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Does the ownership of CEOs affect their compensation?

A study of the link between ownership structures and CEO pay in unlisted Norwegian shipping and sea transport companies.

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Abstract

This master's thesis studies the link between ownership structures and CEO compensation in unlisted Norwegian shipping and sea transport firms. The objective is to examine differences in total pay and pay-performance sensitivity between owner and non-owner CEOs, and we test the predictions of CEO pay from two theories; agency theory and the managerial power perspective. We find evidence that non-owner CEOs receive significantly higher compensation than owners, between 39 % and 47 % on the average. Furthermore, compensation decreases with the ownership percentage, which indicates that ownership shares can be used as a substitute for cash compensation and to reduce agency problems. There is some evidence that firm performance, measured by EBIT growth, affect the compensation of non-owners. This indicates that non-owners have a higher pay-performance sensitivity than owners. Overall, predictions from agency theory fits our data better than the managerial power perspective.

To get additional insights into the dynamics of top executive compensation, we surveyed the CEOs in the dataset. The survey reveals that non-owners to a greater extent receive performance-based pay compared to owners. Most non-owners believe the compensation gap is due to the owners' possibility of replacing their salary with dividend payments. However, owners mostly claim that they rarely or never pay out dividends instead of salary. They believe that inner motivation, cautiousness, and commitment to the firm can explain the pay gap. There are some findings from our survey that highlights differences in motivation. Owners score somewhat higher on intrinsic motivation, while non-owners are more motivated by extrinsic factors.

Preface

The thesis concludes our studies at the Norwegian School of Economics (NHH) after five years and accounts for 30 ECTS. Our majors are Financial Economics and Economics. We chose the topic of CEO compensation because of general interests, but also because of the scarcity of studies on Norwegian firms in the area. Consequently, we wished to contribute with research on unlisted companies, as these types of firms are less studied than listed companies.

We want to thank our supervisor Justin Valasek for helpful comments and guidance throughout the whole process. Also, thanks to Eirik Gaard Kristiansen for recommending the topic and for meeting with us. The support from our friends and family during the studies is much appreciated, and we would also like to thank each other for great teamwork and support throughout the years at NHH.

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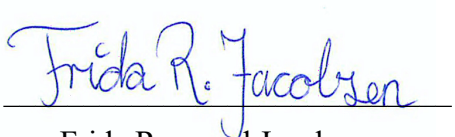

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1. Introduction

The compensation of Chief executive officers (CEO) is a heavily discussed topic. Many have tried explaining the forces behind the pay-setting process and discussed the fairness of large compensation plans. The CEO has much responsibility and their effort is essential for the company's success. Executive compensation is a complex problem because the compensation plans need to assure that the actions of CEOs are in line with the firm's best interest. There is a reason to expect significant differences between top executives, even within the same industry. Several possible explanations exist, but one fundamental factor is that some CEOs own the company, and others do not.

The owner possesses more authority and power. Consequently, it is reasonable to think that an owner would construct self-serving payment plans that extract company value to private benefit. On the other hand, owners might be more intrinsically motivated than non-owners, and therefore put the company's best interest above their compensation. The non-owner CEO has no personal investment in the firm and may need proper incentives in the form of higher compensation to be sufficiently motivated. Since the interests of the owners are more aligned with the performance of the firm, the difference in pay compared to non-owners allows us to examine how firms use compensation to solve incentive problems. We test two theories that try to explain the mechanisms above; agency theory and the managerial power perspective. Agency theory predicts higher pay of non-owners, and also that their pay is more sensitivity to firm performance. The managerial power perspective predicts higher pay for owners and that owners use their power to decouple pay from performance. These dynamics are the basis for our research question:

> *"Are the compensation of non-owner CEOs higher, but more sensitive to firm performance compared to the compensation of owner CEOs?".*

While most existing research on CEO compensation considers only listed firms, we examine unlisted companies in the Norwegian shipping and sea transport industry. We hope that our thesis can contribute to reducing the research gap between listed and unlisted companies. This is important to do because unlisted firms operate under other conditions than listed companies, that may impact corporate governance, investments, and the profitability of the firm (Berzins & Bøhren, 2009).

The approach of our study differs from existing literature by gathering a novel dataset on CEO compensation of unlisted firms. Our dataset is based on the financial statements of all firms in the Norwegian shipping industry. The industry gives us a reasonably even number of firms with owner and non-owner CEOs. Having a non-owner top executive may cause agency problems, and the solutions come with a cost. We study the difference in pay using OLS regressions, and we also estimate the incentive cost of compensating non-owner CEOs. We also examine the difference in pay sensitivity of owners and non-owners. The research is done by analyzing 413 CEOs and firms. We use growth in EBIT, liquidity, and return on assets (ROA) as performance measures and assets as a proxy for firm size.

We find that non-owners receive substantially more compensation than owners. The difference in 2017 and 2018 is 39 % and 47 % on the average. Also, we find some evidence that the pay-performance sensitivity of non-owners is higher using growth in EBIT as a proxy for firm performance. This provides evidence in favor of agency theory as an explanation of CEO pay.

Lastly, we conduct a survey on the top executives in our dataset to get a more thorough understanding of the dynamics of CEO compensation. The main finding is that non-owners to a much greater extent receive performance-based compensation, which contradicts studies internationally. Again, this fits with the predictions from agency theory. Nevertheless, both agency theory and the managerial power perspective predicts that the pay of owners is more detached from performance, which also fits with the findings in our survey. We discuss how social norms possibly put constraints on managerial power, which might explain why agency theory is better in explaining CEO pay in Norway than elsewhere.

1.1 Hypotheses

Our hypotheses are based on the theoretical frameworks and previous research presented in *Section 3*. It is reasonable to believe that ownership motivates increased effort to ensure growth in firm value. Because of this, the owner may not need to be compensated at the same level as the non-owner in order to be sufficiently motivated. An owner also enjoys the opportunity of dividend payments, further decreasing his needs for substantial cash compensation. According to agency theory, an owner will compensate himself at a level that maximizes his and the company's utility. On the other hand, ownership gives the top executive more opportunities to increase own compensation, which is in line with the managerial power perspective. Agency theory further suggests that an agency problem occurs when separating management and control. Therefore, non-owner CEOs need to be adequately incentivized to act according to the

shareholders' interests. We are surprised that most studies show higher compensation for owners. However, these findings are mainly from publicly traded companies outside Norway. We believe that firms need to pay a premium to incentivize leaders who do not have ownership shares. Our first hypothesis is:

***Hypothesis 1**: Non-owner CEOs are paid higher than owner CEOs.*

Risk-averse CEOs would prefer a fair amount of compensation decoupled from performance. The managerial power perspective suggests that owner CEOs use their power to negotiate lucrative contracts that serve own interests and not the other shareholders'. It is plausible that top executives with more power would scratch their own back by making their compensation more decoupled from performance. Non-owners may not be able to influence their pay composition in the same way as owners. Because of agency problems, the shareholders might be inclined to propose a contract that incentivizes performance and effort. With performance-based incentives, a significant amount of the compensation plan will be in jeopardy if the firm performs poorly. These incentive mechanisms are the basis of our second hypothesis:

***Hypothesis 2**: The compensation of owner-CEOs is less sensitive to firm performance.*

1.2 Structure of the thesis

We start by providing relevant definitions in *Section 2*. *Section 3* presents theoretical frameworks and previous research on executive compensation. Our data collecting process is thoroughly discussed in *Section 4*, providing the reader with information about the nature of our dataset. The following chapter, *Section 5,* presents our research method and the models used in our study. *Section 6* presents the results of our OLS analysis and related discussions. Furthermore, we discuss the findings of our survey and connect the answers to the results of the OLS analysis. Our conclusion is presented in *Section 7*. Lastly, we have included an *Appendix* that contains information, figures, and tables, providing a supplementary understanding of our findings and methods.

2. Definitions and background

We first present relevant definitions and explanations of how we use certain words and phrases *(Table 1)*. Further in this section, we will elaborate on the most important definitions and discuss why we chose to study the Norwegian shipping industry.

