with firm age, which can be seen as how older a firm gets the less leverage a firm need.

If we look further towards the compensation package of the CEO on each other, we can see that the base salary has a positive and significant correlation with the other benefits = 0.696**, variable compensation =0.663** and total compensation =0.828**. Also, both of the control variables are positively and significantly correlated with the base salary, however the number of employees at the 1% level and the firm age at the 5% level. Moreover, other benefits of the CEO, have a positive and significant effect on the variable pay and total compensation at the 1% level. Also, the control variables are both positive and significantly correlated to the other benefits of the CEO (1% level). Moreover, variable pay is also positively correlated with the total compensation = 0.778**.

Moreover, we can see a high correlation between LN_Employees and the different CEO packages, the LN_Employees is a proxy for firm size. Due to the high correlation, and the eventual reason for multicollinearity, the researcher tried to find another proxy for firm size. Different measurements have been tried, the natural logarithm of total assets which are even higher with the independent variables and natural logarithm of total sales which is also correlated higher with independent variables. Due to this reason, the researcher will use the natural logarithm of total assets and total sales as a robustness test to check whether the results of the OLS regression remain robust over time. Down below, there is an extra way to measure multicollinearity and if it causes a problem through this study.

5.2.2. Variance inflation factor (VIF Values)

Also, there is another way to test for multicollinearity. For this research we can use the Variance Inflation Factor (VIF). The outcome of these test expresses the researcher to what extent of the estimated coefficient is increased. The outcome of the test of the VIF values, when they are one, it does indicate that there is no correlation between the independent variables. If the score exceeds a number higher than ten, it tells the researcher that multicollinearity issues do exists, what can cause a problem for the analysis. After the test had been done, the VIF values range between 1.025 and 1.807. We can conclude, on basis of the critical value which is below 10, based on the Variance Inflation Factor, that there will be no multicollinearity issues in this research. The VIF values are added in Appendix D.

Table 8: Pearson's Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(1) ROE	1.000															
(2) ROA	0.875**	1.000														
(3) ROS	0.601**	0.644**	1.000													
(4) Tobin's Q	0.136**	0.179**	0.180	1.000												
(5) LN_CEO_BS	0.218**	0.201**	0.243**	0.008	1.000											
(6) LN_CEO_OB	0.211**	0.159**	0.185**	0.015	0.696**	1.000										
(7) LN_CEO_VP	0.274**	0.220**	0.238**	0.196**	0.663**	0.660**	1.000									
(8) LN_CEO_TC	0.308**	0.255**	0.295**	0.130**	0.828**	0.778**	0.944**	1.000								
(9) %_BS_TC	-0.293**	-0.264**	-0.217**	-0.225**	-0.416**	-0.589**	0.919**	-0.813**	1.000							
(10) %_OB_TC	0.007	-0.017	0.017	-0.209**	0.242**	0.569**	-0.017	0.196**	-0.134**	1.000						
(11) %_VP_TC	0.282**	0.265**	0.210**	0.298**	0.318**	0.333**	0.881**	0.725**	-0.931**	-0.238**	1.000					
(12) LN_EMPLOYEES	0.250**	0.213**	0.038	-0.066	0.634**	0.496**	0.461**	0.606**	-0.441**	0.266**	0.333**	1.000				
(13) LN_FIRM_AGE	0.156**	0.154**	0.071	-0.017	0.096*	0.169**	0.000	0.078	-0.066	0,211**	-0.014	0.153**	1.000			
(14) LN_TOTAL_ASSETS	0.235**	0.147**	0.307**	-0.237**	0.710**	0.711**	0.638**	0.712**	-0.446**	0.385**	0,295**	0.672**	0.0160**	1.000		
(15)LN_TOTAL_SALES	0.315**	0.285**	0.222**	-0.014	0.717**	0.666**	0.626**	0.741**	-0.547**	0.314**	0.418**	0.893**	0.176**	0.843**	1.000	
(16) LEV	-0.130**	-0.191**	0.008	-0.142**	0.014	0.188**	0.261**	0.090*	-0.037**	0.054	0.056	-0.011	-0.302**	0.212**	0.001	1.000

Table 8 presents the Pearson's correlation matrix. ** and * presents the significance at the 1% and 5% level

5.3 Ordinary least squares regression results

In this part of the research, the results of the OLS regression analysis will be described and examined to test whether the formulated hypothesis in section 2.4. is rejected or confirmed. In the tabulated results we will see the results for the impact of CEO variable pay on firm performance on ROA and ROS. These results are for the first hypothesis. Moreover, only the benchmark model and the full model will be shown. Besides the regular analysis, some robustness tests have been conducted, these results are shown in section 5.3.1.2

5.3.1. Hypothesis 1: CEO variable pay has a positive impact on firm performance (ROA)

5.3.1.1. OLS Regression results

In the first hypothesis mentioned in section 2.4. the researcher states that CEO variable pay which includes the short-term incentive pay and the long-term incentive pay of the CEO has a positive impact on firm performance, which is measured by ROA and ROS. Down below the first results are described. The researcher will show in Table 9 the results for the firm performance of ROA and ROS. However, the two most important models are shown, firstly the benchmark model, after that the full model will be shown, which includes in this case the natural logarithm of variable pay. The reason why only these two models will be shown is because the different control variables did not change the outcome of the coefficients. Meaning that Table 9 does not change under other circumstances. Also, the researcher included year and industry dummies in all four models to control for industry-specific and time-varying economic influence on firm performance.

Model (1) of Table 9 presents the benchmark model, which shows the effect of the three different control variables on the dependent variable, which in this case is Return on Assets (ROA). Firstly, the natural logarithm of the number of employees (LN_Employees) is added in the first model. The outcome of this, is in line with the expectations which are mentioned in Table 2. The meaning of LN_Employees (beta = 0.005***, T=4.075) is that it is highly and positively significant at the 1% level, which is not in line with Weenders (2019), which stated that LN_Employees is positive but not significant in his research (beta = 0.002, T = 0.920). Adding to this, if we compare these results to Izan, Sidhu & Taylor (1998), these results are in line with the study of those researchers. However, these results are over another period and over another country. Secondly, the natural logarithm of the age of the firm is added in the benchmark model. The outcome of this, is in line with the expectations that older firms have higher firm performance. The meaning of LN_AGE (beta = 0.008**, T=2.334), is that it is highly positively significant at the 1% level. Moreover, as expected leverage is negative and highly significant at the 1% level (beta = -0.076***, T = -3.518), meaning that higher levered firm has a lower ROA.

Model (2), the variable of interest is the variable pay of the CEO, LN_CEO_VP, I can state that the variable pay of the CEO is positive and highly significant at the 1% level (beta = 0.011***, T = 4.088), this is in line with Weenders (2019) which stated a beta of 0.010 with a T-statistic of 2.716 which means that it was also highly significant at the 1% level. The LN_CEO_VP indicates a positive and significant impact on firm performance at the 1% level. This means that when the CEO variable pay is higher, firm performance measured in ROA increases. However, the control variables of firm size, decreased it significance of the 1% level to not significant at all, firm age remains significant only at the 10% level instead of the 5% level, firm leverage remained negative and highly significant at the 1% level when including the variable pay of the CEO.

Moreover, Table 9 presents the adjusted R^2, which is the explanatory power of the model. As can be seen in Table 9, the percentage of this benchmark model is 10.50% which decreases towards 9.60% in the full model. If we compare these results towards other researchers, we can see that Duffhues & Kabir (2008) presented a relatively high adjusted R^2 of 62%. Moreover, comparing these results to peer student Spoor (2020), which had a relatively high adjusted R^2 compared to this research 33.5% over 9.6% in the full model. If we compare these results towards another research of Weenders (2019) which had adjusted R^2 of 8.7% we can conclude that this is in line with previously done research.

TABLE 9 REGRESSION RESULTS FOR THE IMPACT OF CEO VARIABLE PAY ON FIRM PERFORMANCE (ROA & ROS)

	ROA		ROS	
MODEL	**1**	**2**	**1**	**2**
CONSTANT	-0.053	-0.104***	-0.118	-0.404***
	(-0.677)	(-3.050)	(-0.555)	(-4.742)
LN_CEO_VP		0.011***		0.045***
		(4.088)		(6.616)
LN_EMPLOYEES	0.005***	0.000	-0.000	-0.024***
	(4.075)	(-0.173)	(-0.230)	(-5.436)
LN_AGE	0.008**	0.007*	0.023**	0.014
	(2.334)	(1.872)	(2.322)	(1.573)
LEVERAGE	-0.076***	-0.080***	0.035	0.043
	(-3.518)	(-3.191)	(0.600)	(0.695)
YEAR DUMMIES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES
ADJ. R^2	10.50%	9.6%	0.7%	11.6%
F-STATISTIC	4.885***	4.092***	1.239	4.777***
N	462	408	449	404

*Table 9 presents the OLS regression results for the impact of CEO variable pay on firm performance. The dependent variables are Return on Assets (ROA) and Return on Sales (ROS). Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

Moreover, in Table 9, the measurement of Return on Sales (ROS) was included. Model (1) presents the benchmark model, which shows the effect of the three different control variables on the dependent variable, which now is ROS. Firstly, the natural logarithm of the number of employees (LN_Employees) is added in the first model, adding to this, firm age and firm leverage are also included. Comparing it with ROA, the coefficient and significance of the variable of interest, LN_CEO_VP, does not change, it increases even more.

However, the control variables change a lot, the first control variable, firm size, change its sign, now it is negative and highly significant comparing it to ROA where it was positive and highly significant. Moreover, the control variable of firm age is positive and significant at the 5% level. Nevertheless, when adding LN_CEO_VP, it is not significant anymore. Adding to this, the control variable leverage remains the same over the benchmark model and full model, however comparing it to ROA, it changes it significance and sign.

Moreover, Table 9 presents also adjusted R^2. As can be seen in Table 9, the percentage of the benchmark model of ROS is fairly low as 0.70% which increases towards 11.60% in the full model. If we compare these again with previously done research, Spoor (2020) stated a 14.7% in the first model after that a fairly high 33.5% in the full model. Contradicting it with Weenders (2019) which mentioned in the first model a 5.5% adjusted R^2 growing to 15.5% in the full model. This is in line with this research.

