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FIRM PERFORMANCE

AND

CEO COMPENSATION

DETERMINANTS OF CEO COMPENSATION

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Preface

This master thesis is a part of our master's degree in Business and Administration, with Specialization in Business Financial Analysis, at Buskerud and Vestfold University College.

Our interest in finance started in our last year of our bachelor's degree, and during the first year of our master's degree we learned about different theories related to CEO compensation. The concept of CEO compensation got our attention, and we knew what wanted to base our master thesis and research on as we consider this as an interesting concept. The purpose of this thesis has been to examine the relationship between firm performance and CEO compensation, different variables that can affect this relationship, and additionally to examine other determinants of CEO compensation. We have met many challenges throughout the study, but also gained a lot of knowledge within this concept. Hence, it has been both an educational and demanding process.

We want to thank our advisor, Ingunn Myrtveit, for excellent guidance and support throughout this study. We appreciate her constructive and helpful feedback, enthusiasm and interest in our master thesis. We also want to thank Knut Eikre Larsen for giving us access to market data through public project databases, and to thank Øystein Sørebo for help regarding our analyzes. Additionally, we extend our thanks to the library at Buskerud and Vestfold University College, division Hønefoss, for helping us with EndNote, and for help and guidance throughout our theory collection.

Hønefoss, 18th of May 2015

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Abstract

CEO compensation is a much discussed concept in the media and in the society in general. The center of the discussion is mostly around the high CEO compensations and the gaps between the compensation to the CEOs and to rest of the employees. As this is an interesting and topical concept, we hence wanted to examine how CEO compensation is determined in firms listed on the Oslo Stock Exchange. We wanted to examine if CEOs actually get their compensation for obtained firm performance, or if there are other factors that determine their compensations. Hence, we constructed the following research question:

“Is there a positive relationship between firm performance and CEO compensation in firms listed on the Oslo Stock Exchange, or are there other determinants of CEO compensation?”

We have based our theoretical framework on the principal-agent theory, the managerial power theory, aspects around corporate governance, the empire building theory, and the human capital theory. We consider these theories as the most essential theories of the pay-for-performance relationship and for determinants of CEO compensation. Additionally, we have examined previous empirical researches based on the presented theories that find a weak or a non-existing pay-for-performance relationship, and that there are other determinants of CEO compensation that affect the pay-for-performance relationship. We have hence divided our study in two, where we first have examined the pay-for-performance relationship with control variables, and then examined these control variables' direct effects on CEO compensation.

We have measured firm performance by four market-based measures, P/B, P/E, Jensen's alpha and Tobin's Q, and three accounting-based measures, ROE, ROA and EVA™. We have also divided CEO compensation in both fixed salary and variable CEO compensation. We have further included control variables as firm size, firm risk, ownership structure, CEO's age, CEO's tenure, CEO's gender, CEO change, privately and publicly owned firms, board size and number of female directors to see their effects on the pay-for-performance relationship, and to see if they are determinants of CEO compensation. We have however not tested CEO change's direct effect on CEO compensation, and we have further not been able to test the effects of CEO's gender and privately and publicly owned firms because of few observations.

Our results show that there is a weak, but positive relationship between firm performance and CEO compensation, measured by change in ROE. Additionally, we find a negative and

significant relationship between change in P/B and variable CEO compensation that is difficult to explain by economical rationality, as the principal-agent theory assumes that there is a positive relationship between firm performance and variable CEO compensation. Further, our results show that there is no positive relationship between firm performance and fixed salary as predicted, but we surprisingly get a negative and significant relationship between change in P/B and change in fixed salary that also cannot be explained by economical rationality.

Similar to other studies, our results show that there are other variables that affect the pay-for-performance relationship. We find that the pay-for-performance relationship is stronger in smaller firms than in larger firms, which is consistent with the managerial power theory and the aspects around corporate governance that discuss that large firms have multiple owners who can easily be influenced by the CEO. Additionally, the pay-for-performance relationship is stronger in low-risk firms than in high-risk firms, which is consistent with the principal-agent theory that assumes that owners give higher incentives to the CEOs in order to release them from risk. Further, consistent with the human capital theory, we find that age weakens the pay-for-performance relationship as older CEOs are more experienced and have more responsibilities which eventually will increase their compensation independent of firm performance. CEO change also weakens the pay-for-performance relationship, indicating that a new CEO is not punished or rewarded for performance obtained by a previous CEO. Lastly, the size of the board of directors and the number of female directors weaken the pay-for-performance relationship as the board faces coordination problems, and are not able to function like a unit.

Further, we find that there are other variables that have a greater effect on CEO compensation than firm performance. Our results show that CEO compensation is determined by firm size, firm risk, and the number of female directors. Surprisingly, we find that CEO's direct ownership is negatively significant with fixed salary, which may indicate that CEOs are willing to receive lower fixed salaries when they own firm shares. Hence, our study gives insight in both the pay-for-performance relationship, factors that affect this relationship, and determinants of CEO compensation in firms listed on the Oslo Stock Exchange.

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1 Introduction

The purpose of this thesis is to examine the pay-for-performance relationship in firms listed on the Oslo Stock Exchange. Hence, to examine if compensation to the CEO is determined by obtained firm performance, or if there are other determinants of CEO compensation. We base our thesis on theories from the literature of CEO compensation, which are the principal-agent theory, the managerial power theory, the empire building theory and the human capital theory. Additionally, we discuss aspects around corporate governance which we also consider as important to explain the pay-for-performance relationship, and determinants of CEO compensation. We will first discuss the reason for why we have chosen to examine this theme, and present our research question. Lastly, we will end this chapter by presenting the structure of our thesis.

1.1 Theme and Research Question

Over the past years, CEO compensation have been a concept causing many discussions, and is still a concept that gets a lot of attention from shareholders, authorities, media and the society in general. For instance, when the largest firms release their annual reports, the media is especially interested in the reported CEO compensation (Agenda, 2015; Mercer, 2012). The center of the discussions is mostly around the gaps between CEO compensation and the salaries to the rest of the employees, both in firms listed on the Oslo Stock Exchange and in other international firms listed on Stock Exchanges (Skaug, 2010).

Even though these gaps are considered as big in Norway, the situation in Norway is different compared to the other countries because of Norway's compressed wage structure, extensive welfare system and regulated tax system. For instance, the salary gap between a CEO and an average worker is 1:4 in Norway, while the gaps are considerable bigger in other countries such as the United States and in Great Britain where the salary gaps are 1:31 and 1:24.

However, the income differences have increased over the past 30 years in Norway, like in many other countries (Agenda, 2015; Grenness, 2011). It is interesting that the differences have increased, as a study by KLP (2013) shows that firm performance is constant while CEO compensation is gradually increasing. We hence consider that it is interesting to examine how CEO compensation is determined as it is logical to think that CEOs get compensation from obtained performance. This indicates that there are other determinants of CEO compensation.

There are different theories of how CEO compensation is determined, and the most relevant of these are the principal-agent theory, the managerial power theory, empire building theory

and the human capital theory, and different aspects and mechanisms of corporate governance. Previous studies have examined the pay-for-performance relationship based on the presented theories above, and the majority of the studies find either a weak or a non-existing relationship between firm performance and CEO compensation. Further, studies have shown that there are other variables that determine CEO compensation than firm performance (Firth, Lohne, Ropstad, & Sjo, 1996; Gomez-Mejia, Tosi, & Hinkin, 1987; Haukdal, Høgvall, & Windstad, 1997; Jensen & Murphy, 1990a, 1990b; Lewellen & Huntsman, 1970; Randøy & Skalpe, 2007; Sigler, 2011). Hence, we are interested in examining if CEO compensation actually is determined by firm performance, or if there are other determinants of CEO compensation. We thereby present the following research question:

“Is there a positive relationship between firm performance and CEO compensation in firms listed on the Oslo Stock Exchange, or are there other determinants of CEO compensation?”

1.2 Structure of the Master Thesis

Based on the theoretical framework, and findings from previous empirical research, we divide our thesis in two. In the first part we examine the pay-for-performance relationship and in the second part we examine if there are other determinants of CEO compensation than firm performance. We examine how change in firm performance affect change in CEO compensation in the first part, while we examine determinants of the absolute levels of CEO compensation in the second part.

In Chapter 2 we present our theoretical framework, which includes the theories that we consider as most relevant for our study, followed by presentation and discussion of previous empirical researchers of the pay-for-performance relationship and CEO compensation in Chapter 3. On the basis of these two chapters and our research question, we present our two research models and their related hypotheses in section 4.1 and 4.2 in Chapter 4. Additionally, Chapter 4 includes theoretical definitions of the different variables in our research models.

In Chapter 5, we discuss our research methods that will be used to answer our research question, as well as we operationalize our variables. Further, in Chapter 6 we present our analyzes and results of our hypotheses, and discussion of the regression assumptions. Lastly, we discuss our study's findings, implications and contributions, and give suggestions for further research within this concept in Chapter 7.

2 Theoretical framework

In this chapter, we will present our theoretical framework and the essential theories that we consider as the most important in the pay-for-performance research, and in the literature of CEO compensation. We will first present the principal-agent theory, which is the most essential theory within this subject. Further, we will present the managerial power theory, which is seen as the biggest competitor to the principal-agent theory. We will additionally present different aspects and mechanisms around corporate governance, which is based on the principal-agent theory. We will also present the empire building theory, which has its origin in the principal-agent theory, and finally present the human capital theory. Mainly, all of these theories originate from the classical principal-agent theory and its behavioral assumptions, but they have different directions and approaches.

2.1 The Principal-Agent Theory

Jensen and Meckling (1976, p. 5) describe the principal-agent relationship as *"a contract which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent"*. This relationship can be different from every situation, and examples of the principal-agent problem are universal. For instance, there can be a principal-agent relationship between an employee and an employer, or between the state and the government (Ross, 1973). However, considering our study, the principal-agent relationship is seen as relationship between a shareholder and a CEO, where the CEO is given some authority to act in the best favor of the shareholder.

The principal-agent theory assumes that both parts in the relationship are utility-maximizing and have different interests and objectives. This relationship develops a natural conflict, first of all suggesting that CEOs do not always act in the best interests of shareholders. This is called opportunism, and is one of the two assumptions that the principal-agent theory is based on. Opportunism occurs when the principal or the agent wants to utilize the opportunities to gain an economic advantage on behalf of other interests, or when the CEO establishes goals which differ from the shareholder's goals. When the agent acts opportunistically, the quality of his performance or his actions on what was promised to the principal, is not important to him (Fama & Jensen, 1983; Jensen & Meckling, 1976; Sponnich, 2011).

The second assumption of the principal-agent theory, and a cause of the principal-agent conflict, is asymmetrical information between the shareholder and the CEO. This implies that

the shareholder and the CEO have access to different information (Spremann, 1987). The agent mostly has better information than the principal. For instance, the agent (CEO) has more information about the firm, and knows which decisions he is going to make, while the principal (shareholder) is unable to monitor or control the decision making. The principal can thus not easily assure himself that the agent's performance is precisely what was promised.

In addition to opportunism and asymmetrical information, there are many other conflicts and problems that arise between the principal and the agent. Another conflict which is important to mention is that the principal and the agent can have different attitude towards risk (Shleifer & Vishny, 1997). The problem here is that the principal and the agent can take different actions because of their different preferences towards risk. There are different principal-agent models, with different approaches towards risk. For instance, both the agent and the principal can be risk neutral or risk averse, or one of them can be risk neutral while the other one is risk averse (Eisenhardt, 1989). In our study, we are concentrating us on the CEO and his attitude towards risk, as we consider this as more relevant for the literature of CEO compensation. For instance, more risk-averse CEOs will give more profits to the firm, and will hence be in the best favor of the shareholders.

Fama and Jensen (1983) also point out that these types of conflicts happen when a key decision maker has no financial interest in the outcome of his decisions. By creating a contract between the principal and the agent the principal-agent theory resolves such types of conflicts. The contract which is made here is mostly seen as incentives given to the agent (CEO), for example bonus or other benefits as car and phone.

Even though the contracts are created in order to make the agent act in the best interest of the principal, the problem of moral hazard can occur because of asymmetrical information after signing the contract. Asymmetrical information occurs because some individual actions cannot be observed and contracted upon, and then the CEOs can “shirk” away their responsibilities as these are not written in the contract. Hence, it is important that the contracts are detailed and include all of the aspects so the CEOs do not act beneficially, and that they take the responsibilities that are required by their position (Hölmstrom, 1979).

Another way of resolving the principal-agent conflicts, and moral hazard, are through monitoring, designed to limit the conflict of interests. When the shareholder can monitor the CEO, he will be able to track every move the CEO makes, but at the same time the CEOs authority will be reduced. The costs that occur to make the agent act in the principal's favor

are called agency costs. As the complexity of the tasks undertaken by the agent grows, agency costs grow (Armour, Hansmann, & Kraakman, 2009; Shleifer & Vishny, 1997). Firms can use financial disclosures as one obvious monitoring system, but if the quality of the disclosures is reduced, the agents can make self-maximizing decisions like "empire building" (Hope & Thomas, 2008; Jensen & Meckling, 1976). We will come back to this concept under the empire building theory.

The principal will in certain situations pay the agent to expend resources, also called bonding costs, to guarantee that he will not take actions which would harm the principal or to ensure that the principal will be compensated if he does not take such actions. In general, it is impossible for the principal to ensure that the agent will make optimal decisions from the principal's view at zero costs. In practice, there will be principal-agent relationship that causes positive monitoring and bonding costs, but the agent's decisions and those decisions which would maximize the welfare of the principal will differ. A reduction in welfare experienced by the principal, because of this divergence is also a cost, and is referred as "residual loss" (Jensen & Meckling, 1976). The sum of agency costs is hence (1) the monitoring expenditures by the principal, (2) the bonding expenditures by the agent, and (3) the residual loss.

The literature of the principal-agent theory is important, especially when it comes to determining CEO compensation. In this theory the shareholder/owner and the board of directors are the ones who determine the compensation. If the CEO acts in a way that increases the firm performance, the shareholder will thereby increase the compensation of the CEO. There is therefore a mutual relationship between the CEO and the shareholder, where the CEO acts in the best interests of the shareholder. However, there are other theories that originate from the principal-agent theory which can contribute to more knowledge of how CEO compensation is determined. We will thereby present the managerial power theory in the next subchapter.

2.2 The Managerial Power Theory

According to Randøy and Skalpe (2007), the managerial power theory is considered as the biggest competitor to the principal-agent theory of how CEO compensation is determined. Both of the theories begin with recognition of the shareholder-manager agency problem, and both of the theories are focusing on that both parts want to maximize their own interests (Randøy & Skalpe, 2007). However, the managerial power theory focuses on a different relationship between the agency problem and CEO compensation. Under this approach, CEO compensation is not seen as an instrument to reduce the agency problem, but as well a part of the agency problem itself (Bebchuk & Fried, 2003).

In contrast to the principal-agent theory, where the CEO compensation is set by the board of directors in order to maximize and maintain shareholder value, the managerial power theory suggests that the shareholders have less power when determining CEO compensation. The tasks of the board of directors in Norway are regulated by the law of public limited firms (*allmennaksjeloven*, shortened to *asal*) in §6-16a. The board is responsible of preparing a statement of determining pay and other compensation to CEOs and managers. The managerial power theory suggests that CEOs have power to determine their own compensation by influencing the board, which shows that executive compensation decisions are not taken by completely independent boards (Bebchuk, Fried, & Walker, 2002; Murphy, 2002).

According to the managerial power theory, CEO compensation will either be more or less sensitive to performance or firm size in firms where the executives have more power. The managerial power of theory can therefore be seen as a supplemental theory to the principal-agent theory, where it may explain how CEO compensation is determined when the assumptions of the principal-agent theory are not fulfilled (Bebchuk & Fried, 2003; Randøy & Skalpe, 2007)

Under the managerial power view, Bebchuk and Fried (2003, p. 77) point out that executives tend to have more power when “1) *the board is relatively weak or ineffectual*, 2) *there is no large outside shareholder*, 3) *there are fewer institutional shareholders*, or 4) *managers are protected by antitakeover arrangements*”. The power of the CEO will mostly depend on the ownership structure of the firm, as if a CEO owns many shares, he will have more influence on director elections and to prevent a hostile takeover attempt. Further, the CEO can be more able to determine his own compensation. Otherwise, the CEO will have less power and

thereby a small ability to determine his own compensation if he owns less shares, and if most of the shares are owned by unrelated parties (Bebchuk et al., 2002).

The managerial power theory can also be seen as related to Berle and Mean's work (1933) regarding ownership structure and the relationship between shareholder and corporate insiders. They indicate that a spread ownership will result in less control over the board, and that CEOs thereby can gain more power. Additionally, firm size can affect the control of the board, as big firms tend to have spread ownerships.

According to Bebchuk et al. (2002), the power of a CEO and thereby his ability to control his own compensation, will also depend on the structure and organization of the board. The power of a CEO depends on the numbers of independent directors, inside directors and the number of the directors whom the CEO has influence on. Jensen (1993) points out that the board are less likely to function effectively and will be easier to control by the CEOs if the board size get beyond seven or eight people.

Additionally, Hill and Phan (1991) argument for CEO tenure as a determinant of CEO pay and compensation. They point out that the CEOs will have greater influence over the board of directors, and that the CEO compensations will more likely reflect the CEOs' own preferences, as the longer the tenure of CEOs. CEOs with longer tenure will also be able to gain control over the firms' internal information systems and thereby be able to keep back relevant information. Additionally, the CEOs will gain more power and knowledge over the years, and thereby be able to increase their own compensations by having increased control over the board (Boyd, 1994; Hill & Phan, 1991; Zajac & Westphal, 1996).

After looking at the literature and the views of the managerial power theory, this theory assumes that firm size, large boards of directors, CEO ownership, and CEO tenure will increase CEO compensation. Independent boards will, on the other hand, decrease CEO compensation as they will not be controlled by the CEOs (Randøy & Skalpe, 2007). We will look at previous empirical researches later to determine if the theoretical assumptions are equal in practice. In the next subchapter, we will describe corporate governance and its mechanisms which we consider as an important approach to understand the pay-for-performance relationship and determinants of CEO compensation.

2.3 Corporate Governance

Corporate governance is seen as a set of principles, processes, and systems by which a firm is governed. These principles, processes, and systems provides a framework of how the firm can be controlled and directed in order to reach their goals and to add value to the firm in a way that is beneficial for all of the stakeholders in the long term (Thomson, 2009). There are many definitions of corporate governance, but in economic theory it is mainly defined as the relationship between shareholders, directors and general managers of a firm. This definition has later moved to include interactions with other stakeholders too.

The stakeholders of a firm include equity holders, creditors, employees, consumers, suppliers, and the government. Fama and Jensen (1983) argument that the best way of organizing and structure a firm, is through separation between the shareholders, directors and managers. However, it is important to not just focus on the shareholders' interests, but as well of all of the firm's stakeholders, as many are affected of how a firm is performing and operating.

In order to protect their interests, the stakeholders of a firm exercise control over the corporate insiders and the management. Corporate governance deals with the mechanisms of how the stakeholders control the corporate insiders and the management, as they are the ones who control the key decisions of the firm (John & Senbet, 1998). It is important to pay attention to conflicts of interest between corporate insiders and stakeholders as the insiders have control over the cash flow of the firm, and how they operate will therefore determine how the stakeholders' interests are protected. By controlling the insiders, the stakeholders can prevent the insiders from operating beneficially for their own personal use, and additionally prevent them from investing in unprofitable projects (Lemmon & Lins, 2003). This is based on opportunism, which is one of the assumptions in the principal-agent theory.

Shleifer and Vishny (1997) have in fact a straight forward agency perspective on corporate governance, and they point out that corporate governance deals with the agency problem and can be referred to as the separation of ownership and control. This means that corporate governance is important regarding the conflicts that arise when ownership and control is separated. The authors are focusing on the relationship between shareholders and corporate insiders, and how the shareholders can be sure of getting their returns back from the firm. They point out that there are no guarantee that the shareholders will get any return, or that the corporate insiders manage their money in a way that are beneficial for the shareholders.

Berle and Means (1933) also focus on the separation between ownership and control, and they point out that conflicts between owners and corporate insiders, the agency problem, will arise if there are a spread ownership within the firm. *“As the ownership of corporate wealth has become more widely dispersed, ownership of that wealth and control over it have come to lie less and less in the same hands”* (1933, p. 69). They argue that the owners will have less control over the corporate insiders as the managers will have more power in a firm with spread ownership. This is also related to Stiglitz’s (1985) view on the multiple-principal-agent problem, where many small owners are not able to behave as one owner. The small owners are maybe just represented by funds or professional board wholesalers, and have not identical preferences. Stiglitz (1985) points out that this can make it easier for CEOs to dominate and act in a way which is not necessarily in accordance with the multiple small owners’ interests (Sappington & Stiglitz, 1987; Stiglitz, 1985).

In addition to spread ownership, the ownership structure within a firm plays an important role as managers’ motives probably can be affected by this. Myrteit and Nygaard (2001) point out that there are particularly two issues by giving responsibility to the managers and the corporate insiders. First of all, the shareholders will probably have to passively accept all of the information presented by the management. The management and the corporation insiders know better how their actions affect the real financial results, than the shareholders know. The managers can therefore manipulate the shareholders to not getting involved in the firm, by giving them selective or insufficient information about their actions and decisions. This is also related to earnings management. Earnings management occurs when managers either mislead stakeholders about the firm’s underlying economic or influence contractual outcomes dependent on reported accounting numbers, by using judgment in financial reporting and in structuring transactions to adjust financial reports (Healy & Wahlen, 1999).

The second issue is that the management of a firm can have own financial interests that they want to achieve through the firm. These interests can be conflicting with shareholders’ interests, and this will not be beneficial for the passive owners and shareholders. By presenting insufficient information and by having conflicting interests, the managers can also abuse their position by taking benefits out of the firm. They can, as we will describe further in the empire building theory, increase their power position by increasing the firm’s size and growth rather than focusing on the firm’s profitability (Myrteit & Nygaard, 2001). It is therefore important that there are corporate governance mechanisms in order to control the corporate insiders and the management.

As we have mentioned before, the purpose behind corporate governance mechanisms is to reduce the conflicts and issues that occur when separating ownership and control, and to hence reduce managers' opportunism towards owners and other stakeholders. The purpose is to align the stakeholders' and the managers' interests (Weir, Laing, & McKnight, 2002).

2.3.1 Corporate Governance Mechanisms

The corporate governance arena differs from country to country based on their history and regulations. The Norwegian corporate governance system includes certain characteristics, for instance the division between ASA (public limited) and AS (private limited) firms, and the concentrated ownership of the Oslo Stock Exchange (Mallin, 2011). We will hence describe the corporate governance mechanisms which are suitable for the Norwegian system, and we divide the mechanisms in two categories; internal and external mechanisms.

2.3.1.1 Internal Mechanisms

The internal mechanisms are created to bring the manager's and the shareholders' interests into congruence. The owners must ensure themselves that the board of directors represents their interests, and not the CEOs'. As we discussed under the managerial power theory, CEOs can affect and control the board under many circumstances, for instance under large and depended board of directors, and when the firms have spread ownerships. The board of directors is chosen through a general meeting after asal. §6-3, and the board must ensure proper organization of the firm and has the responsibility of the firm's management after asal. §6-12 (1).

The shareholders and the owners exercise the highest authority in the firm through the general meeting, see asal. §5-1 (1). The owners will provide information to the board of how they want the firm to be operated, and the board will thereby give this information to the management. The board is hence responsible for making the management operate in the best way of protecting the owners' interests. However, the owners must for example choose a small and an independent board, so the CEOs have smaller chances of influencing the board.

Another corporate governance mechanism is monitoring of the CEOs so they act in favor of the shareholders, as we discussed under the principal-agent theory. According to asal. §6-13 (1) and (2) the board has the responsibility of supervising the management and also of establishing instructions for the management. The shareholders must thereby make sure that the board of directors does the monitoring and supervising of the managers, so they can prevent CEOs from acting beneficial.

As we discussed earlier, there are additionally asymmetrical information within a firm, where the management normally have more information than the shareholders. The management can give the owners and other stakeholders insufficient information to protect their own interests and to take benefits out of the firm, or keep certain information hidden. Managers can also adjust financial reports, regarding earnings management. By increasing the level of external control through transparency and control of independent experts, the owners can reduce the amount of hidden information between the owners and the management, and in addition reduce the chances of earnings management to occur. Although internal audit and audit seeks to create an accurate financial picture of the firm, some cases have shown that information has been hidden from the owners of a firm (Myrtveit & Nygaard, 2001). We will discuss the auditors' responsibilities under the external mechanisms.

Another aspect, and an important part of corporate governance, is the subject of ownership and how the owners can make the managers increase the long-term value of the firm. The owners can for example stimulate the management's owner perspective through the compensation system, and option deals can be designed in a way that prevent managers to act in their own private interests. Studies have shown that the owner perspective of the management is the variable that influences profitability the most. However, later studies have shown that managers are less willing to accept option deals as a part of their compensation systems as a result of market uncertainty (Myrtveit & Nygaard, 2001).

To increase the level of result dependency, is another corporate governance mechanism. If the workers and the management are more dependent of the results within a firm, will they make decisions that are in line with the firm's and the owner's interests. If the management's compensation is dependent on the firm's result, will they be willing to act in a way that increases the firm's profitability (Myrtveit & Nygaard, 2001).

Myrtveit and Nygaard (2001) further point out that managers should not be rewarded for good results or punished for poor results that is caused by market conditions and not gained through their own efforts, but rewarded and evaluated by relative performance such as growth, turnover or increased stock prices. Further, a manager should not be evaluated by only one goal. The board should draw subjective qualitative and quantitative measures in addition to financial performance. These measures should include both long-term and short-term strategies, social conditions and growth dimensions. Hence, all of these corporate governance mechanisms are examples of how the owners can gain control over corporate insiders and the

management, and to protect all of the stakeholders' interests affected by a firm's results. However, the internal mechanisms are in some cases not enough to reduce the conflicts, and hence we also have external corporate governance mechanisms.

2.3.1.2 External Mechanisms

External mechanisms include both legal and regulatory mechanisms, as well as takeover attempts. These mechanisms is not designed by the firm itself, but by the government or other external actors. For instance, Oslo Stock Exchange knows the importance of having good corporate governance practices, as investors have a more positive view of firms recognized for good practices. Further, Oslo Stock Exchange does not just focus on the interest of owners and shareholders, but all of the stakeholders' interests. Their corporate governance practices are based on the Norwegian Code of Practice for Corporate Governance (NUES).

The purpose of NUES is that firms listed on regulated markets in Norway shall have corporate governance that clarifies the roles and responsibilities between shareholders, directors and owners beyond what is required by legislation. Good corporate governance will enhance the confidence of firms and contribute to greatest possible value creation over time, which is beneficial for shareholders, employees and other stakeholders. The listed firms manage a significant part of the capital in the community, and stand for a large part of the value creation. It is therefore interesting for the community that firms are managed in a satisfactory way. NUES is hence intended to strengthen the confidence of the firms among shareholders, in the capital market and among other stakeholders (NUES, 2012).

Another external mechanism is the law of accounting (*regnskapsloven*, shortened to rskl). Rskl. §3-3b informs that firms which are obligated to accounting by vphl. §5-4 and which have securities listed on related markets, shall disclose their policies and practices regarding corporate governance in their annual reports. Large firms must also report their policies, principles, procedures and standards they use to integrate consideration of human rights, labor rights and social issues, the environment and anti-corruption in the business strategies, in their daily operations and in their relationship with their stakeholders, see rskl. §3-3c.

Further, public limited and private limited firms are obligated to audit by the law of auditor (*revisorloven*, shortened to revl), §2-1. The auditors are responsible to consider if the annual reports are prepared and presented in accordance with laws and regulations, see revl. §5-1. They are also responsible of performing the audit under best judgment, and also assess the risk of misstatement due to fraud or mistakes, see revl. §5-2. This can reduce the CEOs'

chances of acting beneficially, but as we mentioned earlier, this will not entirely eliminate the risk of hidden information.

Another aspect of corporate governance is inside information within a firm, and how the managers handle this type of information. If this information ends in wrong hands, the firm and the shareholders can be harmed. There is therefore an increased focus on how firms listed on the Oslo Stock Exchange handle inside information and how they are keeping lists of people who have access to the inside information (OsloBørs, 2013). In Norway, the inside information is strictly regulated by the law of securities trading (*verdipapirhandelloven*, shortened to *vphl*). The purpose of the law is to facilitate safe, orderly and efficient trading in financial instruments, see *vphl*. §1-1, and is hence a mechanism of controlling the managers and to prevent them from sharing internal information to external people.

Takeover is another external mechanisms in addition to regulatory and legal mechanisms. If the managers are not able to maximize the wealth of the company, external investors can exercise their power and takeover the firm. However, this process can be prolonged as the management can resist the takeover, since they want to protect their private benefits. A takeover will increase the gap between the owners' and the managers' interests as the owners' wealth becomes maximized and the managers lose control. Further, managers who are not able to maximize the wealth of the firm will be in danger of losing their jobs. Hence, the threat of a takeover will act as a corporate governance mechanism to make the managers act in the best favor of the owners (Shleifer & Vishny, 1997).

There have been many empirical researches on the concept of corporate governance and CEO compensation. Core, Holthausen, and Larcker (1999) have for instance studied the relationship between the level of CEO compensation and the quality of firms' corporate governance, and have been studying whether firms with weaker corporate governance structures have poorer future performance or not. Their results show that CEOs earn greater compensation when a firm's corporate governance mechanisms are less effective, and that agency problems tend to be higher with weaker corporate governance mechanisms within a firm. Higher agency problems are further related to higher CEO compensation and weaker performance. We will further discuss the empire building theory in the next subchapter.

2.4 The Empire Building Theory

As we mentioned in the principal-agent theory, an agent can make self-maximizing decisions as result of goal incongruence between the agent/CEO and the principal/shareholder. This is called managerial empire building, where CEOs may opportunistically grow a firm beyond its optimal size, or maintain unutilized resources to increase personal utilities arising from status, power, compensation and prestige. CEOs can build their empires in two ways, by excessive growth or excessive investment (Hope & Thomas, 2008; Jensen & Meckling, 1976).

Researchers have still over a long time recognized the problem where CEO's allocations of resources not always are efficient and destroy shareholder value. Schumpeter assumed as early in 1911 that managers are empire builders, and since then it has become one of the mainstreams of the literature on corporate governance that executives will turn into empire leaders, if they not are delimited by some tight form of governance (Hope & Thomas, 2008).

How is it then possible for managers to maximize their own interests instead of the shareholders? This happens when shareholders' ability to monitor managers diminishes. Because of non-disclosure of geographic earnings, managers are more willing to expand their international operations, in other words build an empire, even though this would lead to poor firm performance (Hope & Thomas, 2008). In the next subchapter we will look at how firms can increase their firm performance by investing in human capital.

2.5 The Human Capital Theory

Employees' knowledge and skills can be seen as economic value to a firm, and firms need employees that are capable of thinking, performing, and adapting (Walker, 2005). This is what identifies human capital in an organization, and it is necessary for success in today's economy. Schultz was the first researcher to introduce the concept of human capital in 1960. He believed human capital was like any other type of capital, and that investment through education, training and enhanced benefits, would lead to an improvement in the quality and level of production. However, it is Becker's classical work from 1964 and further, that is fundamental of the human capital theory (Blaug, 1976; Schultz, 1961).

Becker (1975) discovers many important aspects in his research, including that investment in human capital is more likely than investment in intangible capital. He also discusses that on-the-job training is important because workers increase their productivity by learning new skills and perfecting old ones, and that on-the-job training is more common for younger people, than older people, because younger people have more years ahead of them. He

presumes that investment in people is underestimated by firms, and by actually investing in people, the whole firm would increase the productivity. Becker's research (1975) also discusses that not only on-job-training increases personal earnings, but more schooling, research, age and investment in information about job opportunities will yield a return in the form of higher earnings. Searching for different job opportunities will give the CEO the possibility to choose the firm that gives the best conditions, in terms of highest salary and compensation.

The theory mainly focuses on the importance of valuable human knowledge and skills, and the contribution this gives to firm performance (Randøy & Skalpe, 2007). However, the theory of human capital assumes that even if education, on-job-training or schooling create costs for the firm, they should think of these costs as value added for the firm in a long-time perspective. Randøy and Skalpe (2007), Becker (1975), and Schultz (1961) all point out that the higher education a person has, in terms of age, or the more on-job-training a person gets, will just give a positive effect on the human capital theory. CEO's tenure and more international competition between the CEOs also have a positive effect on this theory. We can assume that there are many variables we should include, and that this theory is essential for estimating CEO compensation.

We have presented the theories that we consider as the most important of understanding the pay-for-performance relationship and determinants of CEO compensation in this chapter. In the next chapter will we present different previous empirical researches based on the presented theories and the relationship between firm performance and CEO compensation, in addition to other determinants of CEO compensation. We want to see if the theoretical expectations are equal in practice, and to examine what kind of results we can expect in our study.

3 Previous Empirical Research

In this chapter will we present and discuss previous empirical researches which have tested hypotheses based on the theoretical framework presented in the previous chapter. We will discuss some of the studies in more detail, and look at similarities and differences between these empirical researches. Finally, we will look at which consequences the similarities and differences have on the relationship between firm performance and CEO compensation, and how CEO compensation is determined. We will further base our research model on the discussions raised in this chapter.

Throughout the years, there have been many studies on the relationship between firm performance and CEO compensation, as well as other determinants of CEO compensation. For instance, Lewellen and Huntsman (1970) find a positive pay-for-performance relationship in their study, and Sigler (2011) finds a positive and significant relationship between CEO compensation and firm performance measured by return on equity (ROE). Sigler (2011) bases his research on the principal-agent theory and corporate governance, and examines the relationship between CEO compensation and firm performance in 280 firms listed on the New York Stock Exchange from 2006 to 2009. Firm size appears to be the most significant factor in determining the level of CEO compensation, followed by tenure as the second most significant factor, in his study. Another study based on the principal-agent theory is the study by Tosi, Werner, Katz, and Gomez-Mejia (2000). Their findings show a weak positive relationship between CEO compensation and firm performance. The researchers find that firm performance accounts for less than 5% of the variance in CEO compensation, and similar to the other studies, they find that firm size has the greatest impact on CEO compensation.

Firth et al. (1996) examine determinants of CEO compensation in Norway, and base their study on the principal-agent theory. Like other studies, their results show a positive relationship between CEO compensation and firm size. On the other hand, they find no significant relationship between CEO compensation and firm performance, measured by profitability and stock returns, in Norway. Randøy and Nielsen (2002) neither find a significant relationship between firm performance and CEO compensation in Norway, but they find a weak and positive relationship with a combination of market-based and accounting-based measures of firm performance. However, they find that board size, market value, and foreign board membership have positive and significant effects on CEO compensation. Further, the researchers find a significant and negative relationship between CEO ownership and CEO compensation.

The Norwegian study by Olsen and Klungreseth (2013) examines the pay-for-performance relationship in the 50 largest firms listed on the Oslo Stock Exchange, based on the principal-agent theory, the managerial power theory, the empire building theory and the human capital theory. Additionally, the researchers are focusing on different aspects of corporate governance and its mechanisms. They examine the relationship between firm performance and the levels of both fixed salary and variable CEO compensation from 2010 to 2012, in addition to other determinants of CEO compensation as firm size, the size of the board of directors, tenure, firm sector and debt ratio, which is used as a variable for firm risk.

Their results show no significant positive relationship between firm performance and variable CEO compensation, but rather a negative and significant relationship between EVATM and variable CEO, and a negative significant relationship between P/E and fixed salary, which is inconsistent with the principal-agent theory. However, they find a positive significant relationship between the previous years' Jensen's alpha and the current year's variable CEO compensation. Olsen and Klungreseth (2013) find that there are other factors that affect CEO compensation more. The size of the board of directors has a positive and significant effect on fixed salary. Further, firm size is shown to be the most important variable of determining both fixed and variable CEO compensation in this study.

From these previous empirical researches, we see either a weak or a non-existing relationship between firm performance and CEO compensation, and that there are other determinants of CEO compensation. We will now discuss five studies in more detail which we consider as most relevant for our study. The first three of the studies are essential studies within the literature of CEO compensation, while the two remaining studies are Norwegian studies that examine the pay-for-performance relationship, as well as other determinants of CEO compensation, for firms listed on the Oslo Stock Exchange. We want to examine these studies in order to look at their similarities and differences, which variables they use, and what kind of results they get based on their chosen variables. We will hence present the following studies; Jensen and Murphy (1990b, 1990a), Gomez-Mejia, Tosi and Hinkin (1987), Haukdal, Høgvall and Windstad (1997) and Randøy and Skalpe (2007).

3.1 Jensen and Murphy (1990b)

Jensen and Murphy's empirical research from 1990 is essential for the pay-for-performance relationship, and their work is seen as the contributor to the increased focus on this relationship. Their research is based on the principal-agent theory, and they are hence expected to find a positive relationship between firm performance and pay as implied in this theory. The researchers use a quantitative research method and base their analyses on ordinary least square regressions analysis.

Jensen and Murphy (1990b) have followed and gathered information from 1294 firms and 2213 CEOs listed in the Executive Compensation Surveys, published in Forbes, from 1974 to 1986. They examine the pay-performance sensitivity, which is seen as the dollar change in the CEO's wealth associated with a dollar change in shareholders' wealth. Change in CEO wealth is defined as change in CEO salary and bonus by Forbes, and change in shareholder wealth is defined as the beginning-of-period market value included the inflation-adjusted rate of return on common stock, thus change in stock price including any dividends paid. Forbes' definition of change in CEO wealth does not include stock options. Jensen and Murphy (1990b) argument for the fact that CEO compensation can be more than salary and bonuses, and they thereby examine stock options as a part of CEO wealth.

Their results show a significant, but a weak positive relationship between CEO pay and firm performance. Their estimates for the pay-performance relationship, including compensation, stock options, dismissal, and stockholdings, indicate that for every \$1000 dollar change in shareholder wealth, CEOs' wealth change by \$3,25. Further, their estimates imply that each \$1000 dollar change in shareholder wealth corresponds to an average increase in the current year's and next year's salary and bonus of about 2.2 cents. Additionally, firm size affects this relationship. In small firms, the change in the current year's and next year's salary and bonus is 4.1 cents, but only 2 cents in large firms. This indicates that the pay-for-performance relationship is stronger in small firms than in large firms. They also find that the largest CEO performance incentives come from their ownership of firm shares, rather than from changes in CEO salaries and bonuses. If CEOs own firm shares, they will be more dependent on firm performance, which is related to corporate governance mechanisms, as we discussed in the previous chapter.

The researchers are surprised by the weak relationship between CEO pay and firm performance, and believe that these results are inconsistent with the implications of the

principal-agent models of optimal contracting. Hence, they hypothesize that political forces operating both in the public sector and inside firms, limit large payoffs for exceptional performance. Large firms are more visible and tend to be more pressured by political forces, than small firms (Jensen & Murphy, 1990b).

As we discussed, this study is based on the principal-agent theory. However, the researchers do not find support for the theoretical expectations in practice. This can be related to the principal-agent theory's lack of predictions of how the contract between a shareholder and the CEO is designed, since the theory mainly predicts that compensation increases with observed firm performance. The classical principal-agent theory predicts risk neutral CEOs. In reality, CEOs are not risk neutral as Shleifer and Vishny (1997) explained, which has made this study difficult for the researchers. By including CEOs' risk aversion and tolerance in their analyses, they see the importance of how risk bearing can give firms the ability to achieve efficiencies. Jensen and Murphy (1990b) see the weaknesses in the principal-agent theory, and include the variables that give the most appropriate picture of the reality.

Jensen and Murphy (1990b) additionally see the importance of not only using shareholder wealth as measure for firm performance, as they consider shareholder wealth as an imperfect measure of the CEO's individual performance. Jensen and Murphy (1990b) choose thereby to include changes in shareholder wealth in the industry and market, and accounting measures of performance, changes in accounting profits and changes in sales, to see their effects on salary and bonuses. They point out that CEO's change in stock options and stockholdings only is determined by firm performance, independent by relative performance and accounting profits.

The strengths of this essential study, is that the researchers see the importance of other factors and views that are important when determining CEO compensation, and they therefore make new regressions including these new factors. These factors can also be explained by other theories. Since this is one of the best contributions in the literature of CEO compensation, we consider that there are no weaknesses of this research. However, this study is fundamental in the literature of CEO compensation, and can thereby help researchers to be aware of different theories and factors that can explain the pay-for-performance relationship and CEO compensation. We will further present another essential study by Jensen and Murphy.

3.2 Jensen and Murphy (1990a)

Another study by Jensen and Murphy, also published in 1990, does a statistical analysis of executive compensation, and is based on the principal-agent theory. The purpose of their study is to examine how CEOs are paid. They gather information on salaries and bonuses for 2505 CEOs in 1400 publicly held firms from 1974 through 1988. They use ordinary least square regression analysis based on their quantitative research method. The researchers include stock options and stock ownership to the CEO salary and bonus, and their findings show that annual changes in CEO compensation do not completely reflect changes in firm performance, measured by market value. For the 250 largest firms, a \$1000 change in firm performance corresponds to a change of only \$2,59 in CEO compensation.

Further, similar to the other study, they find that the most powerful link between shareholder wealth and CEO wealth is CEO's direct ownership. If CEOs own firm shares, they will be dependent on firm performance, and thereby try to increase the performance within the firm. If firm performance increases, then CEOs will get higher compensation. However, their analyzes do not find any significant effects between CEO stock ownership and pay-for-performance sensitivity in cash compensation. This implies that the board of directors ignore CEO stock ownership when designing compensation plans (Jensen & Murphy, 1990a).

The strengths of this study are that they consider CEOs' risk aversion, and additionally describe the differences between stock options and stock ownership. The value of a stock option relates directly to changes in share price, but holding a stock option does not provide the same incentives as holding firm shares. A stock ownership rewards both price appreciation and dividends, while stock options only reward appreciation. Another strength of this study is its focus on incentives that are most aligned with the interest of shareholders. This is related to corporate governance mechanisms as the shareholders try to affect the CEOs to make decisions in shareholders' interests and favor. Additionally, this study points out the importance of investing in human capital. If the CEO's human capital is specific to the firm, they will have difficulties of getting a new job in case of dismissal. Hence, CEOs will be willing to maximize firm value in fear of getting fired. This study is also essential in the literature of CEO compensation, and helps to recognize other factors that can determine CEO compensation, and can affect the pay-for-performance relationship. We will further present another study which we consider as fundamental in the pay-for-performance research and the literature of CEO compensation.

3.3 Gomez-Mejia, Tosi, and Hinkin (1987)

The study by Gomez-Mejia et al. (1987) examines the relationship between firm performance and CEO compensation, in both owner-controlled and manager-controlled firms. They gather information from a sample of the 71 largest U.S. firms, and use a quantitative research method. Additionally they use regression analysis to examine the pay-for-performance relationship. Gomez-Mejia et al. (1987) assume that performance, rather than scale, will be the most important determinant of compensation level for all components of CEO pay in owner-controlled firms. Further, they assume that performance additionally will be the most important predictor of changes in all components of CEO compensation in owner-controlled firm. This is related to the expectations of the principal-agent theory, where owners reward the CEOs for results that owners prefer. In owner-controlled firms, the owners have more power to affect the CEOs' decisions (Jensen & Meckling, 1976).

However, in manager-controlled firms, the researchers expect that the most important determinant, rather than performance, of CEO compensation level is the scale of the firm. Scale will additionally be the most important predictor of changes in CEO compensation in manager-controlled firms. Larger firms tend to give higher compensation as their profits are greater than in smaller firms. Further, managers want to base CEO pay to firm size rather than performance, as firm size is less likely to vary. Manager-controlled firms will therefore prefer to avoid the risk of tying pay to performance.

The researchers examine the differences of performance and scale of a firm on CEO compensation between owner-controlled firms and manager-controlled firms, because manager's motivation can differ regarding the owners' and managers' level of control. In large firms, the ownership structure is seen to be spread across many shareholders, and the owners' power to control the managers is thereby small. Managers can hence dominate in large firms, and affect their compensations and maximize results based on their own interests, rather than in small firms (Berle & Means, 1933).

Further, the researchers assume that CEO compensation mainly is based on bonuses and long-term income in owner-controlled firms. By giving bonuses and base compensation on long-term incentives, the owners can affect the CEOs to increase firm performance. Managers in manager-controlled firms will however base their pays on fixed salary to minimize own risk.

Gomez-Mejia et al. (1987) use multiple measures for measuring firm performance, these include percent changes in sales, profits and dividends, common market value, return on

equity (ROE), earnings per share (EPS) and percent change in stock price multiplied with shares. The measures of scale are annual sales and profits in dollars. Further, they define CEO compensation as salary, bonuses, and long-term income, where the last one includes compensation benefits as stock options, pensions and profit sharing.

Their results show that the only determinant and predictor for each of the absolute compensation measures in owner-controlled firms, is performance. On the other hand, scale is the only determinant and predictor of base salary, bonuses and total compensation in manager controlled firms. However, performance has a large effect on long-term income. Further, they find no evidence that bonuses and long-term income will be larger proportions of CEO compensation in owner-controlled rather than in manager-controlled firms. Their overall findings are that performance has a significant but weak effect on CEOs' compensation in both owner- and manager-controlled firms. However, this relationship is much weaker in manager-controlled firms (Gomez-Mejia et al., 1987).

Gomez-Mejia et al. (1987) choose to include ownership structure and firm size of a firm to examine how CEO compensation is determined. We consider this as a strength of their study, as ownership structure and firm size tend to have significant effect on the relationship between firm performance and CEO compensation. This is consistent with the expectations of the managerial power theory and is related to corporate governance (Berle & Means, 1933). Further, they have used many measures of firm performance and scale rather than just stock prices. Stock prices are sensitive to external events which are totally beyond management's control (Madsen & Stenheim, 2014). Another strength is that the researchers includes managers' risk aversion to their analyses. In owner-controlled firms, risk-taking managers will try to increase performance by investing in different projects. In manager-controlled firms, will however managers be less risk-taking. However, the researchers find a very weak relationship between firm performance and CEO compensation, and this indicates again that there are other variables that have greater effects on CEO compensation. We will take this in consideration when we are going to examine the pay-for-performance relationship and determinants of CEO compensation.

We will further present two Norwegian studies which we consider as relevant for our study, as these examine the pay-for-performance relationship, as well as other determinants of CEO compensation in firms listed on the Oslo Stock Exchange.

3.4 Haukdal, Høgvall, and Windstad (1997)

This empirical Norwegian study from 1997 studies the relationship between firm performance and CEO compensation in 50 firms listed on the Oslo Stock Exchange, from 1991-1995.

Further, they examine if firm size and risk have any impact on how strong the pay-for-performance relationship is. The researchers divide their observations after size, by both sales and market value, and provide clear differences between large and small firms. The study is based on the principal-agent theory and the empire building theory. The researchers use bivariate and multiple linear regression analyzes to estimate and test the relations from the quantitative data.

They examine the percentage change in CEO compensation, where compensation is defined as the total compensation as it is presented in the firms' annual reports, and includes fixed salary, company car, favorable loans and performance-based salary such as bonuses. Firm performance is divided in percentage changes in both market-based and accounting-based returns, as well as sales. Market-based return is considered as the percentage change of returns of a firm's shares from one year to another, while accounting-based return includes return on assets (ROA). Further, the researchers use the firm's systematic risk to measure risk, which is risk that owners cannot diversify away.

Haukdal et al. (1997) expect that the relationship is positive but weaker in Norway than in the U.S., because they argue that compensation arrangements cannot contain unlimited profit opportunity in Norway. Additionally, the compensation to Norwegian CEOs has a greater proportion of fixed salary than in the U.S. The American owners can adjust the fixed salary yearly related to performance, which is a necessary condition for a strong pay-for-performance relationship. In Norway, there are limitations by law of adjusting fixed salary yearly related to performance, in order to protect the employees.

The researchers further expect a stronger relationship between pay and performance in smaller firms rather than in larger firms, as a result of ownership structure and flexibility within a firm. Additionally, they expect a stronger relationship between pay and performance for low-risk firms, rather than for high-risk firms. The owners have a greater ability to bear risk, and owners in high-risk firms have to give managers higher incentives, in order to relieve the managers from risk.

Their results show a significant and positive, but weak, relationship between firm performance and CEO compensation. Additionally, they find a greater relationship between

firm performance and CEO compensation in smaller firms when the firm size is divided by market value. However, the researcher point out that they have no significant results that show a stronger or a weaker pay-for-performance relationship regarding firm size. Further, Haukdal et al. (1997), find a greater, but not a significant, relationship in low-risk firms than in high-risk firms. Their results also indicate that Norwegian boards are more concerned about accounting-based results instead of market-based results.

Haukdal et al. (1997) include risk and firm size to see their effects on the pay-for-performance relationship. We consider this as a strength. Further, they use systematic risk, as unsystematic risk can be diversified away. Another strength of this study, is that the researchers have managed to transfer theories of CEO compensation to apply in Norwegian data and setting. However, as they find a weak relationship, there can be other variables to include in the research of the pay-for-performance relationship and CEO compensation. For instance, researchers can include the size of the board of directors as this can affect the relationship, or use more variables of firm performance to increase the chances of finding a stronger pay-for-performance relationship.

3.5 Randøy and Skalpe (2007)

Another Norwegian study on the pay-for-performance relationship and CEO compensation, is the study by Randøy and Skalpe (2007). This study is based on three theories; the principal-agent theory, the managerial power theory, and the human capital theory, and their analyzes include Norwegian data from 1998 to 2004 which is divided in two. In the first part of the study they examine around 10 000 firms that have information about CEO compensation, ownership structure, and turnover, and the second part of the study is based on data collected from 122 firms listed on the Oslo Stock Exchange.

The researchers have a quantitative research method and use both bivariate time series analysis and cross sectional analysis to estimate the relations. They examine the determinants of CEO compensation level and change on the basis of these three theories, and examine how CEO compensation is determined by using factors as firm size measured by number of employees and market value, firm performance, ownership structure, characteristics of the board of directors, characteristics of the CEOs, if the firm is publicly owned, if the firm is listed on the Oslo Stock exchange, as well as the firm's localization and industry. The total CEO compensation is defined as fixed salary, pension funds, and variable compensation such as bonuses, stock options and dividend payments.

The researchers assume that firm size matters most when it comes to determining CEO compensation. More risk averse CEOs are willing to reduce their risk by linking the risk to a more stable factor as firm size. As well as the firm size is less unquestionable and gives the CEO the possibility of demanding a higher compensation for scope of responsibility. From a more human capital view, a larger firm with more complexity requires CEOs with higher competences. This implies that there should be a positive relationship between firm size and CEO compensation.

Further, they assume that firm performance also has an impact on CEO compensation, but only explains a small part. This is based on the principal-agent theory that predicts that the shareholders will reward the CEOs when there is an increase in firm performance. The researchers use total profitability and various profit margins as measures of firm performance in firms not listed on the Oslo Stock Exchange, and in firms listed on the Oslo stock Exchange they use measures as price-to-book ratio (P/B), return on assets (ROA) and shareholder return.

Ownership structure is another variable determining CEO compensation, and the theories predict that if the firm is owned by shareholders, the CEO compensation will be more dependent on firm performance. On the other hand, if the firm is owned by the CEOs, they can determine their compensation, and that CEO compensation will be higher in firm with many owners. Further, the characteristics of the board of directors also have an impact, as for instance if there are many directors or female directors in the board. Many directors can result in coordination problems and higher CEO compensation, as the CEOs easier can influence their decisions. Further, diversity within the board can either give the board more legitimacy or coordination problems. This can hence lead to higher or lower CEO compensation. The CEO's gender, age and their tenure, and the tenure of the board leader can also influence the CEOs compensation according to the human capital theory and the managerial power theory. Additionally, Randøy and Skalpe (2007) expect that CEO compensation varies of the firm's localization and of which industry the firm operate in.

From the analysis of the data collected from 10 000 firms, the researchers find that an increase in turnover results in increased CEO compensation. Further, they find that there is a positive significant relationship between firm performance, measured by EBITDA, in a current year and CEO compensation one year later. This means that the CEOs in not listed firms negotiate their compensation in one year based on accounting based performance in the previous year.

Their results further show that CEO compensation is influenced by turnover growth in small firms, and that it is difficult to document any relationship between CEO compensation and firm performance in large firms. Additionally, the researchers find that CEO compensation increases with firm size, populated areas and number of owners, and that a firm's industry also have an impact when determining CEO compensation. They find that firm size has the most impact on the level of CEO compensation, but not on the change in CEO compensation. Their results also show that female CEOs get lower compensations than male CEOs, and that CEO compensation is lower when the board leader is a female. This can be explained by that women are overrepresented in industries with low payments which also affect their compensations in CEO positions. Further, they find that publicly owned firms have a negative impact on CEO compensation, which can be explained by the lack of resources in publicly owned firms.

For the firms listed on the Oslo Stock exchange, the results show that the firm performance measure, P/B has the greatest effect on CEO compensation. This is consistent with what they assumed, since the researchers consider P/B as the best indicator of long-term firm value. Further, their results show that the board of directors' ownership has a negative and significant effect on CEO compensation, but they find no significant effect of number of directors or female directors in the board on CEO compensation. The results also show that CEO's age influence CEO compensation positively, but they show no significant effect of CEO's tenure on CEO compensation. Inconsistent with the human capital theory, the researchers find a positive relationship between the board leader's age and CEO compensation. On the other hand, they find that the tenure of the board leader has a negative and significant effect on CEO compensation, hence this means that more experienced board leaders can decrease compensation to the CEOs, and not get easily influenced. Lastly, their results show that firm size, measured by market value, has a great impact on CEO compensation.

As we see, this study includes many variables on how the CEO compensation is determined in addition to firm performance, as we consider as a strength. Another strength is that they have a large sample of firms, and they look at many aspects around the theories. This indicates that there are many factors that explain the CEO compensation rather than firm performance. We will discuss the similarities and differences of the previous empirical researches in the next subchapter, in order to see what we can expect and achieve in our study.

3.6 Discussion

The previous empirical researches we have presented above, give us insight about the relationship between firm performance and CEO compensation, and if the assumptions of the theories are met in practice. Most of the studies either find a significant, but a weak positive relationship between firm performance and CEO compensation, or a non-existing relationship. Hence, we expect to get similar results as the previous empirical researches on this relationship, but we want to include other variables to see what kind of implications and possibilities this can have for our study.

Most of the studies find a significant, but a weak positive relationship between firm performance and CEO compensation (Gomez-Mejia et al., 1987; Haukdal et al., 1997; Jensen & Murphy, 1990a, 1990b; Lewellen & Huntsman, 1970; Randøy & Nielsen, 2002; Randøy & Skalpe, 2007; Sigler, 2011; Tosi et al., 2000). The exception is the study by Firth et al. (1996) that find no significant relationship. Olsen and Klungreseth (2013) find no significant relationship, but rather a negative significant relationship between CEO compensation in a current year and some measures of firm performance in the same year. However, they find a positive and significant relationship between the previous years' Jensen's alpha and the current year's variable CEO compensation

CEO compensation is mainly measured as CEO salary, bonus and long-term incentives such as stock options in the American studies (Gomez-Mejia et al., 1987; Jensen & Murphy, 1990a, 1990b). Additionally, Jensen and Murphy (1990a) include stock ownership and Gomez-Mejia et al. (1987) also include profit sharing and pension funds. The Norwegian studies, define CEO compensation as fixed salary and variable CEO compensation, as it is presented in the annual reports (Haukdal et al., 1997; Olsen & Klungreseth, 2013; Randøy & Skalpe, 2007).

Further, the studies mainly focus on the change in firm performance and its impact on change in CEO compensation. Firm performance is measured as shareholder wealth and market value, which is stock price of a firm and dividend payments (Jensen & Murphy, 1990a, 1990b). Additionally, Gomez-Mejia et al. (1987) include changes in scale, profits, ROE and EPS, since it is not enough to just look at shareholder wealth. Haukdal et al. (1997) examine changes in market returns, sales, as well as ROA. ROA is also used as a measure for firm performance with P/B and shareholder return in the study by Randøy and Skalpe (2007) for firms listed on the Oslo Stock Exchange.

The Norwegian study by Haukdal et al. (1997), find no significant relationship between market-based measures of performance and CEO compensation, but a significant and positive relationship based on accounting measures, as ROA, and sales (Haukdal et al., 1997). On the other hand, Randøy and Skalpe (2007) find that only the market-based measure, P/B, has a significant positive impact on CEO compensation in firms listed on the Oslo Stock Exchange. As we mentioned, Olsen and Klungreseth (2013), finds no significant positive pay-for-performance relationship, but however find a weak and positive significant relationship between the previous year's Jensen's alpha and the current years CEO compensation.

The studies find that there are other variables that affect the pay-for-performance relationship. All of the studies, except from Jensen and Murphy (1990a), examine firm size's effect on the relationship between firm performance and CEO compensation, but they measure the variable differently. Gomez-Mejia et al. (1987) measure firm size as annual sales and profits in dollars. Haukdal et al. (1997) include market value, in addition to sales.

Results show that there is a greater pay-for-performance relationship in smaller firms, rather than in larger firms (Gomez-Mejia et al., 1987; Haukdal et al., 1997; Jensen & Murphy, 1990b). Olsen and Klungreseth (2013) measure firm size as the market value of a firm, and Randøy and Skalpe (2007) use number of employees in addition to market value to measure firm size. Randøy and Skalpe (2007) examine firm size as a determinant of both level and change in CEO compensation and its effect on the pay-for-performance relationship. Olsen and Klungreseth (2013) also examine firm size's effect on both CEO compensation level and the pay-for-performance relationship. They both find that CEO compensation is higher in large firms, which results in a weaker pay-for-performance relationship.

Gomez-Mejia et al. (1987), and Jensen and Murphy (1990a, 1990b) find that CEO's direct ownership has a major effect on the pay-for-performance relationship. Their findings show that the pay-for-performance relationship is greater in owner-controlled firms, than in manager-controlled firms. Further, when CEOs are dependent on firm performance, they will be willing to increase firm performance to increase their own compensation. Randøy and Skalpe (2007) show that the firms' localizations and the CEO's age have significant effects on CEO compensation, but that the length of the CEO's tenure and if the firms are publicly owned, have a negative influence on CEO compensation. Jensen and Murphy (1990a, 1990b) include the managers risk aversion and the firm's risk in their analyses, but they do not find

any significant effects. Haukdal et al. (1997) include firm risk to see its effects on pay-for-performance relationship, but they are neither able to find any significant results.

So far, we have examined different previous empirical researches based on the presented theories in Chapter 2, and additionally discussed their similarities and differences. The studies have shown different results based on which variables they have included in their analyzes. We have seen the importance of the pay-for-performance relationship from the theoretical framework, but few studies have found a strong and positive significant relationship between these two variables. Hence, we also expect to find similar results. This is inconsistent with the classical principal-agent theory, but empirical studies have shown that there are other variables that can strengthen or weaken this relationship, and hence that there are other determinants of CEO compensation. This leads us to divide our study in two, where we first examine the pay-for-performance relationship, and second examine determinants of CEO compensation. This will be our contribution to the literature of CEO compensation.

Based on the theoretical framework, and findings from previous empirical research, we will thereby examine if there is a positive pay-for-performance relationship, and then how CEO compensation is determined. Hence, we present the following research question:

“Is there a positive relationship between firm performance and CEO compensation in firms listed on the Oslo Stock Exchange, or are there other determinants of CEO compensation?”