Table 1 – Definitions

Word/phrase	Definition
CEO	The Chief Executive Officer, or the top executive. The person in charge of the daily operations of the firm
Owner CEO	A CEO with ownership shares in the company. Also referred to as just "owner(s)"
Non-Owner CEO	A CEO without ownership shares in the company. Also referred to as just "non-owner(s)"
CEO pay	Or CEO compensation, is every form of CEO cash compensation, including salary, bonuses, and other forms of payments to the CEO
Executive pay	We use this term in the same context as "CEO pay"
CEO salary	Ordinary base salary
Cash compensation	Includes salary and bonuses
The Board of directors	Also referred to as just "the board" or the BOD
Chairman	The head of the board (of directors). May also be referred to as the chairperson or chairwoman
Shareholders	The owners of the firm
Listed firms	Firms that are publicly traded on a stock exchange
Unlisted firms	Privately held companies - not publicly traded
The Norwegian shipping industry	Or sometimes just referred to as "The shipping industry". Companies categorized as "Shipping and sea transport" on proff.no and regnskapstall.no

The shareholders are the owners of the firm. Their stake in the company is determined by the number of shares owned. In order to become a shareholder, one pays the company the value of the shares. In return, the shareholders get rights and obligations as well as voting privileges at the general assembly (Altinn, n.d.a). Consequently, shareholders have the power to implement changes, pay out dividends, develop company strategies, and possess overall power over the management. If a shareholder owns more than 50 % of the company's shares, the individual is defined as a majority shareholder. This means that the shareholder has the power to choose members of the board, and has control over the dividend payout for the company's shareholders. By owning 2/3 of the shares, the shareholder possesses a qualified majority and essentially has total control over the firm regarding dividends, changes to the statutes, and capital changes. To be able to force the other shareholders into selling their shares, one must own 90 percent of the total shares in the company (Lund, 2013).

The Chief Executive Officer (CEO) is the person considered responsible for the company's daily operations and management. A CEO can be in charge of both unlisted and listed companies. Unlisted firms are not required to appoint a CEO, and the chairman is responsible for daily operations and management in these situations (Brekke, 2019). Unlisted firms can have a contact person or business manager instead of a CEO, but none of these roles are required (Brønnøysundregistrene, n.d.). Publicly traded companies in Norway are required to appoint a CEO (Knudsen, 2018).

A board of directors performs the overall management of the firm, and the CEO is subordinate to the board (Knudsen, 2018). The board of directors usually appoints the CEO (USLEGAL, n.d.), unless the CEO founds the company him or herself. Actual tasks of the board, and how they are structured, varies from company to company. Members of the board can be employees of the firm. Typically, large firms have an independent board with members that also hold various positions in other companies (USLEGAL, n.d.). The board is vital because it serves as a monitoring and evaluating unit concerning the performance of the CEO and the firm.

The most crucial distinction between listed and unlisted firms is that listed firms are publicly traded at a stock exchange, while unlisted companies are privately held. These differences have implications for the ownership structure. Typically, publicly traded firms have more dispersed ownership with smaller owners, something that makes it more difficult to resolve agency conflicts (Schoenmaker & Schramade, 2019, p.88). However, no particular legal restrictions are preventing listed companies from having concentrated ownership (Sirnes & Knudsen, 2019). One other significant difference is the requirement of at least three people on the board in listed companies (Sirnes & Knudsen, 2019), as opposed to one for unlisted companies (Knudsen, 2018). Since unlisted firms are less regulated, and typically have more concentrated ownership, it is interesting to study how they resolve incentive issues.

Listed firms are also subjected to stricter corporate governance regulations compared to unlisted firms. Listed companies are required by law to report and explain their practices and policies for corporate governance (The Norwegian Corporate Governance Board, 2018). Berzins and Bøhren (2009) set forth three conditions that separate the two types of firms. First, unlisted firms do not have access to a liquid equity market, nor a market for buying and selling of existing ownership. Second, minority owners in unlisted firms have lower legal protection. Lastly, unlisted companies are less transparent. The latter may be important in describing CEO compensation because the management and economy of unlisted companies are less

systematically evaluated by financial analysts and business journalists (Berzins & Bøhren, 2009).

The choice of the Norwegian shipping industry

There are many unlisted shipping firms in Norway, which comply with our wish to narrow down the research gap between listed and unlisted firms. Alternatively, we could have studied a random sample of all Norwegian unlisted firms, but then we would not get any industry-specific insights. The shipping industry is relatively large and includes firms in all sizes. A significant number of shipping firms also have owner CEOs. Hence, we have two large groups of CEOs to compare with each other. When focusing on one industry, we are also able to go in-depth as opposed to having a shallow and general approach. The shipping industry is exposed to fluctuations in international markets because it relies a great deal on foreign trade. Its global dependence is appealing because a typical expectation is that executive pay varies with company performance. Moreover, we want to contribute with research on the pay-performance sensitivity of Norwegian CEOs. To our knowledge, Norwegian companies have not been used in this area of research before.

There are several reasons why Norway is a particularly interesting country to research. Two distinctive features of Norway are low levels of inequality and somewhat novel social norms. These characteristics may have a direct implication on the owner's willingness to compensate themselves. The ratio between executive pay and average salaries in Norway is not nearly at the same level as, for example, the ratio in the USA (Forsland, 2019), which in 2004 was as high as 500:1 (Bebchuk & Fried, 2004, p. 1). According to Lederne (2018), the wage of Norwegian leaders is just 30 % higher than the general average in Norway. The inequality levels highlight the socialistic ideas manifested in the Norwegian society. Therefore, the results from other parts of the world may not be replicated by studying Norwegian firms.

3. Theoretical frameworks and former research

In this chapter, we are going to present theoretical frameworks relevant for explaining CEO pay. Our two main theories are Agency theory *(Section 3.1)* and the Managerial power perspective *(Section 3.2)*. Furthermore, corporate governance could impact the compensation packages, and this will be discussed in *Section 3.3*. *Section 3.4* will discuss the market for CEOs. Moreover, we will present results from former relevant research in *Section 3.5*.

3.1 Agency theory

Agency theory is widely used to explain the behavior of the different players in an organization. The theory looks at the implications of separating ownership and control, and Adam Smith captured the core problem when he argued that one could not expect a manager who looked after other people's money to do this with the:

> *"...same anxious vigilance with which the partners in a private copartnery frequently watch over their own*."
>
> - Adam Smith. The Wealth of Nations, 1776*

**Quote and source are both presented in Jensen & Meckling (1976)*

3.1.1 Agency problems

An agency relationship occurs in any situation where a principal engages one or more agents to perform a service on their behalf (Jensen & Meckling, 1976, p. 308). In this thesis, we will address the agency relationship between the owners of a corporation and the top executive. The agency relationship occurs when the owner hires the CEO to perform the daily operations of the company (Bebchuk & Fried, 2004, p.17).

Bounded rationality and self-interest are two main assumptions of the agency theory. Moreover, the theory claims that the owner and the manager have different cost-utility functions (Eisenhardt, 1989, p. 59). Hence, the manager is presumed to make decisions benefiting himself without regarding the consequences for the owners. If the choices made by the manager diverge from the owners' path of interest, an agency problem occurs (Bebchuk and Fried (2004, p. 16). In the following, we will present the agency problems of conflicting interests, asymmetric information, and different risk aversion.

A manager making decisions on behalf of the owners is expected to encounter a range of choices regarding consumptions of perks, on the job effort, and business decisions. The owner expects the manager to make decisions that maximize the owners' utility. However, the manager may have private interests concerning his consumption and career that conflicts with the interest of the owner. Hence, a *conflict of interest* occurs (Bebchuk and Fried, 2004, p. 23).

Conflict of interest is tightly connected to ownership and the utility maximization of the actors involved. If the manager is the sole owner of the company, he will make decisions regarding pecuniary and non-pecuniary aspects of the operation that maximizes his utility, and there will be no conflict of interest present. When the ownership fraction decreases, he will no longer receive the full wealth effect of the costs, and his preference for on the job consumption will change (Jensen & Meckling, 1976, p. 316). Without the right incentive mechanisms, a manager who endures the full cost of his effort without completely relishing the wealth and benefits will exert an effort that is less than optimal (Bebchuk and Fried, 2004, p. 16). On the opposite side, if the manager enjoys the perks without bearing the costs, he will try to transfer the owners' value over to himself. The manager achieves this by consuming more on the job than is agreed upon in his contract (Fama, 1980, p. 296).