In conclusion, the results suggest that of the CEO variable pay positively impacts firm performance. However, the changes in the control variables are there, but the main variable of interest remains positive and continuously significant. So, it can be drawn that there is enough evidence to support hypothesis 1, CEO variable pay has a positive impact on firm performance.

5.3.1.2. Robustness checks

Besides the different analysis done in Table 9, additional robustness tests have been done to achieve reliability and validity of the already mentioned results. Firstly, the additional robustness test will replace the two different firm performance measures (ROA and ROS) by other firm performance measurements (ROE and Tobin's Q). Appendix E, Table E1 shows that when ROA is replaced with Return on Equity (ROE), the CEO variable pay is still significant at even a higher significance level of 1% (beta = 0.023***, T=4.733). Comparing it with ROA, the CEO variable pay was significant at the 1% (beta = 0.011***, T=4.088). The measurement of Tobin's Q as firm performance has been added in Appendix E, Table E1, we can see that the CEO variable pay still is positive and significantly related to firm performance (beta = 0.129***, T=4.970). Furthermore, the variables controlling for firm size remained the same in the full model, negative for all four performance measurements. Moreover, firm age remains constantly positive and highly significant for ROA and ROE, however not for ROS and Tobin's Q. Adding to this, leverage remain negative for ROE, and Tobin's Q. Given this, using the different performance measurements of ROE and Tobin's Q would support hypothesis 1. If we take a look at Appendix E, Table E2 at the different measurement of variable pay, which is presented as a percentage point of total compensation. I can conclude that this measurement remains the same for ROA (beta = 0.080***, T=4.676) compared to (beta = 0.011***, T=4.088), ROS (beta = 0.297***, T=6.456) compared to (beta = 0.045***, T =6.616), ROE (beta =0.187***, T= 6.100) compared to (beta=0.023***, T=4.733) and lastly Tobin's Q (beta=0.562***, T=3.438) compared to (beta=0.129***, T=4.970) and which therefore remains robust when using another measurement of variable pay. Meaning when a greater part of the total compensation consists of variable pay, firm performance will increase.

Secondly, the second robustness tests will replace firm size variable using the natural logarithm of number of employees for firm size variable firstly using the natural logarithm of total assets and secondly using the natural logarithm of total sales. The results of these test are shown in Appendix E, Table E3 and Table E4. As we can see at Appendix E, Table E3, the variable pay of the CEO stays positive and remains significant (beta = 0.011***, T = 2.988) for ROA. Furthermore, the control variables do not change in sign, only in significance. Firm size is not significant at all anymore (beta = 0.001, T = 0.212) and firm age is not significant anymore (beta=0.006, T=1.627). Adding to this, leverage remains negative and highly significant (beta=0.075***, T=2.873), which is compared to the LN_Employees the same.

Moreover, the ROS model, the variable pay of the CEO remains positive and significant at the 5% level (beta =0.019, T = 2.040). Adding to this, firm size control variable changes sign from highly negative and significant at the initial test to positive and not significant at this robustness test. Moreover, the control variable for age remains the same

over this robustness test. Adding to this, leverage remains positive and not significant over these robustness test.

Furthermore, if we look at the other robustness test for the change of LN_Employees to LN_Total_Sales. The ROA model, the variable of interest remains the same over this robustness test at 1% level (beta=0.043***, T=5.251). The control variable for firm size variable remains the same over the robustness test, positive but no significance at all. The control variable for firm age remains positive, but decreases the significance from 10% to no significance at all. The ROS, ROE and Tobin's Q models stays robust over different testing.

To rule for endogeneity issues, I will control the CEO variable pay for T-1 and the firm performance over the years T. Appendix E, Table E5, shows us no different results than presented in Table 9. The only difference is for the control variable of age, which remains significant at the full model at the 10% level (beta=0.017*, T=1.655). Moreover, after conducting another robustness test checking the differences between SME and big enterprises, the SME shows that only for ROE and Tobin's Q there is a significant coefficient at the 10% and 1% level. However, if we take a look at the big-sized firms, all performance measurements, ROA, ROS, ROE and Tobin's Q have a positive and highly significant coefficient towards the variable pay of the CEO. Therefore, firm size does seem to affect the variable pay of the CEO. At last, financial firms are exposed to a regulation that can influence the regression results of variable pay. This is because, the Dutch Government regulated that financial firms only can pay 20% of the total compensation. Appendix E, Table E7 shows the results for the sample where the financial firms have been excluded. As can been seen from Table E7, the exclusion of financial firms does not have a big influence of priorly found evidence.

Overall, when analyzing all results, it can be concluded that there is sufficient evidence that CEO variable pay salary does impact firm performance positively. Given the results of the models in Table 9 and robustness test in Appendix E, Table E1 till Table E7, the overall results remain positive, significant and robust over time. Given this, the findings are in line with the agency theory, the goal of the agency theory is that there is an optimal contracting to align the different interest of managers and shareholders. All things considered, hypothesis 1 can be confirmed.

5.3.2. Hypothesis 2: CEO total compensation has a positive impact on firm performance (ROA)

5.3.2.1 OLS regression results

There has been enough evidence found that CEO variable pay impacts the firm performance. Therefore, it is interesting to test if the total compensation package which a CEO receives also have a positive impact on the firm performance. The hypothesis which is formulated for this is: CEO total compensation has a positive impact on firm performance. The total compensation package a CEO receives includes a variable pay, which has been tested in section 5.3.1., other benefits, which is mentioned in section 2.1.4., and a base salary.

As we can see in Table 10, I conducted an OLS regression for the impact of CEO total compensation on firm performance, which is measured by Return on Assets (ROA). The first model is the benchmark model, which presents us with the effect of the different control variables on ROA. Firstly, the natural logarithm of the number of employees (LN_EMPLOYEES) is added to the model to show its impact. As mentioned in Table 2, the expectations for the number of employees tend to be positive for the control variable on the impact of CEO total compensation on firm performance, as the table shows I can see LN_Employees is positive and highly significant at the benchmark model (beta = 0.006***, T=4.221), meaning that firms with higher amount of employees tend to have higher amount of firm performance. Moreover, also the other control variable LN_AGE which is a proxy of the natural logarithm of the age of the company is positive and highly significant (beta= 0.009**, T=2.394). Meaning that older firms tend to have higher firm performance measured by ROA. Adding to this, the other control variable leverage is negative and highly significant (beta = -0.076***, T= -3.479), meaning that highly levered firms have lower firm performance measured by ROA. As we go on, in Model 2, the measurement of the CEO total compensation package LN_CEO_TC is added. The LN_CEO_TC indicates a positive and highly significant (beta 0.016*** T=3.846) coefficient. This indicates that when the proportion of the total compensation package of the CEO is higher, firm performance also increases. The coefficient expresses that when the total compensation package of the CEO increases with 1%, the ROA increases with 0.064%. Moreover, the adjusted R^2 increases from 10.80% in the benchmark model to 13.50% in the full model.

Everything else being equal, these results are comparable with the study of Weenders (2019), who conducted a study over the years 2014 – 2016 and with Smirnova and Zavertiaeva (2017). Weenders (2019) found a significant and positive impact related to Return on Assets at the 1% level (beta = 0.010***, T=2.716). Table 10 Model 2 shows us a positive and significant and positive effect (beta = 0.016***, T=3.846). Moreover, Spoor (2020) also found a significant and positive effect of CEO pay (beta = 0.319***, T=4.939) related to ROA. The study of Spoor (2020) examined the CEO pay over the years 2015 – 2018, whereas this study has a longer period of 2012 – 2018.

TABLE 10 REGRESSION RESULTS FOR THE IMPACT OF CEO TOTAL COMPENSATION ON FIRM PERFORMANCE (ROA & ROS)

	ROA		ROS	
MODEL	1	2	1	2
CONSTANT	-0.057	-0.229**	-0.118	-1.072***
	(-0.721)	(-2.564)	(-0.555)	(-4.624)
LN_CEO_TC		0.016***		0.087***
		(3.846)		(7.963)
LN_EMPLOYEES	0.006***	0.002	-0.000	-0.022***
	(4.221)	(1.059)	(-0.230)	(-4.853)
LN_AGE	0.009**	0.008**	0.023**	0.019**
	(2.394)	(2.188)	(2.322)	(2.072)
LEVERAGE	-0.076***	-0.089***	0.035	-0.037
	(-3.479)	(-4.104)	(0.600)	(-0.660)
YEAR DUMMIES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES
ADJ. R^2	10.8%	13.5%	0.7%	13.2%
F-STATISTIC	4.961***	5.761***	1.239	5.550***
N	456	456	449	449

*Table 10 presents the OLS regression results for the impact of CEO total compensation on firm performance. The dependent variables are Return on Assets (ROA) and Return on Sales (ROS). Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

To add another measurement of firm performance, in Table 10, I added the Return on Sales (ROS), as we can see in Model 1, the significance of the control variables reduced from 1% to not significant for the LN_EMPLOYEES. Moreover, for LN_AGE it remains the same at 5% significance. Adding to this, leverage is added, comparing it to Model 1 it does not change a lot, in the full model leverage become negative instead of positive in the first benchmark model.

As we go on, in Model 2 the measurement of the CEO total compensation package LN_CEO_TC is added. The LN_CEO_TC indicates a positive and highly significant (beta 0.087*** T=7.963) coefficient. This indicates that when the proportion of the total compensation package of the CEO is higher, the firm performance also increases. Lastly, if we look at the full model, including all control variables and including the year and industry dummies, the coefficient for the total compensation package for the CEO remains highly significant and with a positive sign (beta = 0.087***, T=7.963). The coefficient expresses that when the total compensation package of the CEO increase with 1%, the ROS increases with 0.087%. Moreover, the adjusted R^2 increases from 0.7% in the benchmark model to 13.2% in the full model.