In order to answer this research question, we need to consider both market- and accounting based measures of firm performance. For instance, previous empirical studies show that firm performance cannot be measured only by shareholder wealth, and their findings show that both market-based and accounting based measures of firm performance have a significant effect on the variable CEO compensation. It is therefore important to measure firm performance by several variables.

We want to include and examine the market-based measures; P/B, P/E, Jensen’s alpha and Tobin’s Q, and the accounting-based measures; ROE, ROA and EVA™, to see their impact on CEO compensation. We choose these measures of firm performance as previous studies find significant relationships between P/B, Jensen’s alpha, ROA, and ROE, and CEO compensation for listed firms (Haukdal et al., 1997; Olsen & Klungreseth, 2013; Randøy & Skalpe, 2007; Sigler, 2011). P/E and EVA™ do not show any positive significant effect on

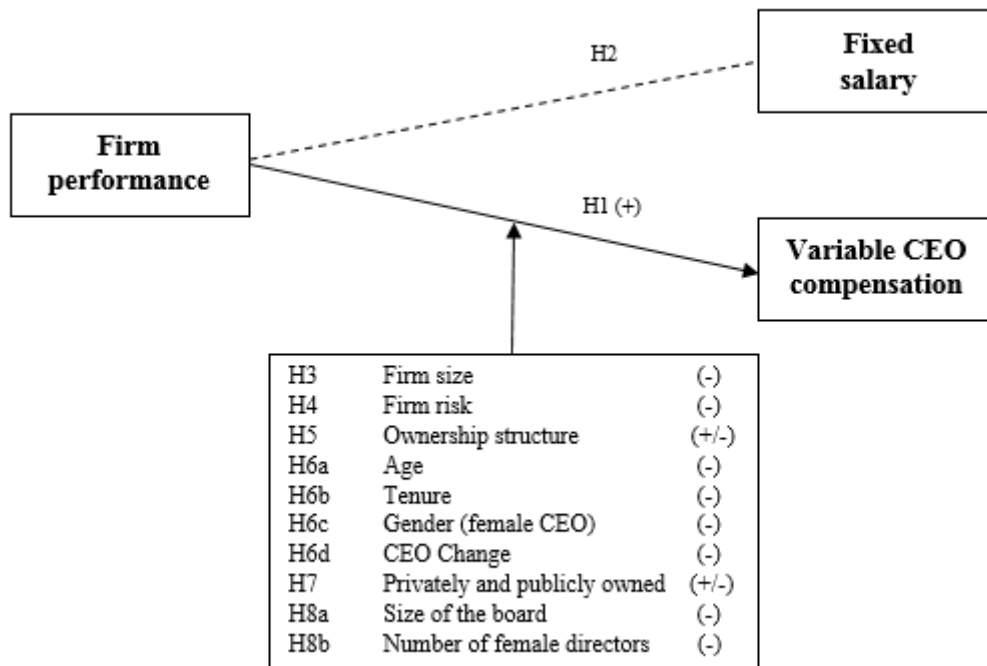
CEO compensation, but we choose to include these measures to see if we achieve different results based on our data. We will also include Tobin's Q as the presented previous studies have not included this variable. The reason we want to include Tobin's Q as a measurement for firm performance, is because firm performance based on market value is more relevant for CEO compensation in listed firms. Precisely, Tobin's Q show the relationship between a firm's market and book values (White, Sondhi, & Fried, 2003). We will define and discuss these measures, in addition to their relationships with CEO compensation, in the next chapter

In order to answer our secondary research question; "or are there other determinants of CEO compensation", we will further include control variables that are shown to affect the pay-for-performance relationship, and are shown to be determinants of CEO compensation. These are firm size, firm risk, CEOs' age, gender, and tenure, the firm's ownership structure, the size of the board of directors and the gender balance of the board of directors. Additionally, we will examine variables that are not been examined in the presented studies. We choose to include CEO change as a control variable for the-pay-for-performance relationship, and how the firms are owned, either publicly or privately, in order to see their effects on both the pay-for-performance relationship and CEO compensation. We will present our research models and hypotheses in the next chapter, based on the theoretical framework and discussions from the previous empirical researches.

4 Research Models and Hypotheses

In this chapter will we present and explain our research models and hypotheses based on the presented theoretical framework and the previous empirical researches. Additionally, we will define and discuss our chosen variables and their relationships with the pay-for-performance relationship and CEO compensation. Since our study are divided in two, we will first present a research model and its hypotheses that shows the pay-for-performance relationship, and how the different control variables affect this relationship. Secondly, we will present a research model that shows the control variables as independent variables, and hence determinants of CEO compensation.

4.1 Research Model; the Pay-for-Performance Relationship



Model 4.1 – Research model; the pay-for-performance relationship

4.1.1 Firm Performance and Variable CEO Compensation

According to the classical principal-agent theory, the owners will encourage the CEOs to act in the shareholders' favor, and they will for instance use compensation to "push" the CEOs in the preferred directions and to reward them for good results (Jensen & Meckling, 1976). If the CEO acts in a way that increases the firm performance, the principal (shareholder) will increase the compensation of the CEO. Hence, there is a mutual relationship, if the firm performance increases, the CEOs will get higher variable compensation. We measure firm performance by different variables, as P/B, P/E, Jensen's alpha, Tobin's Q, ROE, ROA and EVATM. An increase in each measure will thereby lead to higher variable CEO compensation according to the theory.

Randøy and Skalpe (2007) find that P/B has the greatest effect on CEO compensation among their chosen variables. The researchers describe P/B as the best indicator of long-term firm value. Further, another firm performance measure that shows a positive effect on variable CEO compensation is Jensen's alpha (Olsen & Klungreseth, 2013). The researchers find that there is a positive significant relationship between previous year's Jensen's alpha and current year's variable CEO compensation. The firm performance measures ROE and ROA are also shown to have positive and significant effect on variable CEO compensation (Haukdal et al., 1997; Sigler, 2011). As we find empirical support for the correlation between firm performance and variable CEO compensation, we suggest the following hypothesis:

H1: Firm performance has a positive effect on variable CEO compensation in firms listed on the Oslo Stock Exchange

However, we choose to include some measures that have not shown any positive significant effect on variable CEO compensation, these are P/E and EVATM. The reason we want to include these measures, is because we want to see if we can achieve different results based on our data. Additionally, we choose to include Tobin's Q, which has not been included by the presented previous empirical researches. The reason behind our decision is to contribute with new insight and perspective to the literature of the pay-for-performance relationship.

4.1.2 Firm Performance and Fixed Salary

Another hypothesis we want to test, is the relationship between firm performance and fixed salary. According to the principal-agent theory and corporate governance mechanisms, the owners will give and regulate compensation to the CEOs for obtained performance in order to protect everyone's interests. This is hence more related to the variable part of the total CEO

compensation, where they get more paid for acting in the best interest of the firm and shareholders (Jensen & Meckling, 1976; Myrteit & Nygaard, 2001).

On the other hand, the relationship between firm performance and fixed salary in Norway is mostly depended by the Norwegian law and regulations. In particular, there are limitations and regulations of how fixed salary can be adjusted yearly regarding obtained performance, in order to protect the employees and their interests and rights. For instance, Haukdal et al. (1997) expect and find a weaker relationship between firm performance and total CEO compensation in Norway than in the U.S., as compensation arrangements cannot contain unlimited profit opportunity in Norway. Further, they discuss the fact that the compensation to Norwegian CEOs has a greater proportion of fixed salary than in the U.S. The American owners can adjust the fixed salary yearly related to performance, which is a necessary condition for a strong pay-for-performance relationship, but this is not the case for Norwegian owners because of the strict regulations.

The study by Olsen and Klungreseth (2013) separate CEO compensation in both fixed salary and variable compensation, in order to examine if firm performance only has an effect on the variable CEO compensation as expected from the theories. They hence assume that firm performance has no effect on CEO's fixed salary, and their findings show no positive relationship between most of the measures of firm performance and fixed CEO salary. However, they find a negative significant relationship between P/E and fixed salary that cannot be explained by economic rationality. Even if they find a negative significant relationship between P/E and fixed salary, we base our assumptions on the presented theories and their other findings, and assume that there will be no relationship between firm performance and CEO's fixed salary. Hence, we present the following hypothesis:

H2: Firm performance has no effect on CEOs' fixed salary in firms listed on the Oslo Stock Exchange

These two hypotheses are our main hypotheses. Additionally, according to both presented theories and previous empirical researches, there are other variables that affect the pay-for-performance relationship, and hence other determinants of CEO compensation. We will first discuss the influence of these variables on the pay-for performance relationship as control variables. We will however only concentrate us on the variable CEO compensation when we examine the control variables' effect on the pay-for-performance relationship as we consider the variable CEO compensation as determined by firm performance.

4.1.3 Firm Size

According to the managerial power theory and to corporate governance, firm size is likely to have a great impact on the pay-for-performance relationship. This is based on the assumption of that large firms have a tendency to have multiple owners, with spread ownership, where the CEOs can dominate more and gain more control over the board of directors and hence determine their own CEO compensation. The CEO can in other words, influence their own compensation and get higher compensation independent of their performances in large firms. Smaller firms have however fewer owners and are able to act as one to control the CEOs, and hence have a greater ability to tie CEO compensation to firm performance (Berle & Means, 1933; Sappington & Stiglitz, 1987; Stiglitz, 1985). The theoretical framework thereby describe the pay-for-performance relationship as weaker in large firms than in small firms. Additionally, the empire building theory suggests that CEOs will increase the firm size rather than firm performance in order to increase their status, power, compensation and prestige (Hope & Thomas, 2008).

Jensen and Murphy (1990b) examine firm size's effect on the pay-for-performance relationship, and their findings shows a greater pay-for-performance relationship in small firms than in large firms, as assumed by the presented theories. Further, Gomez-Mejia et al. (1987) and Haukdal et al. (1997) also find a greater pay-for-performance relationship in small firms compared to large firms in their studies. However, these findings are not significant in the study by Haukdal et al. (1997). Additionally, Olsen and Klungreseth (2013) and Randøy and Skalpe (2007) find that CEO compensation is higher in large firms, which results in a weaker pay-for-performance relationship. Since the presented theories and previous empirical researches show similar results, we also assume that the pay-for-performance relationship will be stronger in smaller firms than in larger firms. Hence, we suggest the following hypothesis:

H3: The pay-for-performance relationship is stronger in smaller firms than in larger firms

4.1.4 Firm Risk

The classical principal-agent theory predicts risk neutral CEOs. However, later contributions to the theory have shown that the shareholder (principal) and the CEO (agent) may have different attitude toward risk. In order to reduce these differences, the principal can establish incentives for the agent (Shleifer & Vishny, 1997). The researchers Jensen and Murphy (1990b; 1990a) are including the CEO's risk aversion and tolerance in their study, since they see the importance of risk, and its ability to achieve efficiencies in a firm.

Haukdal, Høgvall and Windstad (1997) find a greater relationship between pay and performance, but not a significant, in low-risk firms than in high-risk firms. This is consistent with the theory, as owners in high-risk firms have to give managers higher incentives in order to relieve the managers for risk. Thereby, the CEOs will get higher compensation and their compensation will be less dependent of performance. Based on the theory and the previous empirical research we present the following hypothesis:

H4: The pay-for-performance relationship is stronger in low-risk firms than in high-risk firms

4.1.5 Ownership Structure

We also want to examine how the firm's ownership structure affect the pay-for-performance relationship, as both the managerial power theory and corporate governance focus on this concept. Bebchuk and Fried (2003) argue for the fact that CEOs' power and their ability to control the board of directors and their own CEO compensation, mostly depends on the ownership structure of the firm. If a CEO owns many firm shares, he will have more influence on director elections and to prevent a hostile takeover attempt, and additionally be more able to determine his own compensation independent of firm performance. On the other hand, if the CEO owns less shares, the CEO will have less power and thereby a small ability to determine his own compensation. The owners can hence tie CEO compensation to obtained firm performance when the CEOs have less control of the firm (Bebchuk et al., 2002).

Further, Gomez-Mejia et al. (1987) find that the pay-for-performance relationship is much weaker in manager-controlled firms than in owner-controlled firms. This can be related to the fact that the owners in owner-controlled firms have more power to affect the CEOs' decisions and to tie their compensation to firm performance. On the other hand, CEOs in manager-controlled firms will have more power and control over the board of directors and hence be able to determine their own compensation. Additionally, they will rather tie their compensation to other measures than firm performance in order to avoid risk.

On the other hand, if CEOs own firm shares will they be dependent on firm performance, and thereby try to increase the performance within the firm. Jensen and Murphy (1990a) find that CEO's direct ownership is a powerful link between firm performance and CEO compensation, as assumed by the theories. Hence, when firm performance increases, then CEOs will get higher compensations. The subject of ownership structure and how the owners can make the managers increase the firm's long term value, is also an important part of corporate

governance. For instance, Myrtveit and Nygaard (2001) suggest that the owners can influence the CEOs' owner perspectives, and their motivations to increase firm value, through the compensation system. Owners can for instance design stock option deals that prevent managers to act in their own private interests, or increase the level of result dependency. If the CEOs compensation is dependent of firm performance, will they be willing to act in a way that increases the firm's profitability (Myrtveit & Nygaard, 2001).

As we see from the presented theories and previous empirical researches, the ownership structure of a firm has both a positive and negative effect on the pay-for-performance relationship. If CEOs own many firm shares, will they have more power and can influence the decisions of the board of directors, and determine their own compensation. On the other hand, if the CEOs have direct ownership in the firm, will they be dependent on firm performance as they own firm shares. Thereby, they will try to increase firm performance in order to get higher compensation. Hence, we present the following hypothesis:

H5: CEO's direct ownership has a positive or a negative effect on the pay-for-performance relationship

4.1.6 Age, Tenure, Gender and CEO Change

The human capital theory discuss how you can invest in people to increase the firm's profitability, and that younger employees often get more on-job-training than older employees (Blaug 1976; Schultz, 1961). For instance, if the CEOs gets older they naturally gain more knowledge and are more experienced. Further, as the CEOs get older they can take more responsibilities, and more responsibilities will eventually increase their compensation independent of firm performance. Additionally, an older CEO will not try to increase firm performance as much as a younger CEO, because he or she is closer to the retirement. Hence, a younger CEO will be more motivated to increase firm performance (Davidson III, Xie, Xu, & Ning, 2007). Age will thereby weaken the pay-for-performance relationship, and leads us to the following hypothesis:

H6a: CEO's age has a negative effect on the pay-for-performance relationship

As the length of the CEO's tenure increases, the CEOs will gain more power and knowledge. From the human capital theory, we know that as the tenure of the CEOs increases, the CEOs have received more on-job-training and experience (Blaug 1976; Schultz, 1961). The CEOs gain more power in their position over time, and can thereby influence the board of directors into increasing their compensation, which is consistent with the managerial theory (Boyd,

1994; Hill & Phan, 1991; Zajac & Westphal, 1996). This will thereby weaken the pay-for-performance relationship in the firms, and we present our hypothesis based on the assumptions of the theories:

H6b: CEO's tenure has a negative effect on the pay-for-performance relationship

None of the previous empirical studies examine how CEO's gender can affect the pay-for-performance relationship. However, Randøy and Skalte (2007) examine how CEO's gender directly can have an impact on CEO compensation. Their findings show that female CEOs get lower compensation than male CEOs, which indicates from a gender perspective that this has an impact on CEO compensation, and further can weaken the pay-for-performance relationship as female CEOs get lower compensation independent of firm performance, and lead us to the following hypothesis:

H6c: Female CEOs have a negative effect on the pay-for-performance relationship

Another factor we want to examine, is how CEO change affects the pay-for-performance relationship. According to the principal-agent theory and corporate governance mechanisms, the CEO should get rewarded and get higher compensation for increased firm performance gained through own effort (Jensen & Meckling, 1976; Myrtveit & Nygaard, 2001). Hence, if there have been a CEO change in a firm during the year, it is not reasonable to determine the compensation to a new CEO based on the performance of the previous CEO. The new CEO should not be punished or rewarded for the good or bad performance obtained by the previous CEO. Hence, we assume that the pay-for-performance relationship will be weaker when they have been a change of the CEO in a firm, and we present the following hypothesis:

H6d: CEO change has a negative effect on the pay-for-performance relationship

4.1.7 Privately and Publicly Owned Firms

As we have discussed before, we also want to examine how the pay-for-performance relationship is in privately and publicly owned firms, firms where the Norwegian State owns shares, and firms where the state do not own shares. The presented previous empirical researches have not studied this before. Hence, we want to examine how this can affect the pay-for-performance relationship, and how the relationship differs in publicly and privately owned firms.

From a rational view based on the principal-agent theory and corporate governance, we assume that publicly owned firms have few resources to give incentives to the CEOs for obtained firm performance in the owners' interests. This will hence weaken the pay-for-performance relationship. On the other hand, privately owned firms have more resources, and the ability to reward the CEOs for increased firm performance, which will contribute to a strong pay-for-performance relationship. Hence, we suggest the following hypothesis:

H7: The pay-for-performance relationship is stronger in privately owned firms than in publicly owned firms

4.1.8 Board of Directors

The managerial power theory and corporate governance focus a lot on the structure and organization of the board of directors, as it is the board of directors who is responsible of preparing a statement of determining pay and other compensation to CEOs. However, the managerial power theory suggests that CEO compensation decisions are not taken by completely independent boards as CEOs have power to influence the boards, and hence determine their own compensation rather than getting compensation for obtained performance (Bebchuk, Fried, & Walker, 2002; Murphy, 2002).

Bebchuk et al. (2002) suggests that the power of a CEO and thereby his ability to control his own compensation, will depend on the structure and organization of the board. According to the researchers, the power of a CEO depends on the number of independent directors, inside directors and the number of the directors whom the CEO has influence. For instance, Jensen (1993) argue that the board are less likely to function effectively, and will be easier to control by the CEOs if the board size get beyond seven or eight people. Hence, corporate governance and its mechanisms focus a lot on the structure and organization of the board of directors, and suggests that owners must for instance choose a small and an independent board, so the CEOs have smaller chances of influencing the board and their own compensation. For instance, Randøy and Skalte (2007) find no significant effect of board size on CEO compensation, but Olsen and Klungreth (2013) find a positive and significant effect between board size and CEO compensation.

From a rational view, we hence see that as the size of the board of directors increases, CEOs can easier control and influence the board of directors, because the board of directors is less likely to function effectively as a unit. Hence, the CEOs can determine their own compensation independent of obtained firm performance. The pay-for-performance

relationship will thereby be weaker when the size of the board of directors increases. On the basis of the theories and this discussion, we thereby present the following hypothesis:

H8a: The size of the board of directors will have a negative effect on the pay-for-performance relationship

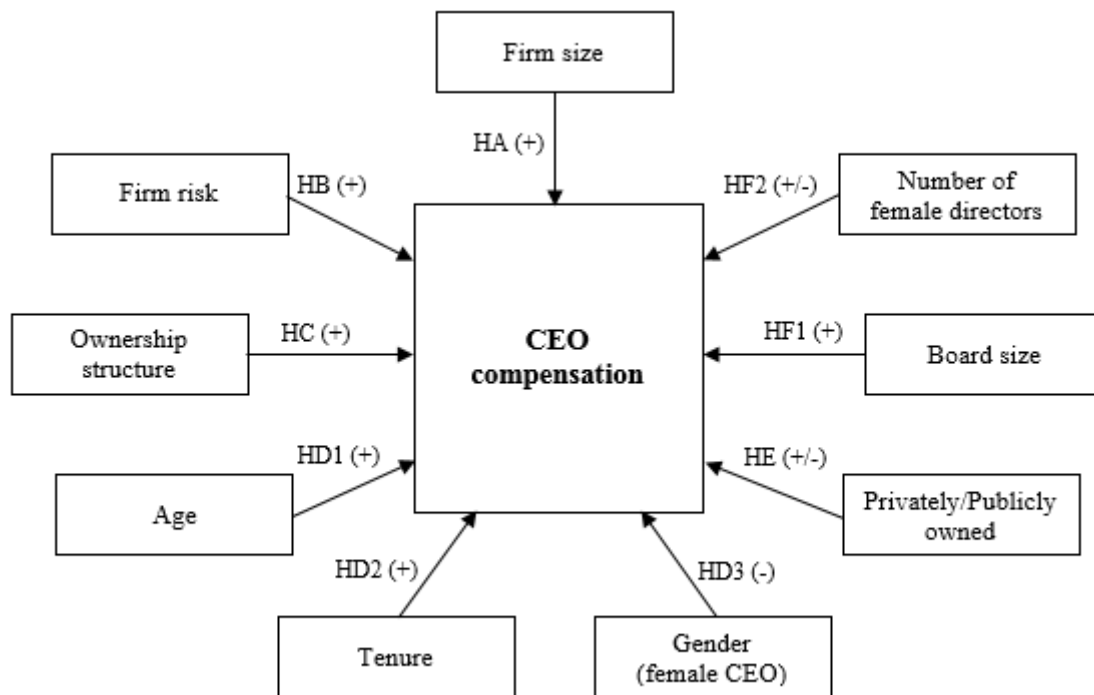
Further, we want to examine how the gender balance of the board of directors can affect the pay-for-performance relationship. None of the empirical studies we have presented earlier examine this effect on the pay-for-performance relationship, except from the study by Randøy and Skalte (2007) who examine how the gender balance of the board directly affect CEO compensation. The researchers suggests that if the board of directors represent both of the genders, it will affect the board's legitimacy, but this can simultaneously create coordination problems. Their findings show that female directors in the board decrease CEO compensation, but this is not significant for firms listed on the Oslo Stock Exchange. We hence assume that the gender balance of the board of directors can cause some coordination problems, and that the CEOs easier can influence the board, and determine their compensation independent of firm performance. This means that we expect a weak pay-for-performance relationship as the number of female directors increases compared to the number of male directors in the board. Hence, we present the following hypothesis:

H8b: The number of female directors in the board has a negative effect on the pay-for-performance relationship

We will now present our second research model as our study is divided in two. In this research model, we are interested in examining how the control variables, except from CEO change, affect the CEO compensation as independent variables.

4.2 Research Model; Determinants of CEO Compensation

Findings from previous empirical research show that there is a significant, but a weak and positive relationship between firm performance and CEO compensation, or a non-existing relationship. Hence, there are other explanations of how CEO compensation is determined, which further have led us to the secondary research question presented earlier, "or are there other determinants of CEO compensation?" In this subchapter, we will present our research model and hypotheses based on how different variables affect CEO compensation directly. Here, we focus on the total CEO compensation, measured by both variable CEO compensation and fixed salary.



Model 4.2 – Research model; determinants of CEO compensation

4.2.1 Firm Size

As we have discussed before, firm size has a direct effect on CEO compensation according to the managerial power theory and corporate governance. Large firms have a tendency to have multiple owners, with spread ownerships, where the CEOs can dominate more and gain more control over the board of directors and hence increase their own CEO compensation (Berle & Mean, 1933). Further, large firms tend to have more resources and profit than small firms, which make them more capable of giving high compensations to the CEOs (Gomez-Mejia et al., 1987). For instance, Randøy and Skalte (2007), Olsen and Klungreseth (2013), Sigler (2011), Firth et al., (1996), and Tosi et al., (2000) all find a strong, positive and significant relationship between firm size and CEO compensation. Since the presented theories and previous empirical researches show similar results, we hence assume that firm size has a positive effect on CEO compensation. We thereby present the following hypothesis:

HA: Firm size has a positive effect on CEO compensation

4.2.2 Firm Risk

The shareholder and the CEO have different attitude toward risk, as we have discussed earlier. In high-risk firms the shareholders have to give the CEOs more incentives in order to relieve the CEOs for risk. In other words, higher risk indicates more incentives or salaries, and for instance higher CEO compensation. If the shareholders try to reduce risk by giving the CEO proper incentives, as higher compensation, we assume that CEO compensation will be higher in high-risk firms than in low-risk firms. This is consistent with Shleifer and Vishny's (1997) view of the principal-agent theory, and we thereby present the following hypothesis:

HB: Firm risk has a positive effect on CEO compensation

4.2.3 Ownership Structure

We have also discussed how important a firm's ownership structure is when determining CEO compensation, on the basis of the managerial power theory and aspects of corporate governance. Bebchuk and Fried (2003), and Bebchuk et al. (2002) argue that if a CEO owns many firm shares, he will have more influence on director elections and to prevent a hostile takeover attempt, and additionally be more able to determine and increase his own compensation. Hence, CEO compensation will be higher when CEOs own many firm shares. Hence, we present the following hypothesis:

HC: CEO's direct ownership has a positive effect on CEO compensation

4.2.4 Age, Tenure and Gender

The previous empirical study by Randøy and Skalpe (2007) examine the relationship between CEOs age and their compensation, and they find that CEOs compensation increases with the CEOs age, which is consistent with human capital theory. As we discussed earlier, CEOs who get older become more experienced, and from a human capital view we know that older CEOs will have more knowledge. Over time, older CEOs will have received more on-job-training, and eventually can take more responsibilities which will lead to an increase in their compensations (Blaug 1976; Schultz, 1961). We are thereby suggesting the following hypothesis:

HD1: CEO's age has a positive effect on CEO compensation

As longer the CEO's tenure is, the more the compensation increases. CEOs who sit in a position over a longer time will gain more knowledge and power, and can thereby influence the board of directors to increase their compensation. This is consistent with the human capital theory and managerial power theory as we discussed earlier (Blaug, 1976; Boyd, 1994; Hill & Phan, 1991; Schultz, 1961; Zajac & Westphal, 1996). However, Randøy and Skalpe (2007) examine CEO's tenure and find no significant effect of CEO's tenure on CEO compensation, which is inconsistent with the theory. Further, Sigler (2011) also examine the effect of CEO's tenure on the CEO compensation, and have opposite findings of Randøy and Skalpe (2007) with a positive significant relationship between CEO's tenure and CEO compensation. Hence, we expect to find results that are consistent with Sigler (2011), the human capital and managerial theory, and present the following hypothesis:

HD2: CEO's tenure has a positive effect on CEO compensation

Randøy and Skalpe (2007) examine how gender can have an impact on CEO compensation. Their findings show that female CEO's get lower compensation than male CEOs, but that the direct relationship between gender and CEO compensation is not significant in firms listed on the Oslo Stock Exchange. They explain that female employees are overrepresented in industries with low payments, and that this also effects the compensation of females in higher positions, as for instance female CEOs. As we see from Randøy and Skalpe's (2007) study, they find a difference in CEO compensation between a male CEO and a female CEO; male CEOs get higher compensation than female CEOs which further indicates that gender can have an effect on CEO compensation, and lead us to the following hypothesis:

HD3: CEO compensation is higher for male CEOs than female CEOs

4.2.5 Privately and Publicly Owned Firms

We have discussed our assumptions of how publicly and privately owned firms will affect the pay-for-performance relationship earlier, but we also want to examine their direct effects on CEO compensation. From a rational view based on the principal-agent theory and corporate governance, we assume that publicly owned firms have less resources and lower profits which prevent them from giving CEOs unlimited compensations. On the other hand, privately owned firms will have more resources and higher profits, and are more capable of giving their CEOs high compensations. Hence, we assume that CEO compensation will be lower in publicly owned firms than in privately owned firms, and we suggest the following hypothesis:

HE: CEO compensation is lower in publicly owned firms than in privately owned firms

4.2.6 Board of Directors

As we have discussed before, the managerial power theory and corporate governance focus a lot on the structure and organization of the board of directors as it is, in principle, the board of directors who is responsible of determining compensations to the CEOs in Norway. However, the managerial power theory suggests that CEOs have more power to determine their own compensation and influence the board, and that their power will increase if there are many directors in the board. For instance, Jensen (1993) argue that the board will be easier to control by the CEOs, and are less likely to function effectively, if the board size get beyond seven or eight people.

Randøy and Skalpe (2007) do not find any significant effect of board size on CEO compensation, but Olsen and Klungreseth (2013) find a positive and significant relationship between board size and CEO compensation. Even if there are not so many empirical researches that support the theory, we assume that CEO compensation will increase as the board size increases. From a rational view, we see that CEOs easier can control and influence a large board, as the board will be less likely to function effectively as a unit. Hence, we assume that CEO compensation will be higher as the board size increases, and we suggest the following hypothesis:

HF1: The size of the board of directors will have a positive effect on CEO compensation

Earlier, we have discussed that the number of female directors and the gender balance in the board can either increase the legitimacy of the board or create coordination problems (Randøy and Skalpe, 2007). When there are coordination problems, CEOs can be more able to influence the board and thereby increase their compensation, which is consistent with the

managerial power theory (Bebchuck et al. (2002). However, we also believe that the number of female directors will decrease the compensation to the CEOs as there will be inconsistent and different views, attitudes, and opinions between the female and the male directors. We consider that female directors are concerned about equality and that they hence will moderate the CEO compensation.

Randøy and Skalpe (2007) find that CEO compensation is lower when the board leader is a female in firms not listed on the Oslo Stock Exchange, but they however find no significant effect between female directors and CEO compensation in firms listed on the Oslo Stock Exchange. Even if previous empirical researches do not show results that are consistent with the theories, we assume that the number of female directors will have a negative or a positive effect CEO compensation from the discussion above. Hence, we present the following hypothesis:

HF2: The number of female directors in the board will have a positive or a negative effect on CEO compensation

In the next subchapter will be define and present all of the variables and their measures which we have included in our research models and hypotheses.

4.3 Definitions

From our main research model and hypotheses, we have one dependent and one independent variable, but these variables contain different measures. We also have other variables that we use as control variables (moderators) in our main research model, and as independent variables in our second research model. In order to get a better understanding of our chosen variables, we will now define them. We will first begin with defining and presenting different aspects of our dependent variable, CEO compensation, secondly we will define firm performance and its measures, and lastly we will define the remaining variables.

4.3.1 CEO Compensation

In our study, we are focusing on the financial compensation that CEOs get for the work they do, and for their achievements in the firm. We hence define CEO compensation as the financial remuneration or payment the owners give and reward the CEOs for their knowledge, skills, and performance, and which can be divided into both fixed salary and variable compensation (Torrington, Hall, & Taylor, 2008; Wilton, 2011).

The fixed salary can be referred to as base salary, and Murphy (1999) discusses that this is one of the four basic components in most CEO compensation packages; a base salary, an annual bonus tied to accounting performance, stock options, and long-term incentive plans. The fixed salary is defined as the minimum compensation an employee is expected to get for carrying out a particular job, and is typically determined by the employee's job role, job characteristics, job size such as decision-making responsibility, level in the organizational hierarchy, and complexity, or individual characteristics such as experience, knowledge, qualifications, and skills (Wilton, 2011). As we see, and have discussed before, fixed salary is hence referred to as remuneration that is determined by other factors than firm performance.

Further, as we have discussed before, our main focus is on variable CEO compensation as this is the part of the CEO compensation that is supposed to be tied to firm performance. Variable CEO compensation is defined as performance-based pay which is not a part of the fixed salary to the CEO, and contains incentives such as bonuses, employee stock ownership plans, and stock options (Kuvaas & Dysvik, 2008; Madsen & Stenheim, 2014; Randøy & Skalpe, 2007).

4.3.1.1 Incentives

As we have discussed in the previous chapters, owners give incentives and rewards to the CEOs in order to motivate them, and in order to make the CEOs act in the best favor of the owners, and in line with the strategic and financial objectives established for the firm. Hence,

by making incentive contracts, the owners encourage the CEOs to perform in the best interest of the firm and the owners, instead of acting beneficially and opportunistically. Thereby, incentive contracts can create congruence between the CEOs' and owners' objectives (Fama & Jensen, 1983; Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

On an individual level, the incentives and rewards are directly related to each of the employee's performance, which is common at the management level. We consider incentives on an individual level as most relevant for the management team and the CEO as it easy to identify how the CEO has contributed to the value creation of the firm. Additionally, CEOs' incentives and rewards are typically based on financial measures, both accounting- and market-based measures, as they directly can influence the financial results of a firm. The incentive and reward systems can also use both absolute and relative measures of performance, where absolute performance measures can for instance be the firm's financial results or return on shares, and relative performance measures are related to the extend performance reaches or exceeds a benchmark value for the performance (Madsen & Stenheim, 2014).

Further, we can divide incentive contracts in short-term and long-term incentive contracts, where short-term incentives are often tied to the opportunity of receiving yearly bonus payments, and the long-term incentives are often represented as different types of ownership to the firm. The long-term incentives can for instance include stock awards, contingent share awards, or stock option deals, where the CEOs get linked to the firm and get depended of firm performance (Madsen & Stenheim, 2014; Myrtveit & Nygaard, 2001). Before we define the different types of short-term and long-term incentives, we will first describe what share-based incentives contracts are.

4.3.1.1.1 Share-Based Incentive Contracts

Share-based incentives contracts can take different forms, and can for instance be designed to use the share price or the equity returns as the basis for allocation of cash bonuses, or for allocation of shares, contingent shares (conditional shareholdings) or stock options. Madsen and Stenheim (2014) discuss that the share price is an interesting measure of performance, as it do not only reflect what the firm has achieved, but also what the firm is expected to achieve in the future. For instance, in a well-functioning stock market, the stock price will express the present value of future cash flows, which to some extend will be determined by the decisions the CEO has taken. Further, the authors argue that a positive share price development and

dividend matches with the owners' aim of maximizing their own wealth. Hence, a share-based incentive contract will potentially give a greater congruence between the CEOs' and shareholders' interests.

Even if share-based performance measures are considered as interesting measures, are they more relevant for the management than for the other employees, as it is the management and the CEO that can influence and have to take the responsibility for the share price's development. Further, share-based incentive contract will be more relevant where the share is traded regularly, as for instance when the firm is listed (Madsen & Stenheim, 2014).

Madsen and Stenheim (2014) also discuss some weaknesses of using the share price as a measure of performance. Firstly, the stock prices will not reflect all available information at all times as the stock market is not necessarily efficient. Hence, there will be some asymmetrical information between the firm and the stock market, which contributes to "measurement noise". Secondly, the share price will be influenced by a number of factors that are outside the CEO's control. These factors can for instance be changes in macroeconomic variables as changes in interest rates or exchange rates, terrorisms, war or natural disasters. Hence, share-based incentive contracts have both strengths and weaknesses, and we will further define bonus, employee stock ownership plans and stock options.

4.3.1.1.2 Bonuses

Bonus is seen as a short-term incentive and is defined as a gratuitous payment from the employer to the employee. Further, bonus is often a cash payment based on performance measured over periods of one year or less (Merchant & Stede, 2012; Torrington et al., 2008). The payment is depended of performance, and can either be fixed or proportional, or determined based on the performance of an individual or a group. The fixed bonus will be paid as a cash bonus when the individual or the group reaches a benchmark for the performance, and a proportional bonus will be paid proportionally when the performance exceeds a lower benchmark for the bonus. For instance, a CEO can receive a bonus for achieving the lower benchmark set for firm performance, and further receive proportional bonus as the firm performance gets higher than the lower benchmark of performance set by the owners (Madsen & Stenheim, 2014).

Madsen and Stenheim (2014) also discuss that there in most circumstances, also will be an upper benchmark for bonus payments. If the performance gets beyond this benchmark value, will it either be lost or placed in a "bonus bank" for later payment, in order to minimize the

risk of the CEOs to manipulate the financial results in order to achieve high bonuses. Hence, one of the purpose of the upper benchmark for bonus payments is to minimize the problems that can occur when the owners use accounting measures to evaluate the CEO's performance. If the bonus is based on accounting measures of performance, the CEOs can for instance manipulate the accounting variables, or make decisions that will maximize the reported results beyond the actual results, with the purpose of achieving wrong bonuses.

As we have discussed under the principal-agent theory and under corporate governance, the CEOs are likely to have more information about the firm and its results than the owners and the boards, and hence can influence the results in order to achieve own private benefits (Spremann, 1987). The CEOs can for instance structure transactions to adjust the financial reports in order to create a imagination of value creation in the firm (Healy & Wahlen, 1999). Hence, the upper benchmark value will be used to minimize the risk of the CEOs to manipulate the results in order to receive high bonuses. Another purpose is to reduce the possibilities of causing extreme compensation differences within the firm, but a negative effect of the upper benchmark value effect will be a decreased bonus incentive effect on hardworking and skilled CEOs (Madsen & Steinheim, 2014). We will discuss employee stock ownership plans.

4.3.1.1.3 Employee Stock Ownership Plans

Employee stock ownership plans are another part of the incentive and reward system and include allocation of shares and contingent shares. These plans are based on long-term incentive contracts, and are further defined as *“company-wide plans in which the employer contributes shares of his own stock (or cash to be used to purchase such stock) to a trust established to purchase shares of the firm's stock for employees”* Dessler (2011, p. 479). Long-term incentive contracts are based on performance measured over one year, and the principal objective is to reward the employees for their role in creating long-term value. Besides motivating the employees, these long-term incentive payments also aim to attract and retain key talent by making the total expected compensation more attractive. For instance, by encouraging employee ownership and by creating employee stock ownership plans. The long-term incentive payments are however discussed to be more relevant for the management level as the decisions made at this level directly impact the long-term success of the firm (Merchant & Stede, 2012).

Employee stock option plans include profit sharing, employee share ownership, and gain sharing which means that employees share in productivity gains or savings resulting from improved performance. The main purpose of employee stock ownership plans, is hence to increase the employees' commitments to the firm and to promote a longer-term perspective on performance by influencing the employees to develop a sense of ownership in the firm, and by allowing them to take a financial stake in the firm (Dessler, 2011; Wilton 2011).

As we discussed under corporate governance, the CEOs will try to increase the firm performance if they feel committed and have a sense of ownership to the firm, and if their compensation is depended of firm performance (Myrtveit & Nygaard, 2001). However, the CEOs can also have direct and real ownership in the firm, beside psychological ownership. A direct and real ownership in the firm means that the CEOs are owning and holding negotiable firm shares, and psychological ownership arise when the CEOs receive employee stock options (Kuvaas & Dysvik, 2008; Merchant & Stede, 2012). Hence, we will further describe what stock options are.

4.3.1.1.4 Stock Options

A stock option is a security that gives the owner a right, but not the obligation, to buy or sell a specific number of shares of firm stock at a specific price within a specific period (Bøhren & Michalsen, 2012; Dessler, 2011). Bøhren and Michalsen (2012) discuss between a European option and an American option. The stock option is a European option if it only can be exercised at the due date, and the stock option is defined as an American option if it can be exercised anytime during the contract period.

Further, there are two main types of stock options; put options and call options. Put options give the owner the right, but not the obligation, to sell a specific number of shares of firm stock at a specific price within a specific period, while call options give the owner the right, but not the obligation, to buy a specific number of shares of firm stock within a specific period at a specific price. Employee stock options are for instance call options. Employee stock options provide the employees the rights to buy firm shares at a predetermined price (the strike price). This means that the option only will be exercised if the stock option provides a more favorable price than if the stock was purchased directly in the stock-market. The option is hence said to be in-the-money. On the other hand, if the stock has a lower value than the exercise price, it will not be rational to exercise the stock option right. The stock

option will hence be out-of-money, as the stock can be bought cheaper directly in the stock market (Bøhren & Michalsen, 2012; Madsen & Stenheim, 2014; Merchant & Stede, 2012).

Employee stock options differ from ordinary stock options, as ordinary stock options can be traded while employee stock options cannot be traded. Employee stock options are inalienable, and this means that they cannot be sold further by the employee to whom they are issued. Further, ordinary, or traded, stock options usually mature within one year of the date of issue, while employee stock options can be exercised in a window of time that extends over many years (Huddart, 1994).

As we have discussed before, employee stock options aim to unite the CEO's and owner's interests. By giving the CEOs a sense of ownership in the firm, the owners can influence and motivate the CEOs to increase the firm performance (Myrtveit & Nygaard, 2001). Since options give the employee the right to buy firm stock at a potentially discounted price, they can have a great value. However, as employees only benefit when the stock price goes up, will this motivate them to increase their firm's price. Further, the potential for share ownership related to stock options also affects alignment by tying a part of the employee's compensation to the firm's future. Hence, stock options to the employees can make the employees think more like owners, and create a sense of ownership to the firm (Koller, Goedhart, & Wessels, 2005; Merchant & Stede, 2012)

For instance, stock options and employee stock options have been extremely popular as a part of the compensation packages to the CEOs, and can typically stimulate the risk-taking between the CEOs as the option has first value upon redemption if the share price is higher than the strike price. A value of a call-option will increase if the volatility in the underlying share increases. Hence, it will make sense for the CEOs to invest in high-risk projects in order to increase the likelihood of the option to be in-the-money. It is favorable with a risk increasing CEO for a diversified owner, but this is not necessary the reality for an owner who has his capital invested in only one or few firms. The ones who own the call options don't need to carry the downside, the value decrease in the underlying share, and the call options will hence have a more upside-incentives in cash than in shares (Madsen & Stenheim, 2014). Hence, stock options also have some disadvantages, where they motivate managers to undertake riskier business strategies as they are rewarded for gains but not penalized for losses. Further, stock option grants may represent a potential issuance of shares, which creates dilution and puts a descending pressure on stock prices (Merchant & Stede, 2012).

However, one of the reason stock options got especially popular, was that they did not need to be expensed when they got allocated even if they represent real values. This way, the firms could hide how much compensation the CEOs actually got, but this was later changed. Expensing got mandatory for the listed firms in Norway when International Financial Reporting Standards (IFRS) got implemented in 2005. After the implementation, it was a huge decline of allocation of stock options to the management. This was also the case for US firms, when expensing got mandatory in 2006 (Madsen & Stenheim, 2014).

So far, we have presented the part of CEO compensation that is relevant for our study and research question. This is the financial part of CEO compensation, which include both fixed salary and variable CEO compensation as financial incentives, such as bonuses, employee stock ownership plans and stock options. However, some authors take both financial and non-financial compensation in consideration when they talk about CEO compensation. We will hence describe briefly what non-financial CEO compensation includes.

4.3.1.2 Non-Financial Compensation

Wilton (2011) describe non-financial compensation as psychological or instinctive rewards which stem from the work the employees do, and from their working relationships and environment. Hence, non-financial compensation and incentives can include rewards such as feeling valued, fulfillment, recognition and reputation, autonomy, responsibility, promotions, job satisfaction and personal or professional development. Further, it can include benefits that refer to the non-pay elements that make up to the individual's "reward package" such as flexibility, pensions, holidays, office, title, healthcare, membership of fitness clubs, and free use of firm car and phone (Wilton, 2011; Torrington et al., 2008). As it will be difficult to measure and find relevant information of the non-financial part of CEO compensation, we hence concentrate us of the financial part of CEOs' compensation packages that are available in the firms' annual reports. We will further define our independent variable, firm performance, and its measures.

4.3.2 Firm Performance

Our independent variable is firm performance. Performance is often referred to as efficiency, and the degree of goal achievement. If the goal achievement is high, the performance will be high. In order to define firm performance we examine both market-based and accounting-based measures. These two measurement categories represent financial measures of performance, since they either are dominated in currency as a ratio for financial numbers or as a change in financial numbers (Merchant & Stede, 2012). However, firm performance is not

easy to define. First of all, the meaning of firm performance can be unclear, and secondly it can be hard to select an appropriate tool to measure performance. Hence, to make it easier to measure performance, firms can use benchmark- or target values. The benchmark value can be an expression of the expected value or the set as a requirement for performance (Madsen & Stenheim, 2014).

The purpose of defining and measuring firm performance is to examine the effects of the decisions and actions that the management has done on behalf of other stakeholders. Additionally, to provide the management with obtained information and expected future performance, so that they can make decisions and take actions which ensure that they reach their goals, and maximize the firm value. One way of assessing changes in value, is by using market-based measures of performance. Since we choose to look at the firms listed on the Oslo Stock Exchange, we can examine these measures as well as accounting-based measures. Market measures reflect changes in stock prices or shareholder returns, which can be measured directly for any period as the sum of the dividends paid to the shareholder plus (or minus) the change in the market value of the stock. In other words, market measures are based on changes in market value of the firm (Merchant & Stede, 2012).

Further, Merchant and Stede (2012) discuss that for publicly traded firms in efficient capital markets, market values are available on a daily basis. Further, they are precise and include little random errors, and accurate with no or little systematic biases, assuming an efficient information environment. Additionally, the values are usually objective, hence, not easily manipulated by the managers whose performances are being evaluated. This is a bigger problem in accounting-based measures, where the managers can affect and change the values to make the firm's performance look better in the market. The market-based measures are further understandable and cost effective, since they do not require any measurements expenses for the firm.

There are still some limitations with the market-based measures. First, they do not say much about the performances of the individuals lower in the firm, even those with significant management's responsibilities, but only some few managers in the top positions in the firm. Even for the top management, the market measures may be far from being totally controllable. The stock market valuations are affected by many factors that the managers cannot control. These factors can be change in macroeconomic activity, as economic growth, political events, like elections, monetary policy, actions of competitors, as well as general

stock market mood. Without considering some behavioral factors it also can be difficult to explain all market valuations. Hence, the stock prices can be less informative about even top-level managers' performance. Then, one reason accounting information becomes necessary, is that earnings can shield executives against the market risk inherent in firms' stock prices. However, it is possible to somehow improve the market measures to make them more informative of the controllable elements of performance, for instance by using relative performance evaluations.

Secondly, market measures are not very reflective of realized performance, they are instead representing expectations, and it can be risky to rely on these expectations, because they might not be realized. The third limitation with market measures of performance is a potential congruence failure. This happens because the markets not always are well informed about the firm's plans and prospects, and hence, its future cash flows and risks. When the relevant information is not available, the market valuations will be incomplete. The last problem with market measures are their feasibility, whereas the information only is available for publicly traded firms (Merchant & Stede, 2012). We have now clarified the possibilities and limitations with market-based measures, and we will further discuss the possibilities and limitations with accounting-based measures.

Most firms have traditionally based their managers' evaluations and rewards on standard accounting-based measures. These measures comes in two forms, residual measures, such as net income, operating profit, earnings before interest, tax, depreciation and amortization, also called EBITDA, economic value added, EVA®, or residual income, RI. The other forms of measures are ratio measures as return on investment, ROI, return on equity, ROE, and return on net assets, RONA, or risk-adjusted return on capital, RAROC. We are thereby examining both residual and ratio measures (Merchant & Stede, 2012)

Merchant and Stede (2012) discuss that there are many appealing advantages with accounting measures. First of all, the accounting measures can be measured on a timely basis, in short time and in long time, relatively precisely and objectively. Even if the timeline is short, the measures can give good and insightful information, and different researchers can do the same analyses and get the same results, which also give the measures some objectivity. The accounting measure can further provide a better matching of cash inflows and outflows over time. The third advantage, which also is important for us, is that the accounting measures can be controlled by the managers whose performances are being evaluated. These measures can

be matched with every level in the firm, from the CEO to the lower management level. Thereby, the profit performance of an entity within the firm is almost certainly more controllable by the entity manager, than the change in the firm's overall stock prices is.

Further, accounting measures are understandable by almost everyone since these measures are standard in every business school and the managers have already worked with them a lot. This makes the measures familiar and it is easier to know how they are able to influence the firm. The last advantage is that the measures are inexpensive, since most of the firms already have to report the financial results to outside users, especially when there are publicly traded firms. However, accounting measures are far from perfect indicators of firm value and the value changes. In some type of firms the accounting measures are meaningless, for instance in newly start-up firms as the measurement length is short in these firms. When the measurement length increases, the congruence between accounting profits and firm performance gets stronger (Merchant & Stede, 2012).

There are also other reasons why accounting measures fail to reflect the firm performance. First, the accounting-based measures are transactions-oriented, which means that the accounting profit is a summation of the effects of the transactions that took place during a given period. Most of the changes in value that do not result in transactions are not recognized in the accounting profit. Secondly, accounting profit is highly dependent on the choice of measurement methods. Multiple measurement methods are often available to account for identical economic events, and they require that some adjustments are made. Third, accounting profit is often derived from measurement rules that are often conservatively biased. Accounting rules require slow recognition of gains and revenues, but quick recognition of expenses and losses, and there are some criteria which have to be followed. The fourth problem with accounting measures is that they ignore some economic value and value changes that the accountants feel cannot be measured accurately and objectively. For instance, intangible assets like research in progress, human resources, information of systems and customer goodwill. These types of assets do not occur on the balance sheet, but can be more important for some firms, than the traditional assets, as equipment, plant and land for industrial types of assets (Merchant & Stede, 2012).

Further, the accounting measures ignore the costs of investments in working capital. If the managers make bad decisions of extra investment in inventory, it will not appear on the income statement. Another important thing is that accounting measures ignore risk and

changes in risk, and focus on the past. There is no guarantee that past performance is a good indicator of future performance. Even though there are multiple reasons for why accounting measures are not good indicators of firm performance, most managers discuss that the advantages of accounting measures outweigh their limitations, and continue to use them. In our study we will use a mixture of both market-based and accounting-based measures to examine firm performance. This type of measurement combination is common and often a key element of performance, as well as a combination of the measures gives us better information about the performance (Merchant & Stede, 2012). We will further define and discuss why the chosen market- and accounting-based measures are good indicators of firm performance.

4.3.2.1 Market-Based Measures

We have now discussed both the possibilities and advantages of market-based measures, and will in this subchapter present the four market-based measures of firm performance that we have chosen. We will define all of them, and discuss how they can be good indicators of the firm's future earnings. We start by presenting the price/book ratio, following by the price/earnings ratio, Jensen's alpha and Tobin's Q.

4.3.2.1.1 P/E

The market-based measure P/E stands for the market price of a common stock divided by the earning per share of a common stock. The price/earnings ratio is one of the most common ratios used by analysts to measure the market value of the firm. This ratio is the ratio of the value of equity to a firm's earnings, either on a total basis or on a per-share basis. Since the price-earnings ratio considers the value of the firm's equity, it is sensitive to the firm's choice of leverage. The P/E ratio is then less useful when comparing firms with markedly different leverage, but instead good to compare how the firms are priced in the market (Berk & DeMarzo, 2014; White et al., 2003).

This market-based measure is a simple measure used to assess whether a share is over- or undervalued based on the idea that the value of the share should be proportional to the level of earnings it can generate for its shareholders. When the P/E ratio is high, it often means that the firm has significant prospects for future growth. However, if the firm has almost no earnings, its P/E ratio also can be quite large, so it is important to always be careful when interpreting this ratio. If the ratio is low it usually indicates poor earnings expectations in the future (Berk & DeMarzo, 2014; Ross, Westerfield, & Jaffe, 2013). However, White et al. (2003) discuss that firms with low P/E ratios tend to outperform the market even when returns

are adjusted for risk. This suggests that investing in a portfolio of firms with low P/E ratios is a sound investment strategy.

Since we only examine publicly traded firms, we can use the P/E ratio to see how the firm's market price is changing, and if the firm performance is good. The market price of a firm's common stock reflects the investors' expectations about the firm's future earnings. The greater the probabilities of increased earnings, the more investors are willing to pay for a claim to those earnings. When the firm value increases, the price per share will increase. The CEOs who have direct ownership in the firm, will try to increase the firm value, which will eventually increase their compensation. Even if the CEOs do not have direct ownerships, they can influence the board of directors when the P/E ratio tells that the market price of the firm has increased and they thereby should increase their compensation. Further, we will present the P/B ratio.

4.3.2.1.2 P/B

The P/B ratio stands for the book value per share in total equity divided by the number of shares outstanding. This measure reflects the historical costs of a firm. In a bigger sense, the price-to-book value thereby compares the market value of the firm's investments to their costs. For instance a value less than 1 could mean that the firm has not been successful at all in creating value for its stockholdings (White et al., 2003).

Fama and French (1992) find that the P/B value ratio is one of the best predictors of future stock returns in their study. They also find that firms with low P/B value ratios have consistently higher returns than firms with high P/B ratios. This is also consistent with what White et al. (2003) also discuss; firms with low price-to-book value ratios tend to have higher returns than stocks with high market-to book value ratios.

The price-to-book value ratio can be used for a long-term assessment of the firm's value added, and this measure also tells us how the market price and the performance of the firm is. If the value of the firm is low, this indicates a low value increase in the stocks which subsequently not gives an increase in CEO compensation. For publicly traded firms this is a good indicator of firm performance, because it reflects how the firms are doing by a low or a high P/B ratio. Based on the P/B ratio, the firm can evaluate if the firm's performance is poor or great and thereby vary the CEO compensation. We will further define Jensen's alpha.

4.3.2.1.3 Jensen's Alpha

Jensen's Alpha examines how risk-adjusted performance of a security or portfolio in relation to the expected market return is measured. This risk-adjusted measure of portfolio performance, which estimates how much a manager's forecasting ability contributes to the fund's return, is added to the basic Capital Asset Pricing Model (CAPM). This model is used to describe the relationship between risk and expected return. The model takes account of the non-diversifiable risk, also known as the systematic risk. The beta is an appropriate measure for this risk, and we will define risk later in this chapter (Bodie, Kane, & Marcus, 2011).

The capital asset pricing model was introduced by Sharpe (1964), Lintner (1965) and Mossin (1966). The model implies that no matter how much we try to diversify our investments, it is impossible to get rid of all the risk. Hence, the model measure the portfolio risk and the return an investor can expect for taking that risk. However, most models are derived only by mathematical equations, and not on practical observations. The CAPM is one of those models, this causes the model to simplify the reality and have some assumptions that are more or less fulfilled in practice. The first assumption of the CAPM, is that the investors only care about the mean and variance of their portfolio's returns. This assumption is based on the notion that investors prefer portfolios that generate the greatest amount of wealth with the lowest risk. The second assumption is that the financial markets are frictionless. This means that all investments are tradable at any price and in any quantity, both positive and negative, which further means that there are no short sales restrictions. Additionally, there are no transaction costs, regulations or tax consequences of asset purchases or sales (Hillier, Grinblatt, & Titman, 2012; Jacoby, Fowler, & Gottesman, 2000).

The last assumption is that the investors have homogenous beliefs, which means that all investors reach the same conclusions about the means and standard deviations of all feasible portfolios. Further, this implies that the investors will not try to outsmart one another. Even though the model have assumptions that do not meet the practice, it is still in use. One of the most important reasons is that there is no other alternative model which outperforms this model (Hillier et al., 2012; Schølberg, 2009). Fama and French (1992) is one of them who criticize the CAPM by its incompleteness. They have made a three factor model, which expands the CAPM by adding size and value factors in addition to the market risk factor in the model. Fama and French (1992) try to better measure market returns, but still the simplified CAPM is preferred the most. We choose to use the capital asset pricing model to express Jensen's alpha, because it first of all is used in most financial studies, secondly

because of its simplicity and that we are well known with this model. The equation of CAPM is:

$$E(r_j) = r_f + \beta_j[E(r_m) - r_f]$$

Bodie et al. (2011, p. 349)

Where,

$E(r_j)$ = is the expected return on the asset

r_f = is the risk-free interest rate

β_j = is the beta coefficient, which estimates the systematic risk

r_m = is the expected return of the market

The three assumptions of CAPM is also relevant for Jensen's alpha. The alpha measure is used to determine how much the realized return of the portfolio varies from the required return, expressed by the CAPM. Jensen's alpha is a good measure of performance that compares the realized return with the return that should have been earned for the amount of risk borne by the investor. In a technical way, it is a factor that represents the performance that diverges from a portfolio's beta, representing a measure of the manager's performance (Bodie et al., 2011; Jensen, 1968; White et al., 2003). Nayyar (1993) discusses that Jensen's alpha compares the performance of a firm or a managed portfolio of a stock with firms in an unmanaged portfolio with similar market risk.

Grinblatt and Titman (1989) discuss further that Jensen's alpha is a good indicator of firm performance. For firms with higher risk the expected return is higher, in other words, if the alpha is higher than expected, the portfolios earn above the predicted level (Jensen, 1968). Additionally, a positive alpha indicates that the portfolio manager performed better than what was expected, based on the risk the manager took with the fund as measured by the fund's beta. A negative alpha means that the manager actually did worse than he or she should have given the required return of the portfolio (Bodie et al., 2011). We will now describe Tobin's Q.

4.3.2.1.4 Tobin's Q

We use the market-based measure Tobin's Q as another measure of firm performance. The Tobin's Q ratio, or Q ratio as it is commonly known, is defined as the capital market value of the firm, which includes the debt and equity of the firm, divided by the replacement value of its assets, combining a market measure of firm value which is forward-looking, risk adjusted, and less susceptible to changes in accounting practices (Bharadwaj, Bharadwaj, & Konsynski, 1999; James, 1969). This measure can be viewed as a measure of managerial performance, where well-managed firms have a high Tobin's Q value, and poorly managed firms have a low Tobin's Q value (Grinblatt & Titman, 1989).

The Q ratio was first introduced in 1969 by James Tobin as predictor of a firm's future investments, but has subsequently been used to explain many different phenomena. For instance, it has been used as an alternative measure of firm performance, a predictor of profitable investment opportunities, and as a measure of the capitalized value of monopoly rents. Since the ratio is a financial market measure it has many attractive aspects, and is not only based on the strong empirical and theoretical foundations of the efficient market hypothesis, but also addresses the limitations of the accounting measures of performance (Bharadwaj et al., 1999; James, 1969).

Bharadwaj et al. (1999) discuss that many researchers have used the Q ratio to study the effects of market power on performance, and certainly more when the accounting measures have failed to detect any performance effects. As we discussed earlier, market measures have many advantages, such as that the stock prices represent the only direct measure of stockholder value, and that the stock prices fully reflect all available aspects of performance.

Further, the relationship between firm performance and a wide variety of industry characteristics have also been examined using the Q ratio. For instance, industry concentration, capital intensity and regulation, and other firm-specific factors such as market share corporate diversification, advertising, and research and development (Bharadwaj et al., 1999). By this discussion we believe that Tobin's Q is a good indicator of firm performance, where well-managed firms will have a high Tobin's Q value. This will indicate that the CEO has managed the firm in a satisfying way, and that he hence shall receive compensation for obtained firm performance. The CEO will thereby get higher compensation when the firm performance increases. We will further define the accounting-based measures we have chosen as indicators of firm performance.

4.3.2.2 Accounting-Based Measures

As we have discussed earlier, we choose to use the accounting-based measures ROE, ROA and EVATM to measure firm performance, and to see how these measures affect CEO compensation. ROE and ROA are return-on-investments measures of performance, while EVATM is a residual income measure. We will now present these measures, and discuss why they are interesting measures of firm performance, and discuss their possible relations with CEO compensation.

4.3.2.2.1 ROE

As we have mentioned before, ROE is a return on investment (ROI) measure, and is defined as return on equity. ROI is a ratio of the accounting profits earned by a firm divided by the investments tied up in the firm, while ROE stands for the return in total stockholders' equity. ROE is in other words, a measure of how much firms use stockholders' funds to generate a profit. This measure is considered as important to the current shareholders and prospective investors of the firm as it relates earnings with stockholders' investment and equity in the assets of the entity (Marshall, McManus, & Viele, 2014; White et al., 2003). As benefitting stockholders is the firm's goal, ROE is, in an accounting sense, the true bottom-line measure of performance. Hence, a higher ROE will indicate a higher return of the stockholders' equity and that firms have been able to find investment opportunities that are very profitable (Berk & DeMarzo, 2014; Ross et al., 2013). This may further indicate that managers act in the best interest of the stockholders. We thereby consider ROE as an interesting measure of firm performance, and which can be related to CEO compensation. For instance, the board of directors and owners can use ROE as a base of determining the compensation to the CEOs for obtained firm performance.

Even if we consider this as a relevant measure, and choose this measure as a measure of firm performance in our study, we also have to be aware of some problems that are related to ROE. For instance, ROE can be increased by increasing the debt ratio without investing in profitable projects. This can hence indicate that the firm are not driven efficiently, but rather be a result of the firm's way of financing, and their capital structure (Haukdal et al., 1997). Hence, we additionally choose to look at other accounting measures of firm performance, ROA and EVATM. We will further define the firm performance measure ROA, describe the relationship between ROE and ROA, and lastly discuss some of the problems and advantages of these two measures.