Another concern that arises in an agency relationship is the disparity in *risk preferences* between the owner and the CEO. Different opinions regarding risk could be problematic, as the two parties favor different actions (Eisenhardt, 1989, p. 58). Shareholders often have the opportunity to diversify their investment, and hence their risk associated with the firm. Because of this, they are generally considered to be risk-neutral. The CEO is not able to diversify his risk similarly. Consequently, his security is relying on the performance of the individual firm, making him risk-averse (Eisenhardt, 1989, p. 60). This makes fixed pay more valuable for a CEO than performance-based pay. If the firm wants a larger fraction of performance-based compensation in their executive contracts, the compensation needs to be of a higher expected value than if the contract only consisted of fixed pay. This is to meet the reservation value of the CEO, i.e., the level of compensation that makes him or her accept the contract (Bebchuk & Fried, 2004, pp. 19-20). However, an owner could also be risk-averse. If a risk-averse owner suspects that the CEO will act in self-interest, the owner may be willing to bear the necessary costs in order to reduce opportunistic behavior (Kultys, 2016, p. 619). This could influence how owners incentivizes the CEO.

The last, and perhaps, most fundamental problem of agency theory is the problem of *asymmetric information*. As the manager and the owner inhabit different roles in the organization, they obtain different information. The consequence of the separate streams of information is asymmetric information between the two parties, resulting in the parties being obliged to trust each other to provide them with necessary information (Busch, Vanebo & Dehlin, 2010, pp. 132-133). Asymmetric information is problematic because it allows the manager to endure in opportunistic behavior (Busch et al., 2010, pp. 132-133). Williamson (1973, p. 317) define opportunism as the effort to realize individual gains through a deceiving behavior. An opportunistic manager will take advantage of the information that is unobservable for the owner and make decisions concerning the daily operations for his benefit at the expense of the owners (Bebchuk and Fried, 2004, p. 16).

It is essential to be aware of two main issues arising from information asymmetries; hidden information and hidden actions (Busch et al., 2010, p. 134). In cases of hidden information, the agent has relevant information that the principal does not possess. Hidden information could occur during and after the hiring process. During the process, the CEO possesses information about his productivity, effort, and abilities. This results in adverse selection as the owner cannot adequately verify the productivity of the CEO upon hiring (Eisenhardt, 1989, p. 61). If some information about the CEO's productivity and skill is hidden, this could result in an ineffective and expensive contract. After the hiring process, hidden information could manifest in situations where the management has more knowledge about the prospects of the company compared to the shareholders (Snyder, Nicholson & Stewart, 2015, p. 474).

Hidden actions occur after the hiring process. The shareholders seek to align the CEO's interest with their own. However, it is both challenging and expensive to observe and monitor the CEO daily. Effort and executive decisions are examples of hidden actions made by the manager that may be difficult for the shareholders to observe (Snyder, Nicholson & Stewart, 2015, p. 474). Only the CEO knows the extent of effort that he exerts on the job. If the compensation is protected against poor outcomes, the CEO has fewer incentives to avoid them. Likewise, if the pay is decoupled from performance, the manager will maximize his utility by reducing his effort (Bolton & Dewatripont, 2005, p. 139).

3.1.2 Reducing the agency problem

To reduce unwanted actions from the top executive, the owners must provide sufficient incentives and exert monitoring. Such measures come with a cost for the owner, and the agency theory refers to it as agency costs. Jensen and Meckling (1979, p. 308) define agency costs as the sum of monitoring expenditures by the owner, the bonding expenditures by the agent, and the residual loss. The residual loss refers to the reduction in welfare experienced by the owner due to agency problems.

To monitor the CEO, the owners implement a board of directors (BOD). The BOD becomes the intermediaries between the top executive and the owners. Their purpose is to ensure that the contract between the two parties is maintained. The board hires the CEO and follows up on the ongoing management by monitoring the CEO's effort and performance. Furthermore, the board has the authority to intervene in the daily operations and replace the CEO if they find it necessary. Because the board is allowed to interact, it limits the possibility for the CEO to act in self-interest and thereby reduces the agency problem (Bebchuk & Fried, 2004, p. 17).

In order to provide sufficient performance incentives, Bebchuk & Fried (2004, p. 7) strongly urges companies to use equity-based CEO compensation. Furthermore, they claim that there is little to no evidence of cash compensations working as proper incentives, especially when pay is decoupled from the performance. By designing the incentives correctly, the agent would be inclined to perform well because he will benefit significantly from success and become personally punished for poor performance. Consequently, to reduce the agency problems, the wage should be dependent on performance while also compensate for the cost of effort and provide a risk premium for the CEO. Gjesdal (1982, pp. 1-3) states that by making the remuneration a function of the managers' actions, one can prompt Pareto efficient decision making and reduce the agency problem. This is accomplished by implementing incentive mechanisms into the contract. This can be illustrated by a theoretical model developed by Bolton and Dewatripont (2005).

A model of CEO compensation

In the following, we will present a simplified version of the theoretical model presented by Bolton and Dewatripont (2005, pp. 137-139). The model aims to explain CEO compensation grounded in agency theory, and it assumes that the owners only can observe the CEO's effort by evaluating the company performance. Thus, the contract between the shareholders and the

CEO is linear, and the wage (w) consists of a fixed compensation level (a) and a performance component (b). R_j illustrates the measure of effort and performance:

$$w = a + bR_j$$

The fixed compensation level should reflect the value of knowledge and compensate for the cost of effort and the manager's risk preference. The model continues to assume that the CEO's performance (Q) is equivalent to the sum of output of the different task he or she performs (q_i), in addition to the effort (e_i) exerted in those tasks:

$$Q = \Sigma_i q_i(e_i)$$

Bolton and Dewatripont (2005, p. 137) claim that principals are risk neutral while the managers have a constant absolute risk-averse risk profile. The company seeks to maximize the CEO's contribution (Q_j) to the value creation, and the shareholders maximize their profit when the manager's contribution to the firm equals his or her effort minus the pay:

$$Q_j - w_j = \Sigma_i q_i(e_i) - w_j$$

For the CEO, on the other hand, the effort is associated with a cost of effort $C(\Sigma e_{ij})$ and risk ($\gamma(\sigma^2{}_{pay})$).

$$w_j - C(\Sigma e_{ij}) - \gamma(\sigma^2{}_{pay})$$

If the salary does not depend on effort, the CEO maximizes the salary by minimizing the effort.

The company determines the combination of fixed and performance-based pay. For the shareholders, the optimal pay combination consists of a small portion of fixed pay, and a substantial portion of performance-based pay. The performance-based component reflects the incentive effect and involves less risk for the firm. With more performance-related pay, the CEO must bear a higher portion of the risk associated with the performance of the company. Since the CEO is assumed risk-averse, the risk premium will increase with the performance component (Bolton and Dewatripont, 2005, p. 139). The CEO will thus prefer a higher portion of fixed pay to decrease the individual risk. The optimal pay combination that satisfies both parties is found in the equilibrium of the shareholders' and the CEO's marginal cost of extra effort.

3.2 The Managerial Power Perspective

We will now discuss another perspective of the pay-setting process, the *managerial power perspective (MPP)* proposed by Bebchuk and Fried (2004) as an alternative to agency theory. The perspective describes the power dynamics between the CEO and the board during the pay-setting process, whereas the board represents the owners.

The managerial power perspective recognizes the agency problem that occurs due to the separation of ownership and control. However, where the agency theory focuses on CEO compensation being a solution to this problem, the managerial perspective regards the pay-setting process itself to be a big part of the problem. Furthermore, the agency theory talks about creating a board of directors as a monitoring device for the owners. However, the MPP is hesitant to assume that the board does not act in self-interest when determining CEO compensation (Bebchuk & Fried, 2004, pp. 61-62).

The monitoring effect of the board of directors diminishes when the CEO has power over the very organ that determines his compensation. Optimal contract theory argues that the CEO salary should consist of a fixed part and a performance-based part. For the CEO, a high degree of performance-based compensation means that he must bear more risk and exert more effort in his job. For the shareholders, this is less risky as the manager will be forced to prioritize their interests in order to be compensated. In order to reduce risk, the CEO will use his managerial power to influence the structure of his compensation by making it less sensitive to performance and increase the fixed part of the salary (Bebchuk & Fried, 2004, p. 63). The core of the managerial power perspective is that the CEO has the power to influence his own compensation and thus receive a value that exceeds what they would get at arms-length bargaining. This excess value is by Bebchuk and Fried (2004, p. 62) called “rent.” Every manager will be able to secure some rent, but the degree of power the manager possess determines how much the rent will exceed market value.