5.3.2.2. Robustness checks

Besides the different analysis done in Table 10, additional robustness tests have been done to achieve reliability and validity of the already mentioned results. Firstly, the additional robustness test will replace the two different firm performance measures (ROA and ROS) by other firm performance measurements (ROE and Tobin's Q). Appendix E, Table E8 shows that when ROA is replaced with Return on Equity (ROE), the CEO total compensation remains significant at the 1% (beta = 0.086***, T=7.880) level. Comparing it with ROA, the CEO total compensation package was significant at the 1% (beta = 0.016***, T=3.846) level. The measurement of Tobin's Q as firm performance has been added in Appendix E, Table E8, we can see that the CEO total compensation package still is positive and highly significantly related to firm performance (beta = 0.148***, T=3.802). Furthermore, the variables controlling for firm size changed. In the initial test, LN_Employees was positive and significant at the benchmark model and positive and insignificant at the full model for ROA, comparing it to ROE, the benchmark model is positive but insignificant (beta=0.001, T=0.169) and negative and highly significant at the full model (beta= -0.021***, T=-4.639). Moreover, the control variable for firm size was negative and significant for both ROS and Tobin's Q. Moreover, firm age remains constantly positive and highly significant at the 5% level, only not for Tobin's Q which is significant at the 10% level. Moreover, leverage is negative and significant at the 5% level (beta = -0.410**, T=-1.976) for Tobin's Q, which is in line with ROA and ROS. Given this, using the different performance measurements of ROE and Tobin's Q it would support hypothesis 2.

Secondly, the second robustness tests will replace firm size variable using the natural logarithm of number of employees for firm size variable firstly using the natural logarithm of total assets and secondly using the natural logarithm of total sales. The results of these test are shown in Appendix E, Table E9 and Appendix E, Table E10. As we can see at Appendix E, Table E9**,** the total compensation of the CEO stays positive and remains highly significant for all four the performance measurements (beta = 0.012**, T = 2.234) (ROA).

Furthermore, the control variables of firm size changes in sign for the ROS model. Firm size remains not significant for the ROA model (beta = 0.004, T = 1.448) and firm age loses its significance for ROA and ROS, it remains highly significant for ROE and Tobin's Q (beta = 0.073**, T = 2.170). Furthermore, if we look at the other robustness test for the change of LN_Employees to LN_Total_Sales at Appendix E, Table E10. The ROA model, the variable of interest LN_CEO_TC changes of significance, from 1% to 5% significance level. The control variable for firm size variable remains the same with no significance over time. The control variable for firm age remains positive and significant at the 10% level, instead of the 1% level. Leverage remain negative and significant for ROA and ROE, and negative for ROS and Tobin's Q.

To rule for endogeneity issues, I will control the CEO total compensation pay for T-1 and the firm performance over period T. Appendix E, Table E11, shows us no different results than presented in Table 10. The only difference is for the control variable of age, which lost its significance for Tobin's Q (beta = 0.054, T= 1.517) compared to beta = 0.056*, T= 1.666. Moreover, after conducting another robustness test checking the differences between SME and big enterprises, all of the four firm performance measurements remain positively and significant for both the SMEs and big sized firms. Comparing this to the variable pay where only ROE and Tobin's Q where positively significant for the SME. I can hereby state that total compensation already influences the firm performance for SMEs whereas the variable pay only influences the firm performance measured by ROE and Tobin's Q. However, if we take a look at the big-sized firms, all performance measurements, ROA, ROS, ROE and Tobin's Q have a positive and highly significant coefficient towards the pay of the CEO. Therefore, firm size does not seem to affect the total compensation of the CEO. At last, financial firms are exposed to a regulation that can influence the regression results of variable pay. This is because, the Dutch Government regulated that financial firms can only pay 20% of the total compensation in terms of variable pay. Appendix E, Table E13 shows the results for the sample where the financial firms have been excluded. As can been seen from Table E13, the exclusion of financial firms does not have big influence of priorly found evidence.

Overall, when analyzing all results, it can be concluded that there is sufficient evidence that CEO total compensation does impact firm performance positively. Given the results of the models in Table 10 and robustness test in Appendix E, Table E8 till Table E13, the overall results remain positive, significant and robust over time

6. Conclusion

6.1 Conclusion

This research examined the effect of executive compensation on firm financial performance. This topic has been widely examined worldwide for decades. However, there is still ambiguity among the different results. Researchers found negative, positive and no significant effects over time. Moreover, the importance of this topic has got more relevancy due to the Covid-19 pandemic. KLM wanted to pay out the bonus for their CEO of their sister company Air France KLM in the time that everyone wants to be connected. This event has been once again an important trigger to examine to effect of executive pay on firm performance in the Netherlands between the years 2012-2018. Due to the agency theory, executives and shareholders have contrasting ideas towards risk, these can be reduced or even mitigated by having incentives for compensation of the executives on the performance of the firm. Hence, a positive impact of firm performance is expected for this research. For this research, the compensation of the CEOs of Dutch listed firms on the Amsterdam Euronext has been examined. The formulated research question, which can be found in section 1.2. will be answered:

''To what extent does executive compensation influence the firm performance for Dutch Firms on the Amsterdam Euronext between the years 2012 and 2018?''

In order to do so, two different hypotheses have been formulated, in section 2.4. to test this research question. The first hypothesis mentioned that CEO variable pay impact firm performance positively, whereas the second hypothesis was that CEO total compensation including, base salary, other benefits and variable pay impacts firm performance positively.

Overall, based on the results of the different OLS regression analyses, it can be stated that there is a positive and significant effect of CEO variable pay on firm performance, which supports hypothesis 1. When controlling for robustness, to increase reliability and validity, I can state when using other firm performance measurements, the results remain robust. When checking for robustness when using another measurement of variable pay, the results remain robust over time. Adding to this, when controlling for other firm size variables, in this case the natural logarithm of total assets and total sales, the results remain positive and statistically significant. Using a one-year lagged variable of CEO variable pay, the results remain robust. However, when checking for SME and big sized firms, I can state that the results do not remain robust for SMEs, for big sized firms results remain robust. Finally, checking for robustness when excluding financial firms, I can state the results remain robust over time. Concluding, based on the robustness all different analysis remains robust, however only not for SMEs on variable pay.

Furthermore, overall, there is enough robust evidence that hypothesis 2, CEO total compensation impacts firm performance positively, can be confirmed. Regarding other measurements for firm performance, the results remain robust. When checking for robustness when replacing the firm size variable for the natural logarithm of total assets and total sales, I can state the results remain robust. Using a one-year lagged variable for CEO total compensation, the results remain robust. Contrary to the variable pay component, the results for SMEs remain robust meaning that CEO total compensation influence firm performance positively for SMEs, the results remain the same for big sized firms. Finally, checking for robustness for the exclusion of financing firms, the results remain robust.

All things equal, to answer the formulated research question, I can state that CEO compensation, which can be split towards variable pay and total compensation does impact the firm performance of Dutch Listed firms on the Amsterdam Euronext positively and in significant ways. The results from this study, remain robust and does support the agency theory as well.

6.2 Discussion & limitations

As mentioned in chapter 6, this study found some interesting findings, which it contributes to the pay-performance literature. Anyhow, there are some limitations to this study. Firstly, one limitation of this study is that it only examined on the CEOs of Dutch listed firms, which are subjected towards regulations and legislations, therefore the results cannot be applied to privately held firms. This is due the fact that publicly listed firms need to report the information about the compensation of the executives of the firm. Moreover, the firms used in this research are of Dutch grounds. Therefore, the conclusion which is drawn can only be interpreted as of Dutch listed firms. However, it is possible to conduct further research of comparison as in the example for European countries. The sample period of this research was between 2012 till 2018, meaning that there was a seven-year observation. In the full sample there were 456 observations, which do not to be a problem.

Based on the above-mentioned results and limitations, there are some recommendations for future research. As also mentioned above, this study examined only the Dutch listed firms on the Amsterdam Euronext between a period of 2012 – 2018, whereas it is possible to conduct a research over the same period in other countries which can then be compared to this research. Moreover, the data of privately held firms, the findings can be more extended towards the whole Dutch sample. Also, in this research, I only regressed the pay towards the CEO, which can be more elaborated towards for example the CFO, COO, CMO etc. Moreover, another recommendation is to use for example sub samples of the different classification of firms, this is not done in this research due to the fact that there are some small

classification as example of only 63 firms observation for over six years, which is fairly small and does not have enough power over time. Adding to this, the compensation packages of the CEO are at this moment hand-collected, this could be done easier when there was a kind of database which combined with the ORBIS database which have the remuneration and other important data freely available. Finally, the last recommendation that will be stated is that I, and moreover other peer students used only OLS regression analysis. It can be interesting to see whether other types of analysis affect the results, this could even increase the reliability and validity of the studies, for example the 2SLS method could be used.

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Appendices

A. Sample firms

Firm/Year	2012	2013	2014	2015	2016	2017	2018
AALBERTS N.V.							
ABN AMRO BANK NV							
ACCELL GROUP NV							
ADYEN N.V							
AEGON NV							
AFC AJAX NV							
AKZO NOBEL NV							
ALFEN N.V.							
ALTICE EUROPE N.V.							
AMG ADVANCED METALLURGICAL GROUP N.V.							
AMSTERDAM COMMODITIES N.V.							
AND INTERNATIONAL PUBLISHERS NV							
ARCADIS NV							
ASM INTERNATIONAL NV							
ASML HOLDING N.V.							
ASR NEDERLAND NV							
AVANTIUM N.V.							
BASIC-FIT N.V.							
BE SEMICONDUCTOR INDUSTRIES NV							
BETER BED HOLDING NV							
BEVER HOLDING NV							
BRUNEL INTERNATIONAL NV							
C/TAC NV							
CORBION N.V.							
DGB GROUP N.V.							
DPA GROUP N.V.							
EASE2PAY N.V.							
ENVIPCO HOLDING N.V.							
ESPERITE N.V.							
EUROCOMMERCIAL PROPERTIES N.V.							
FASTNED B.V.							
FLOW TRADERS NV							
FORFARMERS N.V.							
FUGRO NV							
GRANDVISION N.V							
HEIJMANS NV							
HEINEKEN NV							
HOLLAND COLOURS NV							
HYDRATEC INDUSTRIES N.V.							
ICT GROUP N.V.							
IEX GROUP N.V.							
IMCD N.V.							
ING GROEP NV							
INTERTRUST N.V.							
JUST EAT TAKEAWAY.COM N.V.							
KARDAN N.V.							