4.3.2.2.2 ROA

ROA is also a return on investment measure, and some authors use ROA as a synonym for ROI (Marshall et al., 2014). We however choose to use the term ROA in this case, and use the term ROI when referring to the overall return on investment measures. ROA stands for return on assets, and compares income with total assets. The measure can further be interpreted in two ways. Firstly, it measures the management's ability and efficiency in using the firm's assets to generate profits, and secondly, ROA reports the total return accruing to all providers of capital, independent of the source of capital. The capital includes both debt and equity. A low ROA can for instance indicate low turnover as a result of poor asset management, low profit margins, or a combination of both (White et al., 2003). Hence, we consider ROA as an interesting measure of firm performance, which can be related to CEO compensation, as the value of ROA can give an indication of how efficient the management is at using the assets to generate earnings. For instance, a high ROA indicates high turnover that can be a result of good asset management, which indicates that the CEOs act in the best interest of the firm and have similar objectives as the owners. Hence, the owners can use ROA as a measure of rewarding the CEOs for obtained performance, and we expect a positive relationship between ROA and CEO compensation.

Further, the relationship between ROE and ROA can be seen as a reflection of the firm's capital structure. We will not be examining this relationship, but we will have this in mind as we choose to use both of the variables. For instance, the creditors and shareholders provide the capital needed by the firm to acquire the assets used in the firm, and that they in return receive their share of the firm's profit. As ROA measure returns to all providers of capital, is ROE calculated after deducting the returns paid to creditors and measures returns to the firm's shareholders. Further, the equity holders can earn higher return by leveraging the investment provided by the debt holders, but only as long as the returns earned by the firm's assets, ROA, are greater than the cost of debt (White et al., 2003).

Leverage is here referred to as the same as financial leverage, which refers to the use of debt to finance the assets of entity. However, leverage can add risk to the firm's operation because if the firm is not able to generate enough cash to pay principal and interest payments, the creditors can force the firm into bankruptcy. On the other hand, since the cost of debt is a fixed charge independent of the amount of earnings, leverage can also increase the return to the owners relative to the return on assets. Hence, the relationship between ROE and ROA, as

well as financial leverage, is relevant for the management, creditors and owners (Marshall et al., 2014).

Further, ROE and ROA, as well as other types of ROI measures can include all or just a subset of the line items reflected in the firms' annual reports, in their numerator and denominator. For instance, the profit measure in the ROI calculation can be a fully allocated, after-tax profit measure, or a before-tax operating income measure. Further, the denominator can include all the line items of assets and liabilities that is not directly controlled by the manager, or include only controllable assets. There are hence many variations of these type of ratios (Merchant & Stede, 2012).

Merchant and Stede (2012) discuss that ROI measures are in widespread use as they provide some significant advantages. Firstly, they provide a measure that reflects the tradeoffs managers must make between revenues, costs, and investments. Secondly, they are expressed in percentage terms so they can be comparable to other financial returns, such as returns calculated for stocks and bonds. Lastly, ROI measures have been used for so long, that all managers virtually understand both what the measures reflect and how they can be influenced. This third advantage can however also reflect a problem, as the managers can influence the measures and create a wrong picture of the firm's results to make themselves look better. The managers can further make decisions and investments that improve the ROI measures, even though these decisions and investments are not in the best interest of the firm. Merchant and Stede (2012) refer to this problem as suboptimization. For instance may ROE measures tempt managers to use debt financing, which can push the firm's leverage to levels beyond the desired leverage level.

The other problem is misleading of performance signals, and can occur when there are difficulties in measuring the denominator of the ROI measure, particularly pertaining to fixed assets. For instance, the asset values reflected on the balance sheet do not always represent the real value of the assets that are available for the managers to earn current returns. Assets can for instance be added to the firm at various times in the past under varying market conditions and purchasing power, and book values of the various assets accumulated over time will hence say little about the economic value of the assets. The economic value of the assets is defined as their ability to generate future cash flow. There are further many firms that use net book values (NBV) to compute ROI, but ROI is usually overstated, and increases automatically over time if no further investments are made (Merchant & Stede, 2012). Hence,

firm performance can be seen to increase, even if this is not the actual picture. Owners and managers should thereby be aware of both the advantages and problems of these ROI measures of firm performance. We will further define the residual income measure, EVA™.

4.3.2.2.3 EVA™

Residual income (RI) is another approach used to evaluate firm performance, and is used to eliminate the risk of suboptimization when using return on investments measures, such as ROE and ROA. RI is calculated by subtracting a capital charge for the net assets tied up in the investment center from the profit, and the capital is charged at a rate equal to the weighted average corporate cost of capital (WACC). Hence, if the RI charge is made equal to the required corporate investment rate of return, then the RI measure give all investment center managers the incentive to invest in projects that promise internal rates of return higher than, or at least equal to, the corporate cost of capital, and thereby address the suboptimization problem inherent in ROI measures (Merchant & Stede, 2012).

In other words, the RI technique evaluates the manager's ability to generate a minimum required ROI. Hence, the manager's goal will be to maximize the NOK amount of earnings above this minimum requirement rather than to maximize a percentage amount of ROI. The RI will then be positive if the firm earns a ROI greater than the required ROI, while a negative RI indicates that a manager is losing firm value by not earning the minimum required ROI. Further, RI also addresses the financing-type suboptimization problem as it considers the cost of both debt and equity financing by using a weighted average corporate cost of capital. Hence, RI removes the managers' temptations to increase their firm's leverage through debt financing. However, RI does not address the distortions that are often caused when managers make new investments in fixed assets. Several desirable investments initially reduce RI, but as the fixed assets get older and are depreciated, RI will then increase over time (Marshall et al., 2014; Merchant & Stede, 2012).

The consulting firm Stern Stewart & Company rather recommends the trademarked measure called Economic Value Added (EVA™) that combines several of the modifications to the standard accounting model in RI-type measure. EVA™ includes in total 164 adjustments to standard accounting treatments, for instance capitalization and subsequent amortization of intangible investments such as for R&D, employee training, and advertising and the expensing of goodwill. However, which modification that are implemented in any given situation is subject to judgment. EVA™ is synonymous with super profit, economic rents,

above normal profit and economic profits, and a positive value added measure is a sufficient condition to ensure that value is created from a shareholder's perspective. In a growth context, however, it means that growth is only interesting if EVATM increases (Gjesdal & Johnsen, 1999; Merchant & Stede, 2012; Petersen & Plenborg, 2012).

EVATM is seemed to be the ideal firm performance measure and is considered as a measure of a firm's true economic profitability, as economic value added (economic profit) is not obtained until all capital providers have been compensated. Hence, unlike accounting measures of earnings, EVATM measures economic value added by reducing profit with the cost of debt and cost of equity. Further, EVATM's popularity as a performance measure is seemed to be due to the alleged advantages of EVATM compared to other accounting-based performance measures (e.g. ROE and ROA). For instance, advantages of EVATM include that it is consistent with value creation, and that it motivates managers to invest in projects with rates of return above the cost of capital. EVATM is claimed to be the best measure or predictor of future share price performance, and an increase in EVATM will hence result in an increase in firm value. Thereby, EVATM is seemed to be directly linked to value creation from a theoretical point of view (Petersen & Plenborg, 2012).

EVATM is further often used as a tool of evaluating managerial performance, and steers managers away from some of the less appropriate methods of evaluating real investments, and rather steers them towards the adoption of projects with positive net present values (NPT). Its implementation provides a system in which managers are encouraged to take on positive-NPV investments projects (Hillier et al., 2012). Hence, we consider EVATM as an interesting measure of firm performance that can be linked directly to the CEOs and their compensations, as the owners and the board of directors can reward the CEOs for investing in profitable projects that will add value to the firm after meeting the owners and creditors requirements.

However, some authors claim that EVATM has some disadvantages as it remains a historic income measure and does not anticipate future earnings or losses. EVATM is also difficult to calculate as the literature recommends many accounting adjustments before calculating it, and it is hence a daunting task to make an assortment of adjustments so that EVATM becomes an economic meaningful performance indicator. However, owners can for instance base CEO compensation on the change in EVATM from year to year to avoid this tedious task of adjustments. Further, EVATM does not take the horizon problem, the single vs multiple-period performance measures, into consideration as it only considers the effects of transactions on

the current year's financial statements and cannot accurately reflect the impacts of decisions that can have implications over many periods (Petersen & Plenborg, 2012).

Additionally, projects that have a positive NPV and which should add value to the firm, do not always yield a positive accounting profits, ROI or EVATM in every period of their life. Hence, the only way to ensure such an outcome would be to value the investments and assets as the net present value of their expected cash flows. However, even if this is acceptable in economic decision-making term, this is not feasible from a reporting performance viewpoint as these measures would be subjective. For instance, managers can make slightly optimistic estimates of the outcome of future events in order to improve the reported performance (Merchant & Stede, 2012; Petersen & Plenborg, 2012).

Lastly, as EVATM requires a great deal of adjustments and subjective judgments of the managers, there would hence be a objectivity problem, and managers can bias EVATM just as they can bias other accounting numbers and measures (Merchant & Stede, 2012; Petersen & Plenborg, 2012). Despite the disadvantages of this measure, we choose to base our choice on its advantages, and we choose to include it in our study as we consider EVATM as an interesting measure of firm performance that can be directly related to CEOs' decisions, and hence can be used to determine their compensations. We will further define our remaining variables that we use as both control (moderators) and independent variables.

4.3.3 Control and Independent Variables

In addition to the independent and dependent variables we want to include control variables in our hypotheses. These control variables (moderators) are also independent variables, because we examine how they affect CEO compensation directly. We have already discussed how we believe the control variables affect the pay-for-performance relationship and how they additionally can be independent variables and effect CEO compensation. In this subchapter, we will define the variables in detail.

4.3.3.1 Firm Size

Firm size is defined as how large a firm is, and can for instance be determined by indicators such as the number of employees, the sales and revenue, the financial or stock market value of a firm, or by the firms' balances (Carrizosa, 2007; Thorsen, 2012). In rskl. §1-5 are all public limited firms seen as large firms, while small firms are considered as firms with less than 50 employees, less than 70 million NOK in sales, and less than 35 million NOK in their balance sheet, see rskl. §1-6. However, firm size can be determined differently, and how we identify

how big a firm is will depend on how we measure firm size, and which kind of indicators we choose to include in our study. We will describe how we measure firm size later under the next chapter, and we will now continue to define the other variables.

4.3.3.2 Firm Risk

Risk in traditional terms is related to something negative, and can be defined as something that is exposing to danger or hazard. It is the possibility of loss or how much uncertainty a firm bears. There are many different types of risk, as business risk, social risk, economic risk, safety risk, investment risk, military risk and political risk. In our study, we are focusing on firm risk. The firm risk can be divided in two; market risk also called systematic risk and non-diversifiable risk, and firm-specific risk also called non-systematic risk or diversifiable risk. Non-diversifiable risk is risk that cannot be diversified away by the firm, such as business cycle, interest rate, inflation and exchange rates. However, diversifiable risk is risk that is more related to the firm, and can be diversified away, this can be product innovation, management efficiency, research and development, and personnel changes. We will only examine the non-diversifiable risk, as this risk cannot be diversified away (Bodie et al., 2011).

4.3.3.3 Ownership Structure

As we have discussed before, the ownership structure of a firm has a large importance on firm decisions and corporate governance, and hence large importance on the pay-for-performance relationship and CEO compensation. We define ownership structure as the relative amounts of ownership or shares held by the insiders of the firm, such as managers, and outsiders of a firm, such as investors that have no direct role in the management of the firm (Jensen & Meckling, 1976; Vroom & McCann, 2010). Jensen and Meckling (1976) use the term ownership structure instead of capital structure, and consider also the debt held by anyone outside the firm in addition to equity. Ownership structure is further defined as the distribution of equity regarding votes and capital, but also as the identity of the equity owners and holders (Wahl, 2006). Hence, the ownership structure of a firm tells us who provides the firm with equity, in addition to what kind of identity and control the equity holders and owners have. We are focusing on the CEO's ownership in the firm, which we will describe further when we operationalize our variables.

4.3.3.4 Age, Tenure, Gender and CEO Change

Age gives us the basic information of a human being, and is the length of time one person or a thing has existed. Further, the definition of tenure is how long a person has served in one position. In relation to our study, tenure is the number of years the CEO has served in the

same position (Hill & Phan, 1991). Gender is simple and straightforward descriptions of some of the basic characteristics that differentiate between masculinity and femininity (Mikkola, 2011). These characteristics are typically referred to behavioral, social, and psychological characteristics of males and females (Pryzgoda & Chrisler, 2000). Lastly, CEO change is defined as a replacement or a change of the firm's CEO in a current year.

4.3.3.5 Privately and Publicly Owned Firms

There are many definitions of privately and publicly owned firms, and in principle are privately owned firms considered as privately held firms that have shares that cannot be traded on a stock market, for instance on the Oslo Stock Exchange. Privately firms are instead owned and traded privately among a handful of people, often the founder and a few interested investors. On the other hand, publicly owned firms, also called publicly held or traded firms, are firms where there shares can be traded on public exchanges. A privately owned or held firm can also become a publicly held firm by offering its shares to the public (Reeves, 2004).

As we are focusing on firms listed on the Oslo Stock Exchange, is it hence logical to think that we only are focusing on publicly owned firms. However, as we mentioned in the beginning are there many definitions of these two terms. We hence choose to define privately owned firms as firms listed on the Oslo Stock Exchange, but that are owned by private investors and shareholders, and we define publicly owned firms as firms listed on the Oslo Stock Exchange where the Norwegian State owns shares. Hence, both of these types of firms are publicly traded firms, but they differ from each other in that the government owns shares in one of them (Aftenposten, 2011). For instance, the government owns substantial ownership in firms listed on the Oslo Stock Exchange, and we consider this type of ownership as public ownership (Sørensen & Dalen, 2001). Hence, we include both privately owned and publicly owned firms in our study.

4.3.3.6 Board of Directors

The board of directors is defined as a group of individuals that are elected by the general meeting in order to make decisions on the shareholder's behalf. The board of directors can hence be defined as representatives of a firm's stockholders, where they have many different responsibilities. For instance, the board has to establish corporate governance policies and to make decisions of major firm issues. These issues include the hiring or firing of executives, dividend and options policies, in addition to executive compensation. According to asal. § 6-16a, the board shall prepare a statement of determination of compensation to the CEO and other senior executives. The statement must further include all types of CEO compensation

such as fixed salary and other remuneration such as fringe benefits, bonuses, allocation of shares, warrants, options and other forms of compensation linked to shares or share price developments in the firm, pension schemes, severance pay arrangements, and all other forms of variable compensation elements, see asal. §6-16a.

Further, according to asal. §6-12 and §6-13 the board has the responsibilities of managing the firm and to ensure proper organization of the firm. Additionally, the board has to establish plans, budgets and guidelines for the firm's operations, and has to make sure that the firm's financial position, activities and accounts are subject of satisfactory control. The board shall also supervise the management, and issue instructions for the daily management, in order to make the management act in the best favor of the shareholders and other stockholders of the firm. As we also want to examine the gender balance in the board and its effect on the pay-for-performance relationship and CEO compensation, is it important to be aware that there are requirements for representation of both genders in the board, regulated by law in asal. § 6-11a. The requirements of the number of female directors in the board is however dependent of the board size. For instance, at least one of the board directors have to be females, when there two or three board directors. In boards where there are more than nine directors, each gender have to be represented by at least 40 %. We have now defined all of our variables in our research models and hypotheses, and in the next chapter will we present what kind of research method we will use in our study.

5 Method

In this chapter, we will present our research methods that we are going to use to test our hypotheses. Further, we will discuss our choice of research design, followed by the empirical setting, and sample frame. Additionally, we will present how we will operationalize our variables, where we measure the variables we have defined in the past chapter. Based on this, we will finally present how we are going to collect the necessary data for our research.

5.1 Research Design

Most of the science comes from scientists building on each other's work. It is a common way to start the research by using others work, and this is how we are generating our research. By testing the theory and using the theory as a guideline to determine which observations to make, we are using a deductive reasoning. In order to test the hypotheses that are derived from the theories, we can assume if the theories follow the practice, or needs to be rejected or modified. Further, we are replicating someone else's study, but including other variables to see if we find different results than what other researchers have (Mitchell & Jolley, 2013).

There are mainly two types of research methods, a qualitative method or a quantitative method. As the purpose of this study is to examine the relationship between firm performance and CEO compensation, we have to examine many different firms, and use numbers and statistics to reach a conclusion for our research question. Additionally, we have many observations with few variables, which indicates that a quantitative method is more appropriate in our research (Ringdal, 2011).

After choosing a quantitative research method, we need to find the appropriate research design. It is important to know which type of design that fits our research. As we have discussed earlier, the previous empirical researchers have used ordinary least square regression analysis as time series analysis and cross sectional analysis (Gomez-Mejia et al., 1987; Haukdal et al., 1997; Randøy & Skalpe, 2007). We are examining the annual percentage change in CEO compensation from the year 2010 to 2013 as a result of the changes in firm performance in our first research model, and thereby will we use time series analysis. In our second research model, will we however use a cross sectional analysis, as we are only focusing on absolute values of CEO compensation as a result of the other independent variables.

Moreover, we want to examine the pay-for-performance relationship and determinants for CEO compensation in listed firms from 2010-2013. The financial crisis lasted from 2007 to

2010, and affected Norway most in the year 2008 and 2009. At this time the Norwegian banks met liquidity challenges and the government implemented extensive actions. Hence, we want to examine the year after the financial crisis, so the annual reports are least affected by it (Regjeringen, 2011). Further, we cannot use the annual reports later than 2013, because the annual reports for 2014 are not published yet, only the quarterly results. By examining the years from 2010 to 2013, we will also examine different years than the presented previous empirical researches, and we may hence get different results.

Further, as we have many independent variables, will we use multiple regression analyzes to test for the independent variables' effect on the dependent variable. As our study is divided into two, we will in the first part only examine the relationship between firm performance and CEO compensation, where we also include different control variables as moderators. In the second part we examine the effects of the control variables as independent variables on CEO compensation. We will now discuss how we will test the control variables' effects on the pay-for-performance relationship as moderators, before we present our empirical setting and sample frame.

5.1.1 Moderator analyzes

In our study, we are interested in examining how different variables affect the pay-for-performance relationship. A moderator variable is a variable (Z) that strengthens, weakens, or reverse, or modifies the form of the relationship between two other variables, as the relationship between the independent variable (X) and the dependent variable (Y). Hence, our control variables (Z) are labeled as moderators if the nature of the relationship between firm performance and CEO compensation is affected by the control variables (Aguinis, 2004; Mitchell & Jolley, 2013; Sharma, Durand, & Gur-Arie, 1981).

In order to test the control variables' effects as moderators, we need to use moderator analyzes. Moderator analyzes are the same as multiple regression analyzes, but they differ in fact that moderator analyzes include interactions between the two independent variables of interest. By these analyzes, we are able to see if these variables interact and give different effect on the dependent variable (Y), than what they give separately. Hence, we can test if our chosen control variables affect the pay-for-performance relationship (Aguinis, 2004; Mitchell & Jolley, 2013).

5.2 Empirical Setting

Empirical setting is the location where the empirical study takes place, and should make us able to answer our research question in a most satisfactory way. Since our research question is directed towards the Oslo Stock Exchange, and since we aim to examine the pay-for-performance relationship and other determinants of CEO compensation in firms listed on the Oslo Stock Exchange, is it hence a natural choice to use the Oslo Stock Exchange as our empirical setting.

The Oslo Stock Exchange is an independent stock exchange and the only regulated market for trading of securities in Norway (OsloBørs, 2015). We are focusing on firms listed on the Norwegian stock exchange as listed firms are obligated to make their annual reports available for public access, see vphl. §5-5. Further, these firms are accounting obligated after rskl. §1-2 which means that they have to prepare annual reports. The firm's annual reports are obligated to give a correct picture of the firm's results, as well as assets and liabilities, and financial position after §3-2 and §3-2a. We hence choose the Norwegian market and firms listed on the Oslo Stock Exchange as we can rely on that these data are accurate and correct, as well as we will have access to the necessary information and data we need in order to answer our research question. We will further present the sample frame of our study.

5.3 Sample Frame

To ensure that we get all the information we need, we base our population only on the firms listed on the Oslo Stock Exchange. It is quite important for us to have reliable data that are not manipulated easily by the CEOs. Firms that are listed on the Oslo Stock exchange will give us the opportunity to examine both market- and accounting-based measure of firm performance, which can give a lot of insightful information on the research we are doing. Further, our sample consist of the 60 largest firms listed on the Oslo Stock Exchange, divided by market value. We have chosen to examine 60 firms in order to have more observations than previous Norwegian studies, and additionally because of the time limitations we are not able to examine more firms than this.

We will further only examine Norwegian firms that have been listed on the Oslo Stock Exchange all the years from 2010 to 2013. We are not going to divide the firms by different sectors, but are excluding the financial and banking sector, since the firms in this sector have a different financial reporting which makes it difficult to compare them with other firms (Finanstilsynet, 2009). We are further only examining the chief executive officer's compensation (CEO), and not for the other executives in the firms. The CEO is the one that is

sitting in the top position in the firm, and has the most authority in the firm. Additionally, the CEO does the reporting in the firm and has meetings with the board of directors, according to asal. § 6-14 and § 6-15. The CEO is also responsible for the asset management and if the financial information is in accordance with laws and regulations, see asal. § 6-14, fourth point. We will further describe how we are going to measure our chosen variables.

5.4 Measurement

In this subchapter, we are going to describe how we will measure our chosen variables in order to test our hypotheses and answer our research question. This will also help us to collect the relevant data for our study. We begin with operationalizing our dependent variable, CEO compensation.

5.4.1 CEO Compensation

We will measure our dependent variable, CEO compensation, in NOK, and divide the total CEO compensation in fixed salary and variable CEO compensation as reported in the firms' annual reports. Initially, we hoped to divide the variable CEO compensation in the different elements, such as bonuses, stock options and share allocations, to see how these elements are affected by firm performance. However, as we have studied several annual reports, we see that many firms do not describe or specify what the variable CEO compensation includes. Hence, it will be difficult to divide the variable compensation in elements and find the different elements' proportions of the variable CEO compensation. We thereby choose to operationalize our dependent variable in the fixed salary that CEOs get each year and in the variable compensation they get each year, and we assume that the variable CEO compensation includes all incentive-based payments and other benefits.

Further, almost all of the annual reports present the CEOs' pension costs and benefits, but we will not include pensions as the firms are obligated by the law of mandatory occupational pensions (*obligatorisk tjenestepensjonsloven*, shortened to otp), to save pensions for the employees, and we assume that this is not dependent by firm performance or other variables, see otp. §§ 2 and 4.

In our first research model, we are interested in examining the annual percentage change in CEO compensation as a change in firm performance, rather than the absolute value of CEO compensation. We will thereby measure our dependent variable as the annual percentage change in both fixed salary and variable CEO compensation, as followed:

$$\Delta Fixed_t = \frac{Fixed_t - Fixed_{t-1}}{Fixed_{t-1}}$$

$$\Delta Var_t = \frac{Var_t - Var_{t-1}}{Var_{t-1}}$$

The t in the equations represents the current year, and $t-1$ represents the previous year. Additionally, as we only are concentrating us on the years 2010 to 2013, for reasons explained under sample frame, will we get values for 2011, 2012 and 2013, and not for 2010. We “loose” one year when we look at the annual percentage change in CEO compensation, as we use the CEO compensation in 2010 in order to find the values for 2011.

However, we also have a second research model where we are interested in examining the absolute value of CEO compensation as a result of different independent variables. We will then get values for all of the four years, and measure the CEO compensation as explained in the beginning, as the fixed salary and variable compensation the CEOs get each year in NOK ($Fixed_t$ and Var_t). Further, we are going to explain how we will measure firm performance.

5.4.2 Firm Performance

We will now describe how we are going to measure our independent variable, firm performance, which is divided in market- and accounting-based measures. We start with operationalizing the market-based measures.

5.4.2.1 P/E

The price-earnings ratio, P/E is a market measure as we defined in Chapter 4. This ratio is one of the most common ratios used to measure future firm performance, and is a ratio of the value of equity to a firm's earnings, either on a total basis or on a per-share basis (Bodie et al., 2011). We want to examine the annual change in the P/B ratio, in percentage point, and the annual percentage change in CEO compensation. To measure this ratio we use the following equation:

$$P/E = \frac{\text{Price per share}}{\text{Earnings per share}}$$

Bodie et al. (2011, p. 823)

The price per share is the same as the market value of the firm, and we will find this on the Oslo Stock Exchange. The earnings per share is the same as the firm's earnings, and we will find this in the firms' annual reports.

As we want to examine the annual change in the P/E ratio, in percentage point, we measure the change in P/E as:

$$\Delta \frac{P}{E} t = \frac{P}{E} t - \frac{P}{E} t - 1$$

5.4.2.2 P/B

In Chapter 4, we defined the market-based measure P/B, which is a market-book-value ratio. This ratio equals the market price of a share of the firm's common stock divided by its book value, that is, shareholder's equity per share (Bodie et al., 2011).

To measure this ratio we use the following equation:

$$P/B = \frac{\text{Price per share}}{\text{Book value per share}}$$

Bodie et al. (2011, p. 823)

The price per share is as mentioned earlier the same as the market value of the firm, and we will find this on the Oslo Stock Exchange. The book value per share is the shareholder's equity which we will find in the firms' annual reports.

Further, as we want to examine the annual change in the P/B ratio, in percentage point, we measure the change in P/B as:

$$\Delta \frac{P}{B} t = \frac{P}{B} t - \frac{P}{B} t - 1$$

5.4.2.3 Jensen's Alpha

Jensen's alpha measures how much the realized return of the portfolio varies from the required return, predicted by the Capital Asset Pricing model, CAPM, given the portfolio's beta and the average market return. The capital asset pricing model examines the relationship between the risk and the expected return. We have already discussed why Jensen's alpha is a good indicator of firm performance in Chapter 4. The equation we use to measure this indicator is:

$$\alpha_p = \bar{r}_p - [\bar{r}_f + \beta_p(\bar{r}_M - \bar{r}_f)]$$

(Bodie et al., 2011, p. 850)

Where:

α_p = tells if there have been more or less return on the stock j

\bar{r}_p = the actual return on the stock j

\bar{r}_f = the return of the risk-free rate of interests

β_p = the beta value, used to express the systematic risk, also called the non-diversifiable risk

\bar{r}_M = the expected return on the market

$(\bar{r}_M - \bar{r}_f)$ = the market risk premium

To determine alpha we have to determine each of the parameters shown in the equation above. We start by explaining how to measure the actual return on the stock, where we measure the actual return on the stock j by subtracting this year's stock price with previous year's stock price, and divide by previous year's stock price.

5.4.2.3.1 The Risk-Free Rate

To calculate Jensen's alpha we need the risk-free rate which we estimate and use to find the expected return by CAPM. The risk-free rate is the yield a shareholder can attain by secure securities, which means that the owner has full security to achieve nominal returns. In the United States it is common to use Treasury Bills also called T-bills to measure the risk-free rate. Fama and French (1996) operate with T-bills with maturities of 1 month. In Norway the nearest alternative is the rate of interest on government bonds. Another option is to use the money market rate which is the interest rate on loans between banks and is called the

Norwegian Interbank Offered Rate, NIBOR. Historical NIBOR rates with different maturities are available on the Norwegian Bank's website. From a survey by PwC between 2011 and 2012, 44% of the respondents said to use a 10-year government bond as the risk-free rate, while 22% said to use a 5-year government bond (Koller, Copeland, Wessels, & Goedhart, 2005; Palepu & Healy, 2008; PWC, 2013). Hence, we measure risk-free rate by using the 10-year government bond. We find an overview of the yearly average bond on the website of the Norwegian Bank (Norges Bank). Respectively, for the years 2010, 2011, 2012 and 2013 the average risk-free rate was 3.52 %, 3.12 %, 2.10 % and 2.58 %.

5.4.2.3.2 Beta

According to the CAPM, a stock's expected return is driven by beta, which measures how much the stock and market move together. The beta value represents the non-diversifiable risk also known as systematic risk, as we explained earlier. Since beta cannot be observed directly, we have to estimate its value. To measure the beta we have to regress the firm's stock returns over some recent time period against the returns on the market index. We use excel to find the slope coefficient that represents an estimate of beta (Koller, Copeland, et al., 2005; Palepu & Healy, 2008). Beta can be derived by this equation:

$$\beta_i = \frac{Cov(R_i, R_m)}{Var(R_m)}$$

(Hillier et al., 2012, p. 136)

Here the sensitivity of the expected excess asset returns are divided by the expected excess market returns (Hillier et al., 2012). To ensure that we have enough observations we use an estimation of 4 years prior to the current year of interest, which gives us 48 monthly observations. Hence, we get a sufficient number of data points and beta values which are reliable and valid. It had been even more accurate if we had calculated three different beta values to each undertaking for each of the three years, but due to time constraints we will only calculate one beta value per firm.

5.4.2.3.3 The Expected Return on the Market

The market portfolio should reflect the market's expected returns. To measure the expected return on the market the alternative will be to choose a benchmark from the Oslo Stock Exchange. The Oslo Stock Exchange Benchmark Index, also known as the OSEBX is the main index and contains a representative selection of all listed shares on the Oslo Stock Exchange. This benchmark is adjusted for free float in the market and both capital events and

dividends. Another benchmark is the Oslo Stock Exchange All-Share Index, OSEAX which contains all listed shares on the Oslo Stock Exchange. The index is adjusted for capital events and dividends, but does not take into account liquidity and free float in the market value of the securities. Both OSEBX and OSEAX can be used as an alternative to the market portfolio, but we choose OSEBX because it contains the most liquid shares. High liquidity is associated with a greater degree of market efficiency. We also use the same benchmark when we measure beta, to have a greater consistency in the calculation.

As we want to measure the annual percentage change in Jensen's alpha, the formula is:

$$\Delta\alpha_{p,t} = \alpha_{p,t} - \alpha_{p,t-1}$$

5.4.2.4 Tobins' Q

We have defined the Tobin's Q as the ratio of the market value of a firm's debt and equity divided to the replacement costs of its assets. When there is a low Q ratio, under 1, this implies that the cost to replace a firm's assets is greater than the value of its stock. Further, this means that the stock is undervalued. On the other hand, a Q ratio over 1 implies that a firm's stock is more expensive than the replacement cost of its assets, which indicates that the stock is overvalued (Bharadwaj et al., 1999; Chung & Pruitt, 1994; Wolfe & Sauaia, 2014)

To measure the Tobin's Q we hence use the following equation:

$$\text{Tobin's } Q = (MVE + DEBT)/TA$$

Wolfe and Sauaia (2014, p. 157)

Where:

MVE = the closing price of share at the end of the financial year multiplied with the number of common shares outstanding

DEBT = the current liabilities minus the current assets, plus the book value of inventories and long term debt

TA = the book value of total assets

As we want to examine the change in Tobin's Q, we use the following calculation:

$$\Delta \text{Tobin's } Q_t = \text{Tobin's } Q_t - \text{Tobin's } Q_{t-1}$$

We will further describe how we are going to measure our accounting-based measures of firm performance.

5.4.2.5 ROE

As we have described before, ROE stands for return on equity, and shows the net income as a percentage return of the stockholders' equity. The equation for ROE we choose to use, is as followed:

$$ROE = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$

White et al. (2003, p. 135)

The net income is the same as the firm's net profit, and is the firm's income minus all costs and taxes, and the stockholder's equity is the book value of the equity (Berk & DeMarzo, 2014; Ross et al., 2013). We choose to measure ROE by dividing net income by average stockholders' equity as we see that ROE is usually measured like this. Hence, average stockholders' equity is calculated by adding together the equity at the beginning of the period and at the end of the period, and dividing by two (White et al., 2003). For instance, as we are going to find ROE for the year 2010, we also need to calculate the average stockholders' equity by adding the book value of the equity at the beginning of year 2010 (also the value at end of year 2009) with the book value of the equity at the end of year 2010, and divide by two.

We are further interesting in examining the relationship between the annual change in ROE, in percentage point, and the annual percentage change in CEO compensation as we assume that the CEOs will get rewarded for an increase in ROE. We will then get values for the years 2011, 2012, and 2013, and we measure the change in ROE as followed:

$$\Delta ROE_t = ROE_t - ROE_{t-1}$$

5.4.2.6 ROA

ROA stands for return on assets, and shows the firm's income as a percentage return of the firm's assets, both debt and equity. ROA can be measured in many different ways, but we choose to measure ROA by the following equation:

$$ROA = \frac{\text{Earnings before interest and income taxes (EBIT)}}{\text{Average total assets}}$$

Bodie et al. (2011, p. 823)

ROA can for instance also be measured by dividing net income by total or average total assets, by dividing net income and after-tax interest cost with total or average total assets, or by dividing EBIT with total assets (Ross et al., 2013; White et al., 2001; Berk & DeMarzo, 2014; Marshall et al., 2014). Hence, we see that there are several ways of measuring ROA, but we choose to measure ROA by dividing EBIT by average total assets. Total assets is the same as the total sum of both debt and equity, and is also considered as the total capital in the firm.

We choose to use EBIT instead of a firm's net income as EBIT summarizes earnings before taxes and financing costs, and indicates what the firm would have earned if not for obligations to its creditors and tax authorities. Hence, EBIT is usually called income from operations, and is calculated by subtracting operating expenses from total operations revenues. We hence consider EBIT as the best indicator to measure ROA in our study, as it is seen as a measure of the profitability of the firm's operations, ignoring any interest burden attributable to debt financing (Ross et al., 2013, Bodie et al., 2011). We can thereby link EBIT directly do the CEOs, as the CEOs can affect the firm's operations, but they are not in control over taxes and financial costs. Additionally, we choose to use average total assets as this is a commonly used denominator in the calculation of ROA (Bodie et al., 2011; Marshall et al., 2014).

In our study, we are further interested in examining the relationship between the annual change in ROA, in percentage point, and the annual percentage change in CEO compensation as we assume that the CEOs will get rewarded if they increase their ability of using the firm's assets to generate income in a satisfactory way.

Hence, we measure the change in ROA as followed:

$$\Delta ROA_t = ROA_t - ROA_{t-1}$$

5.4.2.7 EVA^{TM}

EVA^{TM} is a residual income measure based on many accounting modifications, and stands for Economic Value Added. EVA^{TM} shows the economic value added profit (economic profit) that the firm is able to obtain after all capital costs have been paid, and all capital providers have been compensated (Petersen & Plenborg, 2012; Gjesdal & Johnsen, 1999). We have defined this measure in Chapter 4, but we will now describe how we are going to measure EVA^{TM} .

EVA^{TM} can be measured for equity, total capital, and employed capital. We choose to measure EVA^{TM} for the total capital, as we use the total capital in the calculation of ROA, and because the total capital is relevant for the owners and creditors, and hence all providers of capital. Since EVA^{TM} requires a lot of accounting modifications, we do consider this as difficult to implement, and we thereby choose to operationalize EVA^{TM} based on the following general equation without making any accounting adjustments:

$$EVA^{TM}_t = \text{Net operating profit after tax (NOPAT)} - (\text{total capital} * WACC)$$

Merchant and Stede (2012, p. 427)

The first part in the equation shows how well the firms are at creating net incomes. In the calculation of net operating profit after tax (NOPAT) we will use earnings before interest and taxes (EBIT) but we will subtract from the firm's tax expenses in the current year. Further, in the second part of the equation we see the cost of tying capital to the firm. The total capital is all the equity and debt that is tied in the firm, and is the same as the average total assets that we use in the calculation of ROA. Further, we need to multiply the total capital with the weighted average cost of capital (WACC) in order to find the cost of tying the capital to the firm (Gjesdal & Johnsen, 1999).

WACC is as mentioned the weighted average cost of capital, and represents the after-tax return a representative invested Norwegian krone must give over time to satisfy the overall demands of creditors and owners. Hence, WACC shows the average cost of capital the firm must pay to all of its investors, both equity and debt holders (Gjesdal & Johnsen, 1999; Berk & DeMarzo, 2014). We will measure WACC by the following equation:

$$WACC = \frac{E}{E + D} * r_E + \frac{D}{E + D} * r_D(1 - T_c)$$

Berk and DeMarzo (2014, p. 514)

Where:

E = Market value of equity

D = Market value of debt

r_E = The expected return on equity to investors = $r_f + \beta_E [E(r_m) - r_f]$

r_D = The expected return on debt to investors

Tc = Marginal firm tax rate

To measure the market value of the equity, we will use the firm's market value as we are examining firms listed on the Oslo Stock Exchange. Further, we will use the book value of the firm's debt as an estimate for the market value of the firm's debt because of time limitations and difficulties of finding the real market value of the firm's debt. Particularly, the WACC calculation requires market value of debt, and we are hence aware that we can get WACC values that differ from reality, and have some bias. However, the differences between the book and market value of a firm's debt are not large as long as there are not big financial distress in the market that will affect the values (Fernandes, 2014, p. 30). Since we are concentrating on the years after the financial crisis, we hence believe that there are not big differences between the book values and market values of the firms' debts. Thereby, we believe that we can use the book value of a firm's debt as a proxy and still get satisfying WACC measures in our study, even if the calculation prefers market values.

The two expected return measures, r_E and r_D , represent the expected rates of return that investors require as compensation for the riskiness of the firm's equity and debt securities respectively (Hillier et al., 2012, p. 443). The expected return on equity (r_E) is also known as the cost of equity financing, and we will determine this return by using CAPM, the model we described under the calculation of Jensen's alpha. However, the Benchmark Index at Oslo Stock Exchange fell with 12.5 % in 2011 and gives negative expected returns on equity this year (OsloBørs, 2011). We thereby choose to use the average of the expected returns on equity in 2010 and 2012 as the expected return on equity in 2011 in the calculation of EVATM as we believe that the investors are not interested in achieving negative compensations for the equity they provide the firms with.

The expected return on debt (r_D) is the firm's pre-tax cost of debt, and we will use the firm's interests on debt to measure this return. The interests on debt will usually vary across the firm's loans because of different security/priority, time of borrowing, and interest period, but we choose to take use of the average interest rate of the firm's interest expenses and interest-bearing debt because of time constraints in our study (Gjesdal & Johnsen, 1999; Olsen & Klungreseth, 2013). Lastly, we will include a tax deduction of the interests by a marginal firm tax rate at 28 %, as every unit of interest paid to the debt holders represents a deduction on the firm income tax statement that would not be available with equity financing. Hence, the marginal firm tax rate indicates the debt-financing subsidy in percentage terms, and the term $r_D(1 - T_c)$ thereby represents the after-tax cost of debt to the firm (Hillier et al., 2012).

In our research, we are further interested in examining the annual percentage change in EVA^{TM} to see its impact of the annual percentage change in CEO compensation. Hence, we measure the annual percentage change in EVA^{TM} as following:

$$\Delta EVA^{TM} = \frac{EVA^{TM}_t - EVA^{TM}_{t-1}}{EVA^{TM}_{t-1}}$$

We will further operationalize our remaining variables.

5.4.3 Firm Size

The previous empirical researches have operationalized firm size differently, for instance as annual sales and profits, market value, and number of employees (Gomez-Mejia et al., 1987; Haukdal et al., 1997; Randøy & Skalpe, 2007; Olsen & Klungreseth, 2013). We choose to measure firm size as annual sales and by a firm's market value, in order to see how firm size can affect the pay-for-performance relationship, and how it can affect CEO compensation. We consider sales as a relevant measure of firm performance as the law of accounting, rskl. § 1-6, are using sales as an indicator of defining firm size. We also want to divide the firms in size by using their market value as we are concentrating us on listed firms, and because the Oslo Stock Exchange uses the firms' market values as an indicator to rank the listed firms by size.

In our study, annual sales is measured in NOK and include the sales and operating incomes each year as reported in the firm's annual reports. We will further measure a firm's total market value as the total of outstanding shares in the firm multiplied with the share price, as presented at the Oslo Stock Exchange's website.

When we use firm size as a control variable (moderator) to see its effect on the pay-for-performance relationship, we split the firms in two groups; in large and small firms by the median value of the observations. We use median value and not the mean value as the mean value may be affected by extreme values in the observations, and hence give incorrect classification of the data. Additionally, when we use the median value, the two groups will have quite similar number of observations each. This variable will hence be examined as a dummy variable, where large firms get a value of 1, and small firms get a value of 0.

5.4.4 Firm Risk

To measure firm risk we use the non-diversifiable risk also known as the systematic risk expressed by beta. The beta is a measure of the firm's volatility, and is the tendency of an investment's return to respond to swings in the market. If the beta value is above 1 it indicates that it is high risk in the firm or an investment (Bøhren & Michalsen, 2012). We have already presented how we measure beta under the measurement of Jensen's alpha. We will also divide firm risk by median and use it as a dummy variable when examining its effect on the pay-for-performance relationship, where high-risk firms get a value of 1, and low-risk firms get a value of 0.

5.4.5 Ownership Structure

Ownership structure is another control and independent variable that we consider as important related to the pay-for-performance relationship, and the determination of CEO compensation. We are focusing on the CEOs' direct ownerships in a firm, and will hence measure ownership structure as the number of shares that are owned by the CEO divided by the firm's total outstanding shares. Hence, we will see the CEOs' direct ownership in percentage, and it will be easier to compare to other firms. If the CEO for instance owns 1300 shares in the firm where the total number of outstanding shares is 25000, the CEO will have a 5.2 % direct ownership in the firm. If the CEO does not own shares in the firm, will the value be 0 % which indicates that the CEO does not have a direct ownership in the firm. We will collect the information of the number of shares owned by the CEO from the firms' annual reports.

5.4.6 Age, Tenure, Gender and CEO Change

Age is defined as the length of time one person or a thing has existed, and to measure this variable we will use the age of the CEOs in years. As we have defined, the tenure is how long a person has served in one position. To measure tenure we have to examine how many years the CEO has served in the same position. For instance if the CEO has already been in the same position for three years in 2010, then the number will be 3, then 4 in 2011 and 5 in 2012

and it continues like this. If there is a new CEO in the year 2012, then it starts at 0 again. Further we will not examine if the CEO has any other experience from other positions, but only the tenure in the same position in the firm. We believe that the experience will already be reflected in the CEOs compensation. Further, gender is one of the basic descriptions of a human being. To measure this variable we will divide the gender in females and males as a dummy variable, where 0 indicates female CEOs and 1 indicates male CEOs. Lastly, CEO change will also be measured as a dummy variable where 0 indicates no CEO change in the current year, while 1 indicates a change of the CEO in the current year.

5.4.7 Privately and Publicly Owned Firms

We have discussed the theoretical definitions of the terms privately owned and publicly owned firms in Chapter 4, and we will measure privately owned firms as firms where the government does not own any shares, the value will then be 0, and publicly owned firms as firms where the government, the Norwegian State, owns direct shares in the firm, and hence has a direct ownership in the firm. Publicly owned firms will get the value 1, while the remaining firms get the value 0, and this variable is hence considered as a dummy variable. We hence focus on the government's direct ownership in the firm when we operationalize privately owned and publicly owned firms.

5.4.8 Board of Directors

Our last control and independent variable is the board of directors, and we are focusing on the size of the board and the gender balance in the board. We will hence measure the size of the board of directors as the number of directors that sits in the board, and the gender balance as the number of female directors divided by the total number of directors in the board, in order to find the percentage portion of females directors in the board compared to male directors. We have now operationalized all of our variables, and we will further describe how we are going to collect the relevant data for our study.

5.5 Data Collection

The aim of data collection is to gather the relevant information and data in order to answer our research question and to test our hypotheses. As we are examining the pay-for-performance relationship and determinants of CEO compensation, and have different measures and variables, we hence need to collect different information. For instance, as we have both market-based and accounting-based measures of firm performance, we need both market-based and accounting-based information.

We will base this study on secondary data, and we will collect most of the necessary data from the listed firms' annual reports as they are obligated to make them available for public access, see vphl. §5-5 (Ringdal, 2011). The annual reports further include most of the information we are depended of, like the income statement and balance sheet to measure the accounting-based measures of firm performance, and the executive remuneration report that shows what the CEOs have received in salaries and bonuses during the year. Further, the listed firms are obligated to prepare a report of their corporate governance practices and principles, including the characteristics of the board of directors, which we hence will use to gather the necessary data for our study, see rskl. 3-3b (NUES, 2014). However, if we still do not find all the necessary information required for our study, will we collect the remaining data from the different firms' websites.

We additionally have to collect relevant data in order to measure the market-based measure of firm performance. As we are focusing on listed firms, we can use the market values and stock prices available on the Oslo Stock Exchange's website and in the stock project's database, Amadeus, from *Norges Handelshøyskole* (NHH). Amadeus has all of the stock prices/market values and accounting figures for firms listed on the Oslo Stock Exchange, and will help us to get a better overview of the firms' yearly stock prices. The market values and stock prices in the database and on the Oslo Stock Exchange's website are both adjusted for corporate actions, such as share splits, demergers, bonus issues, and dividend shares (Oslo-Børs-Information-Services, 2015). We have now described how we will collect the relevant data for our study, and in the next chapter are we going to present our analyzes and results.

6 Analyzes and Results

In this chapter we present the results from our analyzes. Throughout the analyzes we examine if the regression assumptions are fulfilled in order to get accurate results from the linear regression analyzes. We will discuss the regression assumption at the end of this chapter.

First, we present descriptive statistics and correlation analyzes for all of our variables represented in our two research models. Further, we will test our hypotheses and present our results.

6.1 Descriptive Statistics

In this subchapter, we present the descriptive statistics for all of our variables in our thesis without any modifications of the dataset. The purpose of the descriptive statistics, is to look at how the variables that will be included in the regressions are spread, and additionally to see how many observations we have of each variable.

Descriptive Statistics								
Variables	N	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Variable	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Variable	236	0,000	37228524,000	1632903,161	3083815,637	810000,000	7,305	76,558
Ch_Var	175	-,995	286,000	5,104	25,349	,125	8,858	90,869
Fixed	240	572000,000	10989000,000	3257212,864	1804810,424	2809000,000	1,679	3,145
Ch_Fix	180	-,690	3,712	0,138	0,434	,057	4,972	33,278
Ch_P/B	180	-176,077	151,286	-1,088	20,738	,008	-3,073	56,588
Ch_P/E	180	-394,958	928,786	8,504	100,993	,546	4,617	43,418
Ch_J_alpha	163	-427,886	366,272	-0,842	48,740	-,088	-2,072	58,465
Ch_TobQ	180	-10,816	4,157	-0,020	1,161	-,004	-4,563	44,692
Ch_ROE	180	-3,237	4,352	0,038	0,528	-,010	3,075	40,134
Ch_ROA	180	-,340	1,341	0,003	0,134	,001	5,477	55,785
Ch_EVA	157	-1550,148	45,448	-10,071	123,802	-,018	-12,498	156,470
MV	240	26496000,000	489457330310,500	22104201823,568	69083046573,601	3473647417,100	5,051	27,486
Revenue	240	2529383,000	723400000000,000	21773441348,759	83990671295,234	2717492500,000	7,016	51,241
Beta	221	-4,073	2,612	0,830	0,618	,774	-2,370	18,102
CEO_OS	239	0,000	,231	0,008	0,030	,001	6,729	46,717
CEO_Age	240	30	69	50,508	7,216	50,000	,255	-,025
CEO_Tenure	240	0	23	4,538	4,568	3,000	1,848	4,166
Board_Size	240	3	12	7,125	2,002	7,000	,416	-,390
Board_Gen	240	,167	,714	0,392	0,084	,400	,129	,811
Valid N	154							

Variable is variable CEO compensation measured in NOK, Ch_Var is the percentage change in variable CEO compensation from year t-1 to t, Fixed is fixed salary measured in NOK, Ch_Fix is the percentage change in fixed salary from year t-1 to t, Ch_P/B is the change in P/B from year t-1 to t measured in percentage points, Ch_P/E is the change in P/E from year t-1 to t measured in percentage points, Ch_J_alpha is the change in Jensen's alpha from year t-1 to t measured in percentage points, Ch_TobQ is the change in Tobin's Q from year t-1 to t measured in percentage points, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, Ch_ROA is the change in ROA from year t-1 to t measured in percentage points, Ch_EVA is the percentage change in EVA™ from year t-1 to t, MV is market value measured in NOK, Revenue is measured in NOK, Beta is firm risk, CEO_OS is the CEO's direct percentage ownership in the firm, CEO_Age is the CEO's age, CEO_Tenure is the CEO's tenure measured in years, Board_Size is the total number of directors in the board, Board_Gen is the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.1 – Descriptive Statistics

Table 6.1 shows the descriptive statistics for the dependent variables, the independent variables and the control variables in both of our research models. The table shows the actual collected data with all of the observations. We have however left out the dummy variables as these have values of 0 and 1, but we have included the absolute values of the control variables that we will compute into dummy variables in order to see how they are spread. We have also included the median values as we will use these to compute some of our control variable into dummy variables. Unfortunately, due to lack of observations, we are not able to include the dummy variables that represent CEO gender, and publicly and privately owned firms, further in this study. Hence, we will not be able to test two of our hypotheses.

6.1.1 Missing values

In particular, there should be 180 observations for the change variables, and 240 for the other variables. Unfortunately, due to lack of data, we have some missing values. The table shows that we have 4 missing values in absolute value of variable CEO compensation. Hence, we should also have 3 missing values for the variable that represents the changes in variable CEO compensation. However, we have 5 missing values of this variable, and with a closer examination we see that we have not been able to calculate two change values as the CEOs have gone from zero variable compensation in one year to receiving variable CEO compensation in the following year.

Further, after examining our data we see that these missing values occur randomly, as one firm has not reported the variable compensation to the CEO. However, if a firm with high variable CEO compensation on purpose neglects to report the CEO's variable compensation, the missing values will be non-random. Non-random missing values can decrease the validity of our study, as we can draw conclusions on biased and inaccurate regression coefficients. However, after a discretionary assessment we do not think that this firm has purposely neglected to report the CEO's variable compensation, and we consider these missing values as random. Additionally, these missing values represents a very small part of the total observation. The reason why we keep this firm even if one of the dependent variable is missing, is that the firm has observations for the other dependent variable, fixed salary, and for all of the other variables in our study. We hence do not remove these incomplete observations by listwise deletion, which is a way of handling missing values, in order to not lose valuable information. (Myrtveit, Stensrud, & Olsson, 2001)

Additionally, we have missing values for the variables that represent changes in Jensen's alpha and EVATM, and this is a result of the missing values of beta variables. We have 19 missing values in beta as some firms have not been listed on the Oslo Stock Exchange four years before our chosen time period (2010-2013). As we consider, these missing values are random and not non-random because they are left out because of lack of data, and not on purpose. Hence, we have not been able to calculate beta, which is used in Jensen's alpha and EVATM.

The low observation number of the variable that represent change in EVATM is also a result of that we use the average of the expected returns on equity in 2010 and 2012 as the expected return on equity in 2011. We hence get missing values as we have not been able to calculate the expected return on equity in 2011 due to lack of data in 2010 or 2012. Further, we only have one missing value of the total observations of CEO's direct ownership. After an examination, we see that this missing value is random, as the firm had a CEO change in the end of that particular year. Hence, we were not able to find the direct ownership of the CEO of interest as the firm only reported the direct ownership of the new CEO. As these missing values are random, we do not think that these will affect the validity of our results. We will further discuss the variables' variances and symmetry.

6.1.2 Variance and Symmetry

The standard deviations tell us about the variation in the different variables. As we see from table 6.1, the variation in the variable CEO compensation is much higher than the variable for the fixed salary. The reason for this is that there is a greater spread in the payment of variable CEO compensation across firms. We also see this by the differences in minimum and maximum values of the variables. Further, change in P/B, P/E, Jensen's alpha and EVATM have also larger variances than the other variables. Large variances in change in P/B and P/E can be a result of different share prices from year to year across firms, and variances in change in Jensen's alpha and EVATM can be a result of different beta values across firms from year to year, that represents firm risk. There are also large variances in the variables that represent firm size. These are market value and revenue, and the variances can be explained by that there are small and large firms with different share prices and number of outstanding shares, and different income. Hence, we see that all of our variables have nonzero variance.

It is especially important that the independent variables have nonzero variance, as if the independent variable has a variance equal to zero, the beta coefficient also will be zero, which

will indicate that there is no relationship between the independent and the dependent variable. We will then not be able to test the independent variables' effect on the dependent variables in our study, as we also discuss under regression assumption 2 in subchapter 6.5.2.

Further, by looking at the mean and median of the different variables, we can discuss the variables' symmetry. Most of the variables have small differences between the mean and median, but the variables with the biggest differences are variable CEO compensation, change in P/B, change in P/E, change in Jensen's alpha and change in EVATM. This indicates that some firms have higher or lower values of these variables that increase or decrease the mean values. These values differ widely from the major of the other observation values which indicates that these variables do not meet the requirements for symmetry. We consider these values as extreme values, which are values of observations that deviate from the main trend of the observations in the different variables. We can observe the extreme values of our variables by the scatterplots represented in subchapter 6.5.8 and in appendices N and O under the discussion of regression assumption 8.

Extreme values in regression analyzes can result in biased and inaccurately estimated regression coefficients, which will give less valid results, as the error term may not meet the requirement of normal distribution. This violates with regression assumption 8, presented in subchapter 6.5.8. By a closer examination of our data we see that the extreme values of our variables do occur randomly and are not a result of measurement errors, and particularly should not be removed from our study. These values show the reality, and by removing the extreme values we can get results and relationships that differ from the reality, and we can also lose valuable information. This will be critical for the validity of our results. However, if the error term does not meet the requirement of normal distribution we can get biased regression coefficient and regressions lines, and conclusions can be drawn by wrong estimated regression coefficients, which will also decrease the validity of our results.

In order to test if the error term is normally distributed, we take basis on the skewness and kurtosis of the observations. As we will discuss in subchapter 6.5.8, skewness indicates how biased the data is, and when the data is closer to zero, the error term is closer to be normally distributed. High values of kurtosis illustrate on the other hand, abnormal sharpness or flatness. Ideally, the values of skewness and kurtosis have to be between $<+/-2$, and maximum 5. It is very important that the requirement of skewness is met, as the data will be biased otherwise (Berry, 1993; Sandvik, 2013b).

By examining the values of skewness and kurtosis in table 6.1, we see that we have high values of both skewness and kurtosis for our observations. This indicates that the requirements for normal distribution of the error term are not fulfilled, and that we should consider removing the extreme values. By examining the scatterplots between the independent and dependent variables in subchapter 6.5.8 and in appendix P with and without extreme values, we see that there are some observations that differ from the main trend, and draw the regression line in wrong direction as we get biased and inaccurate regression coefficients. We hence choose to remove these extreme values and not the whole observation by listwise deletion line from our data before we test our hypotheses, as we have different dependent and independent variables and we do not want to lose many observations. We will hence get missing values that are non-random as we have removed these on purpose, and we will get a lower observation number of our variables. In appendix A.1 we present the descriptive statistics for the variables without extreme values. We consider our choice of removing extreme values as most accurate since we want to achieve unbiased results.

In order to meet the requirements of normal distribution of the error term in a more satisfying way, it is also possible to transform the variables by using natural logarithm, but only variables that are positive. Since we have change values that are both negative and zero in our first research model, we cannot use natural logarithm, and have to keep the variables as they are. Our second research model, on the other hand, includes absolute values of the dependent and independent variable, and can hence be transformed. We hence choose to transform the variables in order to meet the requirements of normal distribution of the error term. Table 6.2 shows the descriptive statistics of the transformed variables for our second research model with extreme values, and we can hence examine if we need to remove extreme values even if we have transformed our variables.

Descriptive Statistics								
Variables	N	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
LN_Var	233	6,91	17,43	13,230	1,785	13,623	-,828	,658
LN_Fix	240	13,26	16,21	14,868	0,502	14,848	,122	,408
LN_MV	240	17,09	26,92	21,899	1,857	21,968	,386	,154
LN_Rev	240	14,74	27,31	21,629	2,241	21,723	-,378	,725
LN_Beta	215	-8,16	,96	-0,339	0,876	-0,190	-4,027	30,224
LN_CO	212	-11,51	-1,46	-6,970	2,157	-6,817	,095	-,413
LN_Age	240	3,40	4,23	3,912	0,144	3,912	-,171	,133
LN_Ten	206	0,00	3,14	1,344	0,820	1,386	-,044	-,657
LN_BS	240	1,10	2,48	1,923	0,288	1,946	-,265	-,078
LN_BG	240	-1,79	-,34	-0,960	0,226	-0,916	-,694	,881
Valid N	159							

LN_Var is the natural logarithm of variable CEO compensation, LN_Fix is the natural logarithm of CEO fixed salary, LN_MV is the natural logarithm of market value, LN_Rev is the natural logarithm of revenue, LN_Beta is the natural logarithm of beta, LN_OS is the natural logarithm of CEO' direct percentage ownership in the firm, LN_Age is the natural logarithm of the CEO's age, LN_Ten is the natural logarithm of the CEO's tenure measured in years, LN_BS is the natural logarithm of board size, which is the total number of directors in the board, LN_BG is the natural logarithm of the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.2 – Descriptive Statistics for second research model

From table 6.2 we see that by transforming our variables we meet the requirements for symmetry and hence the normal distribution of the error term, except from beta. Most of the transformed have small differences between mean and median, and the requirements of skewness and kurtosis are met. Beta has however large differences between mean and median, and high values of skewness and kurtosis indicating that this variable has some extreme values, and that the assumption of normal distribution of the error term is not fulfilled. By examining the scatterplot for this variable, and the scatterplots between beta and the dependent variables in subchapter 6.5.8 in appendix Q, we see that there are some extreme values which do not follow the general trend and which we hence consider as important to remove in order to achieve unbiased regressions coefficients. We have attached the descriptive statistics for our second research model without extreme values in appendix A.2. We will now conduct correlation analyzes for both of our research models and their variables before we start to test our hypotheses.

6.2 Correlation Analyzes

In this subchapter we present correlation analyzes for the variables we include in our two research models. The correlation analysis' primary objective is to measure the strength or degree of linear association between two variables. Pearson correlations assumes normal distribution of the error term, and the values for linear association between two variables goes from -1 to 1, where correlations equal to 1 indicate perfect covariance between the variables (Gujarati, 1995).

In particular, it is not desirable to have perfect covariance and multicollinearity between two independent variables, as this indicates that the variables measure the same. The requirements for correlations are that the values should be under 0.6, but values between 0.6 and 0.8 are acceptable if the population is big enough ($N > 200$) (Sandvik, 2013b). If the requirements for multicollinearity are not met, will this affect our regression analyzes. We will explain this in more detail when we discuss regression assumption 3 in subchapter 6.5.3. We will first present the correlation analysis for the variables in our first research model, and then conduct a correlation analysis for the transformed independent and dependent variables in our second research model.