The relationship between the CEO and the board is symbiotic if the manager can punish the board members or have personal relationships with them. There are several reasons why board members would favor the CEO’s interest over the shareholders’ interests (Bebchuk & Fried, 2004, p. 31). First, they have the incentive to retain their job. A seat at the table could mean status and high salaries, making it natural that the directors want to secure their positions at the table. Additionally, Schneider (2013, p. 19) argues that the top executives have much influence

in the nomination process of the board members. Thus, displeasing the CEO by going against his or her proposals increases the probability of not getting re-nominated. This could affect the reputation of the independent directors if the word spread about them being reluctant to go along with the CEO, reducing their chances of being appointed as a board member in other companies as well. As an owner, the CEO typically possesses a higher degree of power over the board. A shareholder inherits voting rights at the general assembly. If the owner holds the majority position, he or she can choose the board members without support from the other shareholders. Besides, one could also assume that an owner CEO holds more influence over potential external owners compared to a non-owner, increasing the managerial power.

Bebchuk and Fried (2004) propose some limits to the level of CEO compensation following the managerial power perspective. Firstly, market forces will control the compensation to some extent. Moreover, they present the term "outrageous costs," which is when the compensation reaches a level that is perceived as outrageous by the public eye. This might lead to shareholder pressure and reduce the willingness of the board members to approve the compensation (Bebchuk and Fried, 2004, p. 66-67).

The managerial power perspective is fascinating in terms of studying the pay sensitivity of the managerial compensation. We seek to determine if the compensation received by an owner CEO is less sensitive to firm performance than the compensation received by a non-owner CEO. From the managerial power perspective, we assume that owner CEOs inherit more power over their pay-setting process and use this power to reduce the pay-sensitivity of their compensation.

3.3 Corporate governance

Corporate governance affects both agency problems and managerial power. There are several models that aims to explain what is considered good corporate governance and different models have different areas of focus. Three common models are the Anglo-Saxon model, the Japanese model and the conventional-European model (Ungureanu, 2012). Norway have an own code of practice issued by The Norwegian Corporate Governance Board (2018). The aim of this code of practice is that listed firms will practice good corporate governance more thoroughly than they would do by just following legislations. The division of roles between executives, shareholders and the board of directors is the main focus. Our research question is closely linked to these roles. However, unlisted companies are not required to explain their governance, and this is likely affecting their governance practices. Since the corporate governance and other

factors in unlisted companies may be very different, it will be interesting to see if we find different results for these companies than previous research on listed companies.

In shipping, a lot of companies do not separate the role of CEO and chairman, which many argue is an example of weak corporate governance. Krigslund (2018) writes that shipping companies have avoided criticism regarding weak governance in the past, despite the increased focus in the area elsewhere. Tsatsaronis and Syriopoulos (2011, pp. 4-5) discuss two schools of thought that address CEOs also serving as the chairman. The first view supports agency theory, and the argument is that a combined CEO and chairman creates a conflict of interest that would not be beneficial for other shareholders. The main concern is that there is no monitoring of CEO performance. In the context of our research question, this type of duality may indicate that CEOs have more power in deciding own compensation schemes. Consequently, duality may lead to higher compensation of the CEO. A different view derives from the advocates of stewardship theory. They believe that a combined CEO and chairman is more capable of acting efficiently (Donaldson & Davis, 1991, p. 51). The concern of this view is that non-duality leads to slow and inefficient decision-making leading to poorer firm performance (Tsatsaronis & Syriopoulos, 2011, p. 5).

3.4 The market for CEOs

To this point, we have focused on specific theories related to the separation of ownership and control. In standard economic frameworks, the market forces are described as the most important determinant of prices. Prices are set in the intersection of supply and demand. The prices are what the market is willing to pay, given the supply of goods. Similarly, CEO pay is the price that the owners are willing to pay the CEO in order to perform at the desired level, given the supply of managerial talent. The owners should then provide sufficient incentives for the CEO to maximize firm value. Advocates of market forces believe that the rise in executive compensation is due to an increase in demand for managerial skills.

Bebchuk and Fried (2004, pp. 53-58) discuss the impact of market forces on CEO pay. They agree that market forces indeed place constraints on CEO compensation, but they emphasize that these forces are not nearly tight enough to keep the executive compensation efficient. In theory, good performance by employees may lead to a promotion, and poor performance may result in the employee getting fired. CEOs differ from ordinary employees as promotion within the firm is impossible. However, there should be no constraints on CEOs being hired by a

different and larger firm. A problem with the standard market theory is that the majority of CEO positions are filled within the firm. Bebchuk and Fried (2004) conclude that the market forces are not strong enough to correct for non-market factors and that these are the most important in determining CEO compensation.

Other studies find evidence that market forces are the most essential in explaining executive compensation. Nickerson (2017) studies the effect of an increase in demand for managers with a specific set of skills necessary to run a public company. He finds that a demand shock is leading to an average increase of 7 % in pay (Nickerson, 2017, p. 2306). Kaplan (2008, p. 8) addresses that while CEO compensation has been criticized, the pay of other types of managers has increased just as much. He argues that market forces, as well as arm's-length bargaining, have prompted an increase in compensation for others than top executives as well. Because of that, he claims that it is difficult to explain the rise in CEO pay by non-market forces and "cozy board managements" (Kaplan, 2008, p. 8).

3.5 Former research on CEO ownership and compensation

There are several studies on CEO ownership and compensation, but listed firms are the most researched. Because of this, we think it's interesting to examine the relationship of CEO ownership and pay in unlisted companies. These companies often have more concentrated governance structures, and fewer and larger owners. CEO duality is also more common in these companies. We will now present former research on the subject and their findings.

Cohen and Lauterbach (2007) look at differences in pay between owner and non-owner CEOs in Israeli listed companies. They find that owner CEOs receive 50 % higher pay than non-owner CEOs. They use managerial power to describe the significantly higher pay by owner CEOs. Their findings do not coincide with agency theory. Chourou (2010) finds similar evidence by looking at Canadian family-owned businesses, but they find that it only applies to poorly governed companies. Amdouni & Boubaker (2015) studies French listed companies and finds similar evidence. Their study shows that the compensation of chief executive officers increases with their power and control and that owners earn more than non-owners. Again, the managerial power perspective supports these findings.

Cyert, Kang & Kumar (2002) derives an analytical model of CEO compensation linked to variables on ownership and corporate governance, and further tests it empirically. They find

that CEO's stock ownership is positively correlated with both base salary and equity-based compensation. Both relationships are significant at a five percent level. Although the analytical model indicates an ambiguous effect, the empirical results of Cyert et al. indicates a positive relationship. This contradicts our first hypotheses. Of control variables, CEO duality, the proportion of outside shareholders, CEO tenure, and firm risk are positively correlated and significant at a five percent level for base salary. For equity-based compensation, CEO duality is positively significant at a five percent level. CEO tenure and age are for equity-based compensation negative and significant together with board size (Cyert et al., 2002).

Oxelheim & Randøy (2008) examine the same relationship in listed Norwegian and Swedish companies between 2002 and 2006. Unlike the research mentioned above, their study shows that non-owner CEOs receive higher compensations than the owners. These results fit with the predictions from agency theory. Oxelheim & Randøy (2008, p. 197) also find that other corporate governance variables such as board size, CEO age, chair tenure, the average age of board members, and geographical diversity of board members affect CEO pay. Randøy and Nielsen (2002, p. 74) also find a negative relationship between ownership and CEO pay looking at listed companies in Sweden and Norway. They argue that these results indicate that ownership could work as a substitute for monitoring in order to keep the firms' wage level down.

Interestingly, there is evidence in former research supporting both the predictions from the managerial power perspective and agency theory. The top executive's power due to ownership and the size of other shareholders seems important in explaining compensation in the listed firms. These findings are pretty consistent in the research on listed firms internationally, but not on Scandinavian companies. It is fascinating to see that there is no evidence of the potential negative relationship between CEO ownership and their compensation in international studies. The different results might also be due to cultural or political disparities. For example, Cohen & Lauterbach (2007) emphasizes explicitly that corporate governance in Israeli firms the relevant period was generally weak. Besides, distinct social norms in Norway may put constraints on managerial power.

4. Data collecting

We now describe the process of collecting data on unlisted companies in the Norwegian shipping and sea transport industry. First, we will explain how the industry is defined in our thesis *(Section 4.1),* before we describe the data collection and transformation process *(Section 4.2-4.5)*. In addition to gathering data, we have created some variables based on the data we collected, and we will present our variables in *Section 4.6*.