KENDRION N.V.	
KIADIS PHARMA N.V.	
KONINKLIJKE AHOLD DELHAIZE N.V.	
KONINKLIJKE BAM GROEP NV	
KONINKLIJKE BOSKALIS WESTMINSTER NV	
KONINKLIJKE BRILL NV	
KONINKLIJKE DSM N.V.	
KONINKLIJKE KPN NV	
KONINKLIJKE PHILIPS N.V.	
KONINKLIJKE VOLKERWESSELS N.V.	
KONINKLIJKE VOPAK N.V.	
LSP LIFE SCIENCES FUND N.V.	
LUCAS BOLS N.V	
MKB NEDSENSE N.V.	
N.V. KONINKLIJKE PORCELEYNE FLES	
NEDERLANDSCHE APPARATENFABRIEK 'NEDAP' N.V.	
NEWAYS ELECTRONICS INTERNATIONAL NV	
NIBC HOLDING NV	
NN GROUP NV	
NOVISOURCE N.V.	
NSI N.V.	
OCI N.V	
ORANJEWOUD N.V.	
ORDINA NV	
PHARMING GROUP NV	
POSTNL N.V.	
RANDSTAD NV	
ROODMICROTEC N.V.	
SBM OFFSHORE N.V.	
SIF HOLDING N.V.	
SIGNIFY N.V.	
SLIGRO FOOD GROUP N.V.	
SNOWWORLD N.V.	
STERN GROEP NV	
TIE KINETIX N.V.	
TKH GROUP N.V.	
TOMTOM NV	
UNILEVER NV	
VALUE8 NV	
VAN LANSCHOT KEMPEN NV	
VASTNED RETAIL N.V.	
WERELDHAVE NV	
WOLTERS KLUWER NV	

Firms present = Green
Firms not present = Red

B. NACE Rev. 2 classification per sample firm

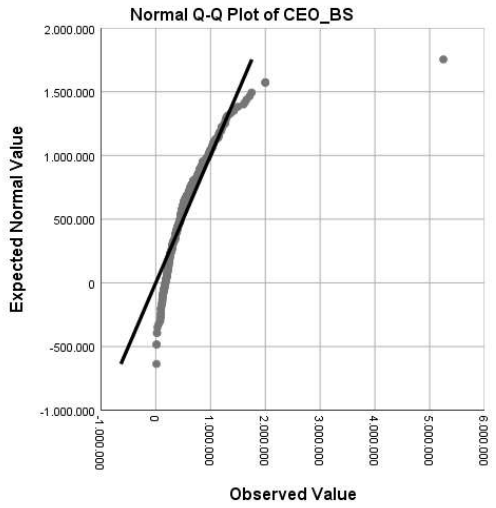
Firm	NACE REV.2	After reclassification
AALBERTS N.V.	Manufacturing	Manufacturing
ABN AMRO BANK NV	Financial and Insurance Activities	Financial, Insurance and administrative services
ACCELL GROUP NV	Manufacturing	Manufacturing
ADYEN N.V	Financial and Insurance Activities	Financial, Insurance and administrative services
AEGON NV	Financial and Insurance Activities	Financial, Insurance and administrative services
AFC AJAX NV	Arts, entertainment and recreation	Other service companies
AKZO NOBEL NV	Manufacturing	Manufacturing
ALFEN N.V.	Manufacturing	Manufacturing
ALTICE EUROPE N.V.	Information and communication	Other service companies
AMG ADVANCED METALLURGICAL GROUP N.V.	Manufacturing	Manufacturing
AMSTERDAM COMMODITIES N.V.	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
AND INTERNATIONAL PUBLISHERS NV	Information and communication	Other service companies
ARCADIS NV	Professional, scientific and technical activities	Other service companies
ASM INTERNATIONAL NV	Manufacturing	Manufacturing
ASML HOLDING N.V.	Manufacturing	Manufacturing
ASR NEDERLAND NV	Financial and Insurance Activities	Financial, Insurance and administrative services
AVANTIUM N.V.	Manufacturing	Manufacturing
BASIC-FIT N.V.	Arts, Entertainment and Recreation	Other service companies
BE SEMICONDUCTOR INDUSTRIES NV	Manufacturing	Manufacturing
BETER BED HOLDING NV	Manufacturing	Manufacturing
BEVER HOLDING NV	Financial and Insurance Activities	Financial, Insurance and administrative services
BRUNEL INTERNATIONAL NV	Professional, scientific and technical activities	Other service companies
C/TAC NV	Information and communication	Other service companies
CORBION N.V.	Manufacturing	Manufacturing
DGB GROUP N.V.	Information and communication	Other service companies
DPA GROUP N.V.	Administrative and support	Financial, Insurance and administrative services
EASE2PAY N.V.	Manufacturing	Manufacturing
ENVIPCO HOLDING N.V.	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
ESPERITE N.V.	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport

EUROCOMMERCIAL PROPERTIES N.V.	Real Estate Activities	Real Estate and Construction
FASTNED B.V.	Manufacturing	Manufacturing
FLOW TRADERS NV	Financial and Insurance Activities	Financial, Insurance and administrative services
FORFARMERS N.V.	Agriculture, forestry and fishing	Commodities, Retail & Transport
FUGRO NV	Professional, scientific and technical activities	Other service companies
GRANDVISION N.V	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
HEIJMANS NV	Construction	Real Estate and Construction
HEINEKEN NV	Manufacturing	Manufacturing
HOLLAND COLOURS NV	Manufacturing	Manufacturing
HYDRATEC INDUSTRIES N.V.	Manufacturing	Manufacturing
ICT GROUP N.V.	Information and communication	Other service companies
IEX GROUP N.V.	Information and communication	Other service companies
IMCD N.V.	Information and communication	Other service companies
ING GROEP NV	Financial and Insurance Activities	Financial, Insurance and administrative services
INTERTRUST N.V.	Professional, scientific and technical activities	Other service companies
JUST EAT TAKEAWAY.COM N.V.	Information and communication	Other service companies
KARDAN N.V.	Real Estate Activities	Real Estate and Construction
KENDRION N.V.	Manufacturing	Manufacturing
KIADIS PHARMA N.V.	Manufacturing	Manufacturing
KONINKLIJKE AHOLD DELHAIZE N.V.	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
KONINKLIJKE BAM GROEP NV	Construction	Real Estate and Construction
KONINKLIJKE BOSKALIS WESTMINSTER NV	Construction	Real Estate and Construction
KONINKLIJKE BRILL NV	Information and communication	Other service companies
KONINKLIJKE DSM N.V.	Manufacturing	Manufacturing
KONINKLIJKE KPN NV	Information and communication	Other service companies
KONINKLIJKE PHILIPS N.V.	Manufacturing	Manufacturing
KONINKLIJKE VOLKERWESSELS N.V.	Transportation and Storage	Commodities, Retail & Transport
KONINKLIJKE VOPAK N.V.	Transportation and Storage	Commodities, Retail & Transport
LSP LIFE SCIENCES FUND N.V.	Financial and Insurance Activities	Financial, Insurance and administrative services

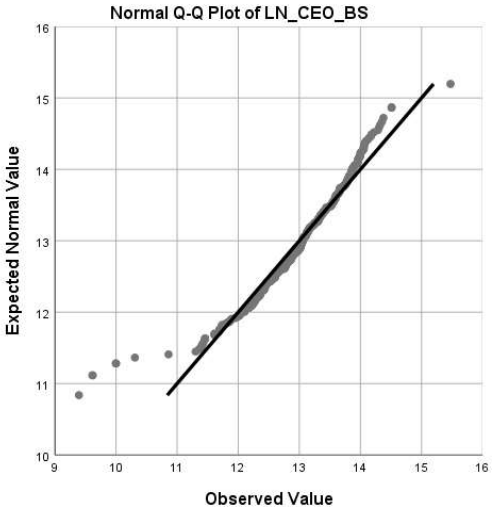
LUCAS BOLS N.V	Manufacturing	Manufacturing
MKB NEDSENSE N.V.	Information and communication	Other service companies
N.V. KONINKLIJKE PORCELEYNE FLES	Manufacturing	Manufacturing
NEDERLANDSCHE APPARATENFABRIEK 'NEDAP' N.V.	Manufacturing	Manufacturing
NEWAYS ELECTRONICS INTERNATIONAL NV	Manufacturing	Manufacturing
NIBC HOLDING NV	Financial and Insurance Activities	Financial, Insurance and administrative services
NN GROUP NV	Financial and Insurance Activities	Financial, Insurance and administrative services
NOVISOURCE N.V.	Financial and Insurance Activities	Financial, Insurance and administrative services
NSI N.V.	Real Estate Activities	Real Estate and Construction
OCI N.V	Manufacturing	Manufacturing
ORANJEWOUD N.V.	Construction	Real Estate and Construction
ORDINA NV	Information and communication	Other service companies
PHARMING GROUP NV	Manufacturing	Manufacturing
POSTNL N.V.	Transportation and storage	Commodities, Retail & Transport
RANDSTAD NV	Administrative and support	Financial, Insurance and administrative services
ROODMICROTEC N.V.	Manufacturing	Manufacturing
SBM OFFSHORE N.V.	Mining and quarrying	Commodities, Retail & Transport
SIF HOLDING N.V.	Manufacturing	Manufacturing
SIGNIFY N.V.	Manufacturing	Manufacturing
SLIGRO FOOD GROUP N.V.	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
SNOWWORLD N.V.	Arts, Entertainment and Recreation	Other service companies
STERN GROEP NV	Wholesale and retail trade; repair of motor vehicles and motorcycles	Commodities, Retail & Transport
TIE KINETIX N.V.	Information and communication	Other service companies
TKH GROUP N.V.	Manufacturing	Manufacturing
TOMTOM NV	Manufacturing	Manufacturing
UNILEVER NV	Manufacturing	Manufacturing
VALUE8 NV	Financial and Insurance Activities	Financial, Insurance and administrative services
VAN LANSCHOT KEMPEN NV	Financial and Insurance Activities	Financial, Insurance and administrative services
VASTNED RETAIL N.V.	Real Estate Activities	Real Estate and Construction
WERELDHAVE NV	Real Estate Activities	Real Estate and Construction
WOLTERS KLUWER NV	Information and communication	Other service companies