		Correlations													
Variables		Ch_Var	Ch_Fix	Ch_P/B	Ch_P/E	Ch_J_alpha	Ch_TobQ	Ch_ROE	Ch_ROA	Ch_EVA	CEO_OS	CEO_Age	CEO_Tenure	Board_Size	Board_Gen
Ch_Var	Pearson Correlation	1													
Ch_Fix	Pearson Correlation	,163*	1												
Ch_P/B	Pearson Correlation	-,221**	-,233**												
Ch_P/E	Pearson Correlation	-,016	-,086	,003	1										
Ch_J_alpha	Pearson Correlation	,010	-,069	,217**	,066	1									
Ch_TobQ	Pearson Correlation	-,014	-,031	,553**	,119	,251**	1								
Ch_ROE	Pearson Correlation	,309**	,053	-,127	-,096	,040	-,079	1							
Ch_ROA	Pearson Correlation	,070	,078	,119	-,113	,056	,180*	,302**	1						
Ch_EVA	Pearson Correlation	,050	-,119	-,050	-,040	-,013	-,038	,106	,253**	1					
CEO_OS	Pearson Correlation	-,050	-,035	-,001	-,013	,027	,025	,008	,030	-,008	1				
CEO_Age	Pearson Correlation	-,001	-,090	,020	,081	,081	,028	,051	,010	,088	,251**	1			
CEO_Tenure	Pearson Correlation	-,170*	-,088	-,026	,011	,025	-,063	-,042	,017	,100	,205**	,337**	1		
Board_Size	Pearson Correlation	-,097	-,060	-,025	,039	-,038	,051	-,124	,032	-,019	-,044	,129*	-,006	1	
Board_Gen	Pearson Correlation	,016	-,019	-,029	,086	,041	,025	,074	,007	,162*	,100	-,048	,118	-,076	1

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

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

Ch_Var is the percentage change in variable CEO compensation from year t-1 to t, Ch_Fix is the percentage change in fixed salary from year t-1 to t, Ch_P/B is the change in P/B from year t-1 to t measured in percentage points, Ch_P/E is the change in P/E from year t-1 to t measured in percentage points, Ch_J_alpha is the change in Jensen's alpha from year t-1 to t measured in percentage points, Ch_TobQ is the change in Tobin's Q from year t-1 to t measured in percentage points, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, Ch_ROA is the change in ROA from year t-1 to t measured in percentage points, Ch_EVA is the percentage change in EVA™ from year t-1 to t, CEO_OS is the CEO's direct percentage ownership in the firm, CEO_Age is the CEO's age, CEO_Tenure is the CEO's tenure measured in years, Board_Size is the total number of directors in the board, Board_Gen is the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.3 – Bivariate Pearson Correlations for the first research model

Table 6.3 shows the Pearson correlations for the change variables in our first research model without extreme values. We have also conducted a correlation analysis with extreme values, which can be found in appendix B.1, in order to be aware of the differences. We have included the independent, dependent and control variables, but have excluded the dummy variables as these have values of 0 and 1.

From the correlation table we see that change in variable CEO compensation positively correlates with fixed salary, but the correlation value is not high. This means that these variables measure the same to a small extent, and if one increases will the other one also increase. Even if the correlation values had been high, would not this be problematic for our research as we are not going to use more than one of these variables at the same time in our models. Additionally, we are only going to use these variables as dependent variables in our models, and not as independent variables.

Further, we see that some of the independent variables correlate with each other. The market-based measures of firm performance, change in P/B, change in Jensen's alpha, and change in Tobin's Q correlate occasionally with each other. It is rational to think that these variables have a significant positive correlation, since they all are indicators of firm performance, and are based on share price and market value. If one of the measures increases, it is also likely to think that the other measures will increase. However, the values are not high, except from the correlation between change in P/B and change in Tobin's Q. This correlation is significant with a value of 0.553, and indicates that change in P/B and change in Tobin's Q measure much of the same. However, we do not consider this as an issue, because the value is below the required maximum of 0.6.

Further, the accounting-based measures of firm performance, change in ROE, change in ROA, and change in EVATM also correlate occasionally with each other. Additionally, change in Tobin's Q correlates significantly with change in ROA, due to use of the same measures in their equations. These values are low and positively significant, and it is normal that these measures will correlate as they are indicators of firm performance. If one measure increases, it is likely for the other measures to also increase.

The control variables, CEO ownership, CEO age, and CEO tenure also correlates occasionally with each other. The values are positively significant, but low. It is rational to think that CEOs own more shares when they get older and stay in the same position over time. Additionally, age and tenure positively correlates, as older CEOs are more likely to have been in the same

position over a longer time. The last correlation worth mentioning, is the positive significant correlation between CEO age and board size. This can be a result of that firms with large boards are more likely to have older CEOs. It is not a logical explanation, but can be one of the reasons for the significant correlations.

All of the significant Pearson correlations are low in our study, so we are not facing the problem with perfect multicollinearity so far in our study. We also see that change in P/B negatively correlates with the dependents variables, change in variable CEO compensation and fixed salary. Additionally, change in ROE positively correlates with change in variable CEO compensation, but from the correlation analyzes, we are not able to see relations between independent and dependent variables as we do not know which variable that affects the other one. We will discuss this later when we conduct the regression analyzes for our hypotheses, as regression analyzes are better suited to evaluate relations.

Since our first research model do not meet the requirements for normally distributed error term, which we discussed in subchapter 6.1, we also have to conduct a Spearman correlation. Spearman correlation is a non-parametric test that do not assume a normal distributed error term. Hence, if the Pearson and Spearman correlations show similar correlation directions and signs between the variables, we can assume that our further results from the regression analysis will not be harmed because of non-normally distributed error term.

		Correlations													
Variables		Ch_Var	Ch_Fix	Ch_P/B	Ch_P/E	Ch_J_alpha	Ch_TobQ	Ch_ROE	Ch_ROA	Ch_EVA	CEO_OS	CEO_Age	CEO_Tenure	Board_Size	Board_Gen
Ch_Var	Correlation Coefficient	1													
Ch_Fix	Correlation Coefficient	,068	1												
Ch_P/B	Correlation Coefficient	-,123	-,149 ⁺	1											
Ch_P/E	Correlation Coefficient	-,172 ⁺	,064	-,013	1										
Ch_J_alpha	Correlation Coefficient	-,117	-,052	,357 ⁺	,063	1									
Ch_TobQ	Correlation Coefficient	-,074	,036	,539 ⁺	,100	,400 ⁺	1								
Ch_ROE	Correlation Coefficient	,237 ⁺	,097	-,036	-,198 ⁺	,114	-,052	1							
Ch_ROA	Correlation Coefficient	,204 ⁺	,084	,102	-,168 ⁺	,190 ⁺	,179 ⁺	,565 ⁺	1						
Ch_EVA	Correlation Coefficient	,298 ⁺	,056	-,084	-,113	,156	-,093	,513 ⁺	,588 ⁺	1					
CEO_OS	Correlation Coefficient	-,126	-,062	,086	,024	,140	,060	,030	,068	,092	1				
CEO_Age	Correlation Coefficient	-,109	-,045	-,004	,046	-,038	-,004	,013	-,019	-,091	,082	1			
CEO_Tenure	Correlation Coefficient	-,099	-,001	,006	,019	,021	-,058	-,088	-,041	-,050	,354 ⁺	,297 ⁺	1		
Board_Size	Correlation Coefficient	,028	-,061	,009	,023	-,046	,076	-,102	-,015	-,178 ⁺	-,198 ⁺	,142 ⁺	-,041	1	
Board_Gen	Correlation Coefficient	-,098	,015	-,048	,137	,035	-,009	,098	,092	,150	,159 ⁺	-,053	,159 ⁺	-,089	1

Ch_Var is the percentage change in variable CEO compensation from year t-1 to t, Ch_Fix is the percentage change in fixed salary from year t-1 to t, Ch_P/B is the change in P/B from year t-1 to t measured in percentage points, Ch_P/E is the change in P/E from year t-1 to t measured in percentage points, Ch_J_alpha is the change in Jensen's alpha from year t-1 to t measured in percentage points, Ch_TobQ is the change in Tobin's Q from year t-1 to t measured in percentage points, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, Ch_ROA is the change in ROA from year t-1 to t measured in percentage points, Ch_EVA is the percentage change in EVA™ from year t-1 to t, CEO_OS is the CEO's direct percentage ownership in the firm, CEO_Age is the CEO's age, CEO_Tenure is the CEO's tenure measured in years, Board_Size is the total number of directors in the board, Board_Gen is the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.4 – Bivariate Spearman Correlations for the first research model

Table 6.4 shows that there are some differences between the variables' directions. This is the case for the independent variable change in Jensen's alpha. Hence, if this variable show significant effect on the dependent variables, we should be aware of that this variable has problems regarding normal distribution of the error term, and can hence result in inaccurate estimated and biased regression coefficients. Further, the control variables board size and board gender also have different correlation directions with the dependent variable, variable CEO compensation, in the non-parametric test from the parametric test. We should also be aware of that this can result in biased regression coefficients and give less valid results. We have attached both the Pearson and the Spearman correlations with extreme values to see the differences in appendices B.1 and B.2. If we had not removed the extreme values, we see that almost all of the variables have different correlation directions, which could cause less valid results in our regressions analyzes. We will now present the Pearson correlations for our second research model, where the variables are transformed and meet the requirements of normal distribution.

Correlations											
Variables		LN_Var	LN_Fix	LN_MV	LN_Rev	LN_Beta	LN_CO	LN_Age	LN_Ten	LN_BS	LN_BG
LN_Var	Pearson Correlation	1									
LN_Fix	Pearson Correlation	,391**	1								
LN_MV	Pearson Correlation	,408**	,654**	1							
LN_Rev	Pearson Correlation	,383**	,531**	,672**	1						
LN_Beta	Pearson Correlation	,294**	,340**	,269**	,204**	1					
LN_CO	Pearson Correlation	-,167*	-,474**	-,506**	-,419**	-,136	1				
LN_Age	Pearson Correlation	,118	,189**	,102	,156*	,010	-,063	1			
LN_Ten	Pearson Correlation	-,054	-,134	,078	-,074	-,195**	,385**	,273**	1		
LN_BS	Pearson Correlation	,256**	,450**	,514**	,540**	,244**	-,313**	,145*	-,078	1	
LN_BG	Pearson Correlation	-,153*	-,037	-,003	-,117	-,008	,151*	-,047	,091	-,054	1

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

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

LN_Var is the natural logarithm of variable CEO compensation, LN_Fix is the natural logarithm of CEO fixed salary, LN_MV is the natural logarithm of market value, LN_Rev is the natural logarithm of revenue, LN_Beta is the natural logarithm of beta, LN_OS is the natural logarithm of CEO' direct percentage ownership in the firm, LN_Age is the natural logarithm of the CEO's age, LN_Ten is the natural logarithm of the CEO's tenure measured in years, LN_BS is the natural logarithm of board size, which is the total number of directors in the board, LN_BG is the natural logarithm of the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.5 – Bivariate Pearson Correlations for the second research model

The Pearson correlation for the second research model shows many significant correlations between the dependent variables as well as between the independent variables. For instance, similar to the Pearson correlation for the first research model which looked at change, the absolute values of variable CEO compensation and fixed salary are also positively correlated. We will however use these variables as dependent variables, and not include them in the same model during our regression analyzes. Further, most of the correlation values between the independent variables are below the requirement for multicollinearity, which we discuss in subchapter 6.5.3, but we choose to comment on some of the correlations we consider as important.

There is a high positive correlation between the firm size measures, market value and revenue. This indicates that an increase in one of them will result in an increase in the other one. It is normal to think that firms that have large market values also have large revenues, and vice versa. The correlation value is high at 0.672, but below the maximum requirement of 0.8 when the observation number is above 200. Hence, we do not consider this as critical as we have 240 observations. Beta is also positively correlated with market value and revenue, which can indicate that large firms have large beta values, and higher risk. Further, CEO ownership is negatively correlated with market value and revenue. An explanation of this can be that CEOs in large firms tend to own less percentage of the total outstanding shares. CEO age is positively correlated with revenue, and this can indicate that larger firms have older CEOs.

Further, CEO tenure is negatively correlated with beta, which can indicate that CEOs have shorter tenure in high-risk firms, or that CEOs with long tenure work in low-risk firms. CEO tenure is further positively correlated with CEO age and CEO ownership. This can indicate that CEOs with longer tenure in the same position over time are older, and that the CEOs own more shares of the outstanding shares of the firm when they have longer tenure. Additionally, board size is positively correlated with market value, revenue, beta, and age, and negatively correlated with CEO ownership. This can be explained by that larger firms and high-risk firms have larger boards, and that firms with large boards are more likely to have older CEOs. The negative correlation between board size and CEO ownership may indicate that CEOs own less shares in firms with large boards. Lastly, board gender is positively correlated with CEO ownership, which can indicate that if there are many female directors, the CEOs will own more shares in the firm. Additionally, we see that many of the independent variables correlate with the dependent variables. We will discuss this further under our regression analyzes, as

we are not able to see relations between independent and dependent variables because we do not know which variable that affects the other one. Hence, we will now conduct regression analyzes for our hypotheses.

6.3 Test of the First Research Model; the Pay-for-Performance relationship

In this subchapter, we will test our hypotheses for our first research model by using multiple regression analyzes. We start by testing our first hypothesis where we test the relationship between the change in the independent variable firm performance and the change in the dependent variable, variable CEO compensation. We will include all of the firm performance measures, P/B, P/E, Jensen's alpha, Tobin's Q, ROE, ROA and EVA™, at the same time and examine which of the measures that have the biggest effect on variable CEO compensation. In our next hypothesis we test the same, but we change the independent variable to change in fixed salary.

Results from these tests will show us if any of the measures of firm performance have a significant relationship with change in variable CEO compensation, and change in fixed salary. Further, we will test the effect of the control variables on the relation between the changes in firm performance measures that show a significant effect on the change in variable CEO compensation. We will test the control variables effect on the pay-for-performance relationship as moderators by creating interactions of the significant measures of the independent variable. We present the analysis for our first hypothesis below.

Hypothesis 1: Firm performance has a positive effect on variable CEO compensation in firms listed on the Oslo Stock Exchange

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2,507	0,846		2,964	0,004
Ch_P/B	-1,253	0,429	-0,268	-2,923	0,004***
Ch_P/E	-0,004	0,023	-0,015	-0,181	0,857
Ch_J_alpha	0,021	0,185	0,010	0,116	0,908
Ch_TobQ	2,366	1,577	0,145	1,501	0,136
Ch_ROE	15,131	3,910	0,329	3,869	0,000***
Ch_ROA	-0,985	10,807	-0,008	-0,091	0,928
Ch_EVA	0,055	0,257	0,018	0,214	0,831
Adjusted R Square	0,143				
N	139				

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_P/B is the change in P/B from year t-1 to t measured in percentage points, Ch_P/E is the change in P/E from year t-1 to t measured in percentage points, Ch_J_alpha is the change in Jensen's alpha from year t-1 to t measured in percentage points, Ch_TobQ is the change in Tobin's Q from year t-1 to t measured in percentage points, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, Ch_ROA is the change in ROA from year t-1 to t measured in percentage points, Ch_EVA is the percentage change in EVA™ from year t-1 to t. The observations in this table are for all of the four years, 2010-2013.

Table 6.6 – Multivariate regression analysis for hypothesis 1

Table 6.6 shows the results of the multiple regression analysis for our dependent variable, change in variable CEO compensation from year t-1 to t, and changes in measures of our independent variable, firm performance, from year t-1 to t. In this analysis, we have removed the extreme values that we presented in subchapter 6.1.

In appendix C.2, we have attached the regression analysis with the extreme values, and we see that the results are very different from when we include the extreme values, and when we remove them. For instance, without removing extreme values, we get results that show that change in P/B, change in P/E and change in Tobin's Q are the measures that have significant effects on change in variable CEO compensation. The outlier analysis of the variables with extreme values, which can also be seen in appendix C.2, give us an indication that the outliers have the extreme values that we have removed. Hence, we see that these extreme values would have given invalid results, as one extreme value could draw the entire analysis in wrong direction as the ordinary least square would have estimated inaccurate regression coefficients with large standard errors and different signs, because of non-normally distributed error terms. This would hence be a violation of regression assumption 8, and we

have thereby chosen to remove these extreme value from our analyzes, related to the discussion in subchapter 6.1 and the discussion of the regression assumptions.

From table 6.6, we see that change in firm performance has a small explanatory power on change in variable CEO compensation. The adjusted R^2 shows that changes in the different firm performance measures only explain 14.3 % of the variation in change in variable CEO compensation. This means that there are other variables that explain more of the change in variable CEO compensation, which we will discuss further when we test our second research model. Further, the total number of observations has additionally decreased down to 139 in this regression analysis as the regression is conducted for only complete observations without missing values. We know that this low observation number can affect our results, but we consider that our results will get more harmed if we choose to keep the extreme values.

Further, there are only change in P/B and change in ROE that are significant with change in variable CEO compensation at the 0.01 level. Hence, we consider these measures as relevant for further discussion, as we do not find any significant effects of change in P/E, change in Jensen's alpha, change in Tobin's Q, change in ROA, and change in EVATM on change in variable CEO compensation.

Even though change in the market-based measure P/B is significant with change in variable CEO compensation, there is a negative relationship here, and not a positive relationship as we predicted. This result tells us that an increase in change in P/B will decrease the change in variable CEO compensation. There is not any rational reason for why we get this result, as this result indicates that CEOs gets lower variable compensation if the firm increase their ability in creating value for their stocks. Hence, this result violates with our hypothesis, and with previous empirical findings where P/B has shown to have a positive effect on CEO compensation (Randøy and Skalpe, 2007). We will hence not include this measure further when we will test our hypotheses with control variables.

Further, change in the accounting-based measure ROE, is positively significant with a high beta coefficient of 15.131 with change in variable CEO compensation. Hence, change in ROE has the greatest effect on change in variable CEO compensation. This means that an increase in ROE, results in higher variable compensation to the CEO. An increase in ROE indicates higher return of the stockholders' equity, which hence indicates that managers act in the best interest of the stockholders. We will use this variable further in our analyzes when we are going to test how the control variable affect the pay-for-performance relationship, as this is

the only firm performance measure that shows a positive and significant effect on change in variable CEO compensation.

From our results, we find both a negative and positive relationship between change between previous and current year's firm performance at year-end and change between the previous and current year's variable CEO compensation at the end of the year. This indicates that the change in variable compensation in one accurate year, is explained by the same year's changes in the explanatory variable, ROE. Hence, change in variable CEO compensation is determined at the end of the same fiscal year and expensed in the current year based on the firm's development so far in the same year. However, we have not tested for the effects of the previous year's change in firm performance on the current year's change in variable CEO compensation, so this can also give different results.

Summarized, we find that there is a weak, but both positive and negative relationship between firm performance and variable CEO compensation in firms listed on the Oslo Stock Exchange. The negative relationship do not have any logical explanation, but the positive relationship is in accordance with the classical principal-agent theory, where the CEOs get increased variable compensation if they act in the best favor of the shareholders, and acts in a way that increases the firm performance (Jensen & Meckling, 1976). Additionally, we see that only the accounting-based measure ROE is positively significant with change in variable CEO compensation. Our results indicates that CEOs only are evaluated from accounting-based measures. Hence, our results are equal to other previous empirical findings which find a weak and positively significant pay-for-performance relationship, and we can keep our first hypothesis (Jensen & Murphy, 1990b; Gomez-Meija et al., 1987; Randøy & Skalpe, 2007; Siegler, 2011).

Conclusion: As we find positive and significant results between firm performance and variable CEO compensation, we keep hypothesis 1.

We will further test our second hypothesis in our first research model.

Hypothesis 2: Firm performance has no effect on CEOs' fixed salary in firms listed on the Oslo Stock Exchange

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,090	0,023		3,880	0,000
Ch_P/B	-0,035	0,012	-0,283	-2,918	0,004***
Ch_P/E	0,000	0,001	-0,048	-0,562	0,575
Ch_J_alpha	-0,005	0,005	-0,091	-1,018	0,310
Ch_TobQ	0,067	0,044	0,157	1,534	0,127
Ch_ROE	-0,016	0,108	-0,013	-0,145	0,885
Ch_ROA	0,388	0,299	0,118	1,298	0,197
Ch_EVA	-0,005	0,007	-0,060	-0,683	0,496
Adjusted R Square	0,035				
N	140				

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

Ch_Fix is the dependent variable and is the percentage change in fixed salary from year t-1 to t, Ch_P/B is the change in P/B from year t-1 to t measured in percentage points, Ch_P/E is the change in P/E from year t-1 to t measured in percentage points, Ch_J_alpha is the change in Jensen's alpha from year t-1 to t measured in percentage points, Ch_TobQ is the change in Tobin's Q from year t-1 to t measured in percentage points, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, Ch_ROA is the change in ROA from year t-1 to t measured in percentage points, Ch_EVA is the percentage change in EVA™ from year t-1 to t. The observations in this table are for all of the four years, 2010-2013.

Table 6.7 – Multivariate regression analysis for hypothesis 2

Table 6.7 shows the results of the multiple regression analysis for the dependent variable, change in fixed salary from year t-1 to t, and the different measures of the change in the independent variable, firm performance, from year t-1 to t, without extreme values. We have attached the regression analysis with the extreme values in appendix D.2, and see that the results change when we do not include the extreme values. Especially one variable has the biggest effect when we remove the extreme values, change in P/B. In the regression analysis with the extreme values none of the firm performance measures are significant, but when we remove the extreme values, change in P/B is significant, as we see in the table above. This gives an indication of that the extreme values have a lot to say about the results in this regression analysis, as we could get biased regression coefficients and results that show a non-significant relationship, when there actually exist a significant relationship. However, by removing the extreme values in this analysis, we get some results we did not expect.

We expected to achieve results that showed no significant relationship between the changes in the measures of firm performance and change in fixed salary, as the relationship between firm performance and fixed salary in Norway is depended by the Norwegian law and regulations, as we have discussed in subchapter 4.1.2. There are limitations and regulations of how fixed salary can be adjusted yearly regarding obtained performance, in order to protect the

employees and their interests and rights, so it is interesting that one of the measures of change in firm performance, change in P/B, has a negative and significant effect on the 0.01 level on fixed salary. This indicates that an increase in P/B gives lower fixed salary to the CEO. We cannot explain this by any economic rationality, as we think it is strange that a CEO will get lower salary for obtaining higher firm performance. However, the beta coefficients for change in P/B is only -0.035, and low, which indicates that the dependent variable does not decrease widely with an increase in change in P/B.

We also notice that the measures have a low explanatory power of 3.5 % on the variation in change in fixed salary, which indicates that there are other determinants and explanatory variables of fixed salary. We will test for other determinants of fixed salary when we test our second research model. Even if we expected a non-existing relationship between firm performance and fixed salary, we did not get results that support hypothesis 2. Hence, we reject this hypothesis.

Conclusion: As we find a negative and significant relationship between firm performance and fixed salary, we reject hypothesis 2.

We will further test our hypothesis with control variables on the relationship between firm performance and variable CEO compensation, with the accounting-based measure ROE of firm performance that shows a positive and significant effect on the change in variable CEO compensation. In order to test our hypotheses, we have as mentioned earlier, created interactions between change in ROE and the different control variables to see the moderating effects of the different control variables on the pay-for-performance relationship.

H3: The pay-for-performance relationship is stronger in smaller firms than in larger firms

Change in ROE and change in variable CEO compensation				
	Market Value		Revenue	
	Small firms	Large firms	Small firms	Large firms
B	17,905	-15,854	14,709	-13,650
Std. Error	3,594	6,114	3,221	7,892
t	4,982	-2,593	4,566	-1,730
Sig.	0,000***	0,010***	0,000***	0,086*
Adj. R ²	0,120		0,100	

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

Table 6.8 – Regression analysis for hypothesis 3

The table above shows the results of the regression analyzes for the firm size's, measured by market value and revenue, effect on the pay-for-performance relationship. We have divided firm size in two groups, small and large firms, by the median of market value and revenue as explained in subchapter 5.4.3. This can be seen in appendix E.

Our findings show a greater pay-for-performance relationship in small firms than in large firms, measured by both market value and revenue when examining the relationship between change in ROE and change in variable CEO compensation. The beta coefficients are positive, and the relationship is significant at the 0.01 level. Our results further indicate that large firms have a weaker pay-for-performance relationship, with negative beta coefficients, and these findings are also significant. This indicates that change in ROE's effect on variable CEO compensation is higher in small firms than in large firms. We have also tested our findings with split analyzes to see if we get similar results when we examine the groups' individual effect on the dependent variable. This can be seen in appendix E, and indicates that our results are consistent.

From theory and previous empirical researches, we expected a greater pay-for-performance relationship in smaller firms than in larger firms (Jensen & Murphy, 1990b; Gomez-Meija et al., 1987; Haukdal et al., 1997). Our findings confirm that it is a greater relationship between change in the accounting-based measure ROE and variable CEO compensation in small firms measured by both market value and revenue. This is consistent with theory and practice, and indicates that smaller firms have a greater ability to tie CEO compensation to firm performance. This can be a result of that smaller firms have fewer owners and are able to act

as one to control the CEOs, while larger firms have a tendency to have multiple owners, with spread ownership, where the CEOs can dominate more and gain more control over the board of directors and hence determine their own CEO compensation (Berle & Means, 1933; Sappington & Stiglitz, 1987; Stiglitz, 1985). We will hence keep our hypothesis.

Conclusion: As we find significant results of firm size's effect on the pay-for-performance relationship, we keep hypothesis 3.

We will further test how firm risk affects the pay-for-performance relationship.

H4: The pay-for-performance relationship is stronger in low-risk firms than in high-risk firms

Change in ROE and change in variable CEO compensation		
	Beta	
	Low-risk firms	High-risk firms
B	23,023	-15,124
Std. Error	5,324	6,348
t	4,324	-2,382
Sig.	0,000***	0,018**
Adj. R ²	0,114	

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

Table 6.9 – Regression analysis for hypothesis 4

From the table above, we see the findings from the regression analysis for the firm risk's, measured by beta, effect on the pay-for-performance relationship. We have divided firm risk in two groups, low-risk firms and high-risk firms, by the median of beta as explained in subchapter 5.4.4. This can be seen in appendix F.1.

We find a greater pay-for-performance relationship in low-risk firms than in high-risk firms, when examining the relationship between change in ROE and change in variable CEO compensation. The beta coefficient for the model is positive and we have a significant relationship at the 0.1 level. Our findings also show that high-risk firms have a significant and weaker pay-for-performance relationship at the 0.5 level. We have also tested our findings with split analyzes to see if we get similar results. This can also be seen in appendix F.1 and indicates that our results are consistent.

From theory and previous empirical researches, we expected a greater pay-for-performance relationship in low-risk firms than in high-risk as owners in low-risk firms do not have to give managers additional incentives beyond performance in order to relieve the managers for risk. In our study, we assume that the shareholders and the CEOs have different attitude towards risk. Hence, if the CEO works in a high-risk firm, the shareholders will try to reduce the differences towards risk, and will give the CEOs higher incentives that weakens the pay-for-performance relationship (Shleifer & Vishny, 1997). Our findings supports the theory, and we find that the pay-for-performance relationship is stronger in low-risk firms than in high-risk firms.

Conclusion: As we find significant results of firm risk's effect on the pay-for-performance relationship, we keep hypothesis 4.

We will further test how CEO's direct ownership in the firm affects the pay-for-performance relationship.

H5: CEO's direct ownership has a positive or a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2,707	0,739		3,664	0,000
Ch_ROE	12,714	3,084	0,315	4,122	0,000***
CEO_OS	-15,633	23,169	-0,050	-0,675	0,501
In_ROE_CO	-62,056	225,003	-0,021	-0,276	0,783
Adjusted R Square	0,082				
N	169				

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, CEO_OS is the CEO's direct percentage ownership in the firm, In_ROE_CO is the interaction between change in ROE from year t-1 to t measured in percentage points and CEO's direct percentage ownership in the firm. The observations in this table are for all of the four years, 2010-2013.

Table 6.10 – Regression analysis for hypothesis 5

Table 6.10 presents the results of the regression analysis for the CEO's direct ownership's effect on the pay-for-performance relationship. Based on the managerial power theory and corporate governance, we expected both a greater and a weaker pay-for-performance relationship when the CEO has direct ownership in the firm, as if the CEO own many firm shares he will have more influence on the board of directors, and thereby have a bigger influence on determining his own compensation. This should hence weaken the pay-for-

performance relationship. On the other hand, when the CEO owns firm shares, he will be dependent of firm performance and hence try to increase the performance of the firm. This should hence strengthen the pay-for-performance relationship. It is thus surprising that we cannot find any significant effects of CEOs' direct ownerships on the pay-for-performance relationship.

Our results show a negative beta coefficient for change in ROE and change in variable CEO compensation, which indicates a weaker pay-for-performance relationship when CEOs have direct ownerships in the firms, but we cannot conclude as these results are not significant. Our results indicate that CEOs direct ownership have no effect on the pay-for-performance relationship, when we base our analysis on change in the accounting-based measure ROE. Additionally, the adjusted R^2 is 8.2 % which indicates a low explanatory power, and that there are other determinants variable CEO compensation and that affect the pay-for-performance relationship more. Maybe we would have gotten different results if we had used market-based measures as P/B or P/E as these are directly connected to firm shares. However, these measures were not significant in our study, so we decided to not use them in our further analyzes. Hence, as we do not find any significant results, the CEO's direct ownership has no effect on the pay-for-performance relationship in our study, and we can reject our hypothesis.

Conclusion: As we do not find any significant effect of CEO's direct ownership on the pay-for-performance relationship, we reject hypothesis 5.

We will further test how CEO's age and tenure, and CEO change affect the pay-for-performance relationship. Our main intention was also to test how CEO's gender affects the pay-for-performance relationship, but during our data collection we noticed that we have very few observations of female CEOs in firms listed on the Oslo Stock Exchange. Hence, we are not able to test hypothesis 6c.

H6a: CEO's age has a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3,472	4,522		0,768	0,444
Ch_ROE	7,049	2,902	0,175	2,429	0,016**
CEO_Age	-0,020	0,088	-0,015	-0,226	0,822
In_ROE_Age_Cen	1,973	0,360	0,396	5,489	0,000***
Adjusted R Square	0,221	Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, CEO_Age is the CEO's age, In_ROE_Age_Cen is the centered interaction between change in ROE from year t-1 to t measured in percentage points and the CEO's age. The observations in this table are for all of the four years, 2010-2013.			
N	170				

*** Significant at the 0.01 level
 ** Significant at the 0.05 level
 * Significant at the 0.1 level

Table 6.11 – Regression analysis for hypothesis 6a

Table 6.11 shows the results for how CEO age affects the pay-for-performance relationship. We have created centered interactions between change in ROE and CEO to avoid the violation of regression assumption 3 of no perfect multicollinearity between the independent variables. This can be seen in appendix H.

Our findings show that CEO age has a positive and significant effect on the pay-for-performance relationship on the 0.05 level with a beta coefficient of 1.973 together with change in ROE. However, change in ROE has a greater beta coefficient than the interaction, which indicates that change in ROE has greater effect on change in variable CEO compensation alone. This thereby indicates that CEO age weakens the pay-for-performance relationship. However, the adjusted R^2 of the model is only 11.8 % and this means that there are other factors that affect the pay-for-performance relationship and change in variable CEO compensation more.

Our significant results are consistent with the human capital theory, as when the CEOs get older, they are more experienced and can get more responsibilities which will eventually increase their compensation independent of firm performance. Our results show that CEO age weakens the pay-for-performance relationship, between change in ROE and change in variable CEO compensation, and we can hence keep our hypothesis.

Conclusion: As we find a weakened and significant effect of CEO's age on the pay-for-performance relationship, we keep hypothesis 6a.

H6b: CEO's tenure has a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4,184	1,036		4,038	0,000
Ch_ROE	13,432	3,499	0,334	3,839	0,000***
CEO_Tenure	-0,337	0,157	-0,156	-2,139	0,033**
In_ROE_Ten	-0,626	0,912	-0,060	-0,686	0,493
Adjusted R Square	0,102	Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, CEO_Tenure is the CEO's tenure measured in years is the CEO's age, In_ROE_Tenure is the interaction between change in ROE from year t-1 to t measured in percentage points and the CEO's tenure. The observations in this table are for all of the four years, 2010-2013.			
N	170				

*** Significant at the 0.01 level
 ** Significant at the 0.05 level
 * Significant at the 0.1 level

Table 6.12 – Regression analysis for hypothesis 6b

The table above shows the results for how CEO tenure affects the pay-for-performance relationship, where we examine the relationship between change in ROE and change in variable CEO compensation. From the human capital theory and the managerial power theory, we expected to find a negative effect of CEO's tenure on the pay-for-performance relationship as the CEOs will gain more power and knowledge, and can thereby influence the board of directors into increasing their compensation. Our results indicates that CEO's tenure weakens the pay-for-performance relationship, but these findings are not significant. This means that CEO tenure does not affect the pay-for-performance relationship in our study and we can reject our hypothesis, but we see a negative and significant effect of CEO's tenure on change in variable CEO compensation. We will discuss this further in our second research model, to see if we get any similar and significant results for the absolute values of CEO compensation.

Conclusion: As we do not find both a negative and significant effect of CEO's tenure on the pay-for-performance relationship, we reject hypothesis 6b.

H6d: CEO change has a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2,421	0,683		3,546	0,001
Ch_ROE	20,697	3,558	0,515	5,817	0,000***
In_ROE_CC	-22,704	5,886	-0,342	-3,857	0,000***
Adjusted R Square	0,159				
N	170				

Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE from year t-1 to t measured in percentage points, In_ROE_CC is the interaction between change in ROE from year t-1 to t measured in percentage points and CEO change. The observations in this table are for all of the four years, 2010-2013.

*** Significant at the 0.01 level
 ** Significant at the 0.05 level
 * Significant at the 0.1 level

Table 6.13 – Regression analysis for hypothesis 6d

Table 6.13 shows the results of the regression analyzes for CEO change's effect on the pay-for-performance relationship. We have divided CEO change in two groups, where the first group indicates no CEO change during the year, and the second group indicates that there have been a change of the CEO during the year. We have also tested our findings with split analyzes to see if we get similar results, which can also be seen in appendix J.1, and indicates that our results are consistent.

Our findings indicates that CEO change has a negative effect on the pay-for-performance relationship, measured as the relationship between change in ROE and change in variable CEO compensation. The beta coefficient of the interaction is -22.704 and significant on the 0.01 level. Hence, a CEO change in the firm will weaken the pay-for-performance relationship. We expected and got a significant and weaker pay-for-performance relationship when there have been a CEO change, as it is not reasonable to determine the compensation to a new CEO based on the performance of the previous CEO. The reason is that a new CEO should not be punished or rewarded for the good or bad performance obtained by the previous CEO. Since we get significant results, we can thereby conclude that CEO change affects the pay-for-performance relationship negatively. This means that a new CEO gets his variable CEO compensation less dependent on firm performance.

Conclusion: As we find both a negative and significant effect of CEO change on the pay-for-performance relationship, we keep hypothesis 6d.

We will further test how board size and number of female directors in the board affect the pay-for-performance relationship. Initially, we hoped to test how publicly and privately owned firms affected the pay-for-performance relationship, but due to few observations of publicly owned firms, we are not able to test hypothesis 7. During our data collection we noticed that the Norwegian state and government does not own shares in many firms listed on the Oslo Stock Exchange. Even though this is interesting to examine, will it be impossible for any researcher to test the effects of privately and publicly owned firms on the pay-for-performance relationship at the Oslo Stock Exchange, when they operationalize the variables the same way as we have. Below we present the analyzes for hypothesis 8a and 8b.

H8a: The size of the board of directors will have a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4,664	2,547		1,831	0,069
Ch_ROE	7,051	3,220	0,176	2,190	0,029**
Board_Size	-0,329	0,342	-0,069	-0,962	0,337
In_ROE_BS_Cen	-5,637	1,614	-0,278	-3,491	0,000***
Adjusted R Square	0,145				
N	170				

Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE Q from year t-1 to t measured in percentage points, Board_Size is the total number of directors in the board, In_ROE_BS_Cen is the centered interaction between change in ROE from year t-1 to t measured in percentage points and the board size. The observations in this table are for all of the four years, 2010-2013.

*** Significant at the 0.01 level
 ** Significant at the 0.05 level
 * Significant at the 0.1 level

Table 6.14 – Regression analysis for hypothesis 8a

From table 6.14, we see the results of the regression analyzes for the board size's effect on the pay-for-performance relationship. We have centered the interactions to avoid perfect multicollinearity between the independent variables, which we discuss under regression assumption 3 in subchapter 6.5.3. We have attached this in appendix K.

Our findings show that board size have a negative and significant effect on the pay-for-performance relationship on the 0.01 level with a beta coefficient of -5.637 together with change in ROE. This give an indication of that board size weakens the pay-for-performance relationship. However, the adjusted R^2 of the model is 14.5 % and this means that there are other factors that affect the pay-for-performance relationship and change in variable CEO compensation more.

Our negative and significant results of board size on the pay-for-performance relationship, are consistent with theory that indicates that larger boards are easier to be influenced by the CEOs, as the board of directors is less likely to function effectively as a unit (Bebchuk et al., 2002; Jensen, 1993). Hence, the CEO can easier determine his own compensation independent of firm performance. As we get significant results, we can hence conclude that board size has a negative effect on the pay-for-performance relationship.

Conclusion: As we do find both a negative and significant effect of board size on the pay-for-performance relationship, we keep hypothesis 8a.

H8b: The number of female directors in the board has a negative effect on the pay-for-performance relationship

Variables	Unstandardized		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3,492	3,446		1,013	0,312
Ch_ROE	13,905	3,003	0,346	4,630	0,000***
Board_Gender	-2,144	8,541	-0,018	-0,251	0,802
In_ROE_BG_Cen	-85,431	37,926	-0,169	-2,253	0,025**
Adjusted R Square	0,106				
N	170				

Ch_Var is the dependent variable and is the percentage change in variable CEO compensation from year t-1 to t, Ch_ROE is the change in ROE Q from year t-1 to t measured in percentage points, Board_Gen is the percentage of female directors in the board, In_ROE_BG_Cen is the centered interaction between change in ROE Q from year t-1 to t measured in percentage points and board gender. The observations in this table are for all of the four years, 2010-2013.

*** Significant at the 0.01 level
 ** Significant at the 0.05 level
 * Significant at the 0.1 level

Table 6.15 – Regression analysis for hypothesis 8b

Table 6.15 shows the results for how number of female directors in the board affects the pay-for-performance relationship. We have also centered the interactions in order to not violate regression assumption 3 of no perfect multicollinearity between the independent variables. We have attached this in appendix L, and we discuss the importance of no multicollinearity between the independent variables in subchapter 6.5.3.

Our findings show that number of female directors weakens the pay-for-performance relationship, measured as the relationship between change in ROE and change in variable CEO compensation. The beta coefficient of the interaction is negative and significant with a value of -85.431 on the 0.05 level. Board gender has thereby a great effect on the pay-for-performance relationship in our study. We expected and got a negative and significant effect of number of female directors on this relationship. This means that if the board of directors

represent both of the genders, it will affect the board's legitimacy, but this can simultaneously create coordination problems. The CEO can hence influence the board easier and get compensation independent of firm performance. Hence, as we do get significant results, we can conclude that the number of female directors affects the pay-for-performance relationship.

Conclusion: As we find both a negative and significant effect of number of female directors on the pay-for-performance relationship, we keep hypothesis 8b.

We will further present our result from the first research model in the table below to get a better overview.

6.3.1 Summary of Results for the First Research Model

Hypotheses	Results
H1: Firm performance has a positive effect on variable CEO compensation in firms listed on the Oslo Stock Exchange	<i>Confirmed</i> Change in ROE is positively significant
H2: Firm performance has no effect on CEOs' fixed salary in firms listed on the Oslo Stock Exchange	<i>Rejected</i> Change in P/B are negatively significant
H3: The pay-for-performance relationship is stronger in smaller firms than in larger firms	<i>Confirmed</i> Smaller firms (measured by market value and revenue) have a stronger and significant pay-for-performance relationship
H4: The pay-for-performance relationship is stronger in low-risk firms than in high-risk firms	<i>Confirmed</i> Low-risk firms have a stronger and significant pay-for-performance relationship
H5: CEO's direct ownership has a positive or a negative effect on the pay-for-performance relationship	<i>Rejected</i> No significant results
H6a: CEO's age has a negative effect on the pay-for-performance relationship	<i>Confirmed</i> Age weakens the pay-for-performance relationship
H6b: CEO's tenure has a negative effect on the pay-for-performance relationship	<i>Rejected</i> No significant results
H6c: Female CEOs have a negative effect on the pay-for-performance relationship	Cannot be tested
H6d: CEO change has a negative effect on the pay-for-performance relationship	<i>Confirmed</i> CEO change weakens the pay-for-performance relationship
H7: The pay-for-performance relationship is stronger in privately owned firms than in publicly owned firms	Cannot be tested
H8a: The size of the board of directors will have a negative effect on the pay-for-performance relationship	<i>Confirmed</i> Board size weakens the pay-for-performance relationship
H8b: The number of female directors in the board has a negative effect on the pay-for-performance relationship	<i>Confirmed</i> The number of female directors weakens the pay-for-performance relationship

Table 6.16 – Results for the first research model

6.4 Test of the Second Research Model; Determinants of CEO compensation

From the results in the first research model, we see that there are other variables than firm performance that affect and determine CEO compensation. In this subchapter, we will test our hypotheses for our second research model, where we want to examine determinants of CEO compensation, where we divide CEO compensation in both variable CEO compensation and fixed salary, by using multiple regression analyzes.

We start by presenting the tables of the findings where we test the relationship between the different independent variables, as firm size measured by market value and revenue, firm risk measured by beta, CEO's direct ownership, CEO's age, CEO's tenure, board size and board gender and the dependent variable CEO compensation, measured as variable CEO compensation. Further, we will present the table of the findings from the multiple regression where we test for the independent variables' effect on the dependent variable, measured as CEO's fixed salary. We test all of the independent variables at the same time and examine which of these variables that have the biggest effect on variable CEO compensation and CEO's fixed salary. We will explain the tables below before we discuss each of the hypotheses in more detail, as the hypothesis are not divided for fixed salary and variable CEO compensation.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3,830	3,961		0,967	0,335
LN_MV	0,332	0,113	0,395	2,930	0,004***
LN_Rev	0,041	0,087	0,057	0,470	0,639
LN_Beta	0,278	0,237	0,095	1,174	0,242
LN_CO	0,044	0,076	0,061	0,580	0,563
LN_Age	0,337	0,957	0,028	0,352	0,725
LN_Ten	-0,067	0,193	-0,034	-0,350	0,727
LN_BS	-0,308	0,576	-0,052	-0,536	0,593
LN_BG	-1,348	0,522	-0,191	-2,581	0,011**
Adjusted R Square	0,173				
N	158				

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

LN_Var is the dependent variable and the natural logarithm of variable CEO compensation, LN_MV is the natural logarithm of market value, LN_Rev is the natural logarithm of revenue, LN_Beta is the natural logarithm of beta, LN_OS is the natural logarithm of CEO' direct percentage ownership in the firm, LN_Age is the natural logarithm of the CEO's age, LN_Ten is the natural logarithm of the CEO's tenure measured in years, LN_BS is the natural logarithm of board size, which is the total number of directors in the board, LN_BG is the natural logarithm of the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.17.1 – Regression analysis for research model two (Variable)

Table 6.17.1 shows the results of the multiple regression analysis for our dependent variable, variable CEO compensation, and different independent variables which can be determinants of variable CEO compensation. These variables are transformed, to make sure that the error term meets the requirements of normal distribution, which we discuss under regression assumption 8 in subchapter 6.5.8.

The results from the table show that the different independent variables have an explanatory power of 17.3 % on the dependent variable, variable CEO compensation. This means that there are other variables that explain more of variable CEO compensation, than the variables we have chosen to examine. The total number of observations has additionally decreased down to 158 in this regression analysis as there are extreme values that are removed, and all negative numbers and numbers below 0 cannot be transformed, and have become missing values. Even though the observation number has decreased, and can affect our results, we consider that it would be more critical if we did not remove the extreme values or transformed our variables, based on the previous discussions. Further, we see from the table that there only are two independent variables which are significant, and we will discuss these in detail when we present our hypotheses. We will first present the table below that shows the independent variables' effects on CEO's fixed salary.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	12,324	0,832		14,819	0,000
LN_MV	0,102	0,024	0,421	4,273	0,000***
LN_Rev	0,030	0,018	0,145	1,641	0,103
LN_Beta	0,101	0,049	0,121	2,054	0,042**
LN_CO	-0,052	0,016	-0,246	-3,230	0,002***
LN_Age	-0,143	0,201	-0,041	-0,710	0,479
LN_Ten	-0,012	0,040	-0,021	-0,297	0,767
LN_BS	0,033	0,121	0,019	0,273	0,785
LN_BG	0,058	0,109	0,029	0,531	0,596
Adjusted R Square	0,553				
N	160				

*** Significant at the 0.01 level

** Significant at the 0.05 level

* Significant at the 0.1 level

LN_Fix is the dependent variable and the natural logarithm of the CEO's fixed salary, LN_MV is the natural logarithm of market value, LN_Rev is the natural logarithm of revenue, LN_Beta is the natural logarithm of beta, LN_OS is the natural logarithm of CEO's direct percentage ownership in the firm, LN_Age is the natural logarithm of the CEO's age, LN_Ten is the natural logarithm of the CEO's tenure measured in years, LN_BS is the natural logarithm of board size, which is the total number of directors in the board, LN_BG is the natural logarithm of the percentage of female directors in the board. The observations in this table are for all of the four years, 2010-2013.

Table 6.17.2 – Regression analysis for research model two (Fixed)

Table 6.17.2 shows the results of the multiple regression analysis for our dependent variable, measured as CEO fixed salary. Findings from the table show that the different independent variables have a high explanatory power of 55.3 % on the dependent variable, CEO fixed salary. This means that the variables we have chosen explain half of the variation in fixed salary, while the rest is explained by other variables. The total number of observations has gone up by two more observations from 158 to 160 in this regression analysis. Further, we see from the table that there are now three independent variables which have a significant effect on the dependent variable, and we will discuss these in more in detail when we now present our hypotheses. We will discuss the findings from both the tables above, with the independent variables' effect on variable CEO compensation and fixed salary under each hypothesis.

HA: Firm size has a positive effect on CEO compensation

In the tables above we have tested how the independent variable, firm size, affects the dependent variable, CEO compensation, measured by both variable CEO compensation and fixed salary. Firm size is still measured by market value and revenue, and our findings show that both of these measures have a positive effect on variable CEO compensation and fixed salary. As we see, market value is positive and significant at the 0.01 level, while revenue only is positive and not significant. This indicates that firm size, measured by market value, has a positive effect on CEO compensation.

From the theoretical aspects of the managerial power theory and corporate governance, firm size has a direct effect on CEO compensation. Large firms tend to have multiple owners, with spread ownerships, where the CEOs can dominate and gain more control over the board of directors, and eventually increase their own compensation. Additionally, large firms have more resources and capable of giving higher compensation to the CEOs (Berle & Mean, 1933; Gomez-Mejia et al., 1987). Additionally, CEOs that work in larger firms tend to have more responsibilities, so this can also explain why CEOs have higher fixed salary in large firms. This is also consistent with the empire building theory, where CEOs try to increase the firm size in order to get higher compensations. Hence, our results are consistent with the theories, and firm size has a positive effect on CEO compensation in our study.

Conclusion: As we find significant results of firm size's effect on CEO compensation, we keep hypothesis A.

We will further discuss the findings of how firm risk affects CEO compensation.

HB: Firm risk has a positive effect on CEO compensation

We test firm risk's effect on variable CEO compensation and fixed salary. The findings show that there is a positive effect between firm risk and variable CEO compensation, but this result is not significant. We can hence not conclude that there is a significant effect of firm risk on variable compensation. However, the results are both positive and significant for fixed salary on the 0.05 level, which indicates that CEOs who work in firms with larger risk, get higher fixed salaries.

From the classical principal-agent theory we know that in high-risk firms the shareholders have to give more incentives to the CEO in order to relieve the CEOs for risk. With proper incentives as higher compensation, the shareholders can try to reduce the risk. We expected that this could affect the variable part of the CEO compensation more, as these are more related to incentives. However, the shareholders can also release the CEOs from risk by giving them higher fixed salaries, which will not be adjusted for many factors, and gives them a feeling of security. Further, CEOs in high-risk firms will have more responsibilities and meet more challenges, which indicates higher fixed salaries. Since our findings show consistence with the theory, we see that firm risk does affect CEO compensation in practice.

Conclusion: As we find significant results of firm risk's effect on CEO compensation, we keep hypothesis B.

We will now discuss hypothesis C in more detail.

HC: CEO's direct ownership has a positive effect on CEO compensation

The tables above also show the regression analyzes for how CEO's direct ownership affects variable CEO compensation and fixed salary. The findings are positive, but not significant, for variable compensation, and negative and significant for fixed salary on the 0.01 level. Hence, CEO's direct ownership has a negative effect on CEO compensation, when we measure CEO compensation by fixed salary.

We get interesting findings, as on the basis of the managerial power theory and aspects of corporate governance we expected to find that CEO's direct ownership would have a positive effect on CEO compensation, measured by variable CEO compensation and fixed salary. The reason for this is that when the CEOs own many firm shares, they will have more influence on the director elections and be more able to determine and negotiate their own compensations. However, our findings are inconsistent with the theory, and show that CEOs with higher

direct ownerships get lower fixed salaries. The reason for this can be that the CEO is more willing to get a lower fixed salary when he has direct ownerships in the firm in order to not threaten the firm's economy, as this will affect himself as well. Our findings are not consistent with the theory, and we can hence not conclude that CEO's direct ownership has a positive effect on CEO compensation.

Conclusion: As we do not find both positive and significant results of the CEO's direct ownership on CEO compensation, we reject hypothesis C.

We will further test how CEO's age and tenure affect CEO compensation. Our main intention was also to test how CEO's gender affect CEO compensation, but as mentioned we have very few observations of female CEOs in firms listed on the Oslo Stock Exchange. Hence, we are not able to test hypothesis D3.

HD1: CEO' age has a positive effect on CEO compensation

We have tested the effect of CEO's age on CEO compensation, for both variable CEO compensation and fixed salary. From our regression analysis we find that there is a positive but not a significant relationship between the CEO's age and variable CEO compensation. Further, the results indicate that the CEO's age decreases the fixed salary, but these findings are neither significant. We expected to find a positive and significant effect of CEO age on CEO compensation, as this is consistent with the human capital theory. When the CEO's get older they get more experienced and thereby can take more responsibilities which will lead to higher compensation. Higher responsibilities should also give higher fixed salary, as the CEOs meet more challenges. Hence, we are surprised that we do not find any positive and significant results in our study between CEO age and CEO compensation. We cannot think of an economical rationality behind these results, and we can hence not keep our hypothesis.

Conclusion: As we do not find a positive and significant effect of CEO's age on CEO compensation, we reject hypothesis D2.

HD2: CEO's tenure has a positive effect on CEO compensation

In the tables above, we can also see how CEO's tenure affects the CEO compensation. The findings show that there is a negative and no significant effect between CEO tenure and CEO compensation, for both variable CEO compensation and fixed salary. From a human capital view and from the managerial power theory, a longer CEO tenure will increase the CEO's compensation, since CEOs who sit in a position over a longer time will gain more knowledge and power, and can thereby influence the board of directors to increase their compensation. Additionally, it is common to think that CEOs who sits in the same position over time, get higher fixed salary through the years as they get more experienced, and as they get more knowledge of how the firm should be managed (Blaug, 1976; Boyd, 1994; Hill & Phan, 1991; Schultz, 1961; Zajac & Westphal, 1996).

Our results on the other hand, indicates that CEOs get lower compensation as their tenure increases, which is inconsistent with the theory. These findings are however not significant, similar to the findings of Randøy and Skalpe (2007). We hoped to achieve different results that indicated a positive and significant relationship between CEO tenure and CEO compensation, but we find no significant effect between these two variables that can be explained by economical rationality. Hence we have to reject this hypothesis.

Conclusion: As we do not find both a positive and significant effect of CEO's tenure on CEO compensation, we reject hypothesis d2.

We will further test how board size and number of female directors in the board affect CEO compensation. As in the first research model, we cannot test how publicly and privately owned firms affect CEO compensation, as there are few observations of publicly owned firms, firms where the Norwegian state and government owns shares directly in the firm.

HF1: The size of the board of directors will have a positive effect on CEO compensation

We have also tested how the size of the board of directors can affect CEO compensation. In the tables above we find a negative and not significant effect of board size on variable CEO compensation, and a positive but not significant effect of board size on fixed salary. This indicates that the size of the board of directors has no significant effect on CEO compensation in our study.

From the managerial power theory and corporate governance aspects in Norway, the board of directors is responsible of determining the compensation of the CEOs. If there are many

directors in the board, the board will be easier to influence and the CEO can gain more power, and thereby determine their own compensation on a bigger scale (Jensen, 1993). The results we get are similar to the findings of Randøy and Skalte (2007), and are inconsistent with the theory which indicates that the board size does not affect CEO compensation in practice. Hence, we unfortunately have to reject this hypothesis as the size of the board of directors does not have any effect on CEO compensation.

Conclusion: As we do not find both a positive and significant effect of board size on CEO compensation, we reject hypothesis F1.

HF2: The number of female directors in the board will have a positive or a negative effect on CEO compensation

In the tables above we see that number of female directors in the board has a negative and significant effect on the 0.05 level on CEO compensation, measured by variable CEO compensation. The findings show however no significant relationship between the number of female directors and fixed salary. This means that our results show what we expected to one point, that a greater portion of female directors in the board decreases CEO compensation.

It is interesting to find a negative effect, which in accordance to the theory means that when number of female directors increases, the CEO compensation decreases. The reason behind this, can for instance be that the female directors want equality and are not easily influenced by the CEO as the majority of the CEOs in firms listed on the Oslo Stock Exchange are males. In our first research model we found that the number of female directors weakens the pay-for-performance relationship, and that CEOs get their variable CEO compensation independent of firm performance. However, even if they receive compensation independent of firm performance, they still get lower variable CEO compensation than in firms where there are less female directors. This indicates female directors have more control and moderate the CEO compensation. Our findings partly support our hypothesis, where the number of female directors in the board has a negative and a significant effect on CEO compensation.

Conclusion: As we find both a negative and significant effect of number of female directors on CEO compensation, we keep hypothesis F2.

In the below table we present the results from our second research model.

6.4.1 Summary of Results for the Second Research Model

Hypotheses	Results
HA: Firm size has a positive effect on CEO compensation	<i>Confirmed</i> Market value is positively significant with variable CEO compensation and fixed salary
HB: Firm risk has a positive effect on CEO compensation	<i>Confirmed</i> Firm risk is positively significant with fixed salary
HC: CEO's direct ownership has a positive effect on CEO compensation	<i>Rejected</i> CEO's direct ownership is negatively significant with fixed salary
HD1: CEO's age has a positive effect on CEO compensation	<i>Rejected</i> No significant results
HD2: CEO's tenure has a positive effect on CEO compensation	<i>Rejected</i> No significant results
HD3: CEO compensation is higher for male CEOs than female CEOs	Cannot be tested
HE: CEO compensation is lower in publicly owned firms than in privately owned firms	Cannot be tested
HF1: The size of the board of directors will have a positive effect on CEO compensation	<i>Rejected</i> No significant results
HF2: The number of female directors in the board will have a positive or a negative effect on CEO compensation	<i>Confirmed</i> The number of female directors is negatively significant with variable CEO compensation

Table 6.18 – Results for the second research model

6.5 Regression Assumptions

In this subchapter, we will present and discuss the regression assumptions described by Berry (1993). These assumptions are based on ordinary least square estimation (OLS), and consist of eight assumptions. If all of these assumptions are met, we will have best linear unbiased estimators (BLUE), and OLS regression coefficient estimator will hence be normally distributed, in addition to unbiased and efficient.

Ordinary least square (OLS) is the method to estimate the regression coefficients and a constant term, where the constant term and other parameters are slope parameters for the dependent variable. Additionally, OLS estimates the error term, which represents the effect of all other variables that affect the dependent variable besides the independent variables in the regression models. Since it is impossible to include all the variables that would affect the dependent variable, the regression models will include an error term that accounts for the effect of excluded variables (Berry, 1993). If the regression assumptions are fulfilled, will OLS estimate correct coefficients and the analyzes will not be too harmed by the error term.

However, the first thing we have to consider regarding the use of regression analyzes, is that there is linearity in the parameters, which means linearity in the coefficients and in the error term. In order to test for this fundamental assumption, we will use scatterplots. The scatterplots show the relationship between the observed and the predicted value of the dependent variable as estimated from the regression equation and regression line, for any values of the independent variables. In the case of linearity, the scatterplots will show a random distribution, while the plots will take form as a curve when there is non-linearity in the parameters. In our case, the plots we have attached in the appendices give indications of linear relationship within the parameters. However, there exists some spread, indicating that there are small relationships between the variables. We can hence conclude that we can use regression analyzes, and to test for the regression assumptions.

If there are violations in these eight assumptions, will the values and regression coefficients be estimated inaccurately and we can draw conclusions on the wrong basis. There are different ways to improve the data and ensure correct results if there exist violation in these assumptions. It is hence important to understand the regression assumptions as it allows us to appreciate the weaknesses, as well as the strengths, of our estimates. We will now discuss the different regression assumptions and how we handle these assumptions throughout our analyzes.

6.5.1 Regression Assumption 1

“All independent variables (X_1, X_2, \dots, X_k) are quantitative or dichotomous, and the dependent variable, Y , is quantitative, continuous, and unbounded. Moreover, all variables are measured without error” Berry (1993:12).

The first assumption described by Berry (1993) requires that all of the independent variables in a regression are quantitative or dichotomous, and that the dependent variable is quantitative, continuous, and unbounded. Quantitative variables are variables that have minimum three values with equal spaces between them, but these variables can also be continuous if they take on a wide range of values, which is the case in our study. Further, dichotomous variables are variables that only have two values, and can also be referred to as dummy variables with values of 0 and 1. It is required that the dependent variables is quantitative, continuous and unbounded, and not dichotomous, as an observation's value on the dependent variable is assumed to be a function of the value of each of the independent variables, the parameters and the value of the error term. It is hence important that the dependent variable does not have limited values, and is able to take on any numeric value that this function yields. All of our independent and dependent variables in both of our research models are quantitative and continuous, except from some of the control variables, the moderators in our first research model, that are dummy variables.

Additionally, it is required and important that all of the variables in the regression are measured without error as measurement error can give incorrect regression coefficients. Measurement error can both be random and nonrandom. Random error means that the error term is unrelated to the true score, and that the variable measures other conditions than what it is intended to measure. Random measurement error can for instance occur when “transferring” data, and is least problematic for regression analyzes when it is in the dependent variable as parameter estimators and the regression coefficient remain unbiased. However, the estimators will be less efficient, and the explanatory power of the regression, can be weakened.

On the other hand, if the random measurement error is in an independent variable, the estimators will be biased. The amount of the bias is here a function of the size of the measurement error and the correlation between the independent variables. In our study, we have tried to avoid random errors by measuring our variables from data collected from the firms' annual reports, the Oslo Stock Exchange and the public project database, Amadeus. We

have measured and calculated our variables according to the theory, and we hence consider that our variables are measured without large random measurement errors. However, there may be some random measurement errors as we have converted different currencies to NOK in order to get comparable observations.

Further, the other type of measurement error is nonrandom, and nonrandom measurement error will always lead to bias in the ordinary least square estimators and in the regression coefficients (Berry, 1993). Nonrandom errors are errors that occur when measures are calculated incorrectly on purpose and that they do not measure what they are supposed to measure. We have collected our data and measures for our variables from the firms' annual reports, the Oslo Stock Exchange, and from Amadeus, which we consider as reliable sources, and hence consider that our variables are without nonrandom errors. We do not consider that firms have purposely reported their measures with errors in order to give misleading information. However, we may have nonrandom measurement errors in the variable that represents change in EVATM as we use book value of debt instead of market value of debt in the calculation, but we consider that there are few differences between these values, and that we thereby have few nonrandom errors that will bias our regression coefficients. We have discussed this in subchapter 5.4.2.7.