4.1 Defining the shipping industry

We collected data from proff.no and regnskapstall.no, websites that distribute financial statements from every company in Norway. Our definition of the shipping industry is based on the industry segmentation by Proff and Regnskapstall. The industry is called "Shipping and sea transport". By choosing this segmentation, we get every company in Norway that supposedly operates in the shipping industry.

However, there are some differences in how the two websites define the shipping industry. We observed that Regnskapstall included some companies categorized as a "transport" or "main office services" by Proff. On the one hand, this difference in segmentation may be an issue because the two different websites have their own opinion about what companies are considered shipping companies. On the other hand, some of the shipping companies from regnskapstall.no may fill out the gap of companies that operates in the shipping industry while not being labeled as a shipping company by proff.no. We decided to merge data from both websites and consequently, we obtained a more comprehensive dataset.

4.2 Collecting data on CEO compensation

The process of collecting data started with using a comparison tool at proff.no. This tool makes it possible to compare financial statements, and other variables, of up to ten companies at the time. These comparisons can be downloaded as Excel-sheets. After downloading the sheets for every company, a comprehensive cleaning and transformation process began. Every table needed to be transposed, cleaned, and structured. In addition to using the comparison tool, we collected a dataset with all companies in "Sea transport and shipping" from regnskapstall.no. The data from the two sources were merged into one dataset.

The biggest issue with the dataset was that it only contained CEO pay from 2018. The comparison tables from proff.no typically show historical data on most variables except CEO pay. Therefore, we needed to fill out the CEO salary for the years 2016 and 2017 manually. In addition to ordinary CEO salary, the financial statements contain "CEO other remuneration." This number includes other forms of compensation not covered by the ordinary salary. This number may contain, but is not limited to, flights, hotels, car allowance, and more. Since this number did not show up in the comparison tables from proff.no, nor in the data we gathered from regnskapstall.no, we needed to fill out this as well. In the end, we added the salary and other remuneration together in order to get the total CEO pay each year. Finally, we created a variable of the growth rate of total CEO compensation from one year to another. This variable is calculated in the following way:

$$Change\ in\ CEO\ pay_t = \frac{Total\ CEO\ pay_t - Total\ CEO\ pay_{t-1}}{Total\ CEO\ pay_{t-1}}$$

Some companies reported a salary of zero or blank, which potentially could be an issue. Questions that arise are whether there is a difference in reporting zero or blank and why we observe so many of these. Certain companies have blank fields in some years and zero other years, while other companies have merely zeros or blanks. This is likely because the CEO is paid through a different company, for example, another company in the same group. This may cause a problem with biasedness if these companies all share common characteristics. A lot of the companies with blank or zero CEO pay started in 2018. These observations are less relevant because of the lack of historical data.

We can speculate that zero and blank values occur because of different practices in reporting. Nevertheless, reporting errors or that firms forget to report CEO pay seems questionable just because of how common it is. Zero or blank values might also be an indication that some CEOs only receive dividends and not salary. Nevertheless, we also observe that dividends are zero in many of the relevant cases. Assuming that CEOs get paid for doing their job, we decided to remove all zero values as they would have a significant impact on our analysis. We further discovered that in rare cases, CEO compensation was only listed at one of the websites. This may be due to differences in the algorithms that collect the data. Consequently, using two sources of information improves our dataset.

4.2.1 Different forms of CEO pay

There are several ways to compensate CEOs. Some of them are very visible, but others are relatively "camouflaged." By this, we mean that some forms of compensation are not clearly stated in the financial statements. There are several reasons why a firm would want to camouflage some parts of the compensation. The obvious one is that one can avoid some controversies of high executive pay (Bebchuk & Fried, 2004, pp. 5-6).

The most intuitive form of payment is cash compensation, for example CEO salary and bonuses. These numbers are specified in the CEO's contract and reported in the companies' financial statements. Consequently, it is fairly easy to collect data on cash compensation. However, there is no easy way to distinguish fixed and variable pay just by looking at the numbers. This makes it challenging to make inferences about the composition of CEO pay. To our knowledge, every dollar or Norwegian krone received by the CEO is reported in the company's financial statements, thus making it easier to make inference about the total compensation received.

Another form of compensation is issuing stock options. Bebchuk and Fried (2004, p. 7) strongly argue that CEO contracts should include other sorts of payments, like stock options. The main issue with stock options based on performance is to adjust for industry and market trends that affect the stock price. A company with a poor performing CEO may perform well financially due to general trends in the economy or the particular industry.

In addition to ordinary salary, bonuses, and stock options, there are other opaque ways to compensate top executives. Firms might fear negative reactions to their CEO payments and consequently, a loss of reputation. This could lead to more creative ways to construct compensation schemes in order to camouflage parts of the total pay. Kuepper (n.d.) presents various forms of executive compensation, including retirement packages and other executive perks. Retirement packages are received after the CEO retires and may be a problem if they are detached from actual performance. Other executive perks may include the use of a jet, travel reimbursements, and other kinds of rewards Kuepper (n.d.).

A limitation of collecting data from financial statements is that we cannot observe the composition of CEO pay. The total amount of pay is visible, but we do not know how much of the compensation is performance-based. By not knowing the pay composition, it is especially challenging to make inferences regarding pay-performance sensitivity. Therefore, we have

performed a survey to get a clearer picture of how the pay dynamics of top executives are. We will present the results of this survey in *Section 6.*

4.3 Data on firm performance

The financial statements contain all sorts of information like costs, salary expenses, revenues, and more. Other key figures, both recent and historically, are listed in separate sheets inside the Excel workbooks downloaded from proff.no. We ran queries on these sheets to merge historical data on all companies to one table. The job of adding these variables to the dataset was done by matching the legal company name. After completing this step, we had a solid sample of CEO compensation and financial key numbers dating back to 2014 for some variables. Some companies recently started operating. The variables are blank until the first year of operation.

The merging of data acquired from proff.no and the dataset from regnskapstall.no resulted in a decent dataset, but it may not be complete. The total amount of shipping companies in Norway is approximately 2000, according to the websites. However, many of these firms seem to be newly started or not operating anymore. The total amount of firms in our dataset is 413. The two main reasons for this number being low is that many of the companies do not report CEO pay, or that they recently started operating.

The variables from the financial statements include liquidity ratio and return on assets. These key numbers are both measures of firm performance. Proff.no calculates the variables the following way:

$$\text{Liquidity ratio} = \frac{Total\ current\ assets}{Total\ current\ debt}$$

$$\text{Return on assets} = \frac{(Profits_t + financial\ expenses_t)*100}{(Total\ assets_t + total\ assets_{t-1})*\frac{1}{2}}$$

In addition to liquidity ratio and return on assets, we also believe that growth in EBIT could be a good performance measure. Hence, we calculated a growth/change variable using the following formula:

$$Growth\ EBIT_t = \frac{EBIT_t - EBIT_{t-1}}{EBIT_{t-1}}$$

Note: we tweaked the formula to show correct negative growth in cases where the EBIT goes from a negative number to an even lower number (e.g., from -200 to -300). Using the formula directly would in such cases give positive growth rates, which is wrong.

Some of the firms in our dataset had numbers from consolidated financial statements (a group of companies), because Proff uses these numbers in such cases. Companies that are part of a larger group of companies may have incredibly large aggregated earnings and assets. This is an issue if the CEO is only responsible for one company, and other CEOs manage the other companies in the group. In these cases, performance of the firm in question is inflated. In other situations, the CEO is also in charge of other companies in the group. When this is the case, the numbers may not be misleading.

First, we decided to change the numbers for the companies where the CEO is only responsible for one company. Furthermore, we kept the numbers from the companies where the CEO was in charge of all the other companies in the group. To our knowledge, this is the best way to correct for some of the most misleading numbers. However, an issue arises when determining ownership structures of the firms of which we use consolidated statements. It is difficult to pin down the correct ownership percentage when the ownership and board composition is different across the firms in one group. This problem applied to 27 firms. Thus, we did our analysis with and without the relevant firms. However, the size and the p-values of the coefficients did not change significantly, and we decided to include them in our analysis.

4.4 Currencies in the financial statements

The majority of the data collected was reported in Norwegian Kroner (NOK). However, some of the firms reported in American Dollars (USD), Danske Kroner (DKK), and Euro (EUR). For example, some companies had their financial statements published in NOK some years and USD in other years. Different currencies are a problem when dealing with absolute numbers, as they are not comparable. Relative changes may still be comparable, but the data should be on the same scale. Therefore, we gathered information about the average exchange rates in the corresponding years to convert all numbers to NOK.