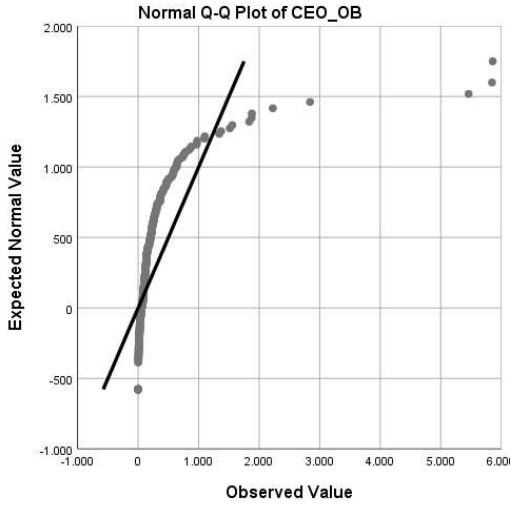
C. Data transformations

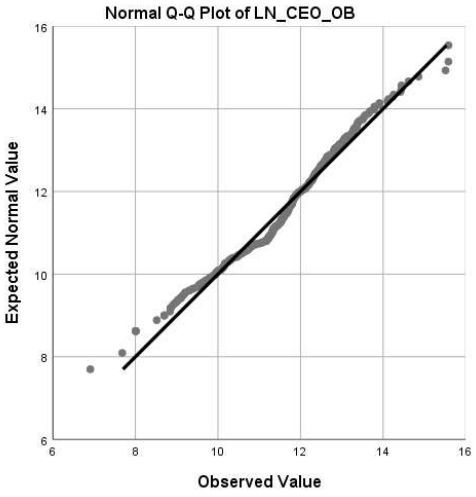
Before

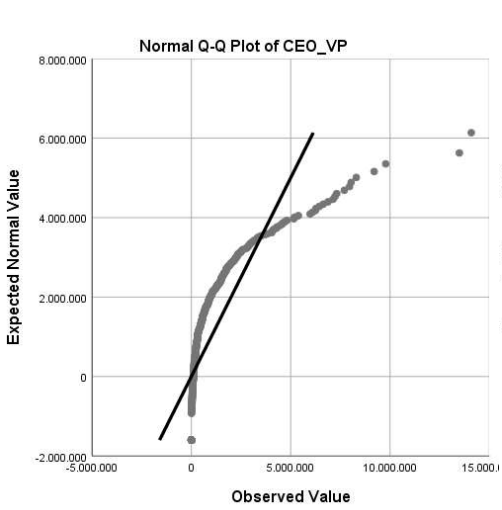


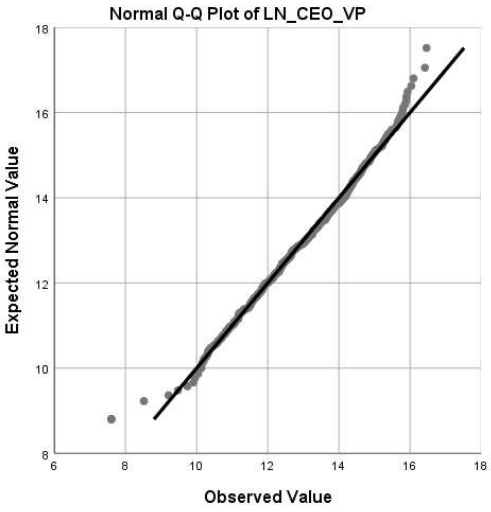
After

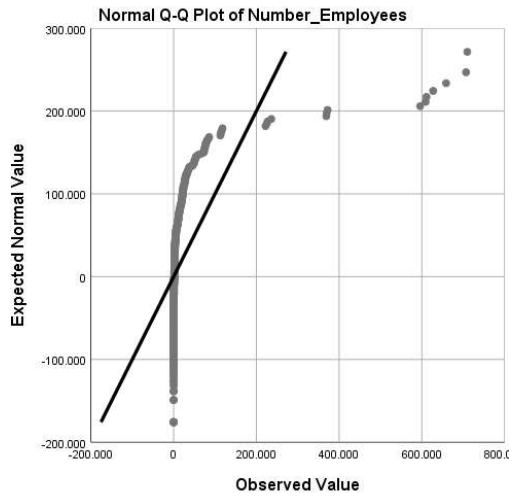


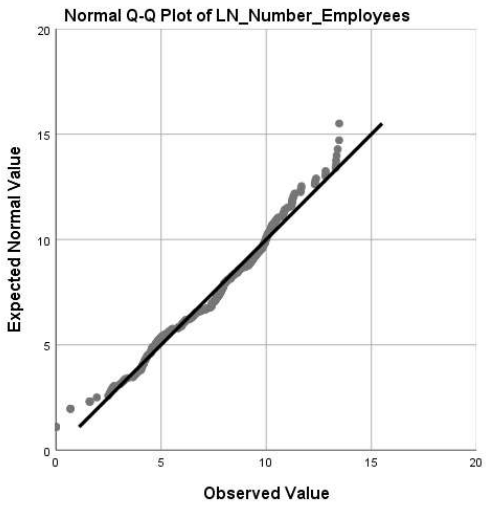


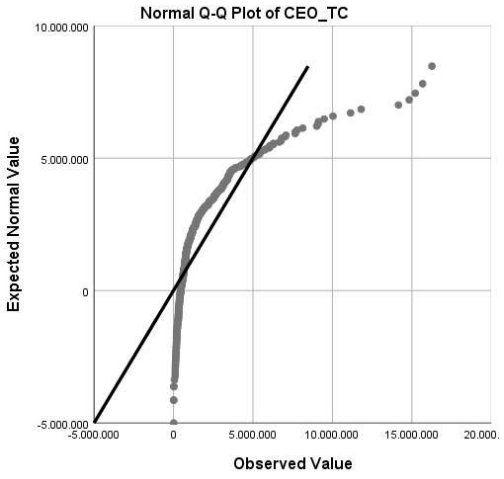


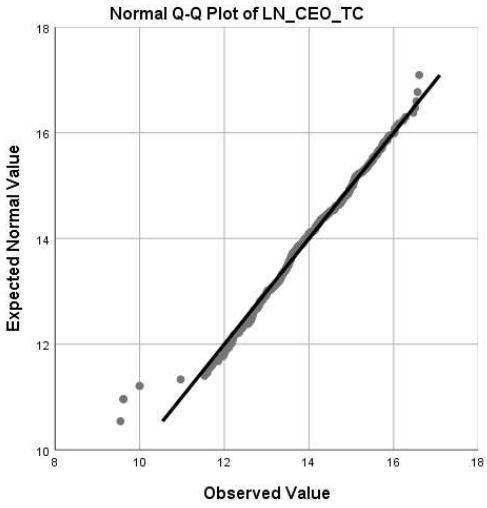


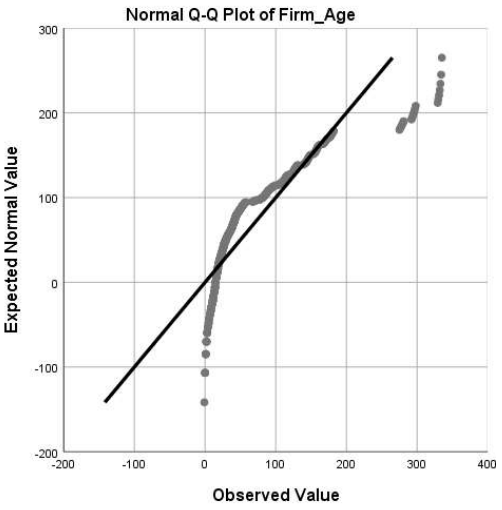


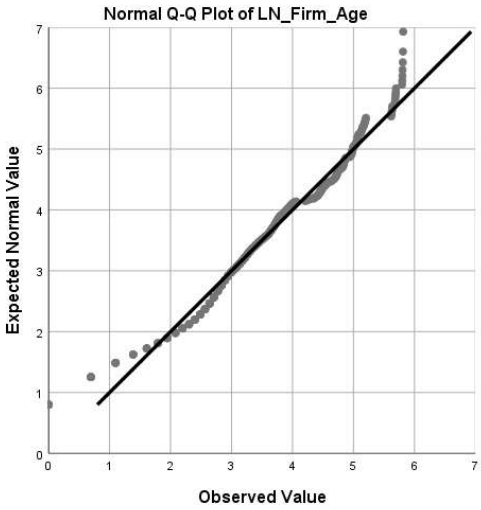

Normal Q-Q Plot of Number_Employees
Expected Normal Value
Observed Value
300.000
200.000
100.000
0
-100.000
-200.000
-200.000
0
200.000
400.000
600.000


Normal Q-Q Plot of LN_Number_Employees
Expected Normal Value
Observed Value
20
15
10
5
0
0
5
10
15
20


Normal Q-Q Plot of CEO_TC
Expected Normal Value
Observed Value
10.000.000
5.000.000
0
-5.000.000
-5.000.000
0
5.000.000
10.000.000
15.000.000


Normal Q-Q Plot of LN_CEO_TC
Expected Normal Value
Observed Value
18
16
14
12
10
8
10
12
14
16
18


Normal Q-Q Plot of Firm_Age
Expected Normal Value
Observed Value
300
200
100
0
-100
-200
-200
-100
0
100
200
300
400


Normal Q-Q Plot of LN_Firm_Age
Expected Normal Value
Observed Value
7
6
5
4
3
2
1
0
0
1
2
3
4
5
6
7

D. VIF Values

- ROA

Model	Collinearity Statistics	
	Tolerance	VIF
LN_Number_Employees	0.967	1.034
LN_Firm_Age	0.883	1.133
Leverage	0.891	1.122
Year_Dum2012	0.925	1.081
Year_Dum2013	0.942	1.062
Year_Dum2014	0.816	1.225
Year_Dum2015	0.808	1.238
Year_Dum2016	0.806	1.241
Year_Dum2017	0.807	1.238
Year_Dum2018	0.801	1.248

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_OB	0.711	1.407
LN_Number_Employees	0.765	1.307
LN_Firm_Age	0.830	1.205
Leverage	0.817	1.223
Year_Dum2012	0.895	1.117
Year_Dum2013	0.914	1.094
Year_Dum2014	0.806	1.240
Year_Dum2015	0.789	1.267
Year_Dum2016	0.781	1.281
Year_Dum2017	0.783	1.277
Year_Dum2018	0.775	1.290