As we see, both random and nonrandom measurement errors can bias the estimators and the coefficients in our regressions. It is hence important to validate the measures that are going to be used in the regressions in order to be sure that the values are without random and nonrandom errors, as high validity indicates absence of random and nonrandom measurement errors in the variables. We have argued for why we have chosen to use the different measures of firm performance, CEO compensation and for the other control variables earlier, and we consider the validity as fulfilled as theory and previous empirical researches have used the same measures earlier to reflect the different variables we examine. This means that the measures we have chosen represent the variables we want to measure.

From the above discussion, we consider the first regression assumption as fulfilled in our regressions, as our independent variables are quantitative and dichotomous, our dependent variable is quantitative, continuous and unbounded, and since our variables are without significant errors. We will further discuss the second regression assumption.

6.5.2 Regression Assumption 2

“All independent variables have nonzero variance (i.e., each independent variable has some variation in value” Berry (1993:12).

The second regression assumption requires that all of our independent variables have variation in their value, and that the variance hence differs from zero. A violation of this assumption will make it impossible to estimate the regression coefficients, as if one independent variable has a variance equal to zero, the beta coefficient also will be zero, which will indicate that there is no relationship between the independent and the dependent variable. To ensure that the independent variable do not have variance equal to zero, it is important to have at least two values of the independent variable, and have enough observations (Sandvik, 2013b). From our descriptive statistics for our first and second research model in subchapter 6.1 we see that the standard deviations for all our independent variables differ from zero. All of our independent variables have hence variation in their values, and regression assumption 2 is thereby fulfilled. We will further discuss regression assumption 3.

6.5.3 Regression Assumption 3

“There is not perfect multicollinearity (i.e., there is no exact linear relationship between two or more of the independent variables)” Berry (1993:12).

The third regression assumption requires that there is no exact linear relationship between two or more of the independent variables, also referred to as perfect multicollinearity. When there is perfect multicollinearity between the independent variables, it means that the independent variables vary perfectly in relation to each other, and it will be impossible to increase one of them while keeping the other one constant. It will hence be difficult to distinguish between the independent variables' individual effects on the dependent variable, and to yield unique and correct coefficient estimators. Hence, perfect multicollinearity can result in large standard errors and inaccurate estimations of the coefficients (Berry, 1993; Gujarati, 1995).

In particular, there are three methods of examining the existent of multicollinearity. The first one is through a correlation analysis, the second one is through a Variance Inflation Factor (VIF) test, and the third method is by conducting a Tolerance test. Correlation analyzes show the correlation between independent variables, where 1 indicates perfect correlation between the variables (Gujarati, 1995). The requirement for correlations and no perfect multicollinearity, is that the Pearson-correlation shall be under 0.6, but values between 0.6 and 0.8 are acceptable if the population is big enough ($N > 200$) (Sandvik, 2013b). Further, the

VIF and Tolerance tests are statistical measures of multicollinearity, where VIF-values over 10 represent large multicollinearity and a value equal to 1 represents no multicollinearity. The Tolerance test is a function of the VIF-values, and indicates perfect correlation if the value is equal to 0, and no correlation if the value is 1 (Sandvik, 2013b). We will first start by examining multicollinearity between the variables in our first research model, and then discuss this assumption for our variables in our second research model, using these three methods.

In subchapter 6.2, we have previous presented the Pearson-correlations for the variables in our first research model, without interactions and dummy variables. We have seen that there are not high correlation values, except from the correlation between the independent variables change in Tobin's Q and change in P/B. This correlation has a value of 0.553, but we do not consider this as problematic in our study as it below the requirement of the maximum value of 0.6. However, when we conduct correlation analyzes for the interactions, we get high correlation values between the independent variable (change in ROE) and the interactions. This can be seen in appendix B.3.

The analyzes show that change in ROE correlates highly with its interactions with beta, age, CEO change, board size and board gender, which also indicate high multicollinearity between these variables. Hence, we see that we will meet problems with the regressions of the hypotheses that require these interactions, but we will conduct VIF and Tolerance tests to see if the correlation values are problematic. We are however not examining the correlations between the interactions as we are not going to use them at the same time in the regressions.

Hypotheses	Tolerance	VIF
Hypothesis 1		
Ch_P/B	0,740	1,351
Ch_P/E	0,949	1,054
Ch_J_alpha	0,866	1,154
Ch_TobQ	0,667	1,500
Ch_ROE	0,858	1,165
Ch_ROA	0,841	1,189
Ch_EVA	0,897	1,115
Hypothesis 2		
Ch_P/B	0,704	1,351
Ch_P/E	0,948	1,055
Ch_J_alpha	0,866	1,155
Ch_TobQ	0,666	1,501
Ch_ROE	0,859	1,165
Ch_ROA	0,840	1,191
Ch_EVA	0,895	1,117

Table 6.19 – VIF and Tolerance for hypotheses 1 and 2

Table 6.19 shows the VIF and Tolerance values for the independent variables in the regressions for hypotheses 1 and 2 in our first research model. We see that the requirements for both VIF and Tolerance values are met, and that we hence do not have perfect multicollinearity between the independent variables in these regressions. However, when we examine the hypothesis with interactions (moderators), we see that the requirements for VIF and Tolerance values are met for some of the independent variables, except from the independent variables in the regressions for hypotheses 6a, 8a and 8b, which can be seen in appendices E to L under the regression analyzes for each of the hypotheses. The table below show the VIF and Tolerance values for the hypotheses 6a, 8a and 8b.

Hypotheses	Tolerance	VIF
Hypothesis 6a		
Ch_ROE	0,020	50,216
CEO_Age	0,995	1,005
In_ROE_Age	0,020	50,257
Hypothesis 8a		
Ch_ROE	0,075	13,392
Board_Size	0,984	1,016
In_ROE_BS	0,075	13,346
Hypothesis 8b		
Ch_ROE	0,034	29,322
Board_Gender	0,993	1,007
In_ROE_BG	0,034	29,286

Table 6.20 – VIF and Tolerance for hypotheses 6a, 8a and 8b

The Tolerance and VIF values are quite high for the independent variables and interactions in these hypotheses, which indicates high multicollinearity. These had also high correlations in the Pearson-correlation analyzes, which can be seen in appendix B.3. Hence, we see that the assumption of no perfect multicollinearity is not fulfilled in some of the regressions with interactions in our study, which can result in inaccurate estimations of the regression coefficients because of large standard errors.

In order to solve this problem, we have chosen to center the interactions in hypotheses 6a, 8a and 8b that show high multicollinearity from all of the three methods. We are interested in examining the interactions effect in our hypotheses, so it will be problematic if we are not able to isolate the interactions' individual effects on the dependent variable, and if we base our results on inaccurate regression coefficients. We are able to center these variables as they are continuous and unbounded, and by centering the interactions, we subtract the mean values

from the variables in the interactions, in order for them to correlate less with the variables they are conducted of (Allison, 2012; Sandvik, 2013a).

After centering the variables in the interactions, we get satisfying Pearson-correlation values between the independent variables and the interactions, as well as satisfying VIF and Tolerance values that meet the requirements, which can be seen in appendices B.4, H, K and L. Hence, we have reduced the problem of perfect multicollinearity, and we will be able to see the different variables' effects on the dependent variable. We thereby use the centered interactions when we test for hypotheses 6a, 8a and 8b in subchapter 6.3 to increase the likelihood of achieving accurate regression coefficients without large standard errors.

We have also presented a correlation analysis for the variables in our second research model, which can be seen in subchapter 6.2. The Pearson-correlations are high between many of the independent variables, but these are below the maximum of 0.8 when there is a large population. The highest correlation value of 0.672 is between market value and revenue, but we do not consider this as a problem in our study. The VIF and Tolerance test for the regressions for the second research models, which can be seen in appendix M, also show low multicollinearity. The values meet the requirement for both VIF and Tolerance values, and we can hence see that we do not have problems with correlation between the independent variables in our second research model. We can conclude that there is no indication of multicollinearity between the independent variables in our analyzes for both of our research models. Hence, the assumption of no perfect multicollinearity is met in our study.

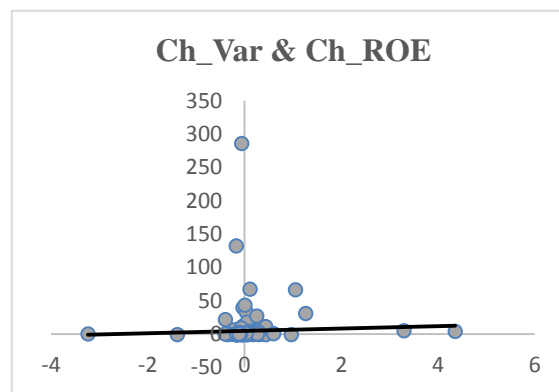
6.5.4 Regression Assumption 4

“At each set of values for the k independent variables, $(X_{1j}, X_{2j}, \dots, X_{kj})$, $E(\varepsilon_j | X_{1j}, X_{2j}, \dots, X_{kj}) = 0$ (i.e., the mean value of the error term is zero)” Berry (1993:12).

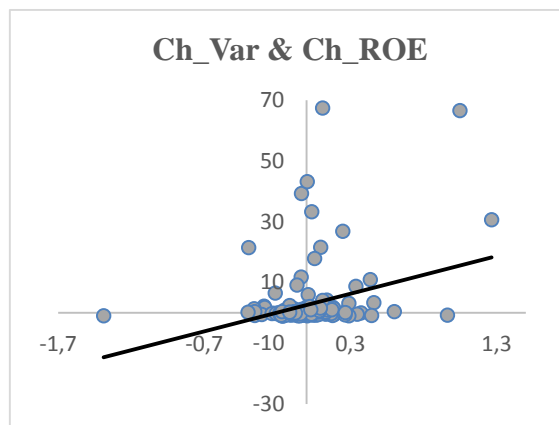
The fourth regression assumption requires that the mean value of the error term is equal to zero. This means that the differences between the observed and the predicted values, also referred to as the residuals, are the same under and over the regression line. A violation of this assumption indicates that there is non-linearity between the independent variables and the dependent variable. Hence, if the mean value of the error term differs from zero, can this be explained by that one or more variables, left out of the model, explain more of the variation in the dependent variable. This means that relevant independent variables have been left out of the regression model and have become a part of the error term (Berry, 1993; Chiulli, 1999). In order to examine if the mean value of the error terms is zero, we examine p-plots for all of our

regressions. These can be seen under each hypothesis in appendices C to M, and we see that the residuals are similar over and under the regressions which means that this assumption is fulfilled.

We have also attached scatterplots between the independent and dependent variables in appendices P and Q, where we examine if there is a linear relationship between the variables. From these scatterplots, we see that the regression line differs widely when we have extreme values, as these extreme values pull the regression line in their direction, and we will hence have biased regression coefficients. Additionally, the residuals are large and differs widely over and under the regression line. However, when we remove the extreme values, we get less biased regression coefficients, and the regression line lies more accurately between the observations with smaller residuals. We will discuss this in more detail under regression assumption 8, but we want to show an example of the extreme values importance for the regression coefficients.



Graph 6.1.1 – Variable CEO compensation and ROE with extreme values



Graph 6.1.2 – Variable CEO compensation and ROE without extreme values

From the above scatterplots we see that there exists a linear relationship between change in variable CEO compensation and change in ROE, but that the regression coefficients are less biased without extreme values, and that the regression line hence is estimated more accurately. As the residuals are same under and over the regression lines and as we have linearity between the variables, we hence consider this assumption as fulfilled in our analyzes.

6.5.5 Regression Assumption 5

“For each X_i , $COV(X_{ij}, \varepsilon) = 0$ (i.e., each independent variable is uncorrelated with the error term)” Berry (1993:12).

The fifth regression assumption requires that the independent variables are uncorrelated with the error term, which is the variation in the dependent variable that is explained by other variables that are not included in the models. Hence, if there are correlations between the independent variable and the error term, will it be difficult to isolate the dependent variable from all influences other than the independent variables, and we will get biased regression coefficients. This problem can however be solved by including control variables in the models.

In both of our research models we have chosen to include control variables (moderators) and other independent variables in order to explain as much of the variations of the dependent variables as possible. We have had a detailed process before the data collection in order to find the possible control variables that should be included in our models, and when we include these variables in our models, we see that the explanatory power of the models increases. We consider this assumption thereby as fulfilled, but even if the control variables explain some of the variation in the dependent variables, we are aware of that there are other variables, which we have not included, that can affect the model and explain more of the variations in the dependent variables.

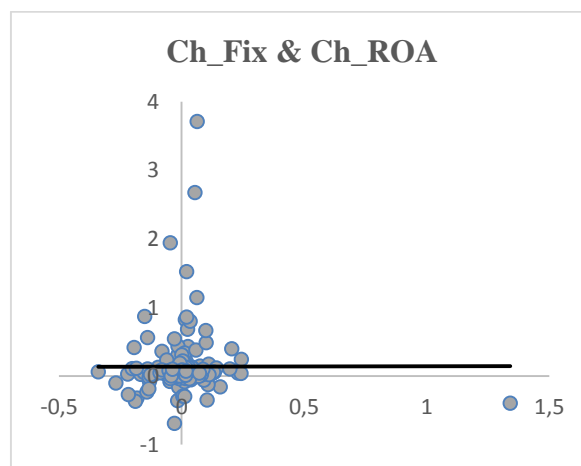
6.5.6 Regression Assumption 6

“At each set of values for the k independent variables, $(X_{1j}, X_{2j}, \dots, X_{kj})$, $VAR(\varepsilon_j | X_{1j}, X_{2j}, \dots, X_{kj}) = \sigma^2$, where σ^2 is a constant (i.e., the conditional variance of the error term is constant); this is known as the assumption of homoscedasticity” Berry (1993:12).

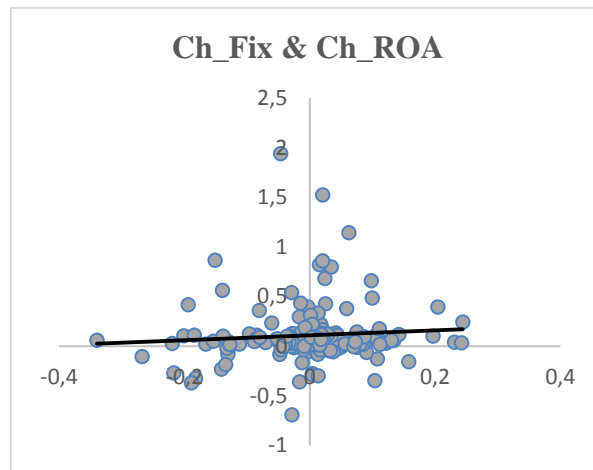
The regression assumption of homoscedasticity requires that the residuals of the independent variables shall have the same variance, in other words that the conditional variance of the error term is constant across all values of the independent variables. If the error term does not

have a constant variance, also referred to as heteroscedasticity, will the variance of the error term get larger or smaller as the values of the independent variables increase or decrease. The variance of the error term will hence be correlated with the independent variables, and we can get misrepresentation of our findings and weakened analyzes. Heteroscedasticity may thereby occur if the dependent variable is not isolated from all other influences than the independent variables, and variables that are not included in the model will affect the relationship between the independent and dependent variable through the error term. Additionally, extreme values can make the variance in the error term to be more spread, as they deviate widely from the estimated values and have large residuals (Berry, 1993; Gujarati, 1995).

In order to test for heteroscedasticity, we examine the scatterplots for each hypothesis, which can be seen in appendices P and Q, in addition to the scatterplots for the hypotheses including interactions between the independent and control variables in appendices E to L. The scatterplots for hypotheses 1 without extreme values show that there is no larger or smaller variance for the error term, as the values of the independent variables increase or decrease. This indicates that the error term has a constant variance. However, we see that the scatterplots for the hypotheses with interactions and hypothesis 2 show that we have heteroscedasticity even if we have removed extreme values. The variance of the error term varies with the increasing or decreasing values of the independent variables. For instance we can see this by the scatterplots presented below for hypothesis 2 with and without extreme values.



Graph 6.2.1 – Fixed salary and ROA with extreme values



Graph 6.2.2 – Fixed salary and ROA without extreme values

From the graphs, we see that the variance of the error term is not constant in both of the cases, which indicates that there are other independent variables left out of the model that influence the dependent variable through the error term. However, this is consistent with what we expected related the relationship between firm performance and fixed salary, that fixed salary is explained by other factors than firm performance.

In our second research models we have transformed our variables by natural logarithm, which we will explain more in detail under regression assumption 8. After transforming our variables, we see that the scatterplots show constant variance of the error term, and hence, the regression assumption of homoscedasticity is fulfilled for our second research model, but not for our first research model.

6.5.7 Regression Assumption 7

“For any two observations, $(X_{1j}, X_{2j}, \dots, X_{kj})$ and $(X_{1h}, X_{2h}, \dots, X_{kh})$, $COV(\varepsilon_j, \varepsilon_h) = 0$ (i.e., error terms for different observations are uncorrelated); this assumption is known as lack of autocorrelation” Berry (1993:12).

The seventh assumption requires that the error terms of the different observations are uncorrelated, and is known as lack of autocorrelation. Autocorrelation between error terms is especially likely to be a problem in time series regression models, as variables that change over time will tend to be autocorrelated, because current values of one value can be positively or negatively correlated with previous values (Berry, 1993). If this regression assumption is violated, will this not affect the regression coefficients, but we can get under- or overestimated error terms. This will hence result in an over- or underestimated explanatory power of the regression model.

As we have time series regressions in our first research model, is this assumption hence relevant for our analyzes, and in order to see if we have autocorrelation in our regressions, we use the Durbin-Watson (DW) tool. A DW value of 2 indicates no autocorrelation, while a value of 0 indicates perfect positive autocorrelation. If the DW value is 4, this indicates a perfect negative autocorrelation. Hence, the DW is preferred to have a value between 1 and 3 (Gujarati, 1995). The values of the DW can be seen in the appendices C to L under each of the hypotheses, and we see that the DW-values of all our regressions in our first research model are situated around 2. This indicates that we have no autocorrelation between the error terms for the different observations. Hence, we can conclude that the seventh assumption is fulfilled in our study, and we will further discuss the eighth assumption.

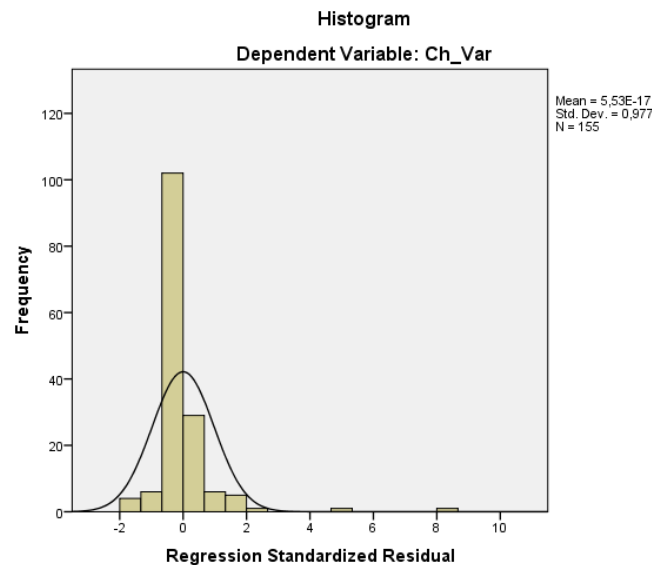
6.5.8 Regression Assumption 8

“At each set of values for the k independent variables, ε_j is normally distributed” Berry (1993:12).

The last assumption by Berry (1993) requires that the error term is normally distributed, and it is important that this assumption is fulfilled in order to draw conclusions on the real parameters. If this regression assumption is violated, can this hence affect the estimates of the coefficients and lead to biased and not efficient coefficient estimators. In order to test if the error term is normally distributed, we take basis on the skewness and kurtosis of the distributions. Skewness measures the symmetry properties of the distributions, and when the measures are closer to zero, the error term is closer to be normally distributed. It is hence quite important that the requirement of skewness is met, as the regression coefficients estimators will be biased otherwise. Kurtosis illustrates on the other hand, if the distribution have a form or “tale” that deviates from the normal distribution, and high values indicate abnormal sharpness or flatness of the distributions.

An essential requirement is to have values of both skewness and kurtosis to be $<+/-2$, and maximum 5 (Sandvik, 2013b). When we examine skewness and kurtosis for our first research model we see that the values of both skewness and kurtosis are extremely high and low, and hence do not meet the requirements of skewness and kurtosis. The lowest value of skewness is -12.498 and the highest value of kurtosis is 156.47, which can be seen in subchapter 6.1. We have also examined the different histograms for our regressions that shows that we have abnormal sharpness and asymmetry of the distributions, which means that the error term is not normally distributed. This can be seen in the appendices under each of the regression

analyzes. The histogram also show that we have some outliers that lies outside of the normal curve, which we for instance can see from the histogram below for hypothesis 1.



Graph 6.3 – Histogram for hypothesis 1

These outliers will make the distribution asymmetrical as they will draw the distribution to the right, which results in a skewed distribution rather than a normal distribution. Hence, we see that outliers can cause the error term to not be normally distributed, similar to extreme values. Extreme values are as mentioned, values that deviate from the main trend of the observations in the different variables, while outliers are observations between the independent and dependent variables that deviate from the main trend of this relationship.

We have also constructed scatterplots for each of our variables and the relationships between the independent and dependents variables in order to observe any extreme values or outliers that can violate with the assumption of a normally distributed error term, which can be seen in appendices N to Q. We see that we have extreme values in all of the variables in our first research model, and when we test for the independent variables' effects on the dependent variables, the scatterplots show that there also are outliers. When we examine these outliers carefully in our data we see that they have the same values as the extreme values, and hence, we have to consider whether we should keep or remove them from the data.

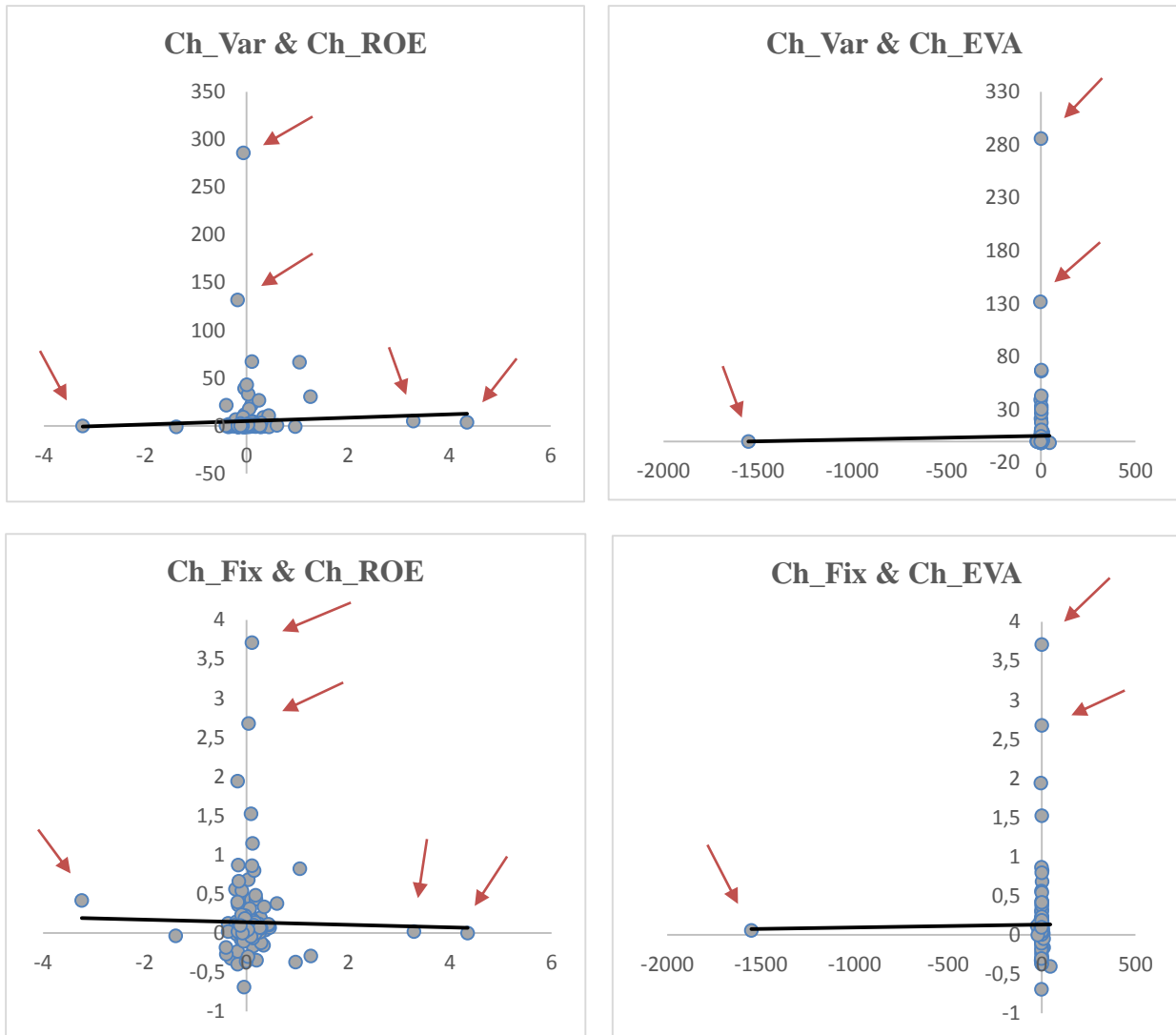
From the graphs below for the dependent variables and some of the independent variables in our first research model we see that the variables have some extreme value that differs widely

from the rest of the observations and can affect the variables' symmetry. We have pointed out the extreme values with arrows.



Graph 6.4 – Scatterplots for variables with extreme values

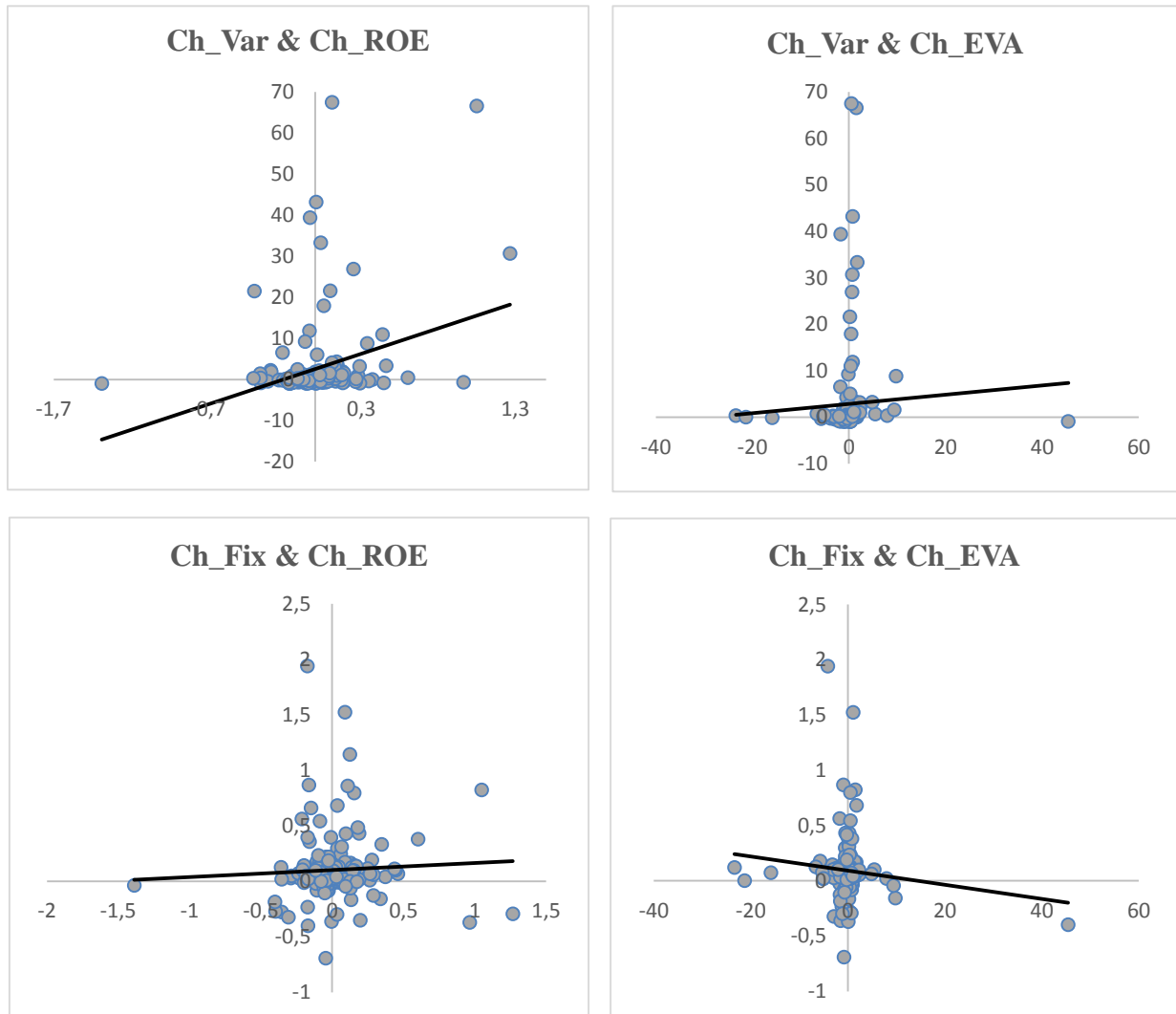
If we hence test the independent and dependent variables we see that the extreme values result in outliers. We can see this from the graphs below, and in appendix P.



Graph 6.5.1 – Scatterplots for regressions with extreme values

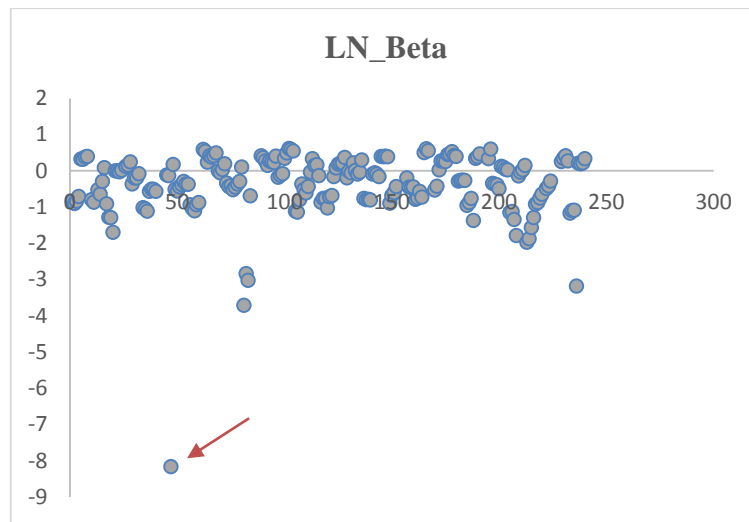
The outliers draws the regression line towards themselves, and this results hence in biased regressions coefficients where the regression line is estimated inaccurately. Hence, we see that we have to remove the extreme values in order to avoid outliers in our analyzes. To be certain of that this is an appropriate way, we also conduct outliers analyzes for our first research model where we see that these outliers have the same values as the extreme values, as described in subchapter 6.1. We are hence only removing the extreme values from all of the variables, and not the outliers as we do not want to lose much important information and observations.

After removing the extreme values, we get more satisfying skewness values and hence get more accurately estimated and less biased regression coefficients. However, the skewness values still differ from zero, and the values of kurtosis is still high, which indicate that the error term is not normally distributed even if we have reduced the violation of this assumption. Below we present the graphs for some of the regressions without extreme values that shows a more accurate regression line, not drawn by outliers. The other regressions with and without extreme values for all of the other variables can be seen in appendix P.



Graph 6.5.2 – Scatterplots for regressions without extreme values

Another way to reduce the values of skewness and kurtosis is to transform our variables using natural logarithm transformation. This is not possible for the variables in our first research model as we have change values that are negative and zero. However, in our second research model we have continuous variables that make it possible to transform them. From appendix Q, we see that these variables have extreme values, but that the problem of extreme values are reduced after transforming the variables. The exception is the natural logarithm of beta, which has one extreme value, and can be seen in the graph below.



Graph 6.6 – Scatterplot for natural logarithm of beta

We have chosen to remove this extreme value on the basis of the same discussion as above. After removing the extreme value we get skewness and kurtosis within the requirements, which indicates that the assumption of normally distributed error term is fulfilled in our second research model. Hence, we get a more accurate regression line without large biased regression coefficients, which can be seen in appendix Q. As mentioned, this assumption is not fulfilled perfectly for our first research model, and the eighth assumption is hence partly fulfilled in our study.

As many of the regression assumptions are fulfilled in our study, we conclude that our analyzes and results are accurate, valid and are not too biased. In the next chapter, we will discuss the implications and the contribution of this study, as well as suggestions for further research.

7 Discussion

In this chapter, we will discuss the methodological and practical implications in our study. We will further present the contribution of the study, and present suggestions for further research.

7.1 Methodological Implications

The population in this study is not random. We set some requirements that needed to be met in order for one firm to be included in our analyzes, which we have described in subchapter 5.3. The requirements was that the firm had to be Norwegian, not in the finance- or insurance sector, and had to be listed on the Oslo Stock Exchange all of the years from 2010 to 2013. We originally wanted to examine the 60 largest firms listed on the Oslo Stock Exchange, measured by market value, but we had to supplement with smaller firms as many of the original 60 firms did not meet the set requirements. There are for instance many large foreign firms listed on the Oslo Stock Exchange, which fell outside our population. However, as we supplemented with smaller firms, we got bigger differences between large and small firms, so we were able to see larger effects of firm size on the pay-for-performance relationship and CEO compensation.

As we have collected data from 60 firms for four years, should the total observations be 240 for the absolute values, and 180 for the change variables. However, because of missing values the observation number is lower for some of the variables. For instance, there are some firms that have not been publicly listed long enough in order to calculate all of the firm performance measures, as this information is not publicly available. We have also removed extreme values that differs from the main trend of the total observations for the different variables, and have thereby created nonrandom missing values. Additionally, we have transformed the variables in our second research model, and have gotten nonrandom missing values because of observations with negative or zero values. All of these conditions leads to observation numbers below the original numbers of 240 and 180.

Further, one of our main intentions was to test whether CEO gender and publicly or privately owned firms affected the pay-for-performance relationship and CEO compensation.

Unfortunately, we have not been able to test the hypotheses regarding these variables, as there are quite few female CEOs in the firms listed on the Oslo Stock Exchange and few firms where the Norwegian State owns shares directly. Hence, we would have few observations for female CEOs and publicly owned firms, and could not draw conclusions of their effects.

As we have explained before, all of our data is collected from the firms' annual reports, the Oslo Stock Exchange and public project databases. We have used these data to calculate and measure our different variables, but we have met some challenges as some of the firms report their financial status in different currencies than NOK. Hence, we have had to convert these measures in order to get comparable variables for all of our observations. Additionally, we have had some challenges with calculating the market values, as some firms have only reported the weighted average outstanding shares during the year and not the total number of outstanding shares at the end of the year. Further, the calculation of the firm performance EVATM originally requires the use of the market value of the firm's debt, but we have used the book value of the debt because of time limitations. Even if these values are not supposed to have big differences, it may have affected this measure's effect in our analyzes.

The measures and variables we use in this study are based on theory and own judgments. We had some challenges of how we wanted to measure firm performance, but we chose to use measures that had shown to have significant effect on CEO compensation in previous empirical researches and to add one extra measure that have not been examined before. Additionally, our control variables are carefully chosen based on theory and previous empirical researches in order to cover as much as possible of the determination of CEO compensation and the pay-for-performance relationship.

Regarding our statistical analyzes and regression assumptions, we have found that some of the assumptions could be better fulfilled. For instance, we have some problems with perfect multicollinearity between the interactions in our first research model, which violates with regression assumption 3. We have however taken the necessary steps in order to reduce the problems with perfect multicollinearity between the interactions by centering them. Further, we have seen that there are some violations of regression assumption 6 for our first research model, and we have seen that the error terms in the regressions for the first research model are not normally distributed, which violates with regression assumption 8. However, we have tried to reduce the problem of non-normally distributed error terms by removing extreme values. Beyond this, we have taken the necessary steps we consider as important in order for our analyzes to fulfill the regression assumptions.

As we have taken the necessary steps in order to achieve less biased regression coefficients, and to fulfill the regression assumptions in a more satisfying way, we believe that we have valid results. However, we have removed extreme values that differs from the main trend of

the other observations, which can give different results from the reality for the firms listed on the Oslo Stock Exchange. These extreme values are real values, but since they differ widely, will they be less comparable with the other observations. Hence, our results may be uncertain regarding the reality for all of the firms listed on the Oslo Stock Exchange, even if our results are valid in this study. On the other hand, we do not believe that this uncertainty will have a huge impact of the reliability of our study, and we think that we have covered the pay-for-performance relationship and determinants of CEO compensation in these firms in a satisfying way. We will further discuss our results in light of the practical implications.

7.2 Practical Implications

Our study is based on the principal-agent theory, the managerial power theory, corporate governance, the empire building theory, and the human capital theory, which discuss CEO compensation in different ways. In our first research model, we have had our main focus on the variable part of the CEO compensation, as this is the part that is tied up to incentives. According to the principal-agent theory, the purpose of incentives is to reduce opportunistic behavior and to make sure that the CEOs act in the best favor of the shareholders. Hence, we assumed from this theory that the variable CEO compensation would be determined by firm performance. However, as we have also based our study on other theories of CEO, we have been conscious of other variables that affect the pay-for-performance relationship, and have more influence on CEO compensation than firm performance. We thereby chose to divide our study in two by first examining the pay-for-performance relationship, and then examine determinants of CEO compensation, for both the variable and fixed part of CEO compensation.

The findings from our analyzes show a weak, but positive and significant relationship between change in firm performance and change in variable CEO compensation in firms listed on the Oslo Stock Exchange. The accounting-based measure of firm performance, change in ROE, is positively significant with variable CEO compensation, which indicates that a CEO gets higher incentives when he is able to increase the return of the stockholders' equity. Change in ROE has the greatest effect on the change in variable CEO compensation in our study, but similar to other studies we find that there are other variables that affect the pay-for-performance relationship.

Our results show that the pay-for-performance relationship is stronger in smaller firms and low-risk firms, indicating that smaller firms have more control over the CEOs and can tie

their compensation to firm performance. Additionally, in low-risk firms, the shareholders do not have to give additional incentives independent of firm performance in order to release the CEOs from risk. Our results also show that CEO's age weakens the pay for performance relationship, indicating that older CEOs have more control and have more impact of determining their compensation. We also find that CEO change weakens the relationship between firm performance and variable CEO compensation, which means that a new CEO is not rewarded or punished for the performance obtained by the previous CEO.

Additionally, our findings show that the size of the board of directors and number of female directors weakens the pay-for-performance relationship. This indicates that large boards tend to be less likely to function like a unit, and that the boards face coordination problems when there are more female directors, where the CEOs are more able to influence their own compensation independent of firm performance.

From our theoretical framework we did not expect any relationship between firm performance and fixed salary as this part of the compensation is not supposed to be tied to firm performance. However, we find a negative relationship between change in P/B and change in fixed salary indicating that CEOs get lower fixed salaries when they have been successful of creating more value for the firm's shareholder. Hence, we cannot explain this by economical rationality.

Further, when we examine the determinants of the absolute levels of CEO compensation for both variable CEO compensation and fixed salary, we see that there are other determinants of CEO compensation than firm performance. For instance, our results show that firm size measured by market value has a positive and significant effect on both variable CEO compensation and fixed salary. Additionally, firm risk measured by beta, is positive and significant with fixed salary, indicating that high-risk firms give higher fixed salaries. Another interesting finding is that the number of female directors decrease variable CEO compensation, indicating that female directors moderate CEO compensation. Our findings also show that CEO's direct ownership decreases the fixed salary, which is inconsistent with the theories. This can however be explained by that the CEO is more willing to receive lower fixed salary in order to not threaten the firm's financial situation. We will further discuss the contribution of our study.

7.3 Contribution of the Study

This study is divided in two, where we first examine the pay-for-performance relationship and secondly examines determinants of CEO compensation. Most of the studies on the pay-for-performance relationship either find a significant, but a weak positive relationship between firm performance and CEO compensation, or a non-existing relationship (Gomez-Mejia et al., 1987; Haukdal et al., 1997; Jensen & Murphy, 1990a, 1990b; Randøy & Skalpe, 2007; Sigler, 2011; Tosi et al., 2000). Hence, since we are doing a replicating study, we expect to get similar results as the previous empirical researches on this relationship, but we have included other variables to see what kind of implications and possibilities this can have for our study.

Findings from previous empirical studies on firms listed on the Oslo Stock Exchange show that there is a weak or no significant relationship on the pay-for-performance relationship (Firth et al. 1996; Randøy & Skalpe, 2007). However, we have included other measures of firm performance in our study with the purpose of achieving different results. Our findings have shown a positive and significant relationship between the accounting-based measure of firm performance, ROE, and variable CEO compensation, but we find no significant relationship between the new firm performance measure, Tobin's Q, and variable CEO compensation. We hoped to achieve significant results as these results would have given new insight to the literature of the pay-for-performance relationship in Norway, and would have been a contribution of our study. On the other hand, we have examined if CEO change have an effect on the pay-for-performance relationship, which has not been tested before by the presented empirical researches. Our results are significant, and show that CEO change weakens the pay-for-performance relationship and means that a CEO will not be punished or rewarded for performance obtained by the previous CEO's own effort.

In our first research model, we have examined the pay-for-performance relationship, where we examine the annual percentage change in CEO compensation from the year 2010 to 2013 as a result of the changes in firm performance. The findings from this analyzes show that the firm performance measures, P/B and ROE have significant effects on variable CEO compensation, but that P/B have a negative effect. Additionally when we test our control variables as moderators we find that firm size, firm risk, CEO's age, CEO change, board size and board gender have significant effects on the relationship between the accounting-based measure of firm performance, ROE, and variable CEO compensation.

In our second research model, we have examined the effects of the independent variables on the absolute values of CEO compensation, and our findings show that firm size, firm risk and the number of female directors in the board have significant effect on CEO compensation. Firm size and firm risk increases CEO compensation, while the number of female directors in the board decreases CEO compensation. It is interesting that we get significant results, as previous empirical researches we have examined did not get any significant results of the number of female directors' effect on CEO compensation. Even if our results show significance, are we aware of that there are other variables that affect the pay-for-performance relationship and that there are other determinants of CEO compensation. We will thereby make some suggestions for future research within this concept.

7.4 Further Research

To examine the pay-for-performance relationship, we have expanded previous empirical researches with other measures of firm performance, as well as we have examined determinants of CEO compensation as previous researches find weak or non-existing pay-for-performance relationship. However, there are still other determinants and aspects of the pay-for-performance relationship that we consider as important to include in any future research on this concept.

A possible way to achieve different results is to examine other variables that can measure firm performance. We have examined measures of firm performance that we believe are satisfying according to the theory, but there are still many other variables that could be taken in consideration. The measures of firm performance that we use in our study are P/B, P/E, Jensen's alpha, Tobin's Q, ROE, ROA and EVATM which are both accounting-based and market-based measures of firm performance. In addition to these measures a researcher can for instance examine the effects of EBITDA, Fama-French 3 factors adjusted alpha model or the Fama-French 4 factor adjusted alpha model on CEO compensation.

In our second research model we examine determinants of CEO compensation, where we test the effect of different variables on CEO compensation. From our analyzes we see that there are other variables which we not have included in our study that explain more of the variation in CEO compensation. In addition to the variables we have examined in our study, a researcher can for instance include the CEO's education. From a human-capital view, we think that CEO's education will have a positive effect on CEO compensation and can be a determinant of CEO compensation. Another variable which can be interesting to examine is

firm reputation, and its effect on both the pay-for-performance relationship and CEO compensation.

Further, we discussed in Chapter 6 that we could not test if publicly or privately firms have any effect on the pay-for-performance relationship or CEO compensation. Since we think that this is an interesting variable to examine, and that it should be included in any further research, the researcher should also include shares owned by National Insurance Fund (Folketrygdfondet) as a part of the Norwegian state's ownership. This will thereby give more observation of publicly owned firms, and the effect of publicly and privately owned firms can be examined. Additionally, it can be interesting to study how CEO compensation and the pay-for-performance relationship is affected by the firms' age, and to examine if there are differences between newly established firms and well-established firms.

To give any other new insight on this topic, the researcher can also include the board of director's direct ownership in the firm. If the directors own firm shares, they will be concerned about firm performance, and this may also affect the pay-for-performance relationship and CEOs compensation. Another variable which can be examined, is sector. However, we have noticed that it is few firms listed on the Oslo Stock Exchange in each sector, so the researcher can for instance merge the sectors that have the same characteristics. As we also have examined the effect of CEO's tenure, measured as the number of years the CEO have been in the same position in the firm, we think that a contribution to this concept is to examine the CEO's tenure from previous firms, as this also can affect the CEO compensation.

Additionally, the researcher can for instance compare the results in the Norwegian and foreign firms listed on the Oslo Stock Exchange in order to achieve new insight on this concept and in the literature of CEO compensation. The researcher can examine if there are a stronger or weaker pay-for-performance relationship in foreign firms than in Norwegian firms, and will be able to see possible differences in the determination of CEO compensation. In our study we have also examined if the changes in firm performance one current year have an effect on changes in CEO compensation the same year. A suggestion for further research is to examine if change in the previous year's performance have an effect on the current year's change in CEO compensation. We hope that these suggestions for future research are helpful and can bring any new insight on the pay-for-performance relationship and determination of CEO compensation, besides our contribution.

Literature

A

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Appendices

Appendix A

A.1 Descriptive statistics for first research model without extreme values

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Variable	236	,000	37228524.00	1632903.161	3083815.637	7,305	,158	76,558	,316
Ch_Var	173	-,995	67,516	2,74653	9,597903	4,841	,185	25,934	,367
Fixed	240	572000,000	10989000.00	3257212.864	1804810.424	1,679	,157	3,145	,313
Ch_Fix	178	-,690	1,942	,10391	,283445	2,806	,182	14,131	,362
Ch_P/B	176	-11,044	10,873	,05782	2,294935	,071	,183	10,091	,364
Ch_P/E	174	-153,667	177,021	,91810	35,298610	-,045	,184	7,560	,366
Ch_J_alpha	159	-17,112	28,329	,23541	4,601666	2,020	,192	14,164	,383
Ch_TobQ	178	-2,694	4,157	,06990	,737698	1,543	,182	10,001	,362
Ch_ROE	177	-1,388	1,265	,01406	,237450	,580	,183	13,128	,363
Ch_ROA	179	-,340	,245	-,00477	,088734	-,365	,182	1,729	,361
Ch_EVA	156	-23,397	45,448	-,19894	5,056691	3,597	,194	47,402	,386
MV	240	26496000.00	4.895E+11	2.21042E+10	6.90830E+10	5,051	,157	27,486	,313
Revenue	240	2529383,000	7.234E+11	2.17734E+10	8.39907E+10	7,016	,157	51,241	,313
Beta	221	-4,073	2,612	,82980	,618343	-2,370	,164	18,102	,326
CEO_OS	239	,000	,231	,00763	,030316	6,729	,157	46,717	,314
CEO_Age	240	30	69	50,51	7,216	,255	,157	-,025	,313
CEO_Tenure	240	0	23	4,54	4,568	1,848	,157	4,166	,313
Board_Size	240	3	12	7,12	2,002	,416	,157	-,390	,313
Board_Gen	240	,167	,714	,39227	,083598	,129	,157	,811	,313
Valid N (listwise)	137								

Statistics											
	Variable	Ch_Var	Fixed	Ch_Fix	Ch_P/B	Ch_P/E	Ch_J_alpha	Ch_TobQ	Ch_ROE	Ch_ROA	Ch_EVA
N	Valid	236	173	240	178	176	174	159	178	177	156
	Missing	4	67	0	62	64	66	81	62	63	84
Median		810000.0000	,12064	2809000.000	,05606	,01451	,48918	-,08793	-,00209	-,01000	-,00786

MV	Revenue	Beta	CEO_OS	CEO_Age	CEO_Tenure	Board_Size	Board_Gen
240	240	221	239	240	240	240	240
0	0	19	1	0	0	0	0
3473647417	2717492500	,77386	,00067	50,00	3,00	7,00	,40000

A.2 Descriptive statistics for second research model without extreme values

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
LN_Var	233	6,91	17,43	13,2303	1,78451	-,828	,159	,658	,318
LN_Fix	240	13,26	16,21	14,8678	,50195	,122	,157	,408	,313
LN_MV	240	17,09	26,92	21,8994	1,85699	,386	,157	,154	,313
LN_Rev	240	14,74	27,31	21,6285	2,24144	-,378	,157	,725	,313
LN_Beta	214	-3,71	,96	-,3027	,69503	-1,518	,166	4,331	,331
LN_CO	212	-11,51	-1,46	-6,9704	2,15716	,095	,167	-,413	,333
LN_Age	240	3,40	4,23	3,9119	,14385	-,171	,157	,133	,313
LN_Ten	206	,00	3,14	1,3442	,82038	-,044	,169	-,657	,337
LN_BS	240	1,10	2,48	1,9234	,28790	-,265	,157	-,078	,313
LN_BG	240	-1,79	-,34	-,9600	,22580	-,694	,157	,881	,313
Valid N (listwise)	158								

Statistics

	LN_Var	LN_Fix	LN_MV	LN_Rev	LN_Beta	LN_CO	LN_Age	LN_Ten	LN_BS	LN_BG
N Valid	233	240	240	240	214	212	240	206	240	240
Missing	7	0	0	0	26	28	0	34	0	0
Median	13,6231	14,8483	21,9685	21,7229	-,1897	-6,8167	3,9120	1,3863	1,9459	-,9163

Appendix B

B.1 Pearson correlations with extreme values

			Correlations												
		Ch_Var	Ch_Fix	Ch_P/B	Ch_P/E	Ch_J_alpha	Ch_TobQ	Ch_ROE	Ch_ROA	Ch_EVA	CEO_OS	CEO_Age	CEO_Tenure	Board_Size	Board_Gen
Ch_Var	Pearson Correlation	1	,280**	,028	,217**	,015	,237**	,037	-.007	,016	-.042	-.060	-.129	,066	-.039
	Sig. (2-tailed)		,000	,715	,004	,851	,002	,624	,926	,841	,582	,427	,089	,382	,612
	N	175	175	175	175	160	175	175	175	155	174	175	175	175	175
Ch_Fix	Pearson Correlation	,280**	1	-.033	-.042	-.004	-.033	-.020	,002	,011	-.040	-.113	-.124	,051	,018
	Sig. (2-tailed)	,000		,657	,578	,957	,659	,787	,978	,895	,594	,130	,098	,500	,806
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_P/B	Pearson Correlation	,028	-.033	1	-.101	,000	,333**	,127	,148*	-.006	,012	-.028	,028	,000	-.124
	Sig. (2-tailed)	,715	,657		,176	,997	,000	,090	,047	,941	,868	,712	,711	,998	,097
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_P/E	Pearson Correlation	,217**	-.042	-.101	1	,004	-.398**	-.137	-.052	,011	-.022	,062	-.059	,008	,062
	Sig. (2-tailed)	,004	,578	,176		,955	,000	,067	,487	,896	,768	,405	,431	,914	,407
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_J_alpha	Pearson Correlation	,015	-.004	,000	,004	1	,048	,008	,039	-.010	-.002	-.087	-.174*	,088	-.101
	Sig. (2-tailed)	,851	,957	,997	,955		,547	,916	,618	,897	,981	,268	,026	,265	,198
	N	160	163	163	163	163	163	163	163	157	162	163	163	163	163
Ch_TobQ	Pearson Correlation	,237**	-.033	,333**	-.398**	,048	1	,196**	,120	-.020	,034	,020	,037	-.013	-.024
	Sig. (2-tailed)	,002	,659	,000	,000	,547		,008	,108	,805	,648	,789	,620	,865	,744
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_ROE	Pearson Correlation	,037	-.020	,127	-.137	,008	,196**	1	,102	-.020	-.007	,037	-.054	-.059	-.031
	Sig. (2-tailed)	,624	,787	,090	,067	,916	,008		,174	,799	,924	,623	,468	,431	,679
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_ROA	Pearson Correlation	-.007	,002	,148*	-.052	,039	,120	,102	1	,039	,006	,144	,142	,045	,076
	Sig. (2-tailed)	,926	,978	,047	,487	,618	,108	,174		,627	,937	,054	,057	,551	,311
	N	175	180	180	180	163	180	180	180	157	179	180	180	180	180
Ch_EVA	Pearson Correlation	,016	,011	-.006	,011	-.010	-.020	-.020	,039	1	-.559**	-.162*	-.101	,004	-.030
	Sig. (2-tailed)	,841	,895	,941	,896	,897	,805	,799	,627		,000	,043	,208	,956	,713
	N	155	157	157	157	157	157	157	157	157	156	157	157	157	157
CEO_OS	Pearson Correlation	-.042	-.040	,012	-.022	-.002	,034	-.007	,006	-.559**	1	,251**	,205**	-.044	,100
	Sig. (2-tailed)	,582	,594	,868	,768	,981	,648	,924	,937	,000		,000	,001	,501	,124
	N	174	179	179	179	162	179	179	179	156	239	239	239	239	239
CEO_Age	Pearson Correlation	-.060	-.113	-.028	,062	-.087	,020	,037	,144	-.162*	,251**	1	,337**	,129*	-.048
	Sig. (2-tailed)	,427	,130	,712	,405	,268	,789	,623	,054	,043	,000		,000	,045	,456
	N	175	180	180	180	163	180	180	180	157	239	240	240	240	240
CEO_Tenure	Pearson Correlation	-.129	-.124	,028	-.059	-.174*	,037	-.054	,142	-.101	,205**	,337**	1	-.006	,118
	Sig. (2-tailed)	,089	,098	,711	,431	,026	,620	,468	,057	,208	,001	,000		,926	,068
	N	175	180	180	180	163	180	180	180	157	239	240	240	240	240
Board_Size	Pearson Correlation	,066	,051	,000	,008	,088	-.013	-.059	,045	,004	-.044	,129*	-.006	1	-.076
	Sig. (2-tailed)	,382	,500	,998	,914	,265	,865	,431	,551	,956	,501	,045	,926		,238
	N	175	180	180	180	163	180	180	180	157	239	240	240	240	240
Board_Gen	Pearson Correlation	-.039	,018	-.124	,062	-.101	-.024	-.031	,076	-.030	,100	-.048	,118	-.076	1
	Sig. (2-tailed)	,612	,806	,097	,407	,198	,744	,679	,311	,713	,124	,456	,068	,238	
	N	175	180	180	180	163	180	180	180	157	239	240	240	240	240

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

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

B.2 Spearman correlations with extreme value

			Correlations													
			Ch_Var	Ch_Fix	Ch_P/B	Ch_P/E	Ch_J_alpha	Ch_TobQ	Ch_ROE	Ch_ROA	Ch_EVA	CEO_OS	CEO_Age	CEO_Tenure	Board_Size	Board_Gen
Spearman's rho	Ch_Var	Correlation Coefficient	1,000	,087	-.079	-.163*	-.082	-.020	,235**	,168*	,271**	-.147	-.119	-.115	,047	-.111
		Sig. (2-tailed)		,252	,302	,031	,304	,794	,002	,027	,001	,054	,118	,131	,538	,145
	N		175	175	175	175	160	175	175	175	155	174	175	175	175	175
	Ch_Fix	Correlation Coefficient	,087	1,000	-.132	,032	-.048	,038	,076	,083	,076	-.058	-.059	-.022	-.036	,025
		Sig. (2-tailed)	,252		,076	,666	,540	,616	,308	,265	,343	,441	,428	,774	,636	,736
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_P/B	Correlation Coefficient	-.079	-.132	1,000	-.050	,353**	,575**	-.001	-.147*	-.089	,083	-.015	,024	-.009	-.078
		Sig. (2-tailed)	,302	,076		,504	,000	,000	,987	,049	,268	,266	,841	,748	,907	,299
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_P/E	Correlation Coefficient	-.163*	,032	-.050	1,000	,082	,060	-.192**	-.164*	-.096	,014	,055	-.002	,021	,144
		Sig. (2-tailed)	,031	,666	,504		,297	,423	,010	,028	,233	,852	,466	,983	,780	,054
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_J_alpha	Correlation Coefficient	-.082	-.048	,353**	,082	1,000	,421**	,090	,180*	,122	,102	-.064	-.019	-.012	-.002
		Sig. (2-tailed)	,304	,540	,000	,297		,000	,253	,022	,128	,196	,418	,813	,882	,982
	N		160	163	163	163	163	163	163	163	157	162	163	163	163	163
	Ch_TobQ	Correlation Coefficient	-.020	,038	,575**	,060	,421**	1,000	-.003	,200**	-.096	,070	,002	-.029	-.059	-.028
		Sig. (2-tailed)	,794	,616	,000	,423	,000		,963	,007	,232	,355	,977	,695	,429	,712
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_ROE	Correlation Coefficient	,235**	,076	-.001	-.192**	,090	-.003	1,000	,537**	,491**	,028	,016	-.095	-.099	,086
		Sig. (2-tailed)	,002	,308	,987	,010	,253	,963		,000	,000	,708	,834	,207	,185	,254
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_ROA	Correlation Coefficient	,168*	,083	,147*	-.164*	,180*	,200**	-.537**	1,000	,594**	,055	-.002	-.024	-.008	,104
		Sig. (2-tailed)	,027	,265	,049	,028	,022	,007	,000		,000	,468	,982	,747	,914	,166
	N		175	180	180	180	163	180	180	180	157	179	180	180	180	180
	Ch_EVA	Correlation Coefficient	,271**	,076	-.089	-.096	,122	-.096	,491**	,594**	1,000	,072	-.106	-.064	-.177*	,139
		Sig. (2-tailed)	,001	,343	,268	,233	,128	,232	,000	,000		,372	,186	,426	,027	,083
	N		155	157	157	157	157	157	157	157	157	156	157	157	157	157
	CEO_OS	Correlation Coefficient	-.147	-.058	,083	,014	,102	,070	,028	,055	,072	1,000	,082	,354**	-.198**	,159*
		Sig. (2-tailed)	,054	,441	,266	,852	,196	,355	,708	,468	,372		,208	,000	,002	,014
	N		174	179	179	179	162	179	179	179	156	239	239	239	239	239
	CEO_Age	Correlation Coefficient	-.119	-.059	-.015	,055	-.064	,002	,016	-.002	-.106	,082	1,000	,297**	,142*	-.053
		Sig. (2-tailed)	,118	,428	,841	,466	,418	,977	,834	,982	,186	,208		,000	,027	,413
	N		175	180	180	180	163	180	180	180	157	239	240	240	240	240
	CEO_Tenure	Correlation Coefficient	-.115	-.022	,024	-.002	-.019	-.029	-.095	-.024	-.064	,354**	,297**	1,000	-.041	,159*
		Sig. (2-tailed)	,131	,774	,748	,983	,813	,695	,207	,747	,426	,000	,000		,524	,014
	N		175	180	180	180	163	180	180	180	157	239	240	240	240	240
	Board_Size	Correlation Coefficient	,047	-.036	,009	,021	-.012	,059	-.099	-.008	-.177*	-.198**	,142*	-.041	1,000	-.089
		Sig. (2-tailed)	,538	,636	,907	,780	,882	,429	,185	,914	,027	,002	,027	,524		,168
	N		175	180	180	180	163	180	180	180	157	239	240	240	240	240
	Board_Gen	Correlation Coefficient	-.111	,025	-.078	,144	-.002	-.028	,086	,104	,139	,159*	-.053	,159*	-.089	1,000
		Sig. (2-tailed)	,145	,736	,299	,054	,982	,712	,254	,166	,083	,014	,413	,014	,168	
	N		175	180	180	180	163	180	180	180	157	239	240	240	240	240