The central bank of Norway has several datasets of historical exchange rate data available for downloading (Norges Bank, n.d.). Converting the numbers to NOK is not a problem, but there might be some imprecisions because they are converted with a yearly exchange rate. For example, the American dollar fluctuated between 7.77 and 8.60 in 2018 alone. If some companies have a lot of income and costs presented in different currencies, the time of conversion and the exchange rate will affect the numbers. In total, this was relevant for 35 of the firms in our dataset. We did not want to remove more data, so we considered the data being

on the same scale to be more important than worrying about small imperfections in the converted numbers.

4.5 Variables on the CEO and ownership structure

Finding variables on the CEO and ownership structure required some more profound research than just collecting numbers from tables. We had to dig deeper into the ownership structures and CEO characteristics manually. Variables on the age and gender of the CEO may be relevant in explaining differences in pay and we consequently collected this information. The difference between male and female wages is a known issue. Therefore, we believe it is interesting to control for CEO gender. We present this as a dummy variable that is "1" if female and "0" if male. Additionally, we want to examine whether the gender balance of the board can explain CEO pay. Therefore, we added a variable of female representation on the BOD. 50 % represents a perfectly gender-balanced BOD, 0 % represents a BOD with all men, and 100 % all women. We also added a dummy variable for the gender of the chairperson. The total number of people on the board was collected as well.

The number and size of shareholders may affect executive compensation. First, we created a dummy that captures CEO ownership. The variable is "1" if he or she is a non-owner, and "0" otherwise. A person may also be an indirect owner, which means having ownership through another company he or she owns. Therefore, indirect owners were marked as owners. The actual ownership percentage of the CEO may be important, so we collected the ownership percentages of all the CEOs in our dataset. One observation is that many of the CEOs also serve as the leader of the board. We discussed in *Section 3.3* that CEO duality is quite common in shipping companies. Hence, we added a variable for CEO duality that is "1" if the CEO is also the chairman, "0" otherwise.

One thing worth noting about the CEO payments in our dataset is that a CEO does not always receive them. Unlisted companies are not required to have a CEO in Norway and may instead appoint a "contact person" or have the chairman in charge of daily operations. In such cases, it is not always clear who receives the payments. This has implications for how we collect and interpret our data, both in terms of CEO characteristics and pay. To our best knowledge, the "contact person" does not receive the payments if he or she is *not* the chairman as well. Some of the contact persons in our dataset were listed as a contact person in several companies and would thus receive substantial payments from multiple firms. The head of the board looks more

likely to be the recipient of these payments, as that person often varies even though the contact person is the same. According to Altinn (n.d.b), the head of the board does perform CEO duties in cases where the firm does not have one. Therefore, we conclude that the head of the board is the recipient of executive pay in cases where the chairman and the contact person is not the same. Consequently, we treat the chairmen as a CEO when relevant. The companies with *different* chairman and contact persons were removed, as we cannot be sure who of them receives the CEO pay. The number of firms removed because of this issue was 25.

4.6 Dependent and independent variables

Table 2 presents our dependent variables. In addition to level CEO pay, we use the change in pay to analyze the sensitivity related to performance. Not that CEO pay is the logarithm of total compensation (salary and other remuneration added together).

Table 2 – Description of our dependent variables

Variable	Description
CEO pay 18 (ln)	Logarithm of total compensation paid out to the CEO in 2018
CEO pay 17 (ln)	Logarithm of total compensation paid out to the CEO in 2017
Change CEO pay 2018	The percentage change in total CEO pay between 2017 and 2018
Change CEO pay 2017	The percentage change in total CEO pay between 2016 and 2017

Table 3 shows and describes our independent variables. Scatterplots (see *Appendix A2)* of assets and CEO pay showed limited spread. Taking the natural logarithm of both variables spread out the data points and therefore, we will use log-transformed CEO pay and assets only. It is worth noting that we have multiple interaction variables (the bottom eight variables in *Table 3*) to examine differences in pay-performance sensitivity between owners and non-owners. These are the dummy variable "Non-owner" multiplied with different measures of performance, growth in EBIT, ROA, and Liquidity.

Table 3 – Description of our independent variables

Variable	Description
Assets 17 (ln)	The logarithm of total assets 2017, used as a proxy for firm size
Assets 16 (ln)	The logarithm of total assets 2016, used as a proxy for firm size
Board Size	Number of people on the BOD
CEO Age	Age of CEO (2019 – year born)
Ownership CEO	The direct ownership fraction of the CEO
CEO Duality	1 if the CEO also is the chairperson, 0 if not
Growth EBIT 17	Growth in EBIT from 2016-2017, used as a proxy for firm performance
Growth EBIT 16	Growth in EBIT from 2015-2016, used as a proxy for firm performance
Growth EBIT 15	Growth in EBIT from 2014-2015, used as a proxy for firm performance
Non-owner	1 if the CEO is not an owner, 0 if he is a direct or indirect owner
Female CEO	1 if the CEO is female, 0 if not
Female Chairman	1 if the chairman is female, 0 if not
Females on the board	The fraction of females represented on the board, measured in per cent
ROA 17	Return on assets in 2017, used as a proxy for firm performance
ROA 16	Return on assets in 2016, used as a proxy for firm performance
ROA 15	Return on assets in 2015, used as a proxy for firm performance
Liquidity 17	Liquidity ratio in 2017, used as a proxy for firm performance
Liquidity 16	Liquidity ratio in 2016, used as a proxy for firm performance
Liquidity 15	Liquidity ratio in 2015, used as a proxy for firm performance
N.O. growth EBIT 17	Non-owner * Growth EBIT 17
N.O. growth EBIT 16	Non-owner * Growth EBIT 16
N.O. growth EBIT 15	Non-owner * Growth EBIT 15
N.O. ROA 17	Non-owner * ROA 17
N.O. ROA 16	Non-owner * ROA 16
N.O. ROA 15	Non-owner * ROA 15
N.O. Liquidity 17	Non-owner * Liquidity 17
N.O. Liquidity 16	Non-owner * Liquidity 16
N.O. Liquidity 15	Non-owner * Liquidity 15

4.6.1 Other variables collected or created

In addition to the variables presented in the former sub-sections, we have also collected the variables listed in *Table 4*. For different reasons, they are not included in the analysis.

Table 4 – Other variables in our dataset

Variable	Description
CEO pay total 16	Total compensation paid out to the CEO in 2016 (salary + other remuneration)
CEO pay total 15	Total compensation paid out to the CEO in 2015 (salary + other remuneration)
Change in CEO salary 18	The percentage change in CEO salary between 2017 and 2018
Change in CEO salary 17	The percentage change in CEO salary between 20176 and 2017
CEO salary 18	CEO salary in 2018
CEO salary 17	CEO salary in 2017
CEO salary 16	CEO salary in 2016
CEO salary 15	CEO salary in 2015
CEO pay other 18	CEO other remuneration in 2018
CEO pay other 17	CEO other remuneration in 2017
CEO pay other 16	CEO other remuneration in 2016
CEO pay other 15	CEO other remuneration in 2015
Net income 18	Total net income of 2018
Net income 17	Total net income of 2017
Net income 16	Total net income of 2016
Net income 15	Total net income of 2015
Growth net income 18	Growth in net income from 2017 to 2018
Growth net income 17	Growth in net income from 2016 to 2017
Growth net income 16	Growth in net income from 2015 to 2016
Growth net income 15	Growth in net income from 2014 to 2015
N.O. growth net income 17	Non-owner * Growth net income 18
N.O. growth net income 16	Non-owner * Growth net income 17
N.O. growth net income 15	Non-owner * Growth net income 16
ROA 18	Return on assets in 2018
Liquidity 18	The liquidity ratio of 2018
EBIT 18	EBIT in 2018 (level)
EBIT 17	EBIT in 2017 (level)
EBIT 16	EBIT in 2016 (level)
EBIT 15	EBIT in 2015 (level)
Growth EBIT 18	Growth in EBIT from 2017 to 2018
Assets 16	Total assets in 2016
Assets 15	Total assets in 2015
Growth assets 18	Growth in total assets from 2017 to 2018
Growth assets 17	Growth in total assets from 2016 to 2017
Growth assets 16	Growth in total assets from 2015 to 2016
CEO gender	String-variable. F: female, M: male
CEO year born	The year the CEO in question was born
CEO direct owner	1 if the CEO is a direct owner, 0 if not.
CEO indirect owner	1 if the CEO is an indirect owner, 0 if not.
Owner	1 if the CEO is a direct or indirect owner, 0 if not an owner
Sole owner	1 if the CEO is a sole owner of the company, 0 if not

5. Research method

This research aims to examine if there is a relationship between ownership and executive compensation. More specifically, we will study the difference in pay received by an owner-CEO and a non-owner CEO. Moreover, we make an estimation of the agency cost related to hiring an external top executive. Lastly, we will study differences in pay-performance sensitivity between the groups.