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_VP	0.669	1.494
LN_Number_Employees	0.736	1.358
LN_Firm_Age	0.865	1.156
Leverage	0.805	1.242
Year_Dum2012	0.879	1.138
Year_Dum2013	0.920	1.087
Year_Dum2014	0.809	1.236
Year_Dum2015	0.802	1.247
Year_Dum2016	0.797	1.255
Year_Dum2017	0.787	1.271
Year_Dum2018	0.786	1.272

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_BS	0.579	1.728
LN_Number_Employees	0.595	1.681
LN_Firm_Age	0.883	1.122
Leverage	0.891	1.081
Year_Dum2012	0.925	1.120
Year_Dum2013	0.893	1.225
Year_Dum2014	0.816	1.238
Year_Dum2015	0.807	1.241
Year_Dum2016	0.805	1.239
Year_Dum2017	0.801	1.249
Year_Dum2018	0.801	1.249

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_TC	0.583	1.716
LN_Number_Employees	0.606	1.651
LN_Firm_Age	0.878	1.139
Leverage	0.871	1.148
Year_Dum2012	0.912	1.097
Year_Dum2013	0.912	1.097
Year_Dum2014	0.914	1.229
Year_Dum2015	0.807	1.239
Year_Dum2016	0.805	1.242
Year_Dum2017	0.804	1.245
Year_Dum2018	0.797	1.255

**Note: All VIF values are far below 5, remaining within the critical range of 5 to 10. It can be stated that the issue of multicollinearity seem no problem within this research*

9.3 Appendix D – ROE VIF VALUES

Model	Collinearity Statistics	
	Tolerance	VIF
LN_Number_Employees	0.964	1.037
LN_Firm_Age	0.977	1.129
Leverage	0.897	1.115
Year_Dum2012	0.923	1.229
Year_Dum2013	0.946	1.243
Year_Dum2014	0.814	1.246
Year_Dum2015	0.804	1.246
Year_Dum2016	0.803	1.252
Year_Dum2017	0.803	1.257
Year_Dum2018	0.798	1.259

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_OB	0.723	1.383
LN_Number_Employees	0.772	1.295
LN_Firm_Age	0.840	1.191
Leverage	0.845	1.184
Year_Dum2012	0.896	1.117
Year_Dum2013	0.919	1.089
Year_Dum2014	0.806	1.241
Year_Dum2015	0.790	1.266
Year_Dum2016	0.780	1.281
Year_Dum2017	0.782	1.279
Year_Dum2018	0.776	1.289

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_VP	0.671	1.491
LN_Number_Employees	0.737	1.358
LN_Firm_Age	0.874	1.144
Leverage	0.818	1.222
Year_Dum2012	0.877	1.140
Year_Dum2013	0.921	1.085
Year_Dum2014	0.807	1.239
Year_Dum2015	0.804	1.245
Year_Dum2016	0.796	1.256
Year_Dum2017	0.785	1.274
Year_Dum2018	0.787	1.271

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_BS	0.554	1.807
LN_Number_Employees	0.562	1.780
LN_Firm_Age	0.885	1.130
Leverage	0.892	1.121
Year_Dum2012	0.922	1.084
Year_Dum2013	0.907	1.103
Year_Dum2014	0.813	1.230
Year_Dum2015	0.804	1.244
Year_Dum2016	0.803	1.246
Year_Dum2017	0.803	1.246
Year_Dum2018	0.797	1.254

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_TC	0.583	1.714
LN_Number_Employees	0.603	1.657
LN_Firm_Age	0.881	1.134
Leverage	0.875	1.143
Year_Dum2012	0.910	1.099
Year_Dum2013	0.914	1.095
Year_Dum2014	0.811	1.233
Year_Dum2015	0.804	1.244
Year_Dum2016	0.802	1.247
Year_Dum2017	0.799	1.252
Year_Dum2018	0.795	1.258

**Note: All VIF values are far below 5, remaining within the critical range of 5 to 10. It can be stated that the issue of multicollinearity seem no problem within this research*

9.3 Appendix D -ROS VIF Values

Model	Collinearity Statistics	
	Tolerance	VIF
LN_Number_Employees	0.972	1.029
LN_Firm_Age	0.886	1.129
Leverage	0.891	1.122
Year_Dum2012	0.922	1.095
Year_Dum2013	0.941	1.062
Year_Dum2014	0.816	1.226
Year_Dum2015	0.806	1.241
Year_Dum2016	0.801	1.248
Year_Dum2017	0.802	1.247
Year_Dum2018	0.798	1.254

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_OB	0.702	1.425
LN_Number_Employees	0.753	1.328
LN_Firm_Age	0.831	1.203
Leverage	0.816	1.226
Year_Dum2012	0.892	1.121
Year_Dum2013	0.915	1.093
Year_Dum2014	0.808	1.237
Year_Dum2015	0.793	1.265
Year_Dum2016	0.780	1.283
Year_Dum2017	0.781	1.281
Year_Dum2018	0.775	1.291

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_VP	0.657	1.523
LN_Number_Employees	0.725	1.379
LN_Firm_Age	0.865	1.155
Leverage	0.803	1.245
Year_Dum2012	0.874	1.144
Year_Dum2013	0.917	1.090
Year_Dum2014	0.802	1.248
Year_Dum2015	0.797	1.254
Year_Dum2016	0.792	1.263
Year_Dum2017	0.783	1.277
Year_Dum2018	0.783	1.277

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_BS	0.598	1.671
LN_Number_Employees	0.611	1.637
LN_Firm_Age	0.886	1.129
Leverage	0.891	1.122
Year_Dum2012	0.921	1.086
Year_Dum2013	0.899	1.122
Year_Dum2014	0.815	1.227
Year_Dum2015	0.805	1.242
Year_Dum2016	0.801	1.248
Year_Dum2017	0.802	1.247
Year_Dum2018	0.798	1.254

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_TC	0.593	1.686
LN_Number_Employees	0.616	1.625
LN_Firm_Age	0.882	1.134
Leverage	0.870	1.149
Year_Dum2012	0.908	1.101
Year_Dum2013	0.915	1.093
Year_Dum2014	0.810	1.235
Year_Dum2015	0.805	1.242
Year_Dum2016	0.801	1.249
Year_Dum2017	0.799	1.251
Year_Dum2018	0.794	1.259

**Note: All VIF values are far below 5, remaining within the critical range of 5 to 10. It can be stated that the issue of multicollinearity seem no problem within this research*

9Appendix D Tobin's Q VIF Values

Model	Collinearity Statistics	
	Tolerance	VIF
LN_Number_Employees	0.975	1.025
LN_Firm_Age	0.897	1.115
Leverage	0.897	1.114
Year_Dum2012	0.921	1.086
Year_Dum2013	0.939	1.064
Year_Dum2014	0.822	1.217
Year_Dum2015	0.814	1.229
Year_Dum2016	0.812	1.232
Year_Dum2017	0.810	1.235
Year_Dum2018	0.806	1.241

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_OB	0.709	1.411
LN_Number_Employees	0.790	1.266
LN_Firm_Age	0.857	1.167
Leverage	0.793	1.260
Year_Dum2012	0.881	1.135
Year_Dum2013	0.887	1.127
Year_Dum2014	0.812	1.232
Year_Dum2015	0.798	1.253
Year_Dum2016	0.789	1.268
Year_Dum2017	0.788	1.269
Year_Dum2018	0.781	1.280

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_VP	0.673	1.487
LN_Number_Employees	0.743	1.346
LN_Firm_Age	0.864	1.157
Leverage	0.801	1.248
Year_Dum2012	0.879	1.138
Year_Dum2013	0.921	1.085
Year_Dum2014	0.812	1.231
Year_Dum2015	0.807	1.239
Year_Dum2016	0.804	1.244
Year_Dum2017	0.793	1.261
Year_Dum2018	0.794	1.259

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_BS	0.606	1.650
LN_Number_Employees	0.621	1.611
LN_Firm_Age	0.896	1.116
Leverage	0.896	1.086
Year_Dum2012	0.920	1.118
Year_Dum2013	0.894	1.218
Year_Dum2014	0.821	1.231
Year_Dum2015	0.813	1.232
Year_Dum2016	0.812	1.235
Year_Dum2017	0.810	1.241
Year_Dum2018	0.806	1.242

Model	Collinearity Statistics	
	Tolerance	VIF
LN_CEO_TC	0.611	1.637
LN_Number_Employees	0.642	1.557
LN_Firm_Age	0.893	1.120
Leverage	0.867	1.153
Year_Dum2012	0.903	1.107
Year_Dum2013	0.909	1.100
Year_Dum2014	0.818	1.223
Year_Dum2015	0.813	1.230
Year_Dum2016	0.812	1.232
Year_Dum2017	0.808	1.238
Year_Dum2018	0.804	1.244

**Note: All VIF values are far below 5, remaining within the critical range of 5 to 10. It can be stated that the issue of multicollinearity seem no problem within this research*

E. Robustness Checks

TABLE E1 - ROBUSTNESS TEST HYPOTHESIS 1 USING ROE AND TOBIN'S Q

	ROE		TOBIN'S Q	
MODEL	1	2	1	2
CONSTANT	-0.122	-0.250***	0.029	-0.127
	(-0.874)	(-4.316)	(0.040)	(-0.407)
LN_CEO_VP		0.023***		0.129***
		(4.733)		(4.970)
LN_EMPLOYEES	0.011***	-0.001	0.005	-0.033**
	(4.381)	(-0.180)	(0.358)	(-2.006)
LN_AGE	0.016**	0.012*	0.061*	0.032
	(2.469)	(1.918)	(1.781)	(0.915)
LEVERAGE	-0.077*	-0.069	-0.257	-0.954***
	(-1.875)	(-1.499)	(0.214)	(3.953)
YEAR DUMMIES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES
ADJ. R^2	10.20%	11.10%	17.40%	20.80%
F-STATISTIC	4.590***	4.553***	7.633***	8.539***
N	443	399	440	402

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***,**,* denote significance at the 1%, 5% and 10% levels.*