B.3 Correlation analyzes for interactions - ROE

		Correlations									
		Ch_ROE	In_ROE_MV	In_ROE_Rev	In_ROE_Beta	In_ROE_CO	In_ROE_Age	In_ROE_Ten	In_ROE_CC	In_ROE_BS	In_ROE_BG
Ch_ROE	Pearson Correlation	1	,588**	,413**	,838**	,256**	,990**	,550**	,601**	,962**	,983**
	Sig. (2-tailed)		,000	,000	,000	,001	,000	,000	,000	,000	,000
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_MV	Pearson Correlation	,588**	1	,413**	,643**	,128	,570**	,298**	,606**	,652**	,607**
	Sig. (2-tailed)	,000		,000	,000	,090	,000	,000	,000	,000	,000
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_Rev	Pearson Correlation	,413**	,413**	1	,368**	,171*	,372**	,350**	,176*	,505**	,372**
	Sig. (2-tailed)	,000	,000		,000	,023	,000	,000	,018	,000	,000
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_Beta	Pearson Correlation	,838**	,643**	,368**	1	,205**	,809**	,311**	,639**	,876**	,850**
	Sig. (2-tailed)	,000	,000	,000		,006	,000	,000	,000	,000	,000
	N	177	179	179	179	176	177	177	179	177	177
In_ROE_CO	Pearson Correlation	,256**	,128	,171*	,205**	1	,262**	,331**	,050	,250**	,260**
	Sig. (2-tailed)	,001	,090	,023	,006		,000	,000	,512	,001	,000
	N	176	176	176	176	176	176	176	176	176	176
In_ROE_Age	Pearson Correlation	,990**	,570**	,372**	,809**	,262**	1	,546**	,568**	,938**	,968**
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000	,000	,000	,000
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_Ten	Pearson Correlation	,550**	,298**	,350**	,311**	,331**	,546**	1	,022	,538**	,562**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000		,773	,000	,000
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_CC	Pearson Correlation	,601**	,606**	,176*	,639**	,050	,568**	,022	1	,584**	,591**
	Sig. (2-tailed)	,000	,000	,018	,000	,512	,000	,773		,000	,000
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_BS	Pearson Correlation	,962**	,652**	,505**	,876**	,250**	,938**	,538**	,584**	1	,958**
	Sig. (2-tailed)	,000	,000	,000	,000	,001	,000	,000	,000		,000
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_BG	Pearson Correlation	,983**	,607**	,372**	,850**	,260**	,968**	,562**	,591**	,958**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	,000	,000	
	N	177	177	177	177	176	177	177	177	177	177

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

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

B.4 Correlation analyzes for interactions – ROE centered

		Correlations									
		Ch_ROE	In_ROE_MV	In_ROE_Rev	In_ROE_Beta	In_ROE_CO	In_ROE_Age_Cen	In_ROE_Ten	In_ROE_CC	In_ROE_BS_Cen	In_ROE_BG_Cen
Ch_ROE	Pearson Correlation	1	,588**	,413**	,838**	,256**	,335**	,550**	,601**	-.445**	,212**
	Sig. (2-tailed)		,000	,000	,000	,001	,000	,000	,000	,000	,005
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_MV	Pearson Correlation	,588**	1	,413**	,643**	,128	,119	,298**	,606**	,019	,277**
	Sig. (2-tailed)	,000		,000	,000	,090	,116	,000	,000	,799	,000
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_Rev	Pearson Correlation	,413**	,413**	1	,368**	,171*	-.107	,350**	,176*	,168*	-.094
	Sig. (2-tailed)	,000	,000		,000	,023	,155	,000	,018	,025	,213
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_Beta	Pearson Correlation	,838**	,643**	,368**	1	,205**	,145	,311**	,639**	-.144	,316**
	Sig. (2-tailed)	,000	,000	,000		,006	,055	,000	,000	,055	,000
	N	177	179	179	179	176	177	177	179	177	177
In_ROE_CO	Pearson Correlation	,256**	,128	,171*	,205**	1	,145	,331**	,050	-.100	,097
	Sig. (2-tailed)	,001	,090	,023	,006		,055	,000	,512	,187	,200
	N	176	176	176	176	176	176	176	176	176	176
In_ROE_Age_Cen	Pearson Correlation	,335**	,119	-.107	,145	,145	1	,195**	,025	-.471**	-.093
	Sig. (2-tailed)	,000	,116	,155	,055	,055		,009	,744	,000	,219
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_Ten	Pearson Correlation	,550**	,298**	,350**	,311**	,331**	,195**	1	,022	-.213**	,224**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,009		,773	,004	,003
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_CC	Pearson Correlation	,601**	,606**	,176*	,639**	,050	,025	,022	1	-.253**	,134
	Sig. (2-tailed)	,000	,000	,018	,000	,512	,744	,773		,001	,074
	N	177	180	180	179	176	177	177	180	177	177
In_ROE_BS_Cen	Pearson Correlation	-.445**	,019	,168*	-.144	-.100	-.471**	-.213**	-.253**	1	,121
	Sig. (2-tailed)	,000	,799	,025	,055	,187	,000	,004	,001		,109
	N	177	177	177	177	176	177	177	177	177	177
In_ROE_BG_Cen	Pearson Correlation	,212**	,277**	-.094	,316**	,097	-.093	,224**	,134	,121	1
	Sig. (2-tailed)	,005	,000	,213	,000	,200	,219	,003	,074	,109	
	N	177	177	177	177	176	177	177	177	177	177

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

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

Appendix C

C.1 Hypothesis 1: Firm performance and variable CEO compensation without extreme values

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,431 ^a	,186	,143	9,739425	1,947

a. Predictors: (Constant), Ch_EVA, Ch_J_alpha, Ch_P/E, Ch_P/B, Ch_ROE, Ch_ROA, Ch_TobQ

b. Dependent Variable: Ch_Var

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2842,242	7	406,035	4,281	,000 ^b
Residual	12426,188	131	94,856		
Total	15268,430	138			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), Ch_EVA, Ch_J_alpha, Ch_P/E, Ch_P/B, Ch_ROE, Ch_ROA, Ch_TobQ

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,507	,846		2,964	,004		
	Ch_P/B	-1,253	,429	-,268	-2,923	,004	,740	1,351
	Ch_P/E	-,004	,023	-,015	-,181	,857	,949	1,054
	Ch_J_alpha	,021	,185	,010	,116	,908	,866	1,154
	Ch_TobQ	2,366	1,577	,145	1,501	,136	,667	1,500
	Ch_ROE	15,131	3,910	,329	3,869	,000	,858	1,165
	Ch_ROA	-,985	10,807	-,008	-,091	,928	,841	1,189
	Ch_EVA	,055	,257	,018	,214	,831	,897	1,115

a. Dependent Variable: Ch_Var

Casewise Diagnostics^a

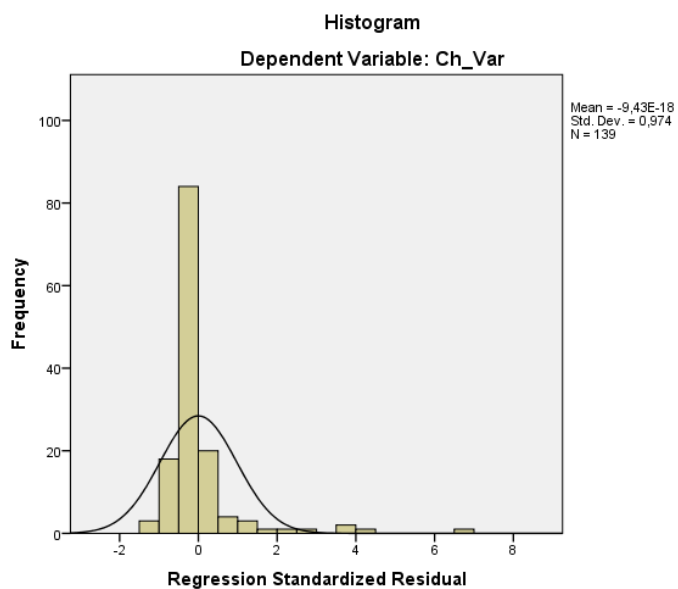
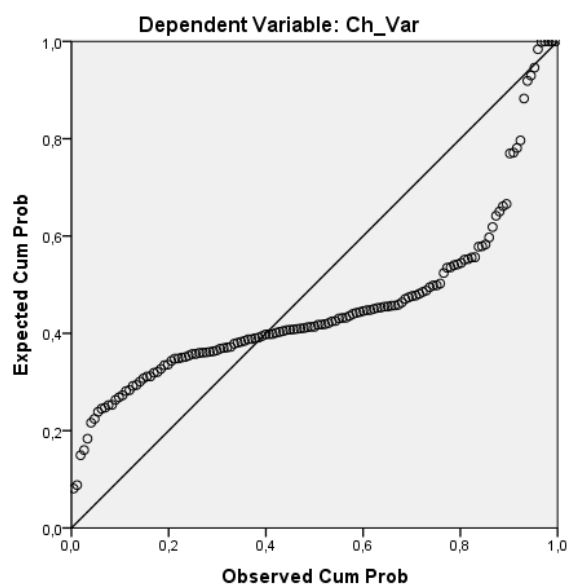
Case Number	Std. Residual	Ch_Var	Predicted Value	Residual
14	3,510	66,595	32,41300	34,181796
24	3,846	39,391	1,93555	37,455041
72	6,515	67,516	4,06241	63,453721
188	4,161	43,227	2,69721	40,530126

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-16,51328	32,41300	3,01970	4,538277	139
Residual	-13,617580	63,453720	,000000	9,489196	139
Std. Predicted Value	-4,304	6,477	,000	1,000	139
Std. Residual	-1,398	6,515	,000	,974	139

a. Dependent Variable: Ch_Var

**Normal P-P Plot of Regression Standardized Residual**

C.2 Hypothesis 1: Firm performance and variable CEO compensation with extreme values

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,447 ^a	,200	,162	24.59926146	1,739

a. Predictors: (Constant), Ch_EVA, Ch_P/B, Ch_J_alpha, Ch_P/E, Ch_ROA, Ch_TobQ, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22205,360	7	3172,194	5,242	,000 ^b
	Residual	88953,179	147	605,124		
	Total	111158,539	154			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), Ch_EVA, Ch_P/B, Ch_J_alpha, Ch_P/E, Ch_ROA, Ch_TobQ, Ch_ROE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,596	2,002		2,296	,023		
	Ch_P/B	-,384	,222	-,247	-1,730	,086	,266	3,753
	Ch_P/E	,100	,020	,405	4,925	,000	,805	1,243
	Ch_J_alpha	-,004	,040	-,008	-,111	,912	,995	1,005
	Ch_TobQ	9,680	1,904	,440	5,083	,000	,727	1,375
	Ch_ROE	12,179	8,545	,203	1,425	,156	,269	3,714
	Ch_ROA	-7,008	14,808	-,036	-,473	,637	,962	1,040
	Ch_EVA	,005	,016	,025	,335	,738	,997	1,003

a. Dependent Variable: Ch_Var

Casewise Diagnostics^a

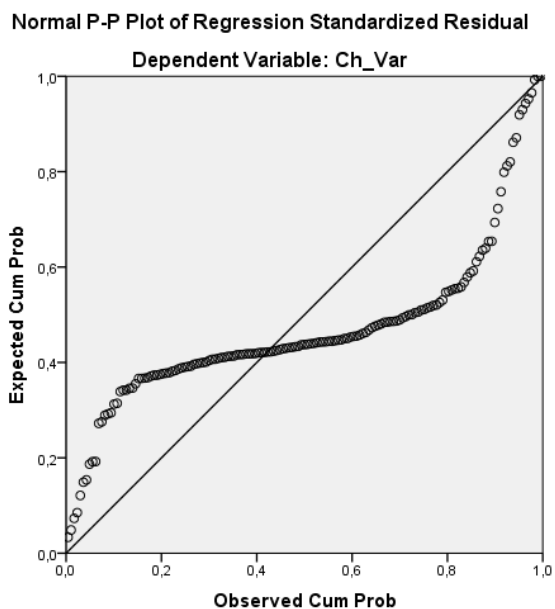
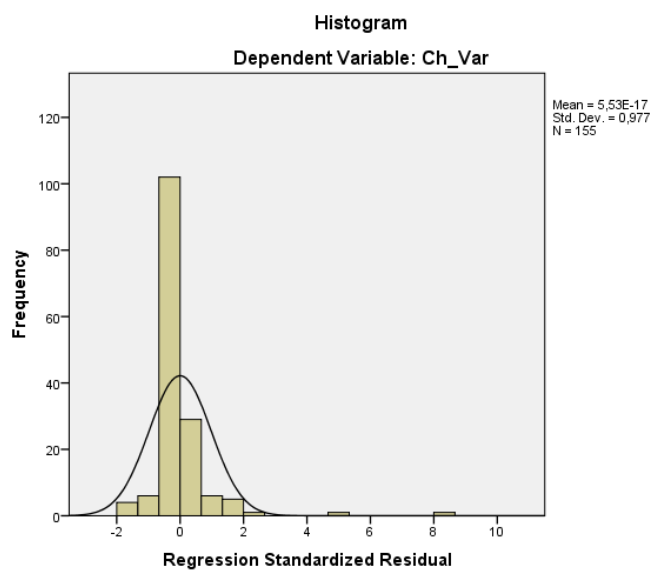
Case Number	Std. Residual	Ch_Var	Predicted Value	Residual
114	8,393	286.0000000	79.53325864	206.4667414
213	5,318	132.0000000	1.185366999	130.8146330

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-42.1029434	79.53325653	5.484536798	12.00794108	155
Residual	-45.0816612	206.4667358	.0000000000	24.03368560	155
Std. Predicted Value	-3,963	6,167	,000	1,000	155
Std. Residual	-1,833	8,393	,000	,977	155

a. Dependent Variable: Ch_Var



Appendix D

D.1 Hypothesis 2: Firm performance and fixed salary without extreme values

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,289 ^a	,084	,035	,269121	2,471

a. Predictors: (Constant), Ch_EVA, Ch_J_alpha, Ch_P/E, Ch_P/B, Ch_ROE, Ch_ROA, Ch_TobQ

b. Dependent Variable: Ch_Fix

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,872	7	,125	1,721	,109 ^b
	Residual	9,560	132	,072		
	Total	10,433	139			

a. Dependent Variable: Ch_Fix

b. Predictors: (Constant), Ch_EVA, Ch_J_alpha, Ch_P/E, Ch_P/B, Ch_ROE, Ch_ROA, Ch_TobQ

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,090	,023		3,880	,000		
	Ch_P/B	-,035	,012	-,283	-2,918	,004	,740	1,351
	Ch_P/E	,000	,001	-,048	-,562	,575	,948	1,055
	Ch_J_alpha	-,005	,005	-,091	-1,018	,310	,866	1,155
	Ch_TobQ	,067	,044	,157	1,534	,127	,666	1,501
	Ch_ROE	-,016	,108	-,013	-,145	,885	,859	1,165
	Ch_ROA	,388	,299	,118	1,298	,197	,840	1,191
	Ch_EVA	-,005	,007	-,060	-,683	,496	,895	1,117

a. Dependent Variable: Ch_Fix

Casewise Diagnostics^a

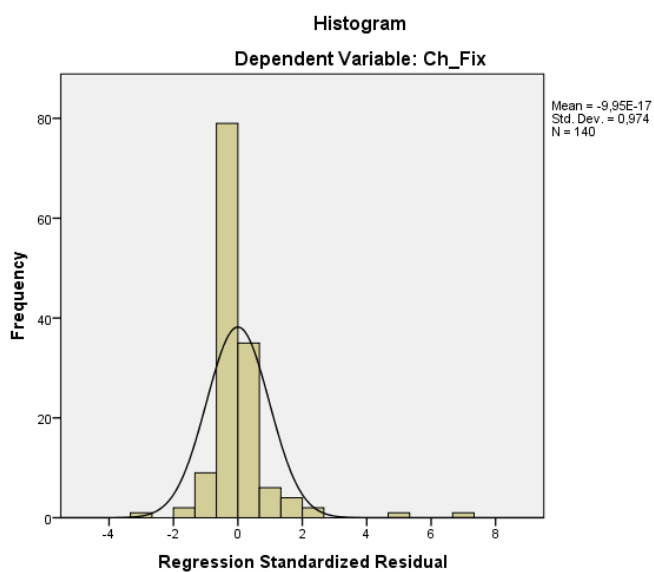
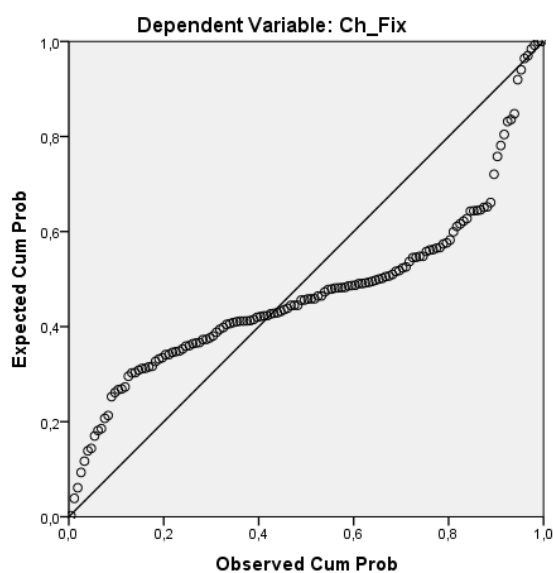
Case Number	Std. Residual	Ch_Fix	Predicted Value	Residual
215	6,777	1,942	,11788	1,823763
230	5,198	1,525	,12628	1,398787

a. Dependent Variable: Ch_Fix

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-,27399	,44607	,09233	,079217	140
Residual	-,762944	1,823763	,000000	,262257	140
Std. Predicted Value	-4,624	4,465	,000	1,000	140
Std. Residual	-2,835	6,777	,000	,974	140

a. Dependent Variable: Ch_Fix

**Normal P-P Plot of Regression Standardized Residual**

D.2 Hypothesis 2: Firm performance and fixed salary with extreme values

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,112 ^a	,013	-,034	.4533732499	2,238

a. Predictors: (Constant), Ch_EVA, Ch_P/B, Ch_J_alpha, Ch_P/E, Ch_ROA, Ch_TobQ, Ch_ROE

b. Dependent Variable: Ch_Fix

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,392	7	,056	,273	,964 ^b
	Residual	30,627	149	,206		
	Total	31,019	156			

a. Dependent Variable: Ch_Fix

b. Predictors: (Constant), Ch_EVA, Ch_P/B, Ch_J_alpha, Ch_P/E, Ch_ROA, Ch_TobQ, Ch_ROE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,132	,037		3,604	,000		
	Ch_P/B	-,004	,004	-,172	-1,094	,276	,267	3,747
	Ch_P/E	,000	,000	-,038	-,424	,672	,804	1,243
	Ch_J_alpha	-3,330E-5	,001	-,004	-,045	,964	,995	1,005
	Ch_TobQ	-,015	,035	-,040	-,420	,675	,727	1,376
	Ch_ROE	,143	,157	,142	,907	,366	,270	3,708
	Ch_ROA	-,059	,273	-,018	-,217	,829	,962	1,040
	Ch_EVA	4,607E-5	,000	,013	,157	,876	,997	1,003

a. Dependent Variable: Ch_Fix

Casewise Diagnostics^a

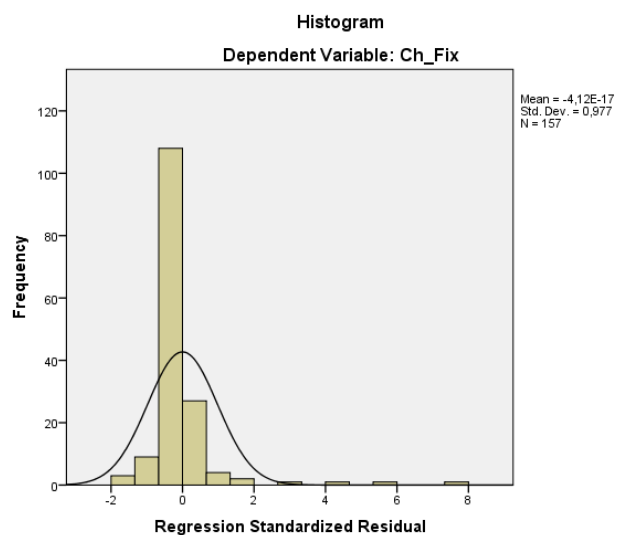
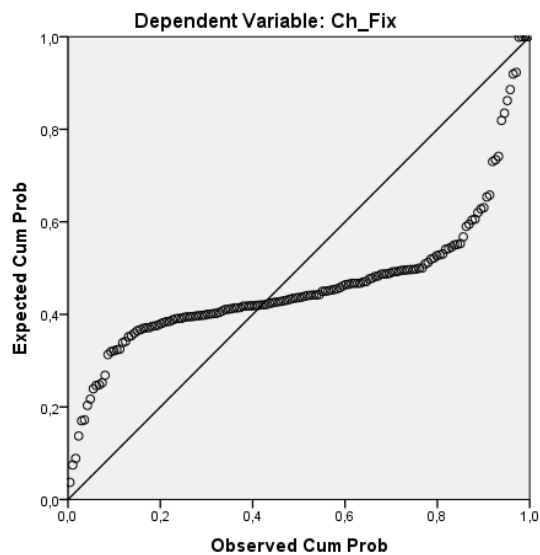
Case Number	Std. Residual	Ch_Fix	Predicted Value	Residual
71	7,877	3.712034384	.1409440524	3.571090332
95	5,621	2.678321678	.1297222195	2.548599459
213	4,033	1.941644562	.1130469121	1.828597650
230	3,030	1.525062657	.1511393070	1.373923350

a. Dependent Variable: Ch_Fix

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.101491421	.3698005676	.1333143101	.0501424917	157
Residual	-.810007274	3.571090221	.0000000000	.4430846728	157
Std. Predicted Value	-4,683	4,716	,000	1,000	157
Std. Residual	-1,787	7,877	,000	,977	157

a. Dependent Variable: Ch_Fix

**Normal P-P Plot of Regression Standardized Residual**

Appendix E

E.1 Hypothesis 3: ROE and market value

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,361 ^a	,130	,120	9,079899	2,101

a. Predictors: (Constant), In_ROE_MV, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2061,653	2	1030,827	12,503	,000 ^b
	Residual	13768,242	167	82,445		
	Total	15829,895	169			

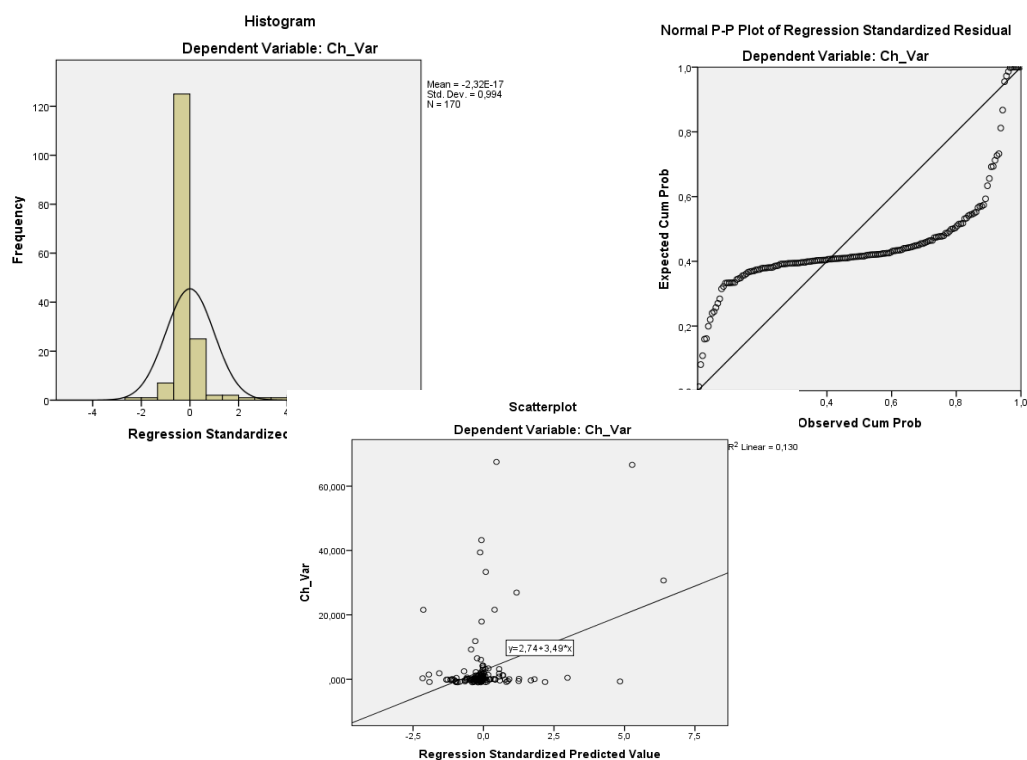
a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_MV, Ch_ROE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,395	,701		3,419	,001		
	Ch_ROE	17,905	3,594	,446	4,982	,000	,651	1,537
	In_ROE_MV	-15,854	6,114	-,232	-2,593	,010	,651	1,537

a. Dependent Variable: Ch_Var



Split:Small firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,373 ^b	,139	,128	12,044639	2,085

a. Dum_MV = ,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3,634	1,345		2,702	,008		
Ch_ROE	17,250	4,795	,373	3,597	,001	1,000	1,000

a. Dum_MV = ,00

b. Dependent Variable: Ch_Var

Large firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,073 ^b	,005	-,006	4,733529	2,174

a. Dum_MV = 1,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1,263	,505		2,500	,014		
Ch_ROE	1,748	2,573	,073	,679	,499	1,000	1,000

a. Dum_MV = 1,00

b. Dependent Variable: Ch_Var

E.2 Hypothesis 3: ROE and revenue

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,333 ^a	,111	,100	9,179022	2,102

a. Predictors: (Constant), In_ROE_Rev, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1759,403	2	879,702	10,441	,000 ^b
	Residual	14070,492	167	84,254		
	Total	15829,895	169			

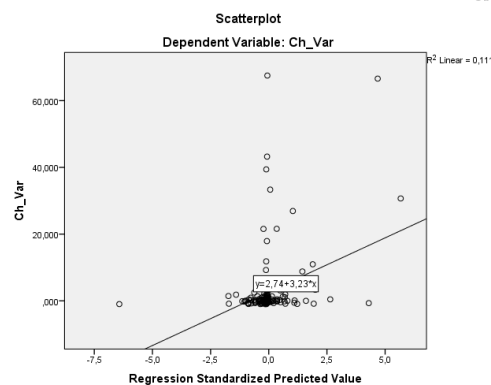
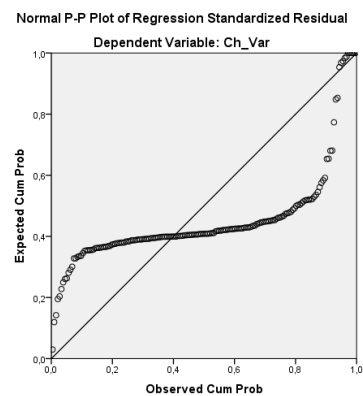
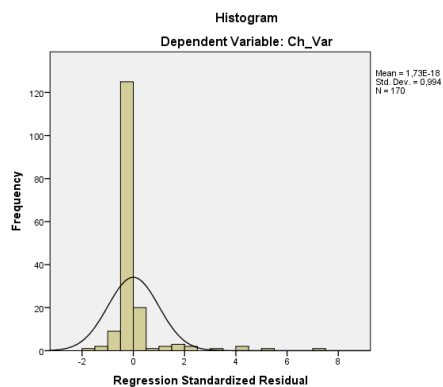
a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_Rev, Ch_ROE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,429	,709		3,423	,001		
	Ch_ROE	14,709	3,221	,366	4,566	,000	,828	1,208
	In_ROE_Rev	-13,650	7,892	-,139	-1,730	,086	,828	1,208

a. Dependent Variable: Ch_Var



Split:Small firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,438 ^b	,192	,181	9,599517	2,158

a. Dum_Rev = ,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,530	1,078		2,347	,021		
	Ch_ROE	14,663	3,388	,438	4,328	,000	1,000	1,000

a. Dum_Rev = ,00

b. Dependent Variable: Ch_Var

Large firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,015 ^b	,000	-,011	8,833743	2,134

a. Dum_Rev = 1,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,338	,941		2,484	,015		
	Ch_ROE	,991	6,928	,015	,143	,887	1,000	1,000

a. Dum_Rev = 1,00

b. Dependent Variable: Ch_Var

Appendix F

F.1 Hypothesis 4: ROE and beta

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,354 ^a	,125	,114	9,107391	2,140

a. Predictors: (Constant), In_ROE_Beta, Ch_ROE

b. Dependent Variable: Ch_Var

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,490	,700		3,555	,000		
	Ch_ROE	23,023	5,324	,573	4,324	,000	,298	3,352
	In_ROE_Beta	-15,124	6,348	-,316	-2,382	,018	,298	3,352

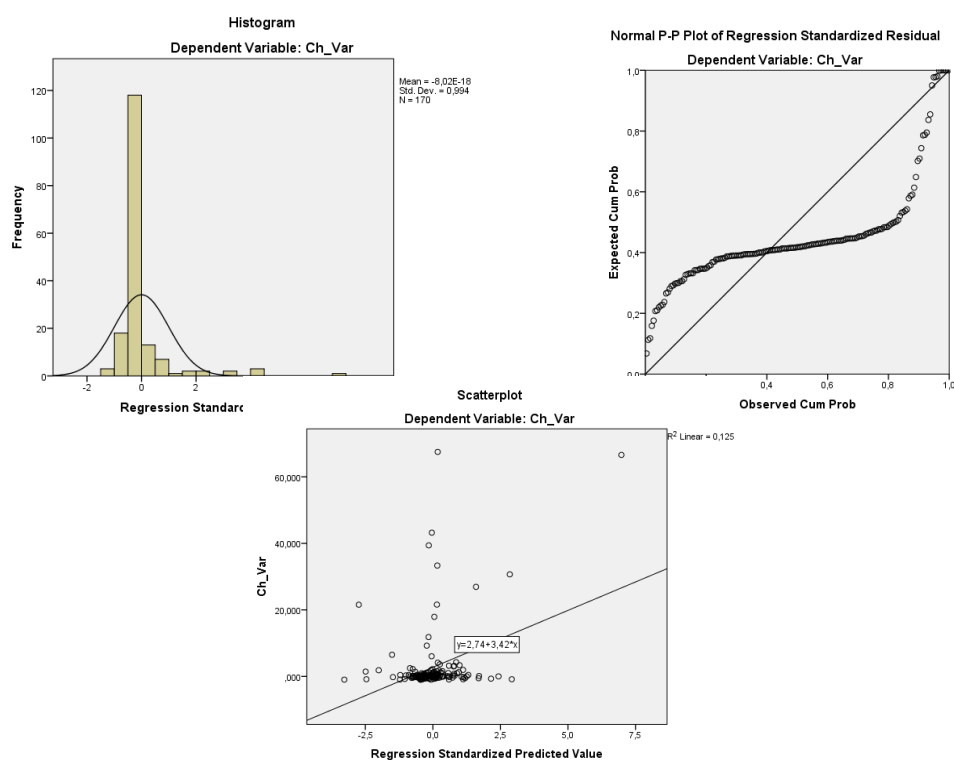
a. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1978,151	2	989,076	11,925	,000 ^b
	Residual	13851,744	167	82,945		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_Beta, Ch_ROE



Split:Low-risk firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,436 ^b	,190	,180	9,208115	2,290

a. Dum_Beta = ,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2,369	1,035		2,289	,025		
Ch_ROE	23,087	5,398	,436	4,277	,000	1,000	1,000

a. Dum_Beta = ,00

b. Dependent Variable: Ch_Var

High-risk firms**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,236 ^b	,056	,045	9,067909	2,092

a. Dum_Beta = 1,00

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2,597	,957		2,715	,008		
Ch_ROE	7,884	3,453	,236	2,283	,025	1,000	1,000

a. Dum_Beta = 1,00

b. Dependent Variable: Ch_Var

Appendix G

G.1 Hypothesis 5: ROE and ownership structure

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,314 ^a	,099	,082	9,298089	2,150

a. Predictors: (Constant), In_ROE_CO, CEO_OS, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1564,694	3	521,565	6,033	,001 ^b
	Residual	14264,987	165	86,454		
	Total	15829,681	168			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_CO, CEO_OS, Ch_ROE

Coefficients^a

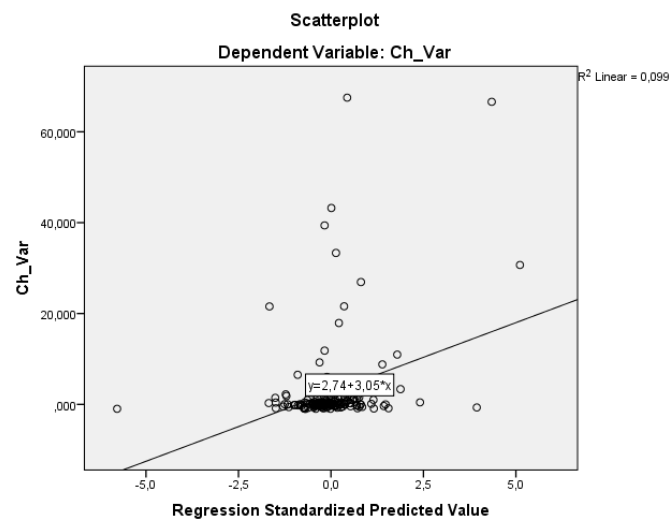
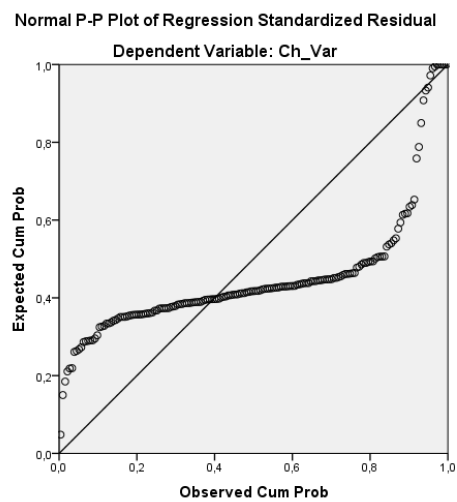
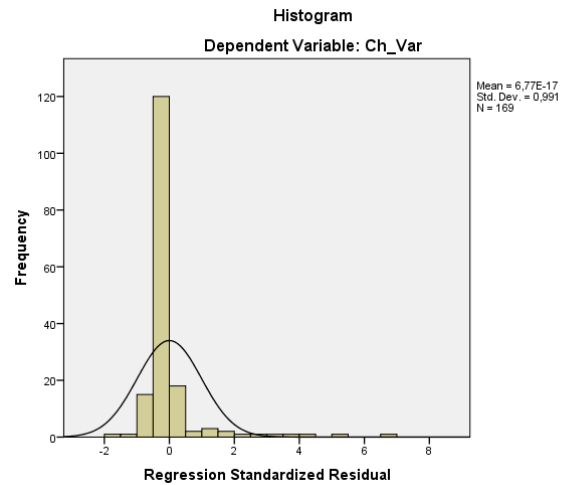
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,707	,739		3,664	,000		
	Ch_ROE	12,714	3,084	,315	4,122	,000	,934	1,071
	CEO_OS	-15,633	23,169	-,050	-,675	,501	,993	1,007
	In_ROE_CO	-62,056	225,003	-,021	-,276	,783	,928	1,078

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-14,90250	18,33324	2,74109	3,051828	169
Residual	-15,460109	63,440830	,000000	9,214697	169
Std. Predicted Value	-5,781	5,109	,000	1,000	169
Std. Residual	-1,663	6,823	,000	,991	169

a. Dependent Variable: Ch_Var



Appendix H

H.1 Hypothesis 6a: ROE and age

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,484 ^a	,234	,221	8,544203	2,148

a. Predictors: (Constant), In_ROE_Age, CEO_Age, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3711,329	3	1237,110	16,946	,000 ^b
	Residual	12118,566	166	73,003		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_Age, CEO_Age, Ch_ROE

Coefficients^a

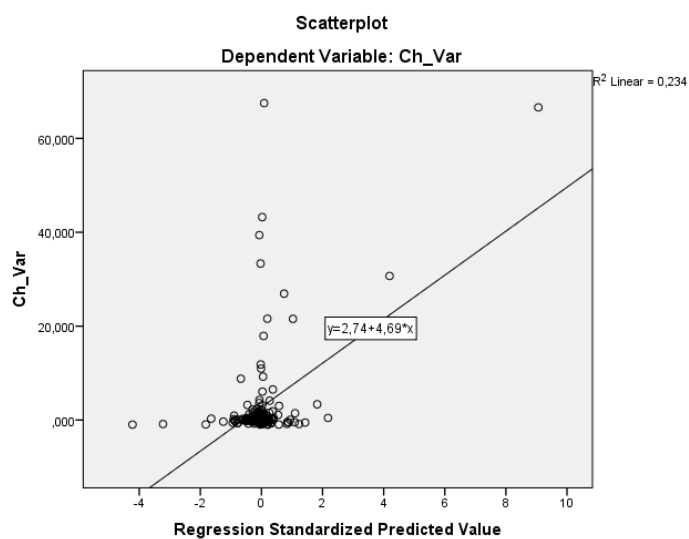
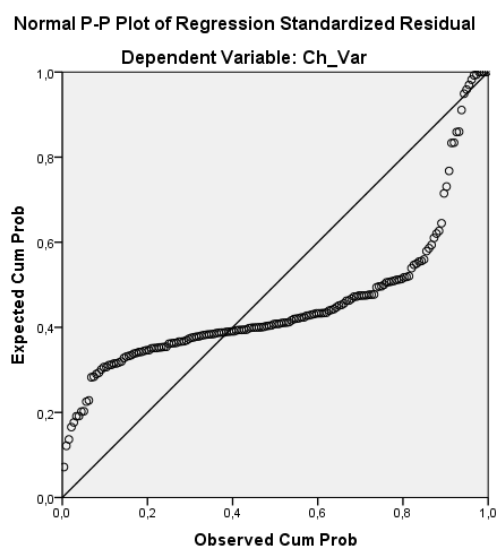
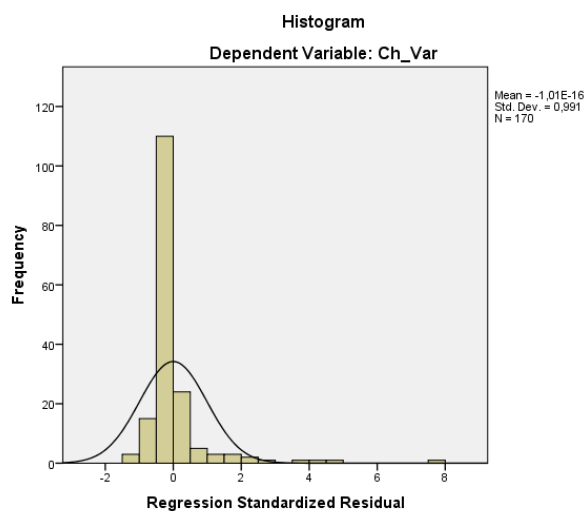
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,873	4,527		1,076	,283		
	Ch_ROE	-92,624	19,334	-.2,306	-4,791	,000	,020	50,219
	CEO_Age	-,048	,088	-,037	-,541	,589	,995	1,005
	In_ROE_Age	1,973	,360	2,642	5,489	,000	,020	50,257

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-17,03303	45,20171	2,74382	4,686206	170
Residual	-12,505857	64,360023	,000000	8,468028	170
Std. Predicted Value	-4,220	9,060	,000	1,000	170
Std. Residual	-1,464	7,533	,000	,991	170

a. Dependent Variable: Ch_Var



H.2 Hypothesis 6a: ROE and age – centered

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,484 ^a	,234	,221	8,544203	2,168

a. Predictors: (Constant), In_ROE_Age_Cen, CEO_Age, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3711,329	3	1237,110	16,946	,000 ^b
	Residual	12118,566	166	73,003		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_Age_Cen, CEO_Age, Ch_ROE

Coefficients^a

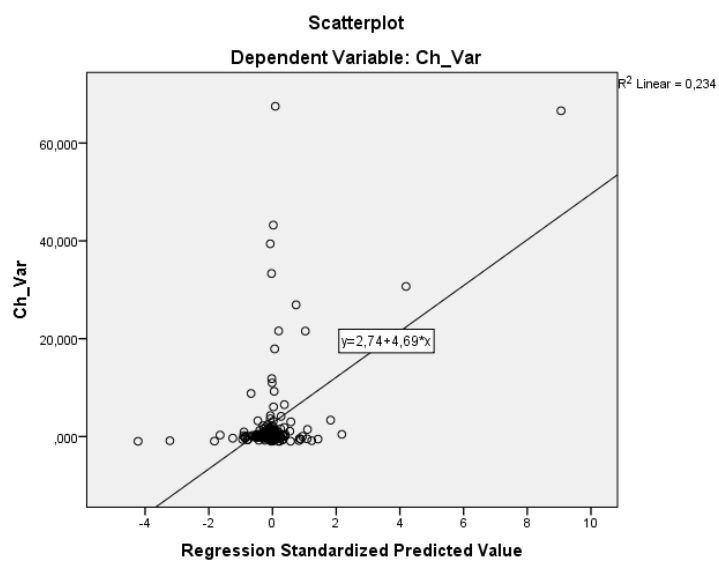
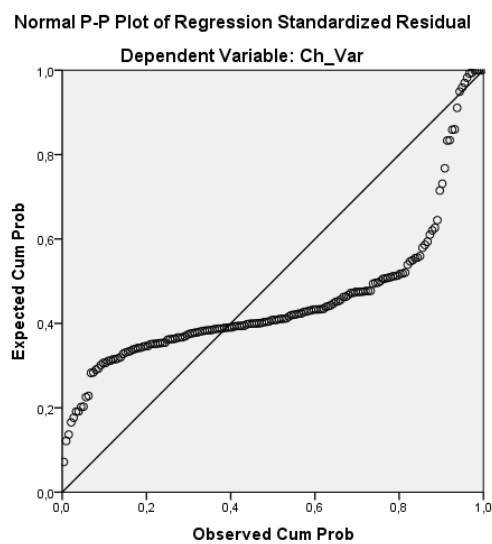
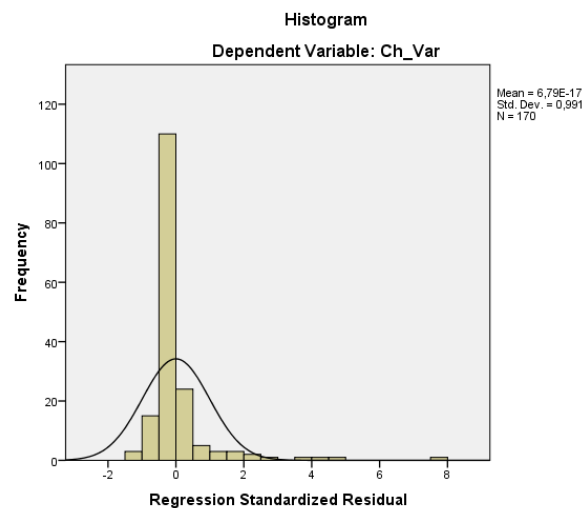
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,472	4,522		,768	,444		
	Ch_ROE	7,049	2,902	,175	2,429	,016	,884	1,132
	CEO_Age	-,020	,088	-,015	-,226	,822	,997	1,003
	In_ROE_Age_Cen	1,973	,360	,396	5,489	,000	,886	1,129

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-17,03303	45,20171	2,74382	4,686206	170
Residual	-12,505857	64,360023	,000000	8,468028	170
Std. Predicted Value	-4,220	9,060	,000	1,000	170
Std. Residual	-1,464	7,533	,000	,991	170

a. Dependent Variable: Ch_Var



Appendix I

I.1 Hypothesis 6b: ROE and tenure

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,349 ^a	,122	,106	9,150317	2,185

a. Predictors: (Constant), In_ROE_Ten, CEO_Tenure, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1930,997	3	643,666	7,688	,000 ^b
	Residual	13898,899	166	83,728		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_Ten, CEO_Tenure, Ch_ROE

Coefficients^a

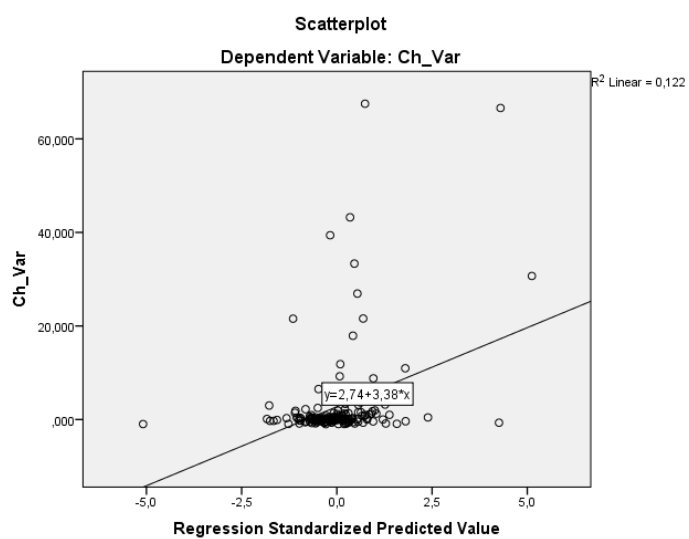
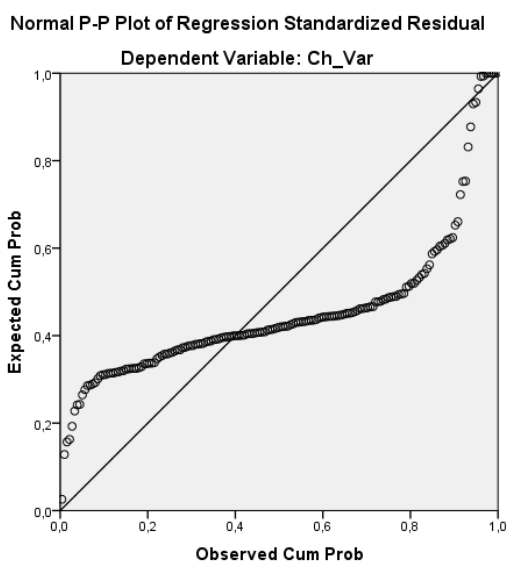
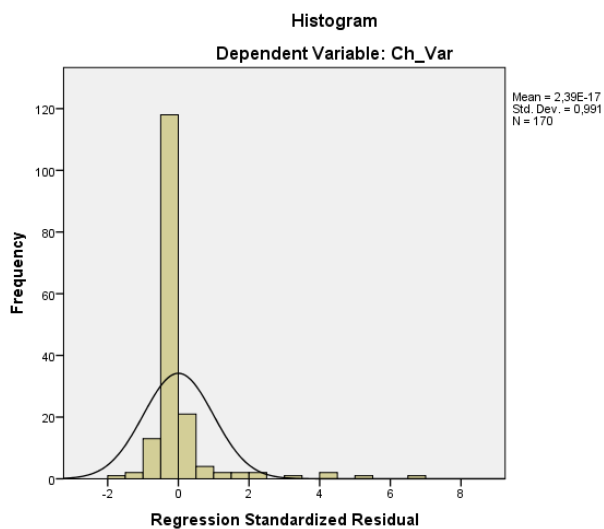
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,184	1,036		4,038	,000		
	Ch_ROE	13,432	3,499	,334	3,839	,000	,697	1,434
	CEO_Tenure	-,337	,157	-,156	-2,139	,034	,998	1,002
	In_ROE_Ten	-,626	,912	-,060	-,686	,493	,698	1,432

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-14,45836	20,04966	2,74382	3,380239	170
Residual	-17,822786	62,273106	,000000	9,068738	170
Std. Predicted Value	-5,089	5,120	,000	1,000	170
Std. Residual	-1,948	6,806	,000	,991	170

a. Dependent Variable: Ch_Var



Appendix J

J.1 Hypothesis 6d: ROE and CEO change

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,411 ^a	,169	,159	8,874063	2,162

a. Predictors: (Constant), In_ROE_CC, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2678,813	2	1339,407	17,009	,000 ^b
	Residual	13151,082	167	78,749		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_CC, Ch_ROE

Coefficients^a

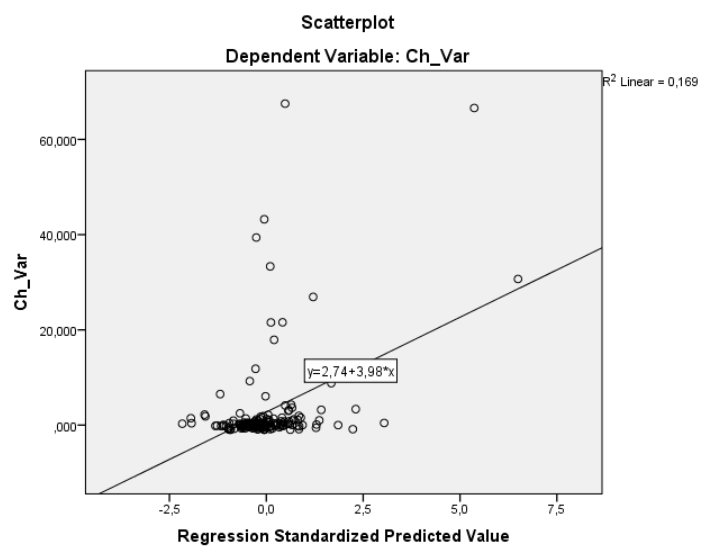
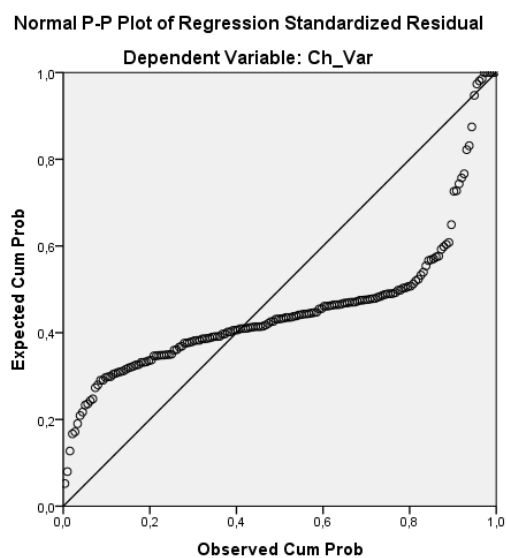
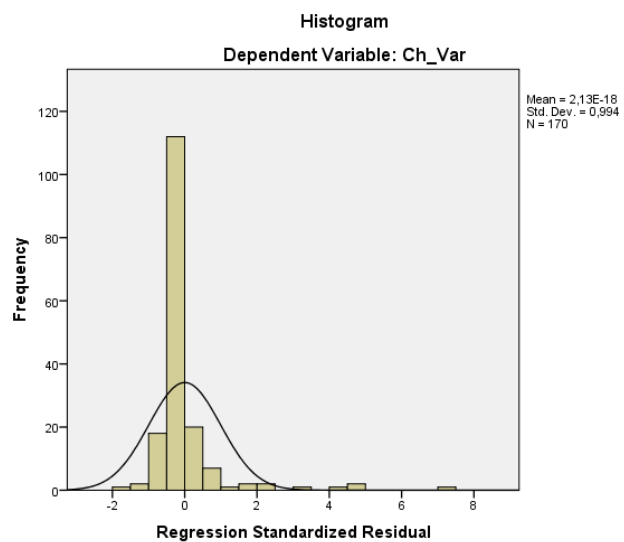
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,421	,683		3,546	,001		
	Ch_ROE	20,697	3,558	,515	5,817	,000	,634	1,577
	In_ROE_CC	-22,704	5,886	-,342	-3,857	,000	,634	1,577

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-5,89176	28,60579	2,74382	3,981327	170
Residual	-14,405360	62,839146	,000000	8,821397	170
Std. Predicted Value	-2,169	6,496	,000	1,000	170
Std. Residual	-1,623	7,081	,000	,994	170

a. Dependent Variable: Ch_Var



Split:No CEO change**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,416 ^b	,173	,167	9,214394	2,182

a. CEO_Change = 0

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2,622	,753		3,483	,001		
	Ch_ROE	20,612	3,696	,416	5,577	,000	1,000	1,000

a. CEO_Change = 0

b. Dependent Variable: Ch_Var

CEO change**Model Summary^{a,c}**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,182 ^b	,033	-,024	5,126185	2,123

a. CEO_Change = 1

b. Predictors: (Constant), Ch_ROE

c. Dependent Variable: Ch_Var

Coefficients^{a,b}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,840	1,176		,714	,485		
	Ch_ROE	-2,066	2,708	-,182	-,763	,456	1,000	1,000

a. CEO_Change = 1

b. Dependent Variable: Ch_Var

Appendix K

K.1 Hypothesis 8a: ROE and board size

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,401 ^a	,161	,145	8,946695	2,175

a. Predictors: (Constant), In_ROE_BS, Board_Size, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2542,699	3	847,566	10,589	,000 ^b
	Residual	13287,197	166	80,043		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_BS, Board_Size, Ch_ROE

Coefficients^a

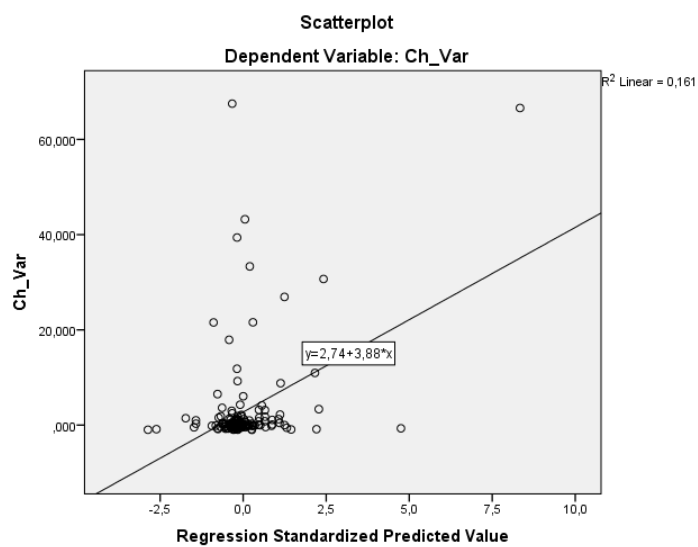
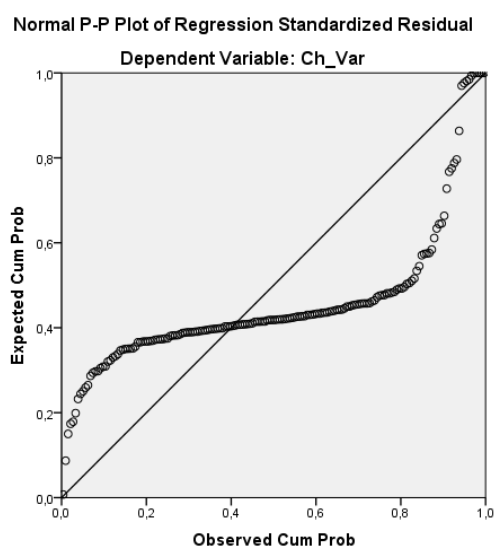
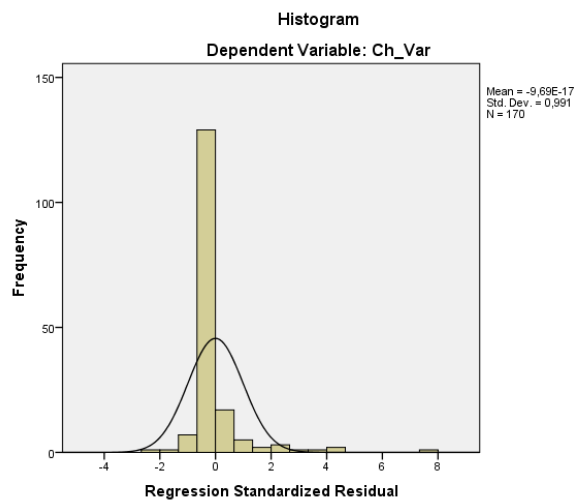
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,100	2,552		1,606	,110		
	Ch_ROE	47,186	10,454	1,175	4,514	,000	,075	13,392
	Board_Size	-,250	,342	-,052	-,730	,466	,984	1,016
	In_ROE_BS	-5,637	1,614	-,907	-3,491	,001	,075	13,346

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-8,37607	35,07985	2,74382	3,878860	170
Residual	-21,858025	66,053413	,000000	8,866931	170
Std. Predicted Value	-2,867	8,336	,000	1,000	170
Std. Residual	-2,443	7,383	,000	,991	170

a. Dependent Variable: Ch_Var



K.2 Hypothesis 8a: ROE and board size – centered**Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,401 ^a	,161	,145	8,946695	2,124

a. Predictors: (Constant), In_ROE_BS_Cen, Board_Size, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2542,699	3	847,566	10,589	,000 ^b
	Residual	13287,197	166	80,043		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_BS_Cen, Board_Size, Ch_ROE

Coefficients^a

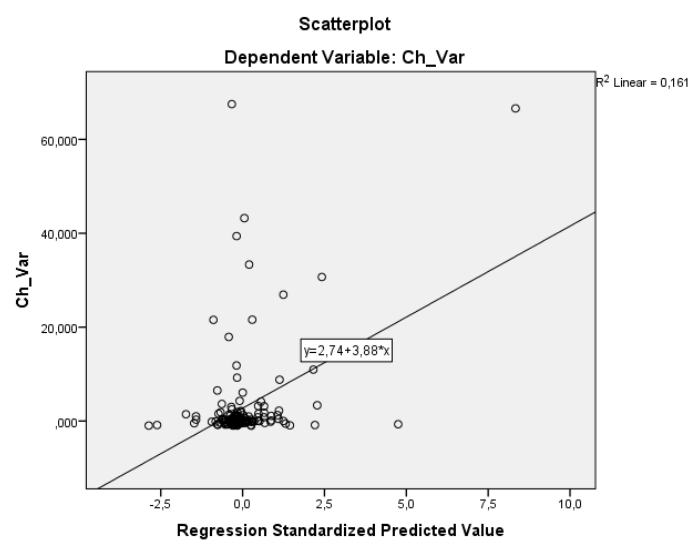
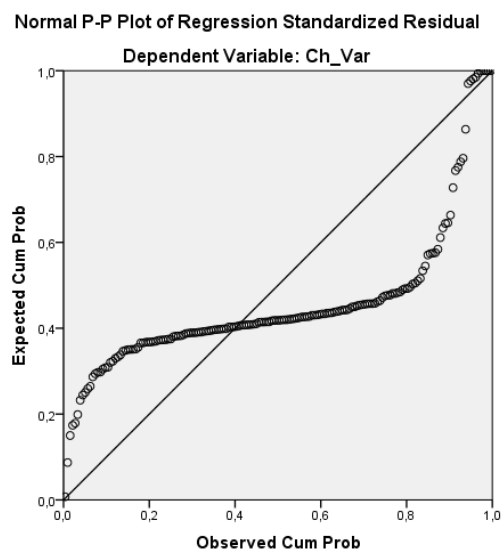
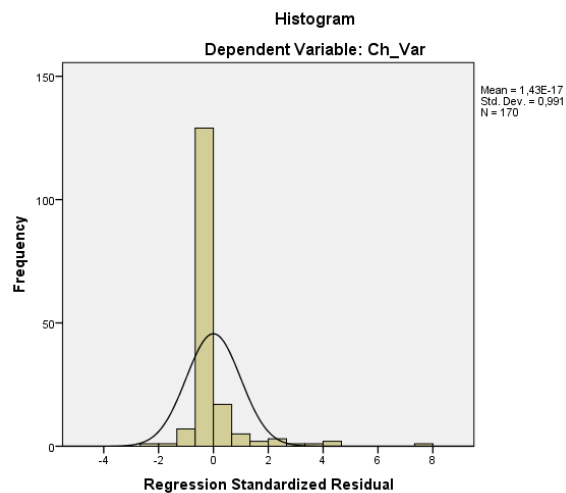
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4,664	2,547		1,831	,069		
	Ch_ROE	7,051	3,220	,176	2,190	,030	,787	1,271
	Board_Size	-,329	,342	-,069	-,962	,337	,985	1,016
	In_ROE_BS_Cen	-5,637	1,614	-,278	-3,491	,001	,798	1,253