The purpose of the following chapter is to present the methodology used to test our hypotheses. We will start by introducing the structure of our data *(Section 5.1),* before we present the OLS method used in our research *(Section 5.2)* and the purpose of using dummy variables *(Section 5.3).* In the end, we will be present and explain our models *(Section 5.4).*

5.1 Cross-sectional data

When performing an empirical analysis, there are generally three ways of structuring the data, cross-sectional data, time-series data, or panel data (Wooldridge, 2013). In order to estimate the relationship between ownership and CEO compensation, we have collected a sample of cross-sectional data with lagged explanatory variables. One could argue that the dataset is panel data since we have collected data over several years. However, we will not be conducting a panel data analysis, and therefore we treat our data as cross-sectional. Additionally, some firms in our dataset do not have historical data due to the time they started operating. To test the pay sensitivity, we use change variables constructed by the lagged explanatory variables. With lagged variables, we can research if performance in previous years impacts the change in compensation in the following years.

Cross-sectional data consists of a sample of members in the population in question at a given point in time (Wooldridge, 2013, pp. 5-6). Time is not of the essence, and the data might not be collected from the same exact time. However, since we are using reported data from the companies' financial statements, the data will represent the same time frame.

5.2 Ordinary least squares regressions

To estimate CEO pay and pay sensitivity, we use ordinary least square (OLS) regressions. We perform our analysis using the statistics software STATA. OLS regressions minimize the sum of squared residuals between the observations in the dataset and an estimated linear function. It is used to estimate the intercept and slope parameters of the population in question (Wooldridge, 2013, p. 30). A simple linear regression can be expressed like this:

$$\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x_1 + u$$

The equation above is a simple model for explaining $\hat{y}$ in terms of x. However, this model assumes that all other factors that have an impact on $\hat{y}$ is uncorrelated with x, which is a somewhat unrealistic assumption (Wooldridge, 2013, p. 24). Therefore, the estimation of CEO-compensation will be based on a multiple linear regression model which can be written as:

$$\hat{y} = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 + \hat{\beta}_3 x_3 + \ldots + \hat{\beta}_k x_k + u$$

This method allows us to control for multiple factors at the same time, which all simultaneously affect the dependent variable. $\hat{\beta}_0$ represent the intercept, while $\hat{\beta}_1$, $\hat{\beta}_2$, $\hat{\beta}_3$ and $\hat{\beta}_k$ represents the estimated change in $\hat{y}$ with respect to their corresponding independent variables x_k. The variable u represents the error term and include all the variables that is excluded from the model (Wooldridge, 2013, p. 23).

5.3 Dummy variable

We have already addressed our dummy variables in *Section 4.* A dummy variable is an indicator variable that is used to describe qualitative information with two or more distinct categories in the model. The dummy variables are typically limited to two values; "1" and "0". When the dummy variable is true, the dummy takes the value "1". Opposite, when the dummy is false, it takes the value of "0". One has to assign the value "1" and "0" to the different events in advance. The easiest way to do this is to name the dummy after the event with value "1" (Wooldridge, 2013, p. 228).

The important dummy variable in our analysis is "Non-owner", which takes the value of "1" is the CEO is a non-owner and 0 if the CEO is an owner. Other dummy variables are "CEO

duality", "Female CEO", and "Female chairman". All of the dummies are named after the events they represent and take the value of "1" if the event is true.

5.4 Our models

In *Section 3.5*, we introduced previous research (Amdouni & Boubaker, 2015; Cohen & Lautherbach, 2007; Chourou, 2010; Oxelheim & Randøy, 2008; Randøy & Nielsen, 2002) on the topic of CEO-pay. This thesis differs from these studies by looking at unlisted firms rather than listed. As mentioned in *Section 1,* we cannot know whether the research on listed firms applies to unlisted firms. Therefore, the purpose of this thesis is also to reduce the research gap between listed and unlisted firms. As a result of this, we find it relevant to organize our data mainly the same way as the previous studies to make our study somewhat comparable. However, it is an issue that we do not have access to all the same measures as former research have on listed firms.

In order to estimate the effect of ownership on CEO compensation, we have chosen to use *CEO pay* as the dependent variable. The natural logarithm of CEO compensation is used, which is a usual approach when dealing with monetary measures. The model is written as:

$$(1)\quad \ln CEO\ pay_t = \beta_0 + \beta_1 * \ln Assets_t + \beta_2 * CEO\ Duality + \beta_3 * CEO\ Age\ + \beta_4 * Non\text{-}owner + \beta_5 * Board\ size + \beta_6 * Female\ CEO + \beta_7 * Female\ chairman + \beta_8 * Females\ on\ the\ board$$

This model aims to answer our first hypothesis, if a non-owner CEO receives more compensation than an owner CEO. In addition, we use *Assets* as a proxy for firm size as well as controlling for CEO and firm characteristics that we believe could impact the compensation.

We expect that there is a negative relationship between ownership and pay and that the effect is increasing with ownership percentage. To study this relationship, we include the ownership percentage of the owner CEOs. This provides us with the following model:

$$(2)\quad \ln CEO\ pay_t = \beta_0 + \beta_1 * \ln Assets_t + \beta_2 * CEO\ Duality + \beta_3 * CEO\ Age\ + \beta_4 * \text{CEO } Ownership\ \% + \beta_5 * Board\ size + \beta_6 * Female\ CEO + \beta_7 * Female\ chairman + \beta_8 * Females\ on\ the\ board$$

Moving on, we will test *Hypothesis 2* about pay sensitivity. In order to capture the pay sensitivity, the dependent variable is now the change in compensation from year *t-1* to *t*. We present three different models for the years 2018 and 2017. Each model uses different measures of performance; growth in EBIT, ROA, and liquidity. The models are written as:

(3) $$\Delta CEO\ pay_t = \beta_0 + \beta_1 * \ln Assets_t + \beta_2 * CEO\ Duality + \beta_3 * CEO\ Age\ + \beta_4 * N.O.growth\ EBIT_t + \beta_5 * Growth\ EBIT_t + \beta_6 * N.O.growth\ EBIT_{t-1} + \beta_7 * Growth\ EBIT_{t-1} + \beta_8 * Board\ size$$

(4) $$\Delta CEO\ pay_t = \beta_0 + \beta_1 * ln\ Assets_t + \beta_2 * CEO\ Duality + \beta_3 * CEO\ Age\ + \beta_4 * N.O.ROA_t + \beta_5 * ROA_t + \beta_6 * N.O.\ ROA_{t-1} + \beta_7 * Growth\ ROA_{t-1} + \beta_8 * Board\ size$$

(5) $$\Delta CEO\ pay_t = \beta_0 + \beta_1 * ln\ Assets_t + \beta_2 * CEO\ Duality + \beta_3 * CEO\ Age\ + \beta_4 * N.O.Liquidity_t + \beta_5 * Liquidity_t + \beta_6 * N.O.Liquidity_{t-1} + \beta_7 * Liquidity_{t-1} + \beta_8 * Board\ size$$

6. Analysis

In *Section 6.1*, we will discuss descriptive statistics of our dependent and independent variables. Next, we test our hypotheses *(Section 6.2)* and discuss our findings. After presenting the models, we will test them according to the Gauss-Markov assumptions *(Appendix A3)* in *Section 6.3*. The last section *(Section 6.4)* will present the findings of the survey sent out to the CEOs in our dataset.

6.1 Descriptive statistics

6.1.1 The dependent variables

Table 5 presents the summary statistics of the dependent variables. We have included the count of the variables, mean, standard deviation, minimum values, maximum values, 25th percentile, median (50th percentile) and the 75th percentile. Note that we have included the level of CEO pay from 2017 and 2018 in the summary statistics, even though they do not appear in our analysis. The reason is that compensation in level form is easier to interpret.