TABLE E2 - REPLACING THE MEASUREMENT OF VARIABLE PAY	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.057	-0.022	-.118	0.012	-0.122	-0.041	0.029	0.265
	(-0.721)	(-0.285)	(-0.555)	(0.061)	(-0.874)	(-0.300)	(0.040)	(0.370)
%_VP_TC		0.080***		0.297***		0.187***		0.562***
		(4.676)		(6.456)		(6.100)		(3.438)
LN_EMPLOYEES	0.006***	0.002	0.000	-0.013***	0.011***	0.003	0.005	-0.017
	(4.221)	(1.602)	(-0.023)	(-3.102)	(4.381)	(1.125)	(0.358)	(-1.184)
LN_AGE	0.009**	0.008**	0.023**	0.020**	0.016**	0.014**	0.061*	0.054
	(2.394)	(2.215)	(2.322)	(2.133)	(2.469)	(2.301)	(1.781)	(1.603)
LEVERAGE	-0.076***	-0.089***	0.035	-0.014	-0.077*	-0.109***	-0.257	-0.371*
	(-3.479)	(-4.139)	(0.600)	(-0.247)	(-1.875)	(-2.750)	(-1.244)	(-1.794)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	10.80%	14.90%	0.7%	9.20%	10.20%	17.20%	17.40%	19.50%
F-STATISTIC	4.961***	6.307***	1.239	4.044***	4.590***	7.127***	7.633***	8.093***
N	456	456	449	449	443	443	440	440

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E3 - REPLACING THE FIRM SIZE VARIABLE	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.123	-0.112***	-0.388*	-0.309***	-0.256*	-0.259***	0.051	0.153
	(-1.553)	(-3.294)	(-1.382)	(-3.484)	(-1.840)	(-4.348)	(0.069)	(0.473)
LN_CEO_VP		0.011***		0.019**		0.022***		0.162***
		(2.988)		(2.040)		(3.366)		(4.595)
LN_TOTAL_ASSETS	0.010***	0.001	0.026***	0.008	0.019***	0.001	0.003	-0.063**
	(6.100)	(0.212)	(5.997)	(1.146)	(6.709)	(0.311)	(0.179)	(-2.464)
LN_AGE	0.006*	0.006	0.010	0.004	0.10*	0.010*	0.062&	0.043
	(1.678)	(1.627)	(1.061)	(0.440)	(1.653)	(1.661)	(1.763)	(1.191)
LEVERAGE	-0.100***	-0.075***	-0.042	0.038	-0.127***	-0.062	-0.342	-0.777***
	(-4.547)	(-2.873)	(-0.711)	(0.549)	(-3.140)	(-1.297)	(-1.580)	(-3.032)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	13.10%	9.20%	8.0%	6.40%	13.90%	11.0%	17.20%	20.50%
F-STATISTIC	6.043***	4.018***	3.846***	2.987***	6.253***	4.598***	7.686***	8.573***
N	467	417	456	410	454	408	450	410

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E4 - REPLACING THE FIRM SIZE VARIABLE	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.145*	-0.112***	-0.307	-0.316***	-0.270**	-0.256***	-0.140	0.001
	(-1.749)	(-3.332)	(-1.418)	(-3.618)	(-1.962)	(-4.304)	(-0.195)	(0.002)
LN_CEO_VP		0.009***		0.043***		0.019***		0.136***
		(3.019)		(5.251)		(3.479)		(4.633)
LN_TOTAL_SALES	0.010***	0.003	0.017***	-0.017***	0.019***	0.004	0.021	-0.020
	(6.865)	(1.104)	(4.109)	(-2.885)	(7.071)	(0.933)	(1.523)	(-0.914)
LN_AGE	0.005	0.005	0.013	0.012	0.009	0.010	0.043	0.013
	(1.431)	(1.465)	(1.282)	(1.282)	(1.491)	(1.585)	(1.254)	(0.371)
LEVERAGE	-0.076***	-0.082***	0.037	0.074	-0.072*	-0.065	-0.298	-0.968***
	(-3.666)	(-3.288)	(0.626)	(1.132)	(-1.570)	(-1.409)	(-1.480)	(-4.087)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	15.40%	9.90%	4.20%	8.00%	15.30%	11.20%	19.10%	22.10%
F-STATISTIC	6.927***	4.202***	2.432***	3.539***	6.699***	4.587***	8.369***	9.134***
N	455	409	456	410	442	400	440	402

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E5 – CEO VARIABLE PAY T-1	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.057	-0.91**	-0.118	-0.372***	-0.122	-0.207***	0.029	-0.392
	(-0.721)	(-2.372)	(-0.555)	(-3.875)	(-0.874)	(-3.006)	(0.040)	(-1.172)
LN_CEO_VP		0.009***		0.042***		0.019***		0.120***
		(2.939)		(5.366)		(3.462)		(4.334)
LN_EMPLOYEES	0.006***	0.001	0.000	-0.021***	0.011***	0.000	0.005	-0.024
	(4.221)	(0.378)	(-0.023)	(-4.205)	(4.381)	(-0.128)	(0.358)	(-1.360)
LN_AGE	0.009**	0.008*	0.23**	0.017*	0.016**	0.015**	0.061*	0.058
	(2.394)	(1.957)	(2.322)	(1.655)	(2.469)	(2.036)	(1.781)	(1.527)
LEVERAGE	-0.076***	-0.057**	0.035	0.052	-0.077*	-0.040	-0.257	-0.811***
	(3.479)	(-1.992)	(0.600)	(0.731)	(-1.875)	(-0.734)	(-1.244)	(-3.082)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	10.80%	7.50%	0.70%	9.10%	10.20%	10.20%	17.40%	22.40%
F-STATISTIC	4.961***	3.139***	1.239	3.619***	4.590***	3.912***	7.633***	8.449***
N	341	341	339	339	332	332	335	335

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E6 – RESULTS FOR SME FIRMS AND BIG FIRMS

SME

	ROA		ROS		ROE		Tobin's Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.061	-0.062	0.063	0.450	-0.077	-0.205	1.610***	-0.944
	(-1.034)	(-0.467)	(0.267)	(0.960)	(-0.838)	(-1.010)	(3.350)	(-1.140)
LN_CEO_VP		0.008		0.025		0.019*		0.168***
		(1.331)		(1.125)		(1.983)		(4.332)
LN_EMPLOYEES	0.001	-0.014	-0.040	-0.130**	0.001	-0.010	-0.072	-0.045
	(0.108)	(-0.945)	(1.260)	(-2.286)	(0.116)	(-0.456)	(-1.141)	(-0.483)
LN_AGE	0.018*	0.006	0.50	-0.006	0.026*	0.007	0.026	-0.024
	(1.830)	(0.495)	(1.355)	(-0.144)	(1.666)	(0.390)	(0.353)	(0.339)
LEVERAGE	-0.146***	-0.116	-0.429**	-0.678	-0.244***	-0.165	0.599	0.402
	(-2.780)	(-0.998)	(-2.267)	(1.623)	(-2.887)	(-0.936)	(1.417)	(0.550)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	8.0%	11.20%	11.20%	17.60%	7.70%	7.40%	19.70%	39.30%
F-STATISTIC	1.818**	1.778*	2.136***	2.263**	1.774*	1.487	3.139***	4.980***
N	123	86	117	83	121	85	113	86
				Big-sized firms				
MODEL	1	2	1	2	1	2	1	2
CONSTANT	0.014	-0.042	-0.085	-0.292***	-0.031	-0.158**	-0.269	0.304
	(0.219)	(-1.147)	(-0.710)	(-4.563)	(-0.239)	(-2.177)	(0.363)	(0.694)
LN_CEO_VP		0.012***		0.035***		0.026***		0.102***
		(3.626)		(6.207)		(3.956)		(2.640)
LN_EMPLOYEES	-0.001	-0.006***	-0.002	-0.018***	-0.001	-0.012**	0.028	-0.015
	(-0.701)	(-2.596)	(-0.418)	(-4.200)	(-0.266)	(-2.422)	(1.187)	(-0.530)
LN_AGE	0.007*	0.006*	0.015**	0.010*	0.015**	0.013**	0.023	0.019
	(1.929)	(1.768)	(2.297)	(1.746)	(2.236)	(2.036)	(0.563)	(0.466)
LEVERAGE	-0.70***	-0.103***	0.093**	0.036	-0.043	-0.099**	-0.953***	-1.194***
	(-3.114)	(-4.368)	(2.190)	(0.894)	(-0.896)	(-2.026)	(-3.628)	(-4.216)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	16.20%	17.50%	9.0%	16.20%	12.40%	13.30%	19.10%	17.70%
F-STATISTIC	5.574***	5.871***	3.332***	5.424***	4.234***	4.416***	6.514***	5.826***
N	332	321	331	320	321	313	326	315

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels. Firms size is based on the Eurostat definition; SME-sized firms <250 employees at the firms, big sized firms >250.*

TABLE E7 – EXCLUSION OF FINANCIAL FIRMS	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.054	-0.116***	-0.094	-0.396***	-0.110	-0.263***	0.091	-0.130
	(-0.678)	(-3.385)	(-0.445)	(-4.604)	(-0.776)	(-4.353)	(0.126)	(-0.402)
LN_CEO_VP		0.011***		0.045***		0.023***		0.139***
		(4.021)		(6.348)		(4.686)		(5.422)
LN_EMPLOYEES	0.007***	0.001	0.003	-0.023***	0.012***	0.001	0.001	-0.020
	(4.126)	(0.289)	(0.629)	(-4.933)	(4.223)	(0.266)	(0.066)	(-1.159)
LN_AGE	0.008**	0.006*	0.018*	0.013	0.015**	0.012*	0.059*	0.014
	(1.994)	(1.686)	(1.849)	(1.414)	(2.171)	(1.795)	(1.683)	(0.404)
LEVERAGE	-0.087***	-0.088***	-0.051	0.013	-0.115**	-0.105**	-0.217	-1.042***
	(-3.679)	(-3.213)	(-0.812)	(0.192)	(-2.582)	(-2.079)	(-0.984)	(-4.128)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	11.20%	9.90%	0.30%	10.60%	11.00%	11.90%	18.20%	23.00%
F-STATISTIC	5.087***	4.254	1.103	4.495***	4.902***	4.902***	7.956***	9.697***
N	422	385	419	384	409	376	406	379