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-8,37607	35,07985	2,74382	3,878860	170
Residual	-21,858025	66,053413	,000000	8,866931	170
Std. Predicted Value	-2,867	8,336	,000	1,000	170
Std. Residual	-2,443	7,383	,000	,991	170

a. Dependent Variable: Ch_Var



Appendix L

L.1 Hypothesis 8b: ROE and board gender

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,349 ^a	,122	,106	9,149934	2,141

a. Predictors: (Constant), In_ROE_BG, Board_Gen, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1932,162	3	644,054	7,693	,000 ^b
	Residual	13897,733	166	83,721		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_BG, Board_Gen, Ch_ROE

Coefficients^a

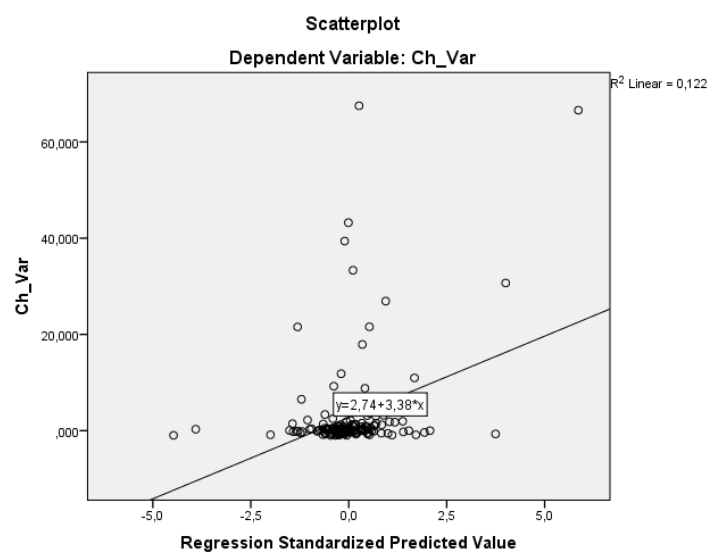
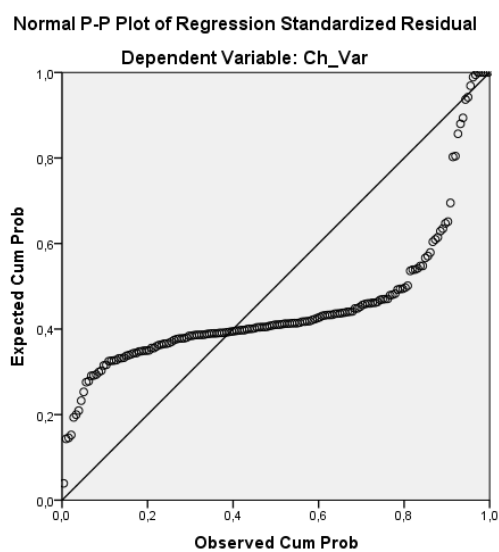
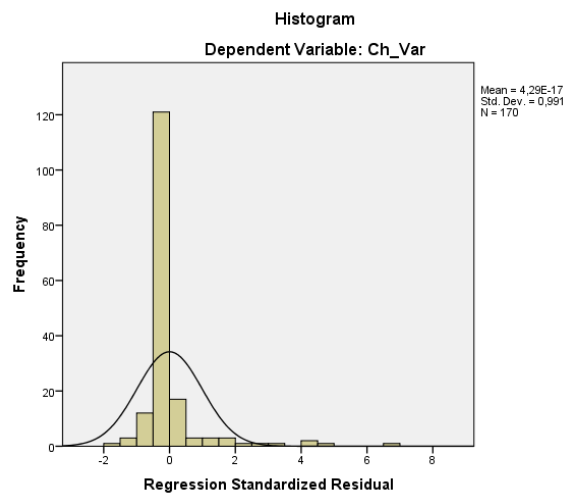
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,021	3,427		,881	,379		
	Ch_ROE	47,418	15,821	1,180	2,997	,003	,034	29,322
	Board_Gen	-,943	8,497	-,008	-,111	,912	,993	1,007
	In_ROE_BG	-85,431	37,926	-,887	-2,253	,026	,034	29,286

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-12,37816	22,55689	2,74382	3,381259	170
Residual	-16,101810	63,884876	,000000	9,068358	170
Std. Predicted Value	-4,472	5,860	,000	1,000	170
Std. Residual	-1,760	6,982	,000	,991	170

a. Dependent Variable: Ch_Var



L.2 Hypothesis 8b: ROE and board gender – centered

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,349 ^a	,122	,106	9,149934	2,151

a. Predictors: (Constant), In_ROE_BG_Cen, Board_Gen, Ch_ROE

b. Dependent Variable: Ch_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1932,162	3	644,054	7,693	,000 ^b
	Residual	13897,733	166	83,721		
	Total	15829,895	169			

a. Dependent Variable: Ch_Var

b. Predictors: (Constant), In_ROE_BG_Cen, Board_Gen, Ch_ROE

Coefficients^a

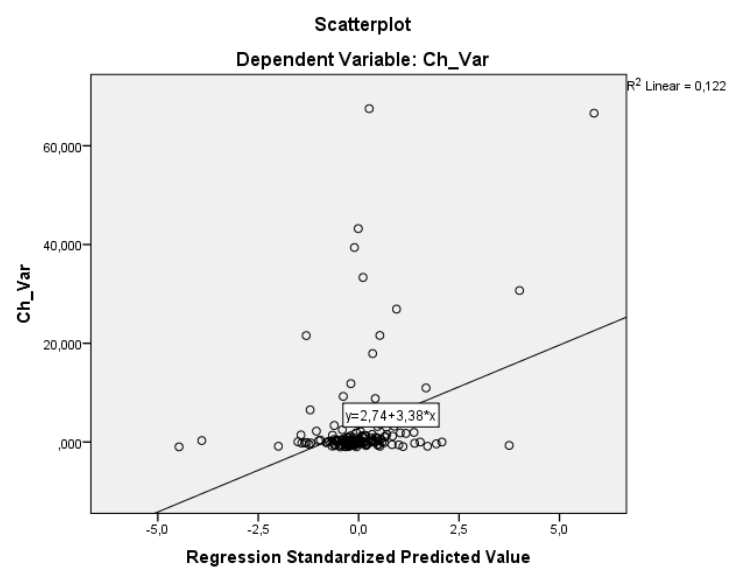
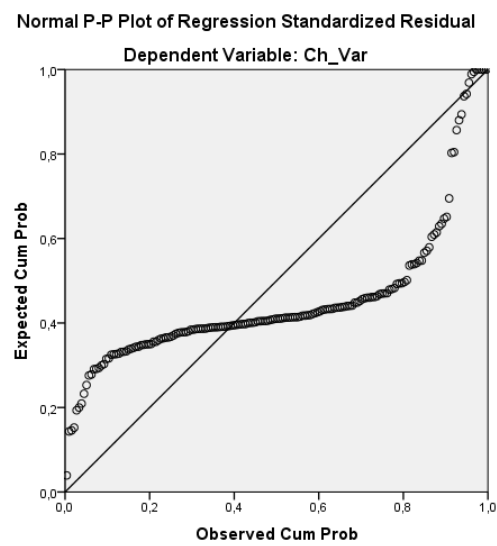
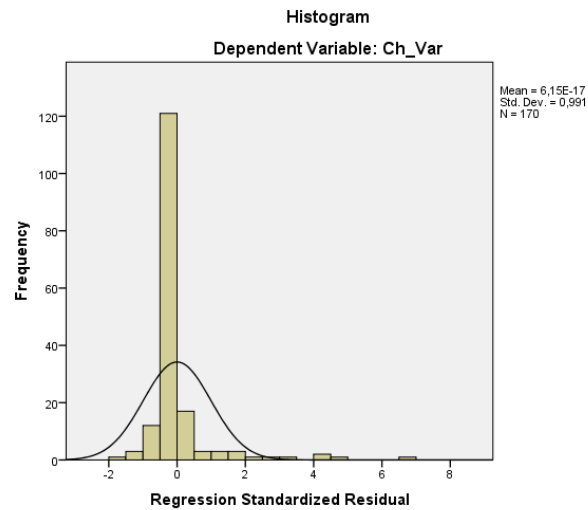
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,492	3,446		1,013	,312		
	Ch_ROE	13,905	3,003	,346	4,630	,000	,947	1,057
	Board_Gen	-2,144	8,541	-,018	-,251	,802	,983	1,017
	In_ROE_BG_Cen	-85,431	37,926	-,169	-2,253	,026	,941	1,063

a. Dependent Variable: Ch_Var

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-12,37816	22,55689	2,74382	3,381259	170
Residual	-16,101810	63,884876	,000000	9,068358	170
Std. Predicted Value	-4,472	5,860	,000	1,000	170
Std. Residual	-1,760	6,982	,000	,991	170

a. Dependent Variable: Ch_Var



Appendix M

M.1 Second research model: Variable CEO compensation

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,463 ^a	,215	,173	1,49289	1,399

a. Predictors: (Constant), LN_BG, LN_Beta, LN_Age, LN_CO, LN_BS, LN_Ten, LN_Rev, LN_MV

b. Dependent Variable: LN_Var

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	90,857	8	11,357	5,096	,000 ^b
	Residual	332,078	149	2,229		
	Total	422,935	157			

a. Dependent Variable: LN_Var

b. Predictors: (Constant), LN_BG, LN_Beta, LN_Age, LN_CO, LN_BS, LN_Ten, LN_Rev, LN_MV

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3,830	3,961		,967	,335		
	LN_MV	,332	,113	,395	2,930	,004	,290	3,444
	LN_Rev	,041	,087	,057	,470	,639	,360	2,780
	LN_Beta	,278	,237	,095	1,174	,242	,797	1,254
	LN_CO	,044	,076	,061	,580	,563	,481	2,081
	LN_Age	,337	,957	,028	,352	,725	,842	1,188
	LN_Ten	-,067	,193	-,034	-,350	,727	,571	1,750
	LN_BS	-,308	,576	-,052	-,536	,593	,559	1,790
	LN_BG	-1,348	,522	-,191	-2,581	,011	,958	1,044

a. Dependent Variable: LN_Var

Casewise Diagnostics^a

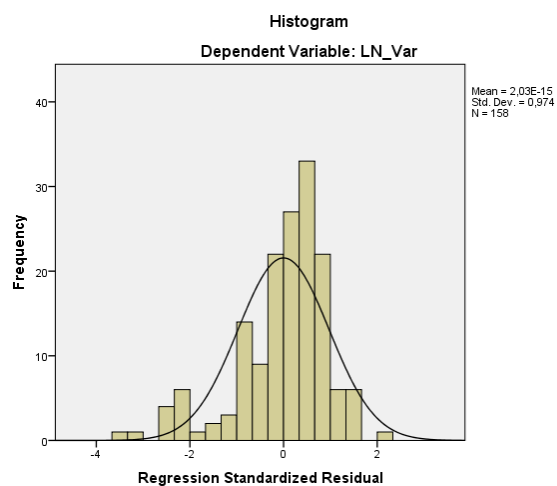
Case Number	Std. Residual	LN_Var	Predicted Value	Residual
114	-3,661	8,85	14,3191	-5,46540
144	-3,048	9,62	14,1663	-4,55052

a. Dependent Variable: LN_Var

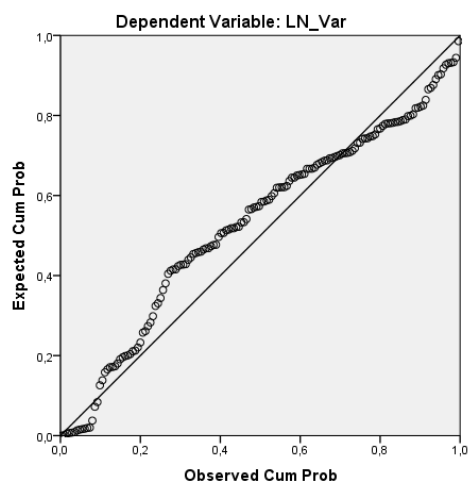
Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11,5652	15,3871	13,5963	,76073	158
Residual	-5,46540	3,26404	,00000	1,45435	158
Std. Predicted Value	-2,670	2,354	,000	1,000	158
Std. Residual	-3,661	2,186	,000	,974	158

a. Dependent Variable: LN_Var



Normal P-P Plot of Regression Standardized Residual



M.2 Second research model: Fixed salary

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,758 ^a	,575	,553	,31364	,802

a. Predictors: (Constant), LN_BG, LN_Beta, LN_Age, LN_CO, LN_BS, LN_Ten, LN_Rev, LN_MV

b. Dependent Variable: LN_Fix

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20,121	8	2,515	25,568	,000 ^b
	Residual	14,854	151	,098		
	Total	34,974	159			

a. Dependent Variable: LN_Fix

b. Predictors: (Constant), LN_BG, LN_Beta, LN_Age, LN_CO, LN_BS, LN_Ten, LN_Rev, LN_MV

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	12,324	,832		14,819	,000		
	LN_MV	,102	,024	,421	4,273	,000	,290	3,452
	LN_Rev	,030	,018	,145	1,641	,103	,361	2,770
	LN_Beta	,101	,049	,121	2,054	,042	,804	1,244
	LN_CO	-,052	,016	-,246	-3,230	,002	,486	2,059
	LN_Age	-,143	,201	-,041	-,710	,479	,844	1,185
	LN_Ten	-,012	,040	-,021	-,297	,767	,571	1,752
	LN_BS	,033	,121	,019	,273	,785	,559	1,789
	LN_BG	,058	,109	,029	,531	,596	,957	1,045

a. Dependent Variable: LN_Fix

Casewise Diagnostics^a

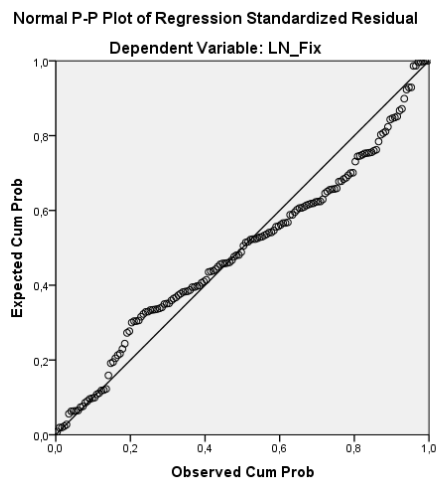
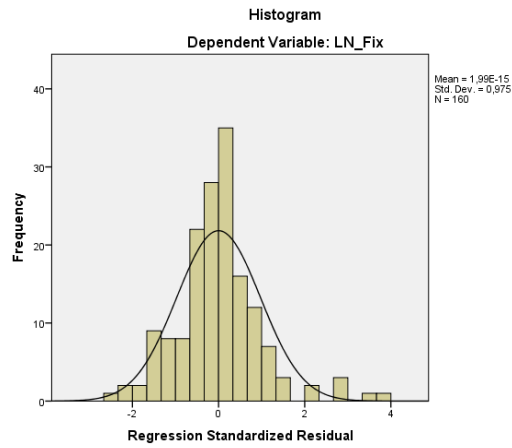
Case Number	Std. Residual	LN_Fix	Predicted Value	Residual
51	3,385	15,92	14,8595	1,06176
52	3,797	16,07	14,8781	1,19081

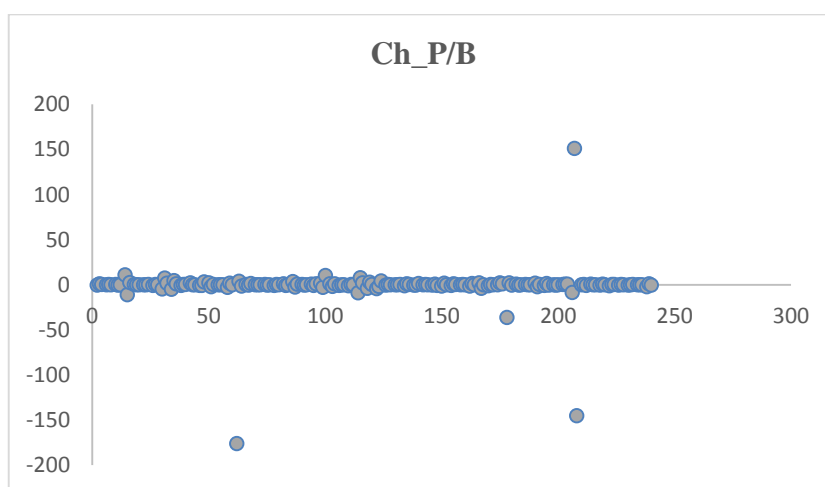
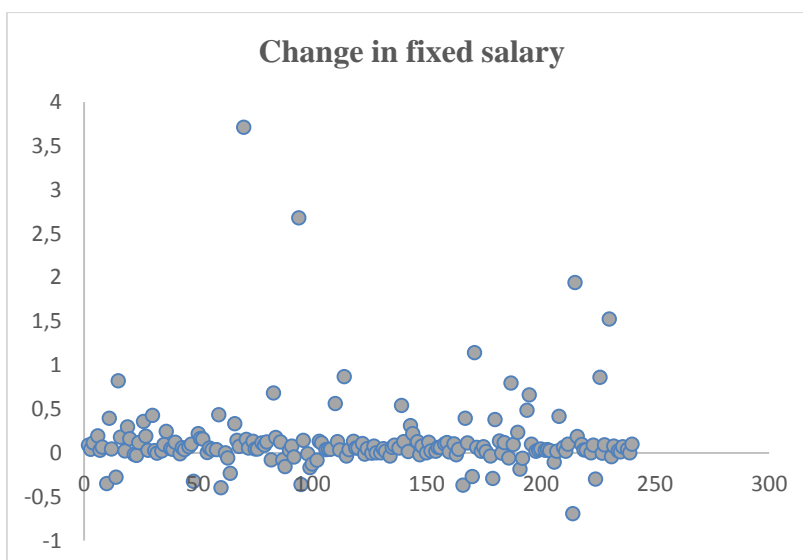
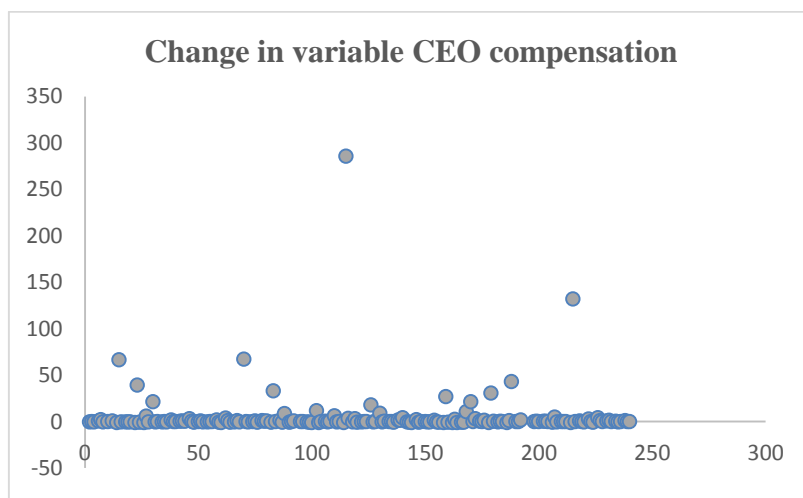
a. Dependent Variable: LN_Fix

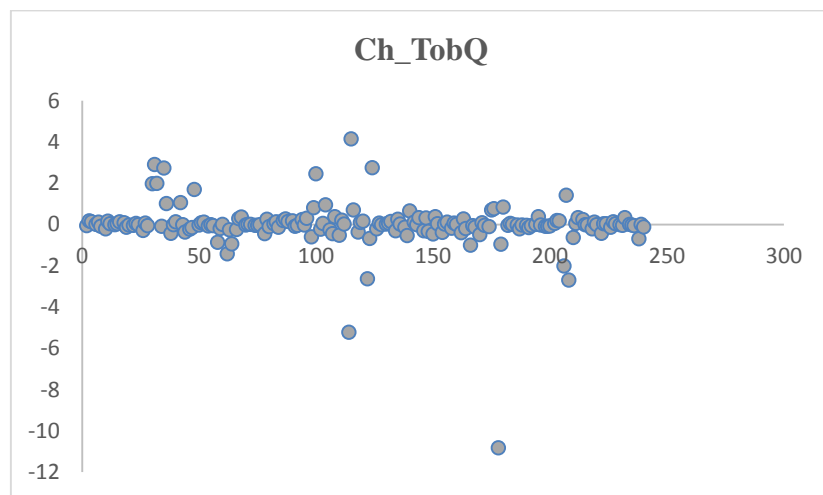
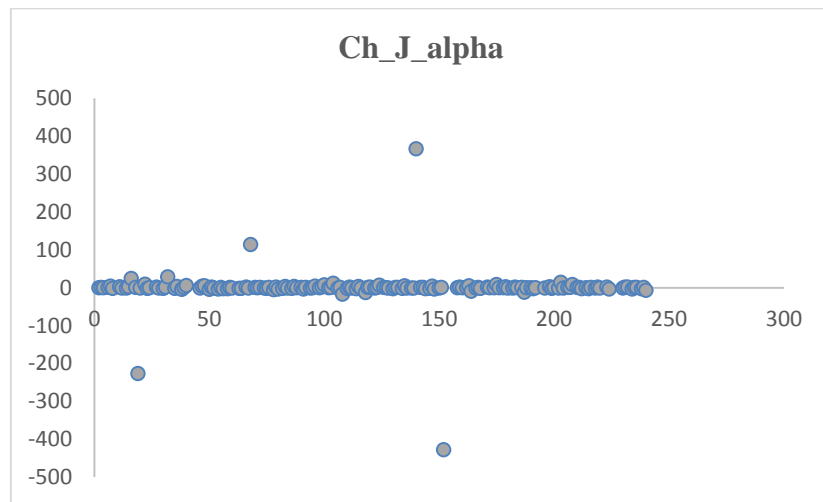
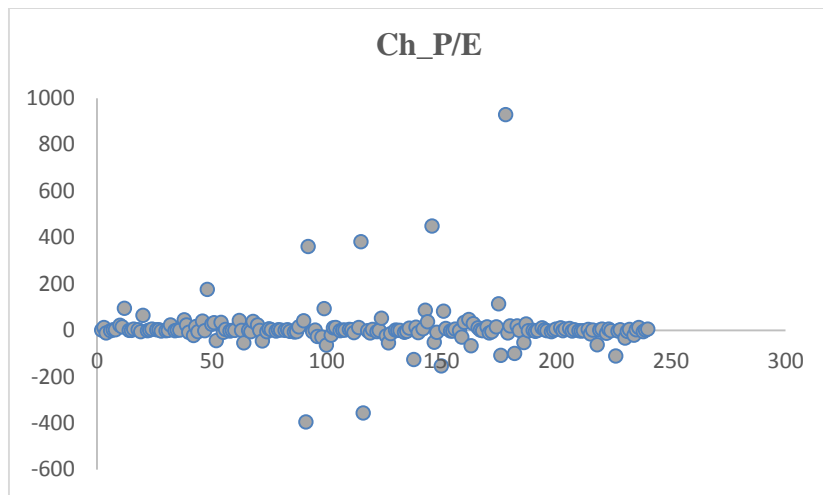
Residuals Statistics^a

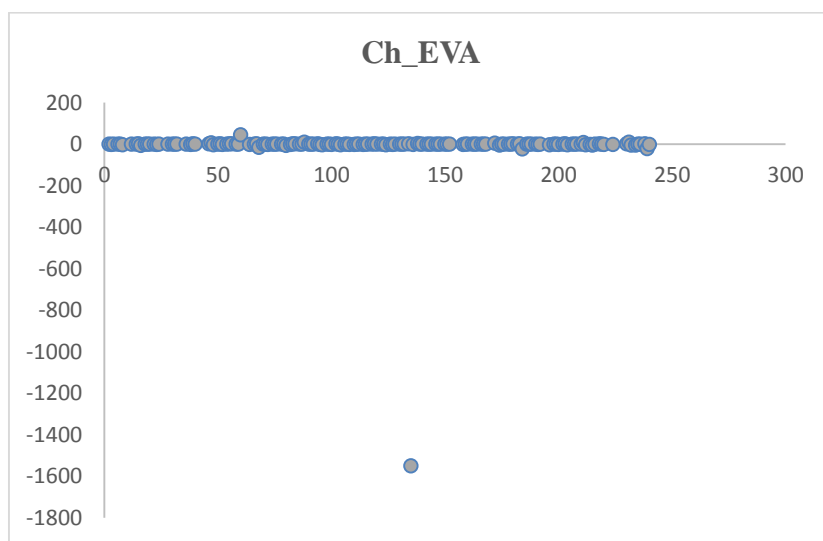
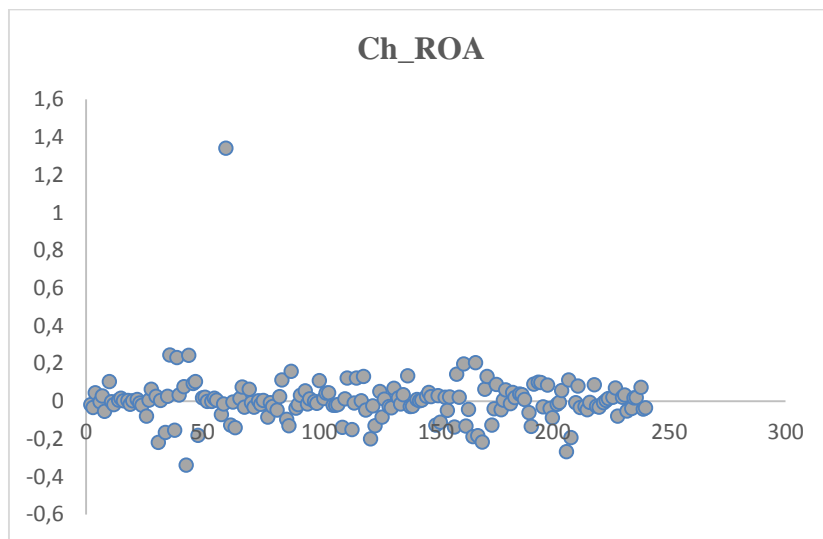
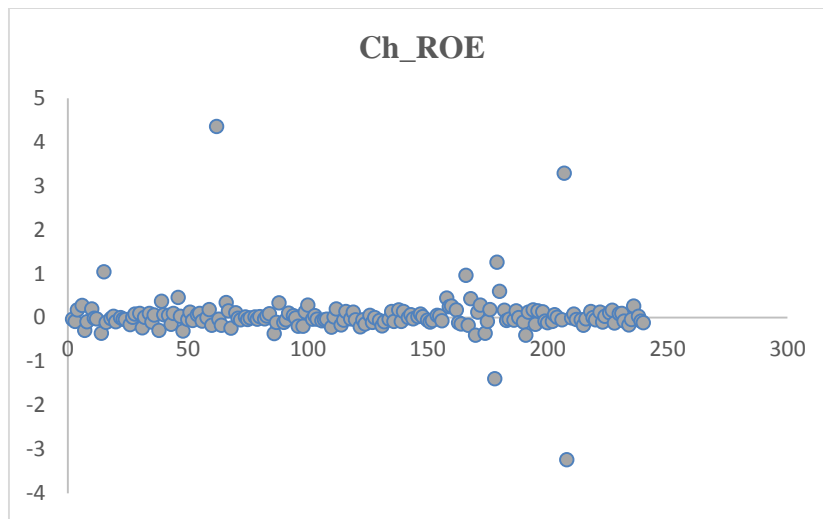
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14,3944	15,8593	14,9868	,35573	160
Residual	-,74926	1,19081	,00000	,30565	160
Std. Predicted Value	-1,665	2,453	,000	1,000	160
Std. Residual	-2,389	3,797	,000	,975	160

a. Dependent Variable: LN_Fix



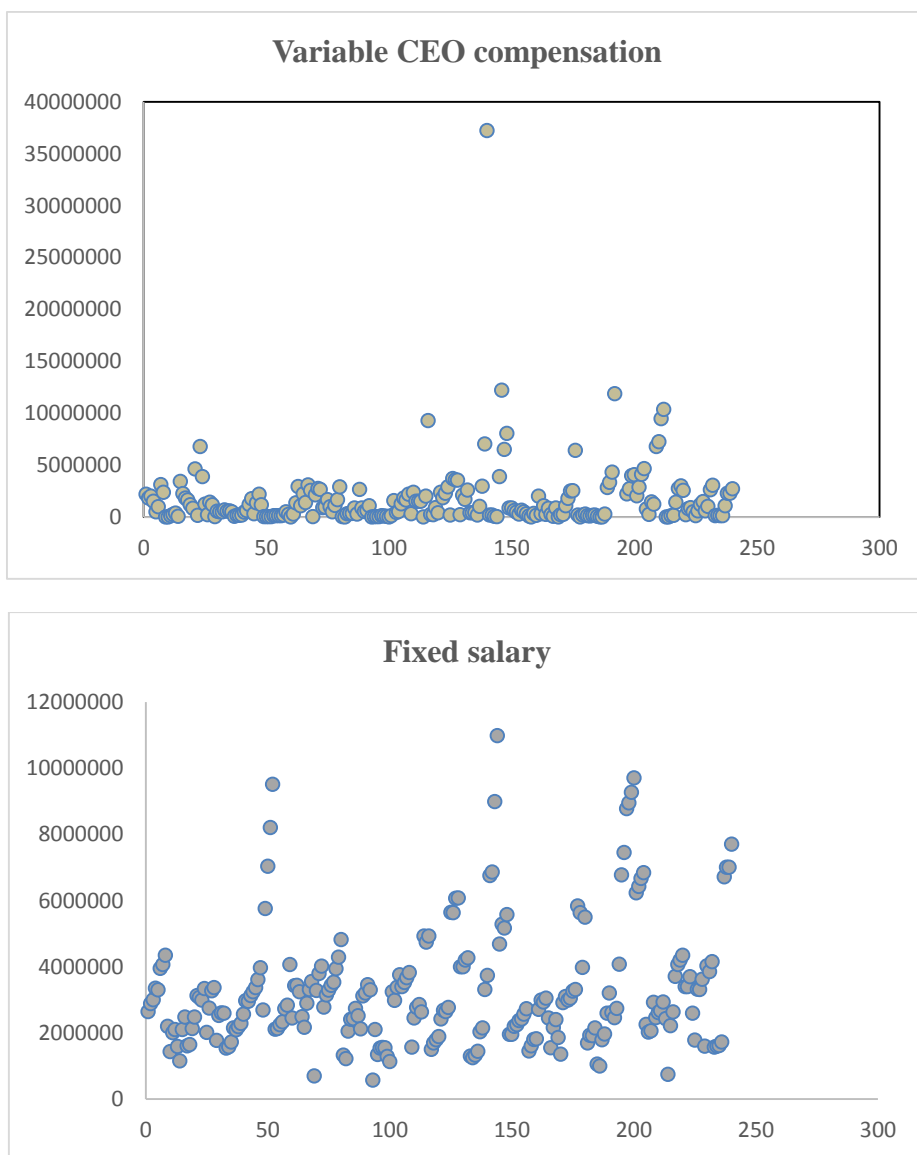
Appendix N**N.1 Scatterplots for the variables in the first research model**

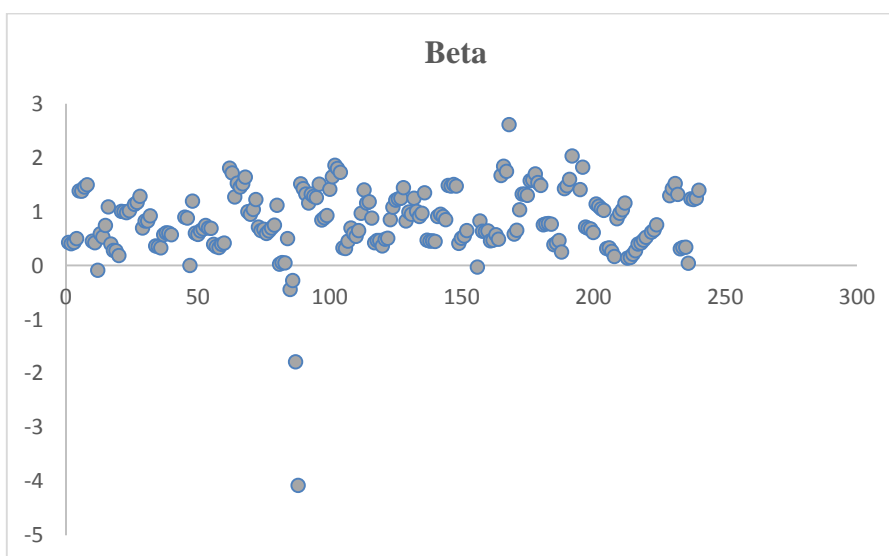
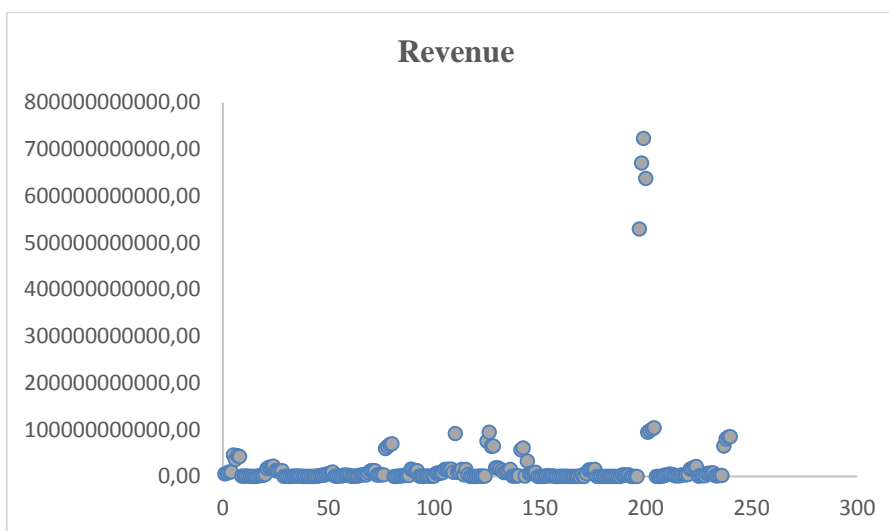
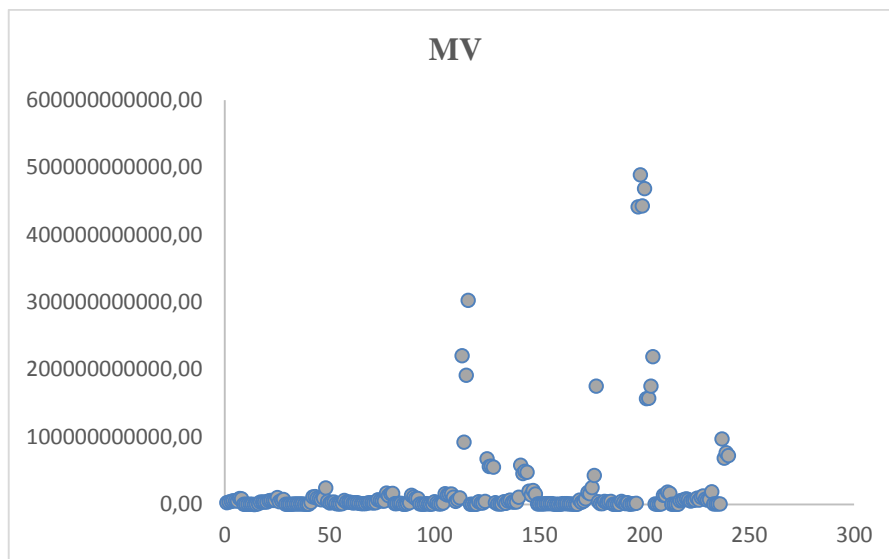


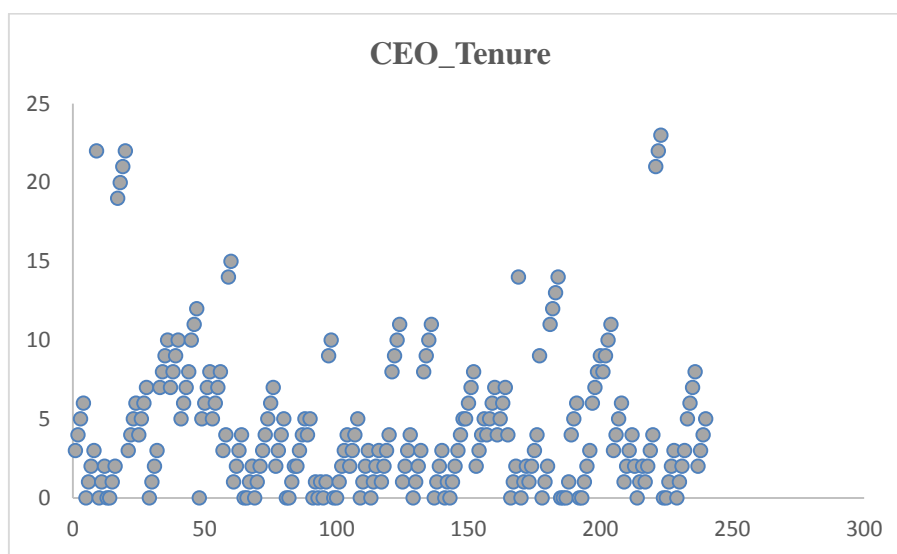
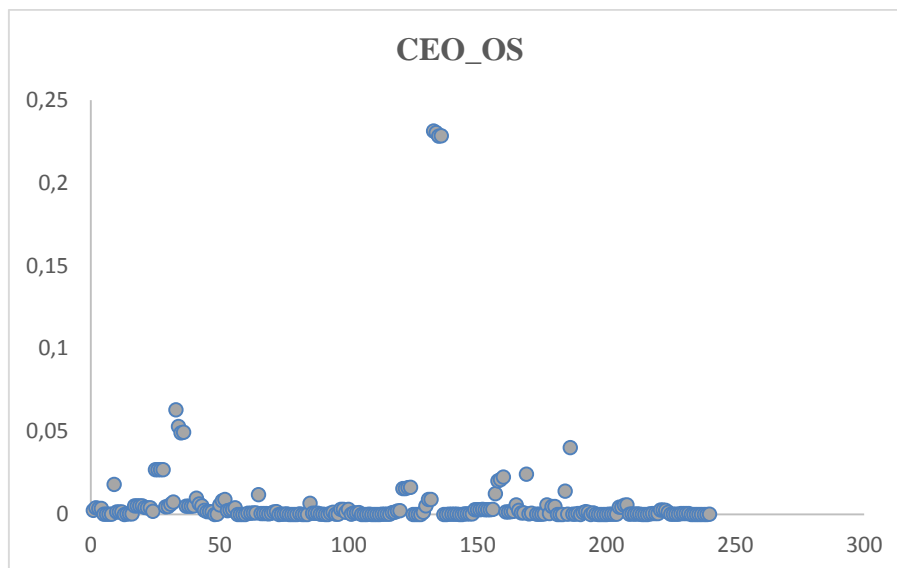


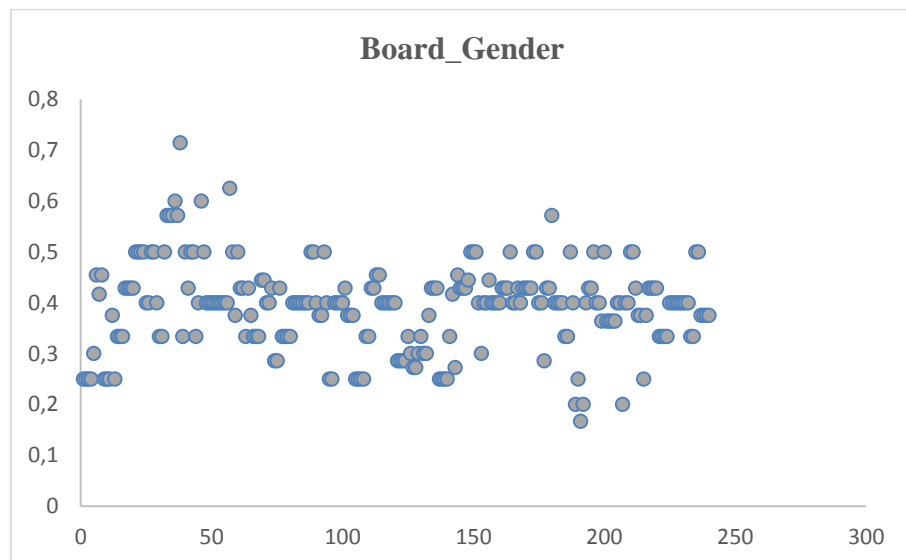
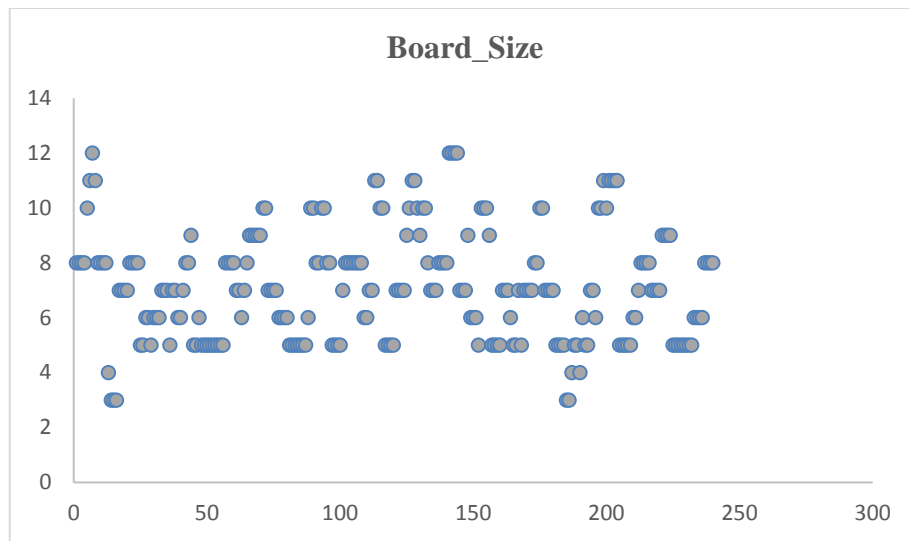
Appendix O

O.1 Scatterplots for the variables in the second research model

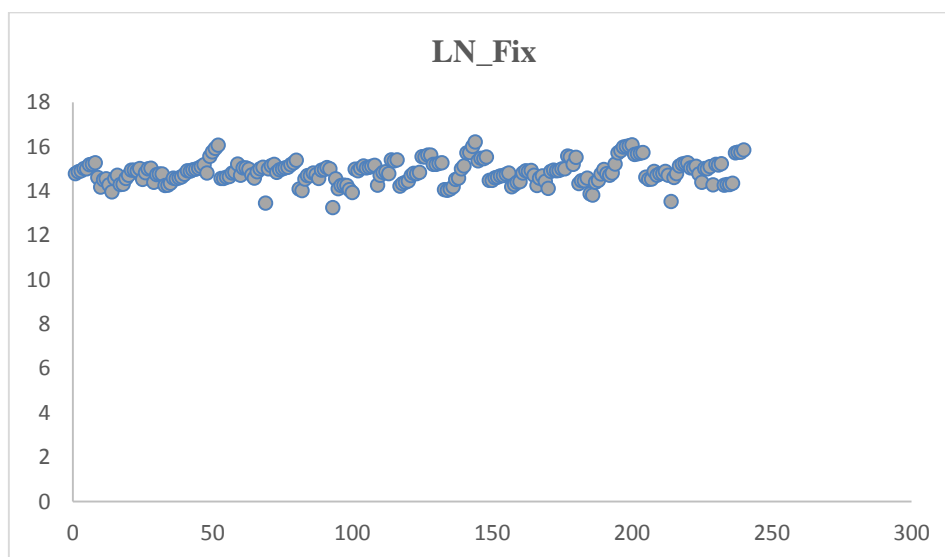
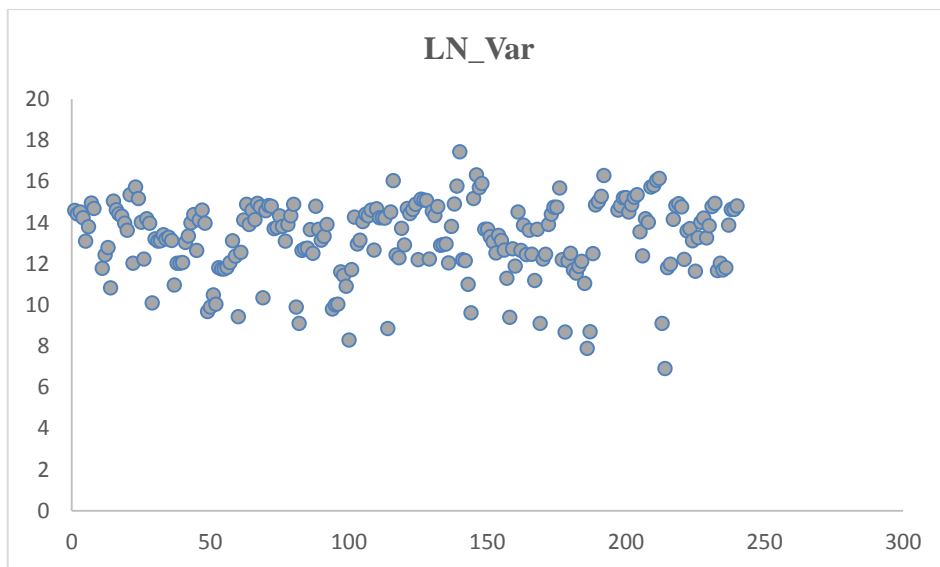


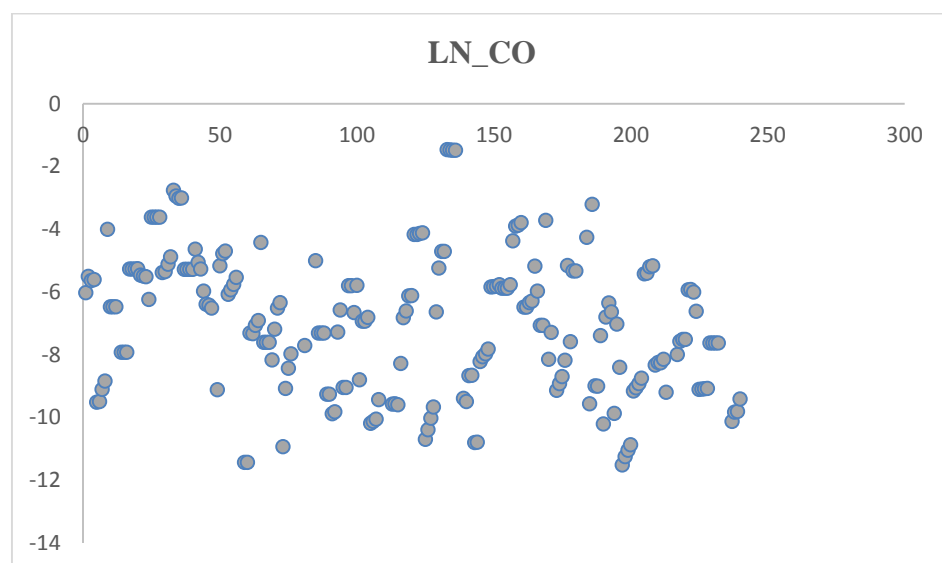
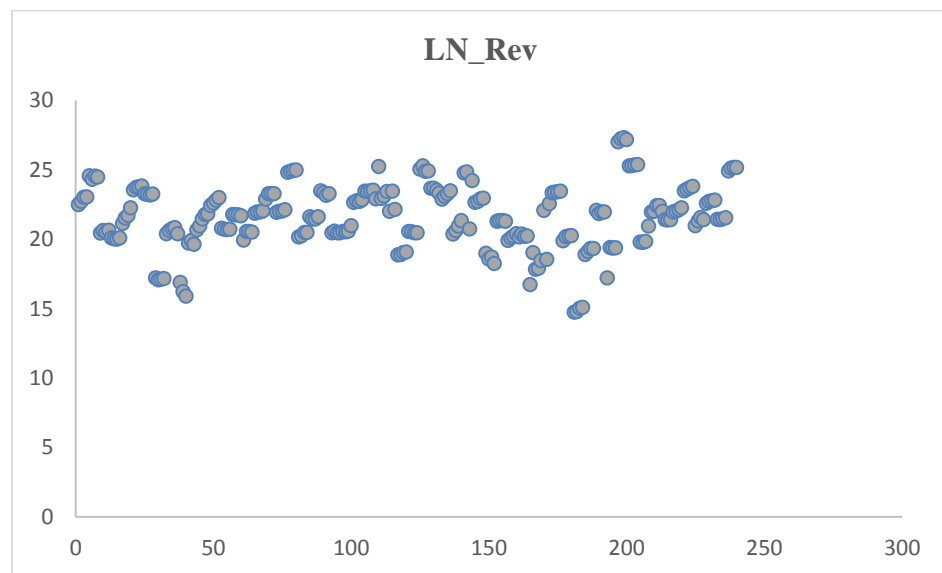
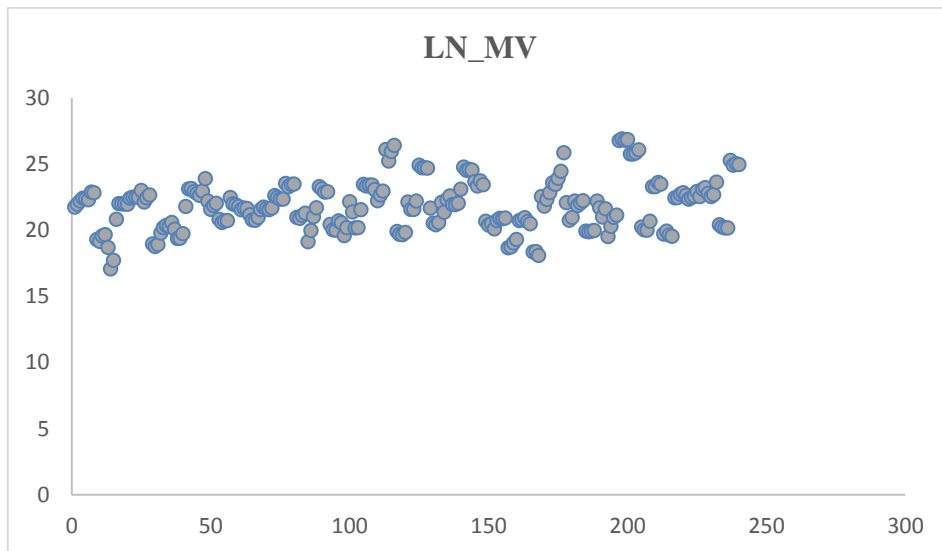


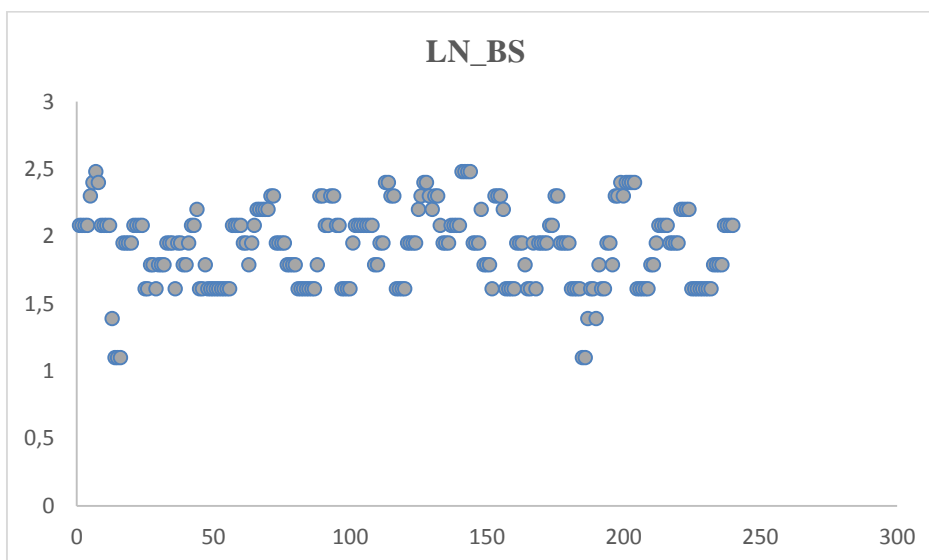
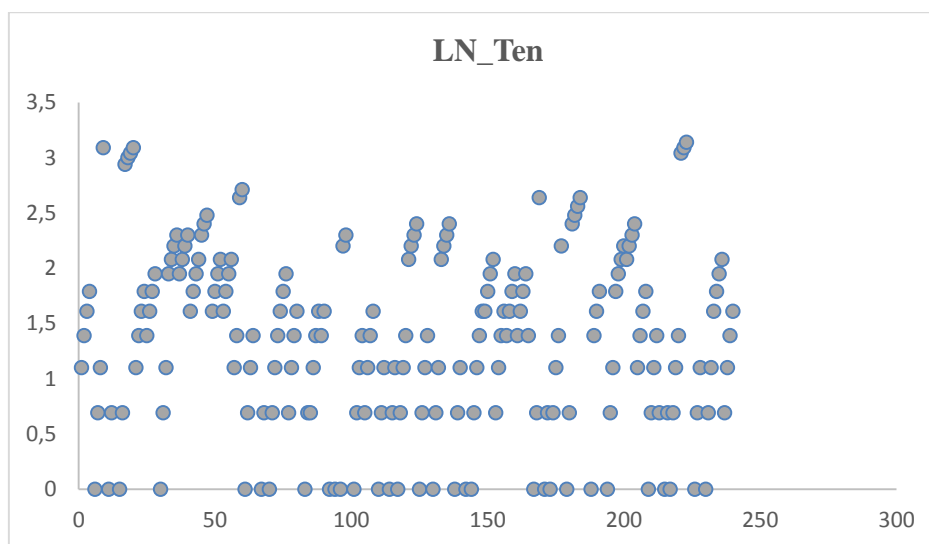
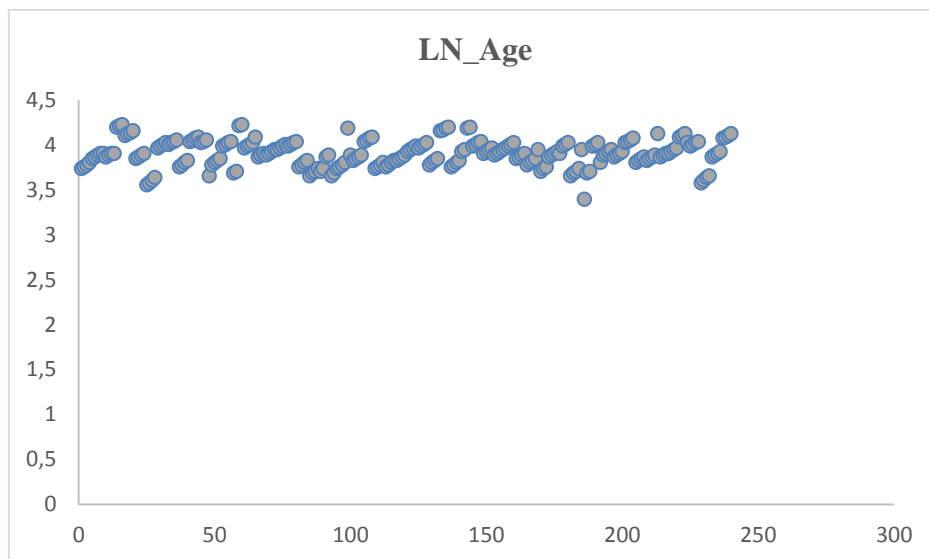


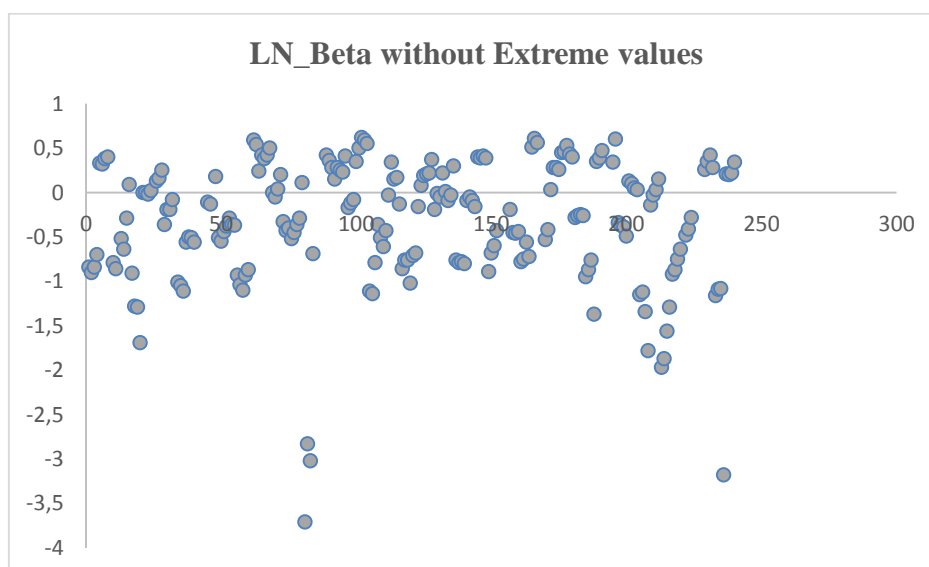
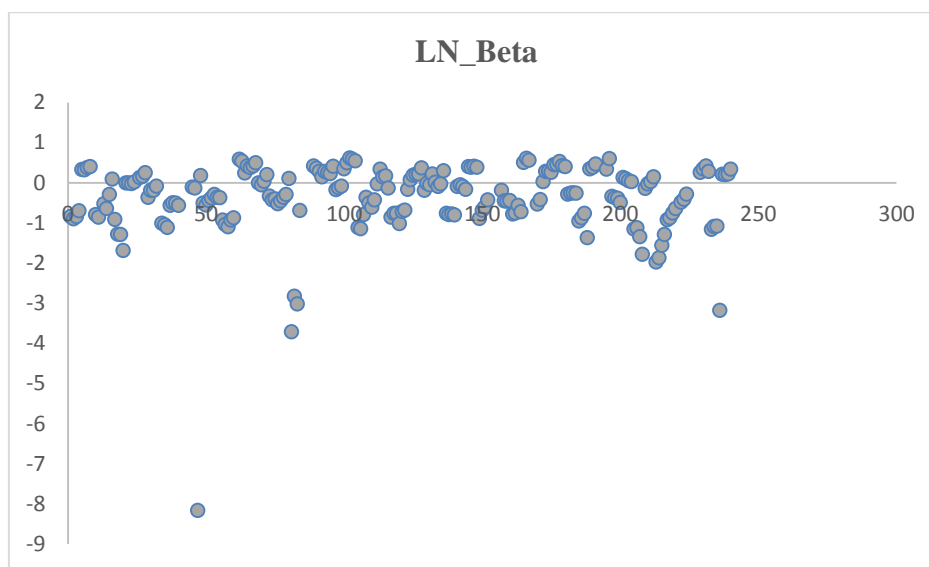
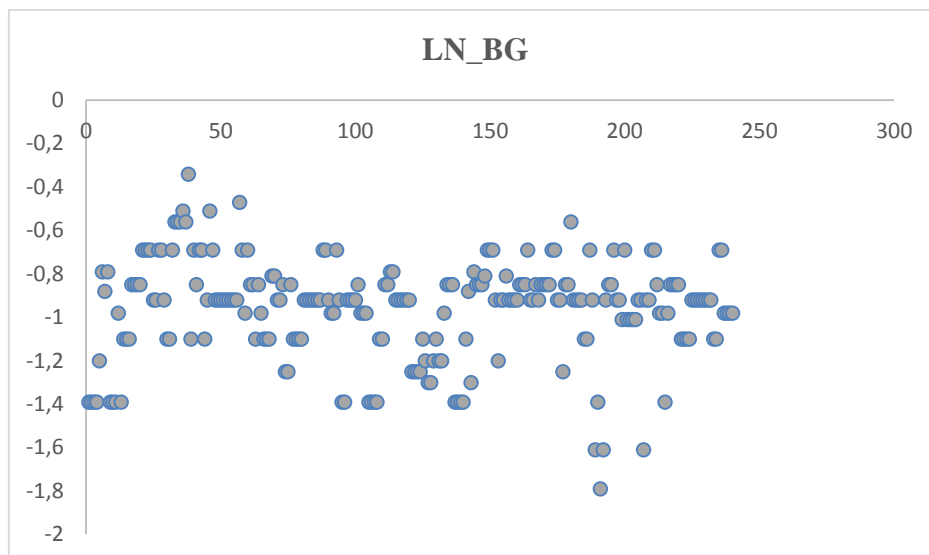


O.2 Scatterplots for the transformed variables in the second research model





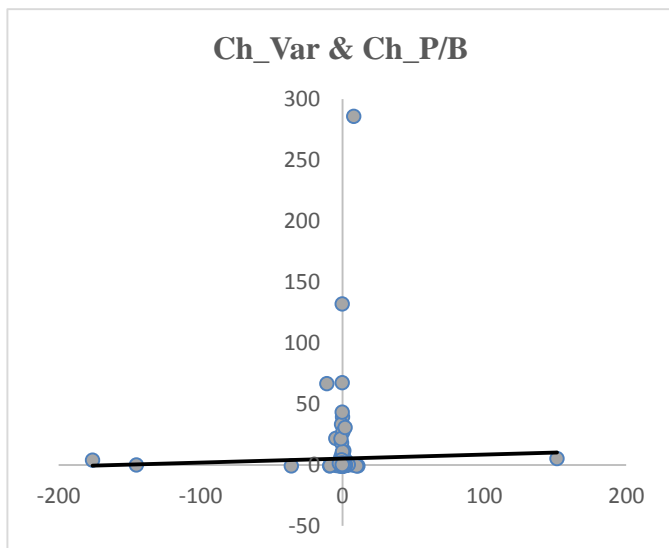




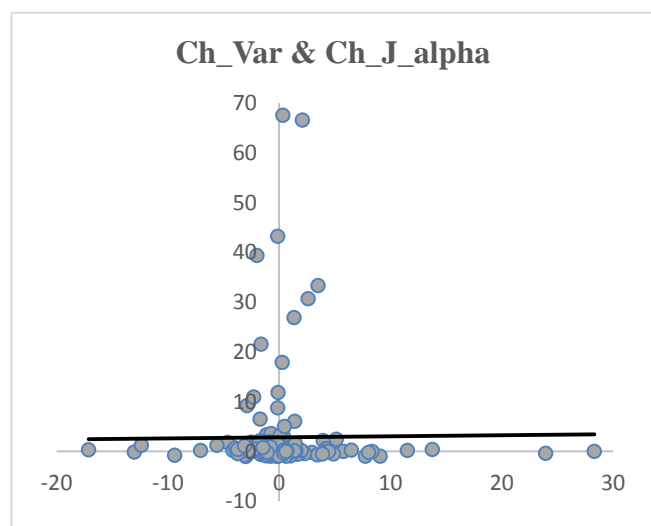
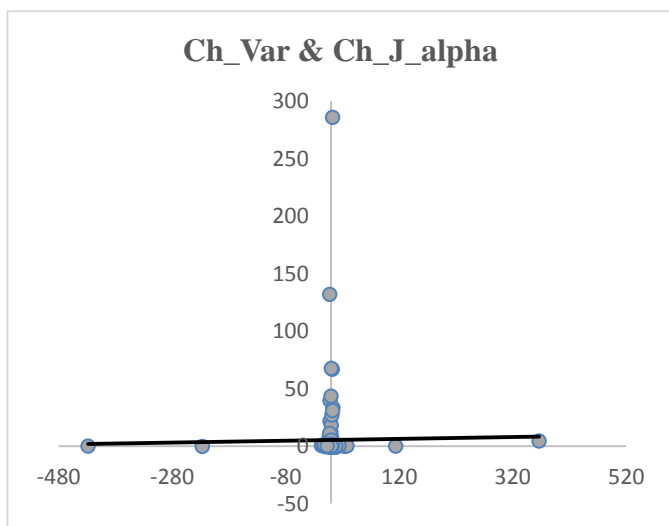
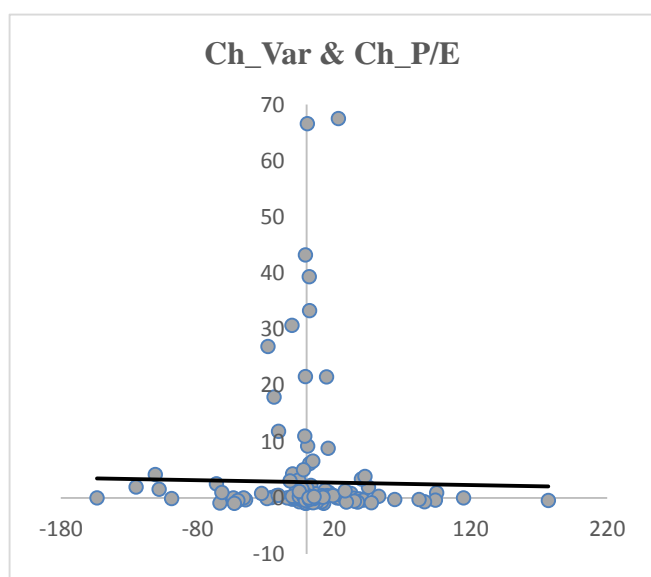
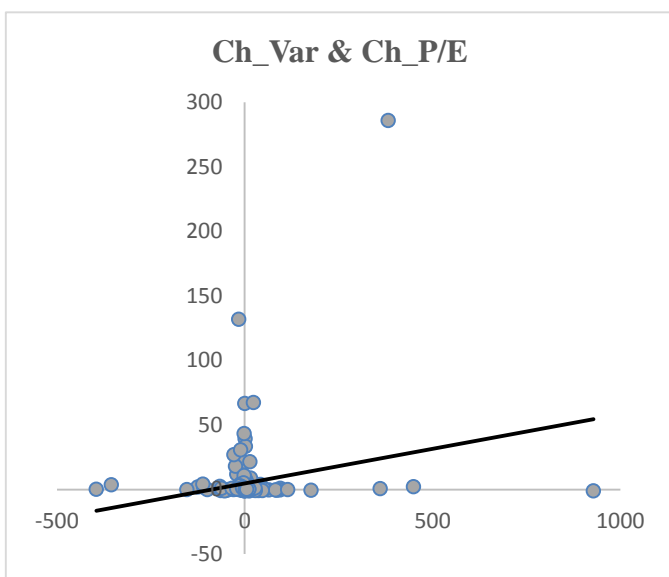
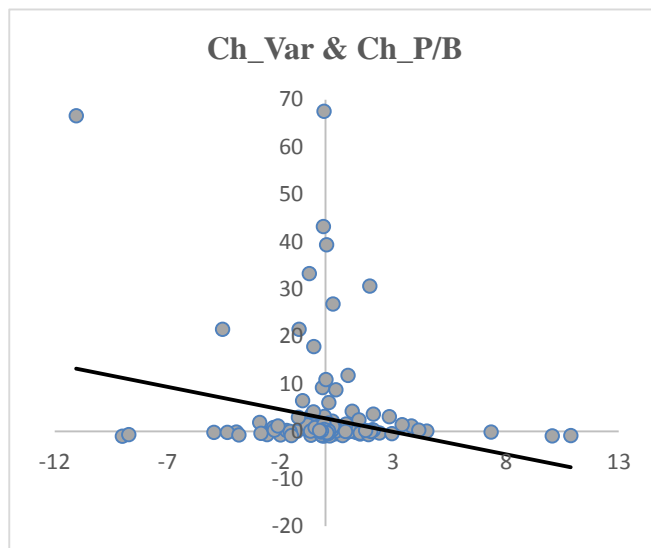
Appendix P

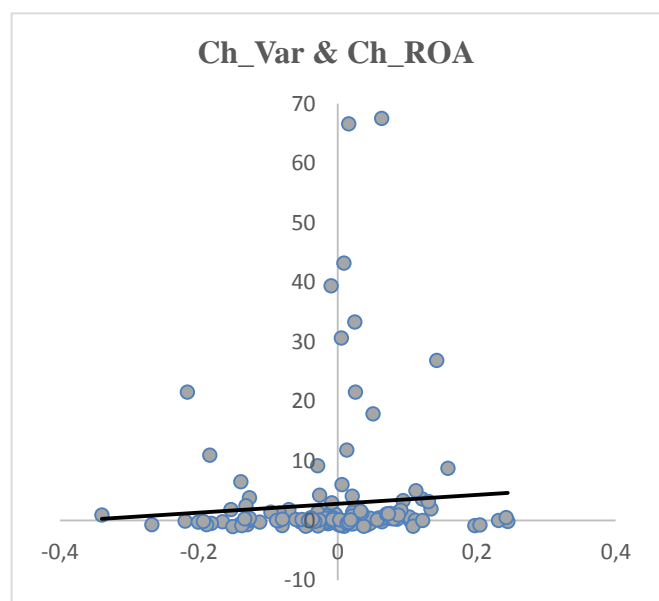
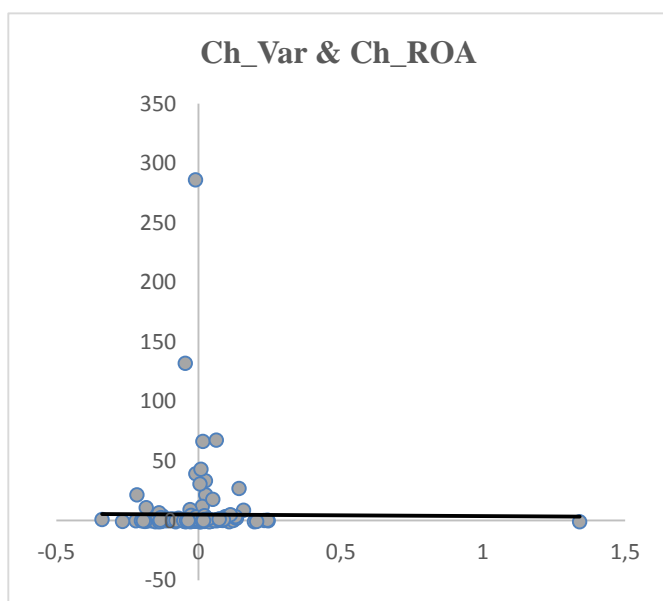
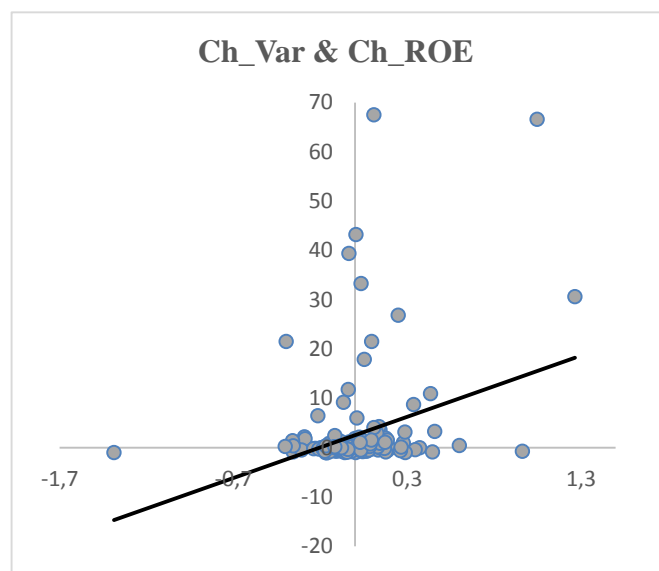
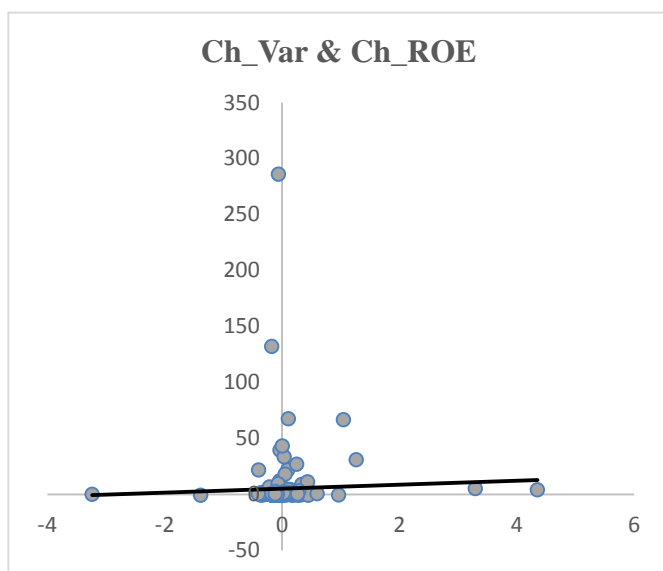
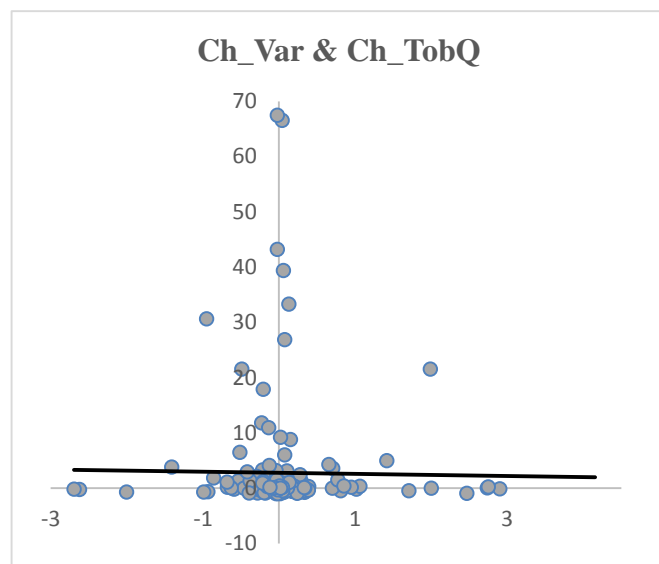
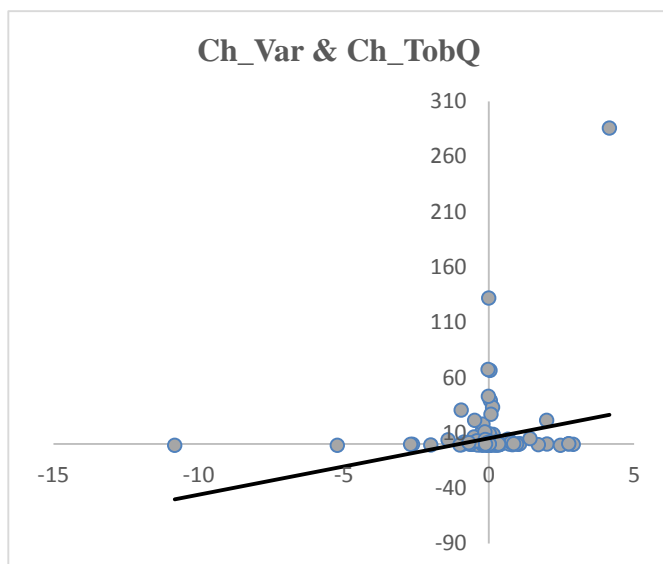
P.1 Scatterplot for hypothesis 1

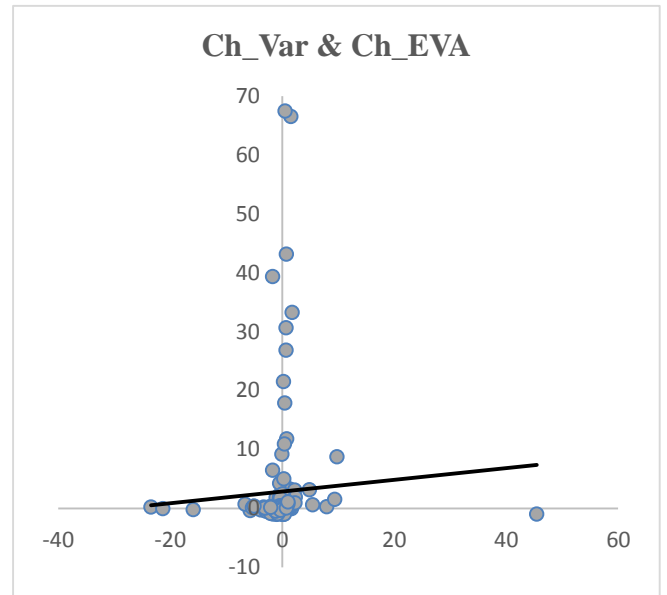
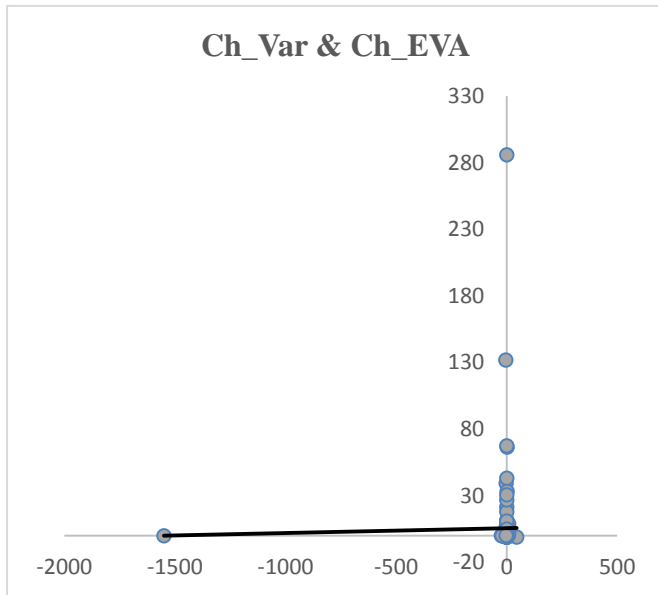
With extreme values



Without extreme values

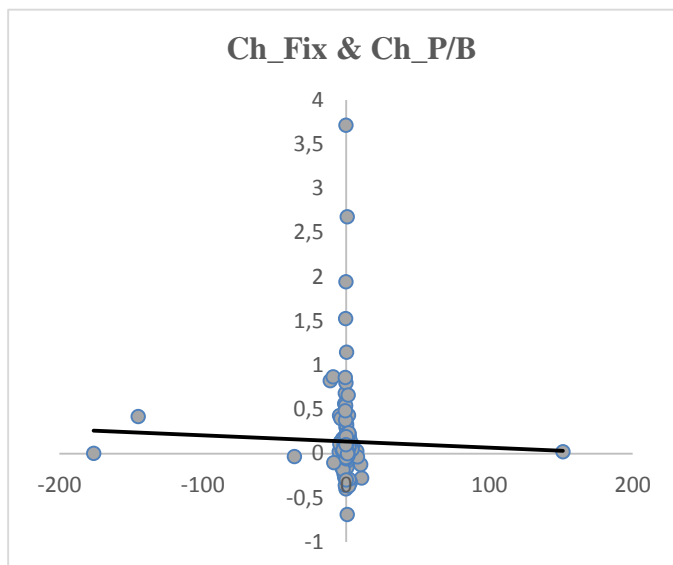




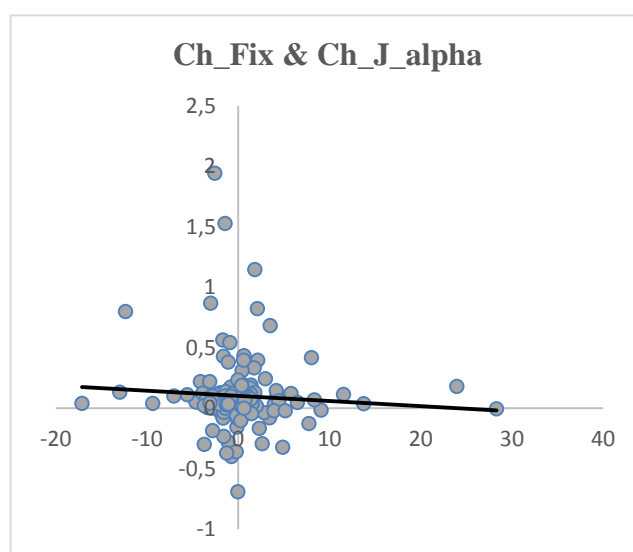
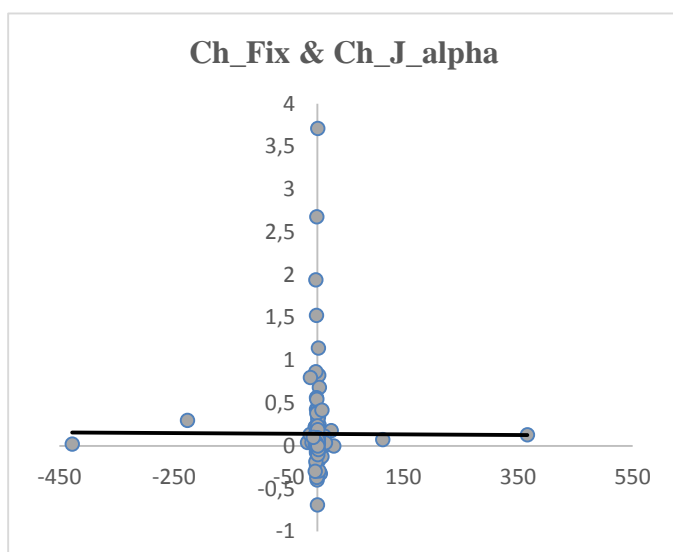
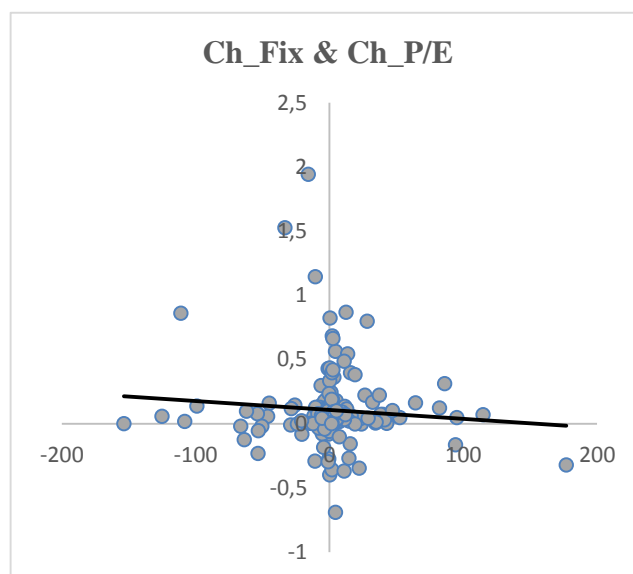
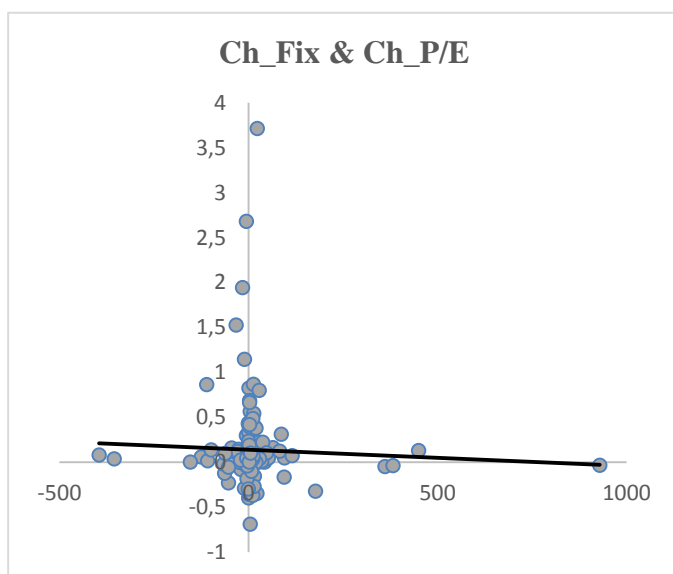
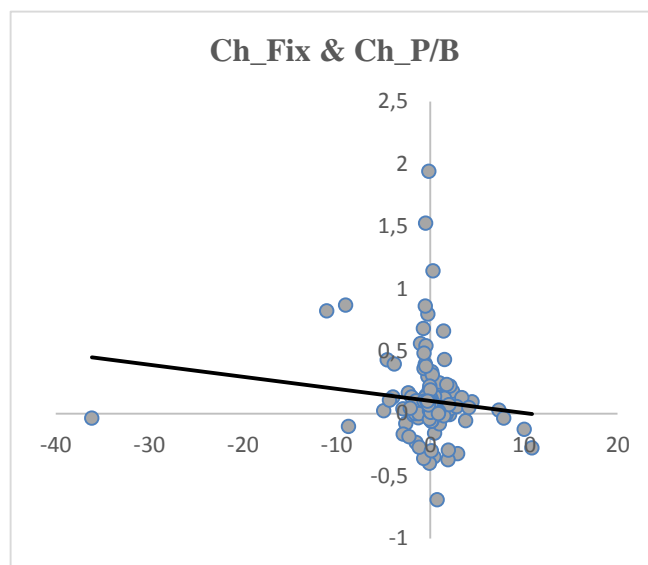


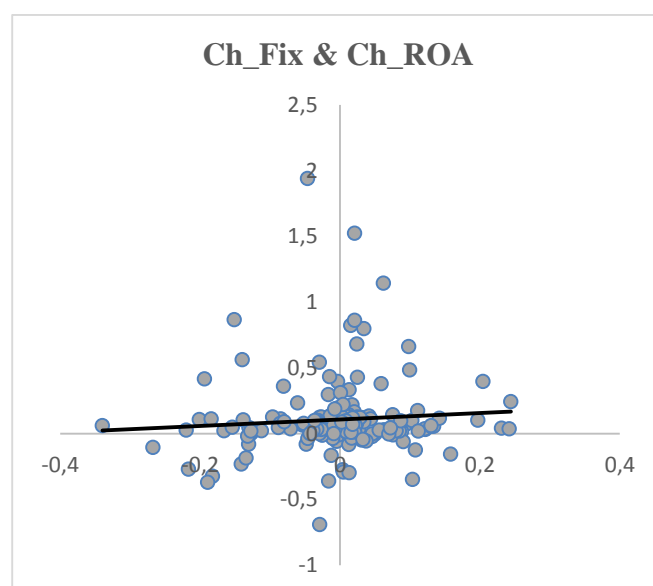
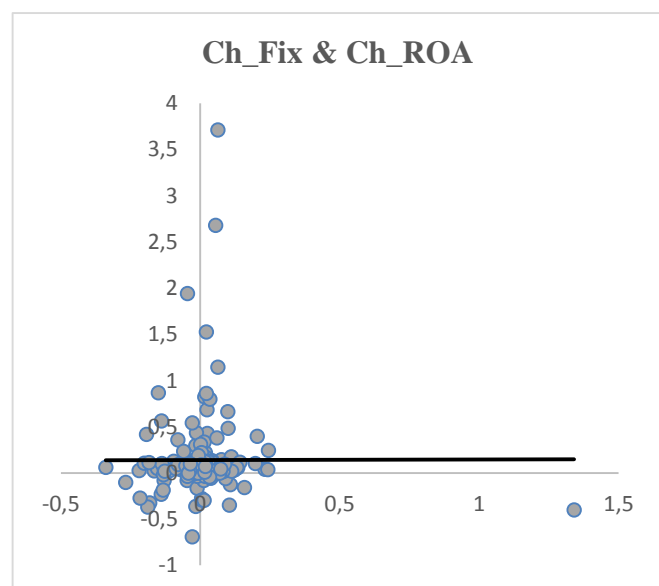
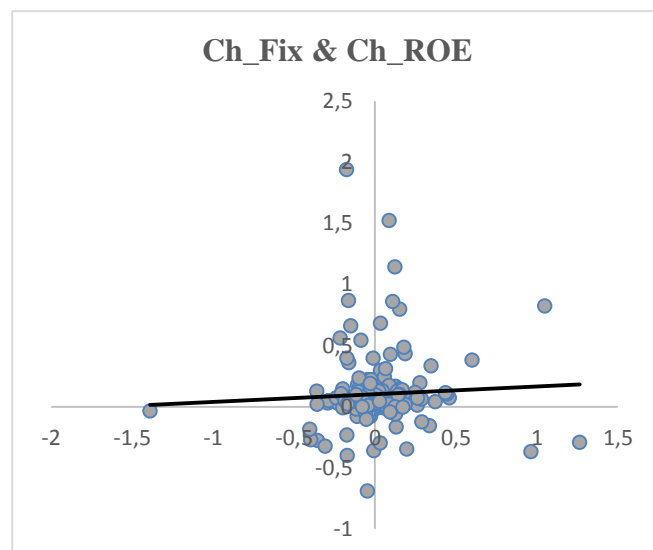
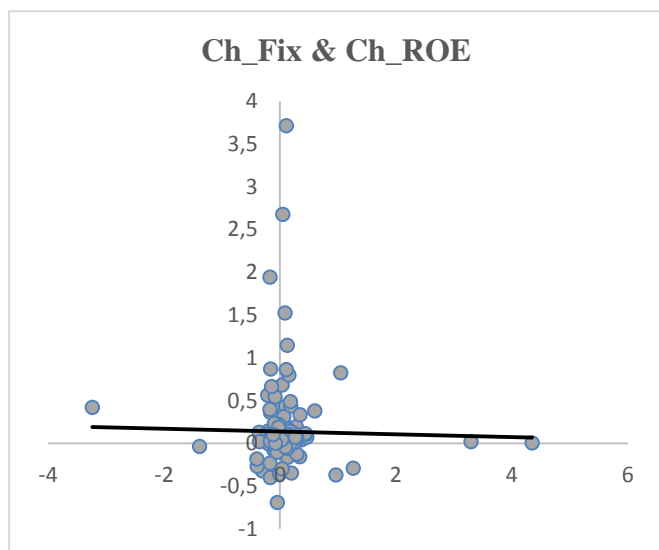
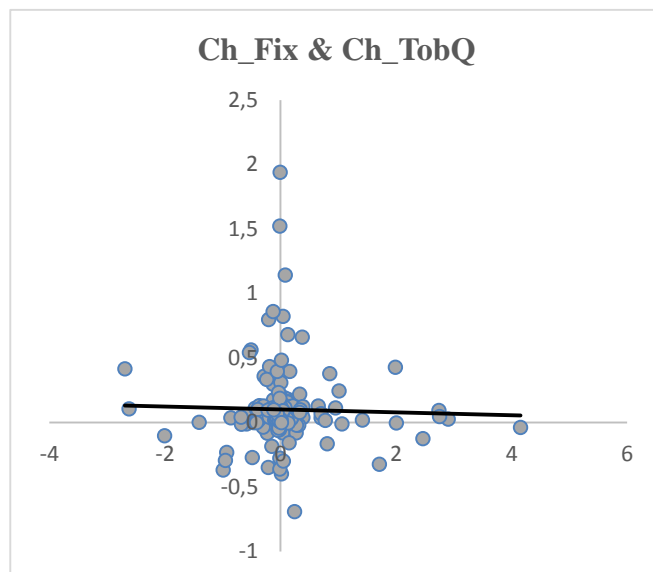
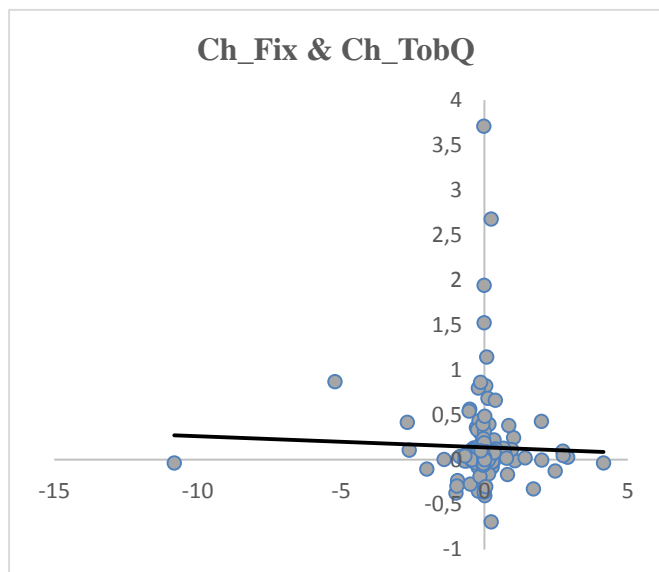
P.2 Scatterplot for hypothesis 2

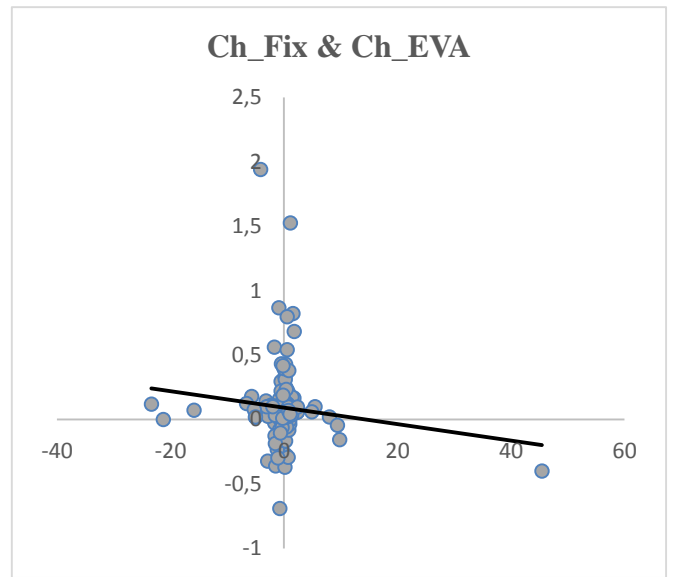
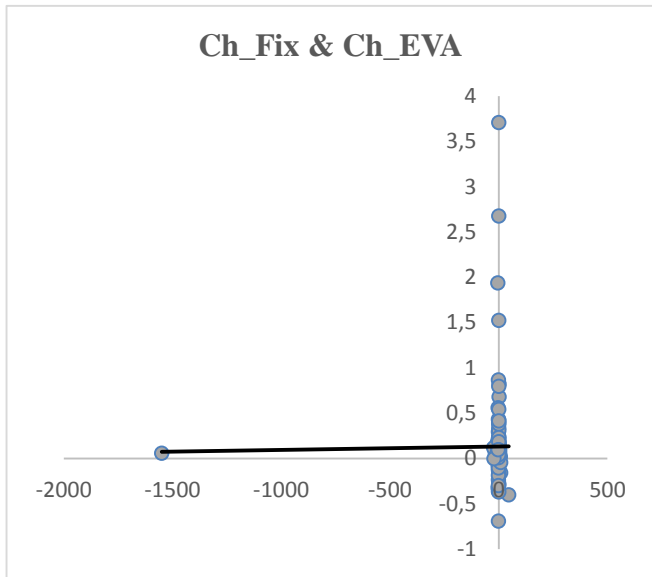
With extreme values

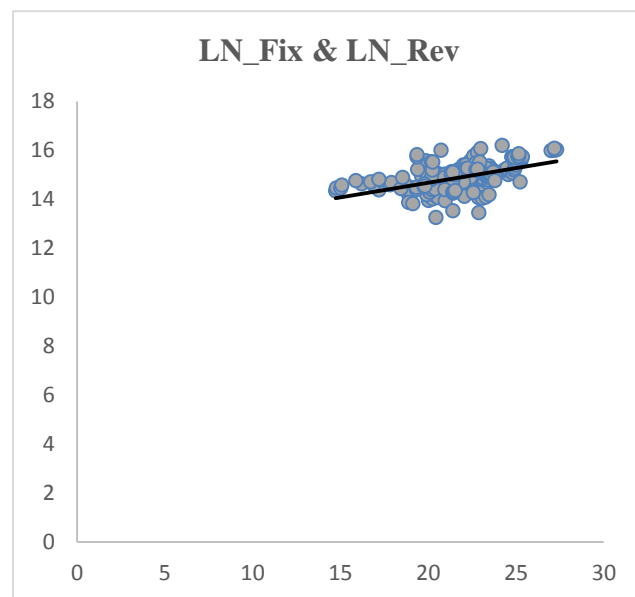
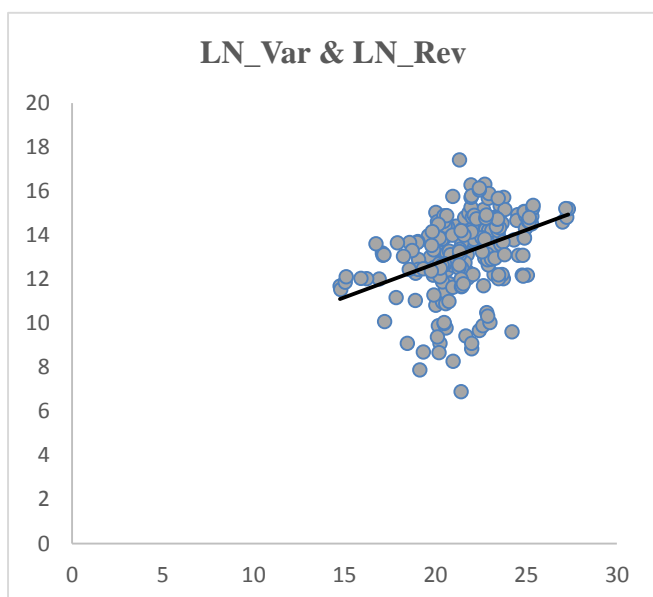
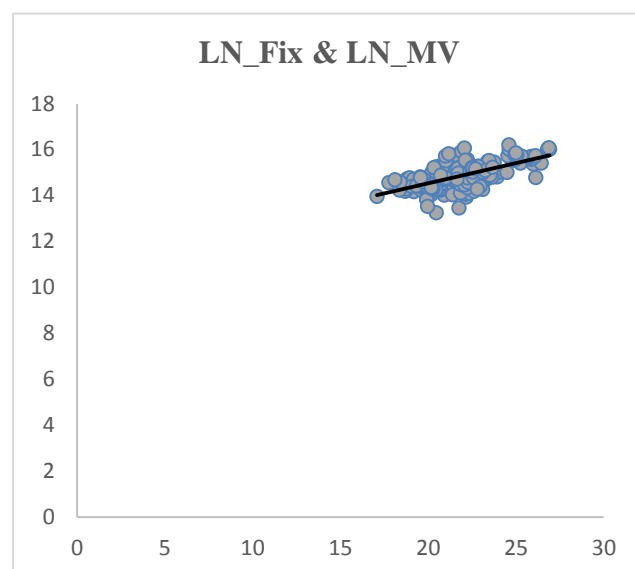
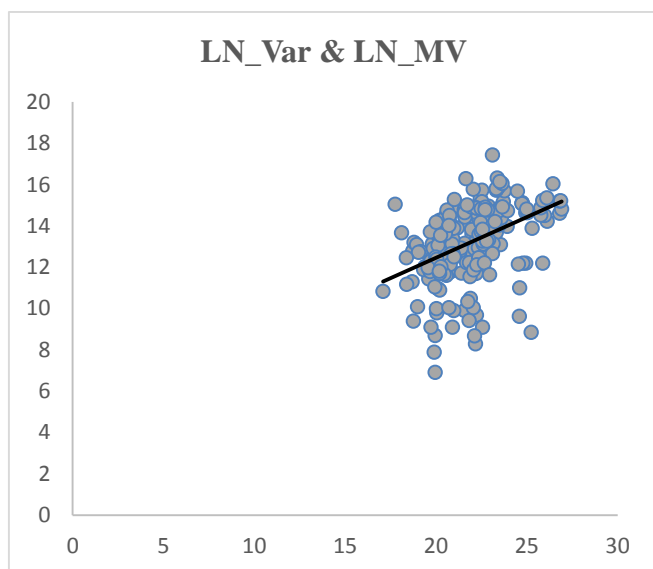


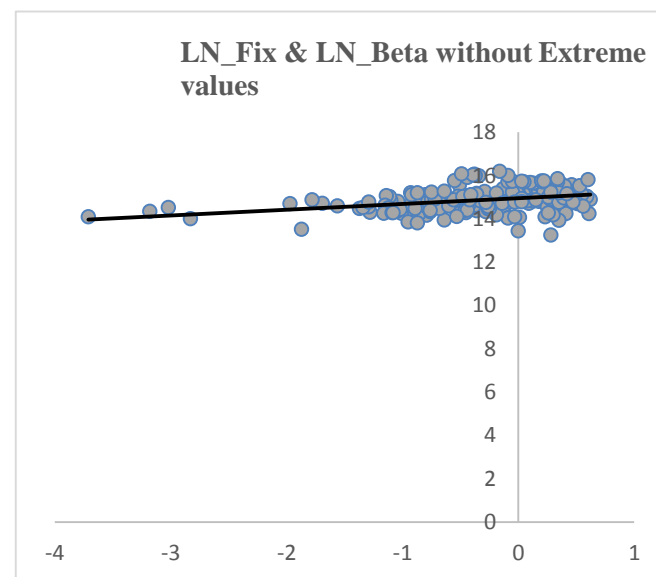
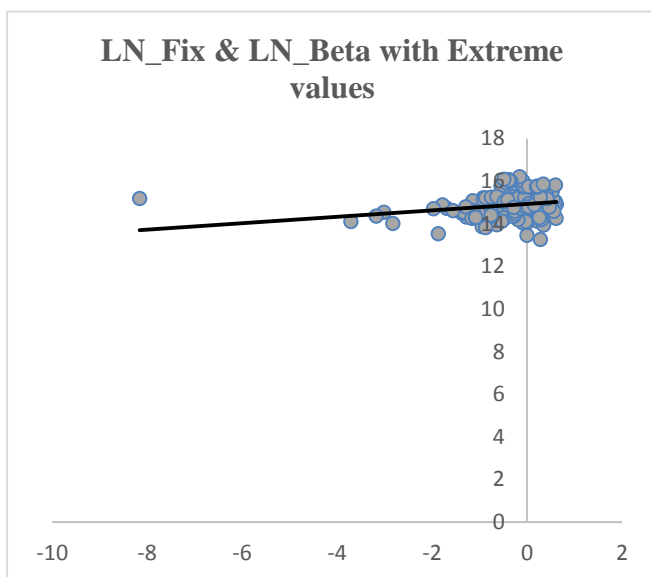
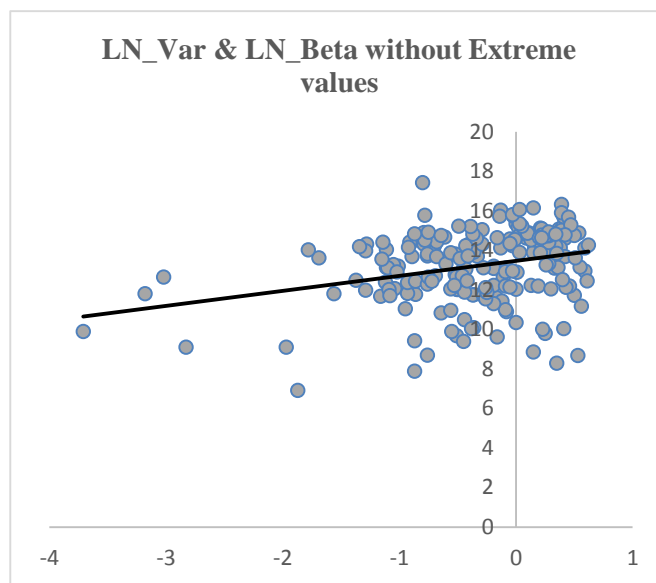
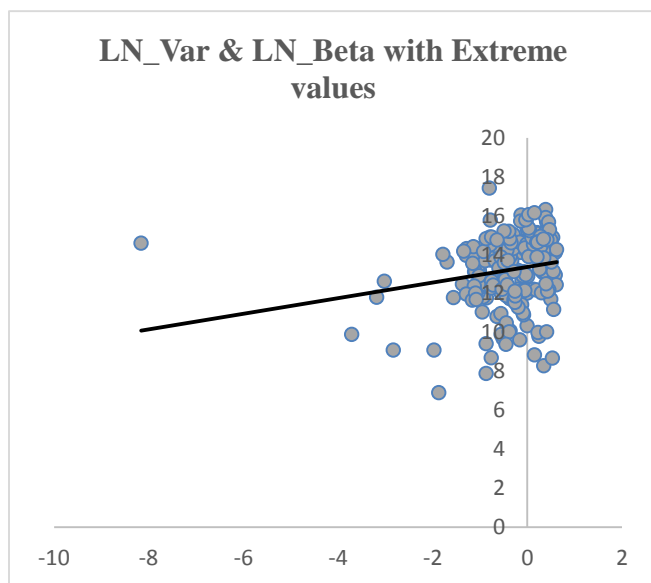
Without extreme values

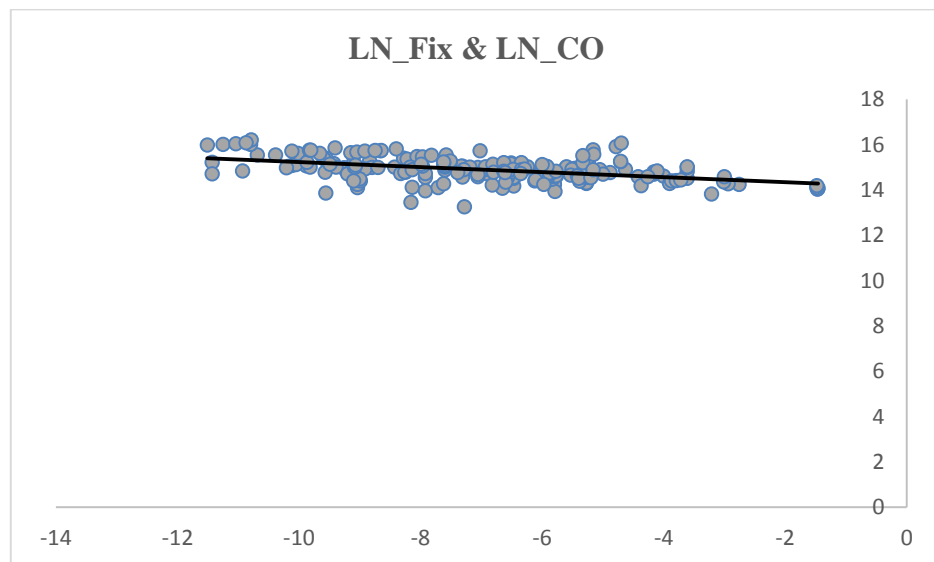
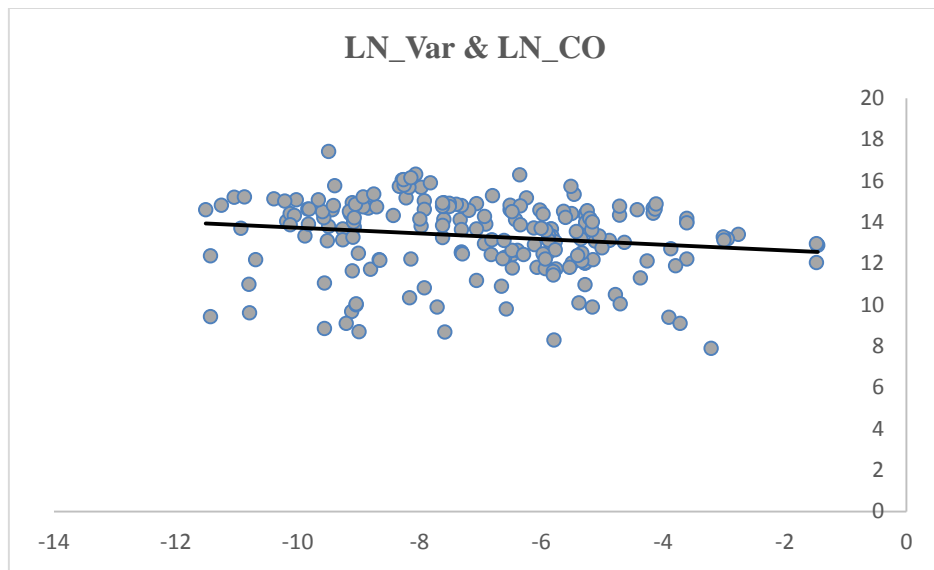


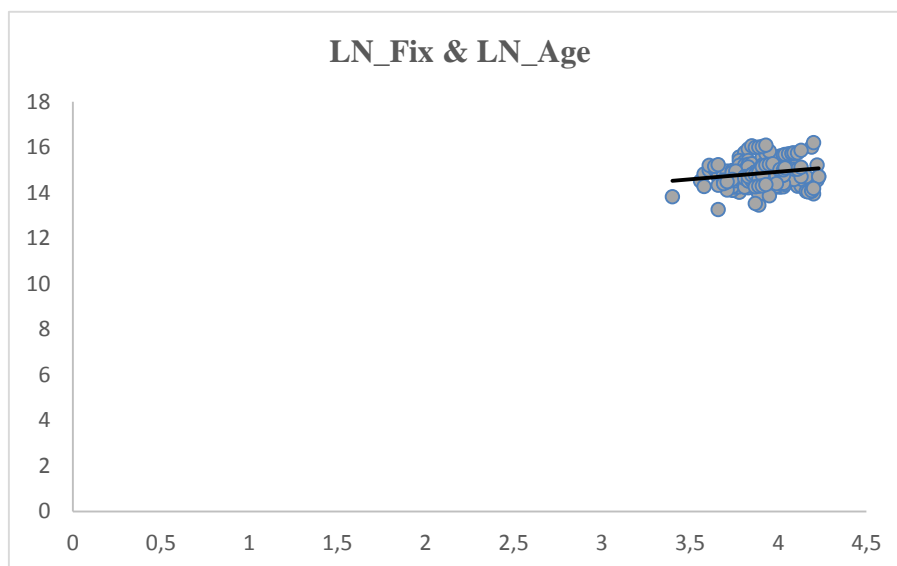
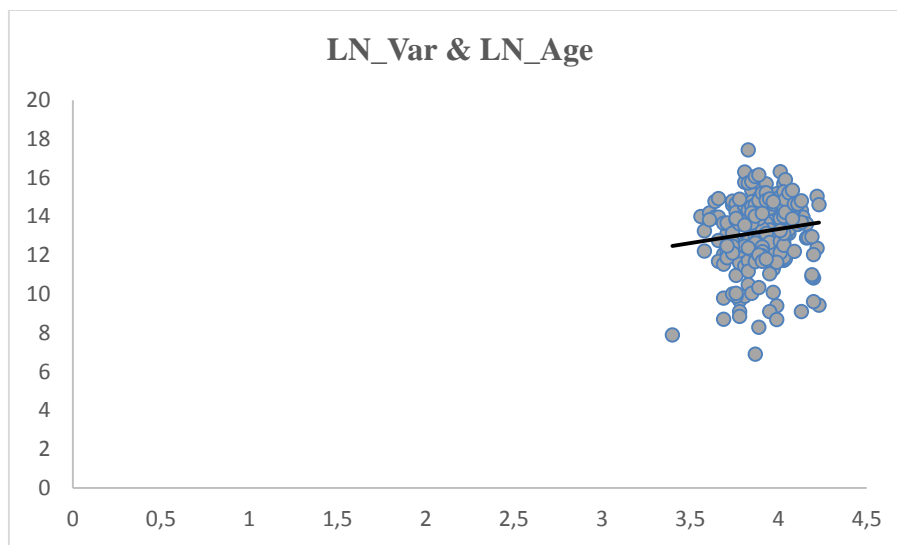


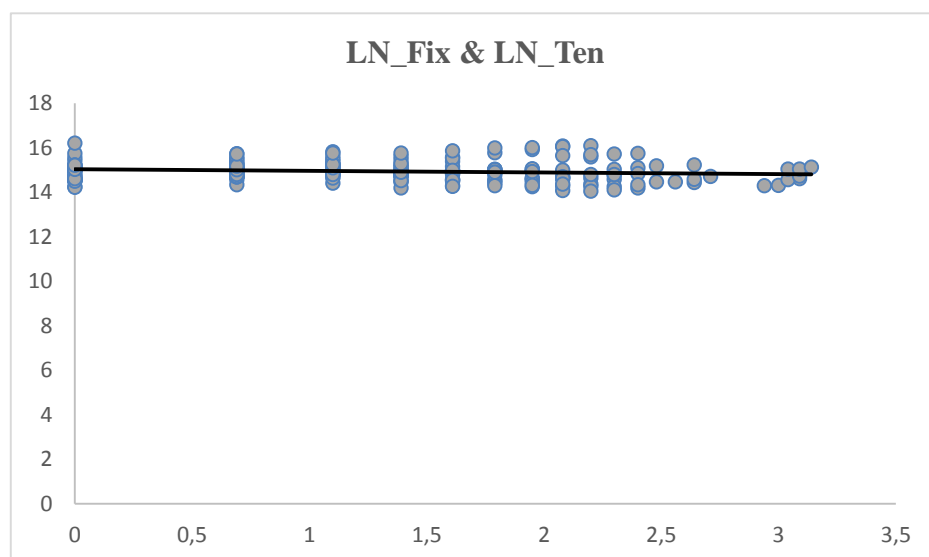
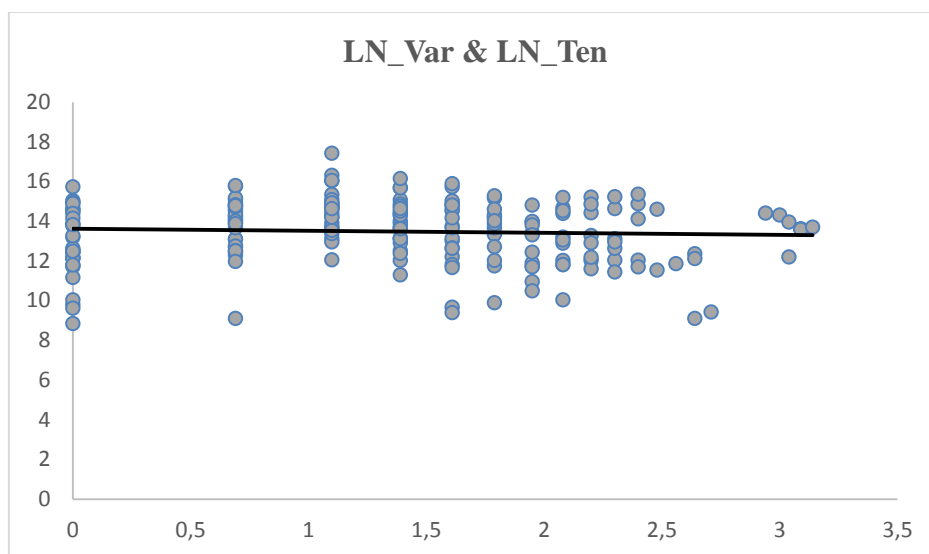


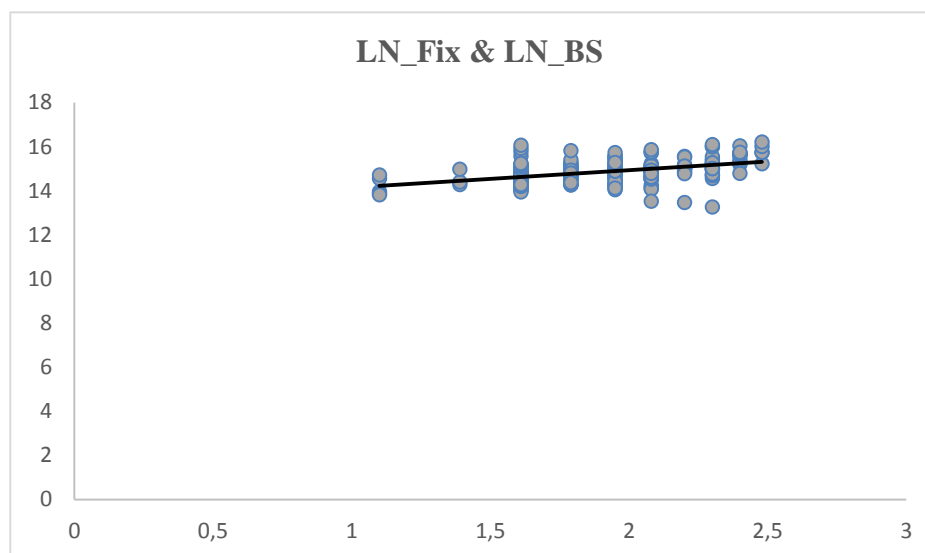
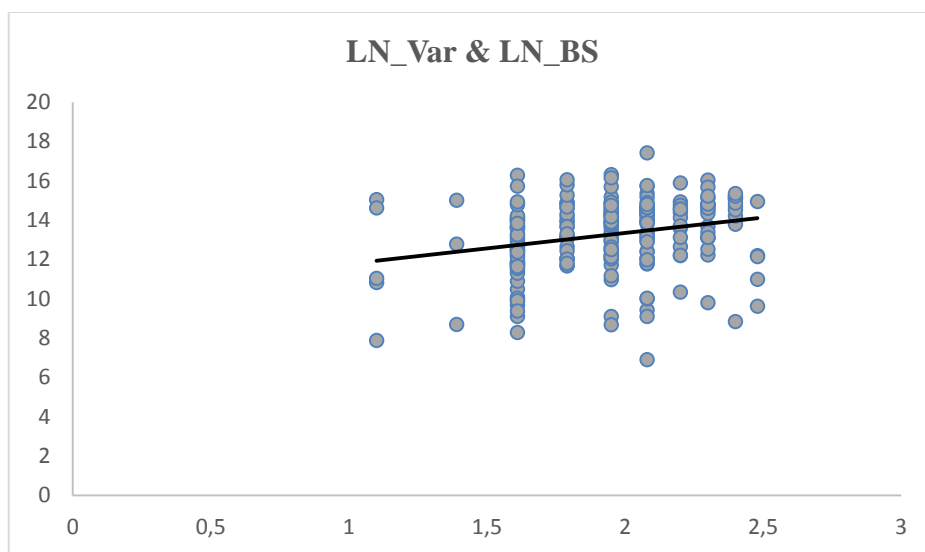
Appendix Q**Q.1 Scatterplot for hypothesis A**

Q.2 Scatterplot for hypothesis B

Q.3 Scatterplot for hypothesis C

Q.4 Scatterplot for hypothesis D.1

Q.5 Scatterplot for hypothesis D.2

Q.6 Scatterplot for hypothesis F.1

Q.7 Scatterplot for hypothesis F.2