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E8 - REPLACING THE FIRM PERFORMANCE MEASUREMENT FOR ROE AND TOBINS'Q	ROE		TOBIN'S Q	
MODEL	1	2	1	2
CONSTANT	-0.121	-1.065***	0.048	-1.581*
	(-0.572)	(-4.595)	(0.067)	(-1.901)
LN_CEO_TC		0.086***		0.148***
		(7.880)		(3.802)
LN_EMPLOYEES	0.001	-0.021***	0.001	-0.034**
	(0.169)	(-4.639***)	(0.043)	(-2.175)
LN_AGE	0.022**	0.019**	0.063*	0.056*
	(2.282)	(2.017)	(1.853)	(1.666)
LEVERAGE	0.036	-0.035	-0.256	-0.410**
	(0.607)	(-0.635)	(-1.237)	(-1.976)
YEAR DUMMIES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES
ADJ. R^2	0.9%	13.0%	17.8%	20.30%
F-STATISTIC	1.280	5.501***	7.875***	8.544***
N	453	453	444	444

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E9 - REPLACING THE FIRM SIZE VARIABLE	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.107	-0.213**	-0.383*	-0.668***	-0.237*	-0.481***	0.137	-.2472***
	(-1.550)	(-2.322)	(-1.817)	(-2.679)	(-1.709)	(-2.996)	(0.184)	(-2.882)
LN_CEO_TC		0.012**		0.033**		0.029***		0.302***
		(2.234)		(2.117)		(2.940)		(5.609)
LN_TOTAL_ASSETS	0.008***	0.004	0.025***	0.013*	0.018***	0.007	-0.006	-0.116***
	(5.562)	(1.448)	(6.160)	(1.796)	(6.483)	(1.452)	(-0.409)	(-4.812)
LN_AGE	0.006*	0.006	0.011	0.012	0.010*	0.012*	0.066*	0.073**
	(1.662)	(1.794)	(1.099)	(1.209)	(1.671)	(1.868)	(1.895)	(2.170)
LEVERAGE	-0.096***	0.090***	-0.040	-0.022	-0.123***	-0.110***	-.304	-0.183
	(-4.395)	(-4.097)	(-0.678)	(-0.380)	(-3.064)	(-2.727)	(-1.414)	(-0.873)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	11.90%	12.70%	8.4%	9.10%	13.30%	14.80%	17.70%	23.00%
F-STATISTIC	5.568***	5.575***	4.028***	4.088***	6.055***	6.324***	7.951***	10.032***
N	473	473	460	460	460	460	454	454

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E10 - REPLACING THE FIRM SIZE VARIABLE	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.127*	-0.213**	-0.311	-0.668***	-0.260*	-0.281***	-0.096	-2.472***
	(-1.650)	(-2.322)	(-1.445)	(-2.679)	(-1.904)	(-2.996)	(-0.133)	(-2.882)
LN_CEO_TC		0.012**		0.033**		0.029***		0.302***
		(2.234)		(2.117)		(2.940)		(5.609)
LN_TOTAL_SALES	0.009***	0.004	0.017***	0.013**	0.018***	0.007	0.017	-0.116***
	(6.624)	(1.448)	(4.289)	(1.796)	(6.991)	(1.452)	(1.226)	(-4.812)
LN_AGE	0.005	0.006*	0.012	0.012	0.009	0.012*	0.046	0.073**
	(1.378)	(1.794)	(1.258)	(1.209)	(1.470)	(1.868)	(1.353)	(2.170)
LEVERAGE	-0.077***	-0.090***	0.036	-0.22	-0.073*	-0.110***	-0.292	-0.183
	(-3.686)	(-4.097)	(0.625)	(-0.380)	(-1.891)	(-2.727)	(1.451)	(-0.873)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	14.70%	12.70%	4.60%	9.10%	15.00%	14.80%	17.70%	23.0%
F-STATISTIC	6.692***	5.575***	2.579***	4.088***	6.645***	6.324***	8.675***	10.032***
N	461	473	460	460	448	460	454	454

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E11 - CEO TOTAL COMPENSATION T-1	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.053	-0.152***	-0.121	-0.887***	-0.120	-0.382***	0.048	-1.264**
	(-0.677)	(-2.503)	(-0.572)	(-5.469)	(0.869)	(-3.557)	(0.067)	(-2.475)
LN_CEO_TC		0.011***		0.073***		0.027***		0.176***
		(2.374)		(5.688)		(3.211)		(4.244)
LN_EMPLOYEES	0.005***	0.003	0.001	-0.017***	0.011***	0.004	0.001	-0.026
	(4.075)	(1.606)	(0.169)	(-3.420)	(4.396)	(1.132)	(0.043)	(-1.628)
LN_AGE	0.008**	0.008**	0.022	0.019*	0.016**	0.015**	0.063*	0.054
	(2.334)	(2.029)	(0.607)	(1.778)	(2.468)	(2.170)	(1.853)	(1.517)
LEVERAGE	-0.076***	-0.069***	0.036	-0.005	-0.077*	-0.081*	-0.256	-0.728***
	(-3.518)	(-2.616)	(0.607)	(-0.067)	(-1.908)	(-1.661)	(-1.237)	(-3.093)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	10.50%	10.00%	0.9%	9.00%	10.20%	12.30%	17.80%	24.90%
F-STATISTIC	4.885***	4.281***	1.280	3.884***	4.637***	5.049***	7.875***	10.425***
N	386	386	379	379	376	376	370	370

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*

TABLE E12 – RESULTS FOR SME FIRMS AND BIG FIRMS

	SME							
	ROA		**ROS**		**ROE**		**Tobin's Q**	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.0651	-0.293**	0.063	-1.233***	-0.077	-0.476***	1.610***	-2.203**
	(-1.034)	(-2.569)	(0.267)	(-2.714)	(-0.838)	(-2.870)	(3.350)	(-2.242)
LN_CEO_TC		0.019**		0.095***		0.038***		0.200***
		(2.359)		(3.287)		(3.166)		(3.541)
LN_EMPLOYEES	0.001	0.000	-0.040	-0.030	0.001	-0.001	-0.072	-0.043
	(0.108)	(-0.038)	(1.260)	(-0.992)	(0.116)	(-0.076)	(-1.141)	(-0.705)
LN_AGE	0.018*	0.015	0.050	0.043	0.026*	0.019	0.026	0.020
	(1.830)	(1.528)	(1.355)	(1.216)	(1.666)	(1.292)	(0.353)	(0.285)
LEVERAGE	-0.146***	-0.116**	-0.429**	-0.222	-0.244***	-0.178**	0.599	1.039**
	(-2.780)	(-2.179)	(-2.267)	(-1.115)	(-2.887)	(-2.122)	(1.141)	(2.477)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	8.0%	11.60%	11.20%	18.90%	7.70%	14.80%	18.70%	28.10%
F-STATISTIC	1.818**	2.156**	2.136**	2.943***	1.774*	2.501***	3.139***	4.417***
N	123	123	117	117	121	121	113	113
	BIG-SIZED FIRMS							
MODEL	1	2	1	2	1	2	1	2
CONSTANT	0.016	-0.099	-0.085	-0.613***	-0.028	-0.380**	0.268	-1.1713*
	(0.245)	(-1.170)	(-0.713)	(-3.997)	(-0.224)	(-2.268)	(0.361)	(-1.765)
LN_CEO_TC		0.011**		0.051***		0.034***		0.193***
		(2.053)		(5.216)		(3.154)		(3.102)
LN_EMPLOYEES	-0.001	-0.005*	-0.001	-0.017***	-0.001	-0.012**	0.024	-0.036
	(-0.669)	(-1.839)	(-0.257)	(-3.556)	(-0.235)	(-2.256)	(1.031)	(-1.176)
LN_AGE	0.006*	0.006*	0.014**	0.012**	0.014**	0.013**	0.027	0.017
	(1.804)	(1.677)	(2.198)	(1.965)	(2.189)	(2.052)	(0.673)	(0.426)
LEVERAGE	-0.070***	-0.086***	0.089**	0.016	-0.044	-0.100***	-0.929***	-1.125***
	(-3.135)	(-3.647)	(2.100)	(0.369)	(-0.927)	(-1.992)	(-3.534)	(-4.414)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	16.10%	16.90%	9.50%	16.40%	12.30%	14.70%	19.50%	21.60%
F-STATISTIC	5.632***	5.590***	3.518***	5.366***	4.272***	4.764***	6.706***	7.071***
N	338	338	335	335	327	327	330	330

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels. Firms size is based on the Eurostat definition; SME-sized firms <250 employees at the firms, big sized firms >250.*

TABLE E13 – EXCLUSION OF FINANCIAL FIRMS	ROA		ROS		ROE		TOBIN'S Q	
MODEL	1	2	1	2	1	2	1	2
CONSTANT	-0.054	-0.227**	-0.094	-1.055***	-0.110	-0.509***	0.091	-1.591*
	(-0.678)	(-2.483)	(-0.445)	(-4.611)	(-0.776)	(-3.176)	(0.126)	(-1.924)
LN_CEO_TC		0.016***		0.088***		0.037***		0.153***
		(3.747)		(8.089)		(4.927)		(3.934)
LN_EMPLOYEES	0.007***	0.002	0.003	-0.020***	0.012***	0.003	0.001	-0.035**
	(4.126)	(1.296)	(0.629)	(-4.049)	(4.223)	(0.762)	(0.066)	(-2.028)
LN_AGE	0.008**	0.007*	0.018*	0.015	0.015**	0.013**	0.059*	0.051
	(1.994)	(1.806)	(1.849)	(1.637)	(2.171)	(1.967)	(1.683)	(1.502)
LEVERAGE	-0.087***	-0.099***	-0.051	-0.116**	-0.115**	-0.145***	-0.217	-0.369*
	(-3.679)	(-4.213)	(-0.812)	(-1.979)	(-2.582)	(-3.321)	(-0.984)	(-1.678)
YEAR DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES
ADJ. R^2	11.20%	13.90%	0.30%	14.00%	11.00%	16.00%	18.20%	21.10%
F-STATISTIC	5.087***	5.877***	1.103	5.861***	4.902***	6.553***	7.956***	8.766***
N	422	422	419	419	409	409	406	406

*Note: this table reports the unstandardized coefficients. The industry and year dummies are included to control for the industry effects and time-variance effects that eventually firm performance. The t-statistics have been reported in parenthesis. ***, **, * denote significance at the 1%, 5% and 10% levels.*