Table 5 – Summary statistics of the dependent variables

	N	Mean	St.Dev	min	max	p25	Median	p75
[1] CEO pay 18	354	1565.094	2621.903	2	32901	400	902.5	1849
[1] CEO pay 17	333	1384.57	1813.258	4	17525	472	836	1776
[2] CEO pay 18 (ln)	354	6.579	1.49	.693	10.401	5.991	6.805	7.522
[2] CEO pay 17 (ln)	333	6.602	1.276	1.386	9.771	6.118	6.718	7.451
Change CEO pay 18	290	.044	.404	-.993	3.385	-.044	.013	.129
Change CEO pay 17	277	.088	.562	-.944	4.512	-.049	.015	.107

[1] Numbers in 1000 NOK
[2] Log of numbers in 1000 NOK

We see that there is quite a difference between the mean and the median for these variables. By looking at the percentiles and maximum values, we understand that outliers are present. A maximum of 32.9 MNOK is a large observation compared to the majority of our dataset. It is also worth noting that the minimum observations of pay, 2 000 and 4 000 NOK, are very low. This indicates that some CEOs have the majority of their pay listed elsewhere, or that the firm was established at the end of the year. Also, the observed compensation might be low for small companies or if the CEO works part-time. We see that the 25th percentile in 2018 is 400.000 NOK.

There is no general minimum wage in Norway. However, some industries have minimum hourly wages, usually at approximately 200 NOK per hour (Arbeidstilsynet, n.d.). This minimum wage equals 350.000 NOK a year, given a total of 1750 working hours. Looking at

our dataset, we see that many of the firms with CEO pay below 350.000 NOK are of small size. However, some of the firms are large. A large firm paying its top executive this low is highly unlikely. Therefore, we wanted to remove some of our lowest observations of pay. Setting a limit is challenging. Given that some firms are small and that they might have a part-time CEO, we do not want to get rid of too many observations. When we gathered contact information for the CEOs in our dataset, we observe that some companies seemed to be operating only some months during the year. These companies tend to be small, which we correct for by using assets as a proxy for firm size. In the end, we decided to remove all observations below 200.000 NOK. This equals a 33.3 % job (e.g., four months of the year) that would have paid 600.000 NOK as a full-time employee. Setting higher limits of total pay does not impact the results in a significant way.

Table 6 – Summary statistics of dependent variables, after removing low observations

	N	Mean	St.Dev	min	max	p25	Median	p75
[1] CEO pay 18	308	1788.475	2742.019	200	32901.22	600.5	1025.5	2001.5
[1] CEO pay 17	299	1533.986	1855.62	200	17525.82	558	941.963	1854
[2] CEO pay 18 (ln)	308	7.017	.9	5.298	10.401	6.398	6.933	7.602
[2] CEO pay 17 (ln)	299	6.935	.852	5.298	9.771	6.324	6.848	7.525
Change CEO pay 18	259	.069	.299	-.852	1.734	-.014	.026	.133
Change CEO pay 17	247	.042	.285	-.944	1.983	-.037	.017	.103

[1] Numbers in 1000 NOK
[2] Log of numbers in 1000 NOK

The reduced dataset is summarized in *Table 6.* In total, there are 308 and 299 observations of CEO pay in respectively 2018 and 2017, and the total amount of firms is 413. The difference in observations of "Change CEO pay"-variables and CEO pay occurs because some companies were liquidated in 2017, and some started in 2018.

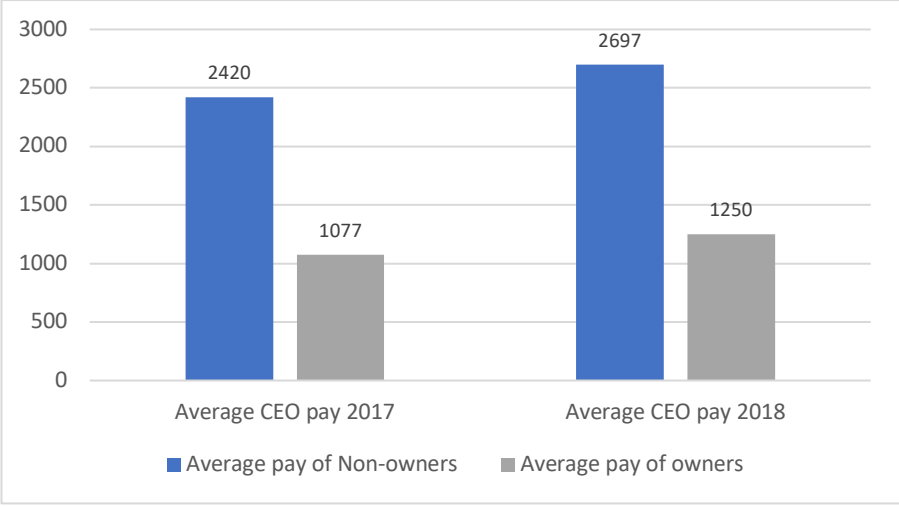

Figure 1 – Average total CEO pay of non-owners and owners in 2017 & 2018

Figure 1 shows a significant difference in the average pay of owners and non-owners. The difference is approximately 1.34 million NOK in 2017 and approximately 1.45 million NOK in

2018. We also observe an increase in the average pay of both owners and non-owners between 2017 and 2018. There is one very large observation of a non-owner CEO in 2018, which pushes the average higher. Without this observation, the average pay of non-owners in 2018 is closer to the average of 2017.

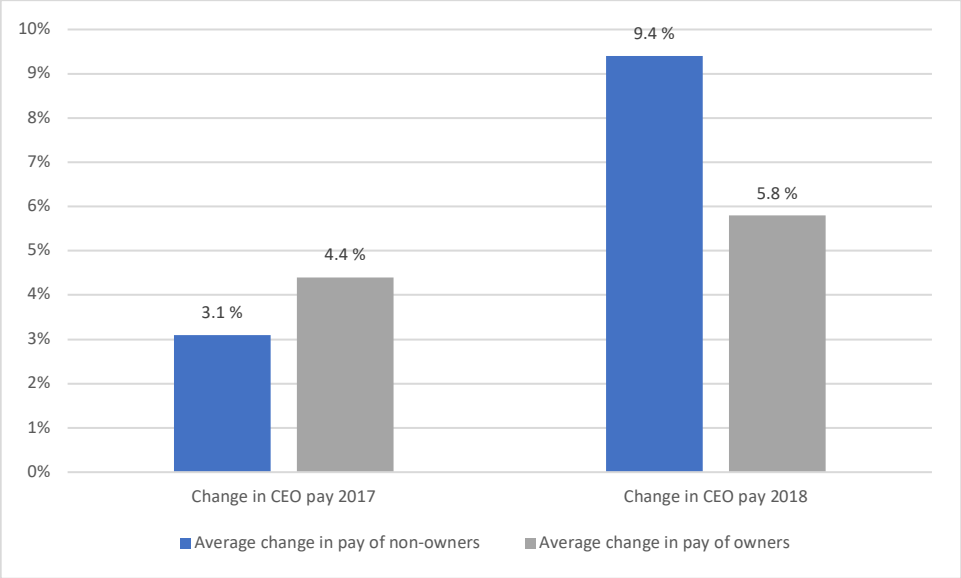

Figure 2 – Average change in CEO pay of non-owners and owners

Moving on to the change variables, we observe a change of 4.4 % in 2017 and 5.8 % in 2018 for owners. In comparison, the average increase in Norwegian salaries from 2017 to 2018 was 2.9 % (SSB, 2019). This was a 0.6 percentage points increase from the growth between 2016 and 2017 (Bing, 2017). Looking at the same variables for non-owners, we see that the change variables for non-owners are very inconsistent between the years *(Figure 2),* which might be due to higher pay-performance sensitivity. OSLO Shipping Index (Oslo Børs, n.d) confirms that 2016 was a particularly bad year for shipping, which can explain the low changes in compensation from 2016 to 2017. The same index also shows that 2017 was a significantly better year, and this fits with the substantially higher changes in pay from 2017 to 2018 (see *Appendix A7 – Figure 20* for the index*)*. Note that OSLO Shipping Index is based on listed shipping firms. Nevertheless, it seems fair to assume that the trends in this index apply to the whole shipping industry.

6.1.2 The independent variables

The table below *(Table 7)* presents summary statistics of our independent variables. We have included the number of observations, mean and standard deviation for the whole dataset, and for owners and non-owners individually.

Table 7 – Summary statistics of our independent variables

	Total			Owners			Non-owners		
	N	Mean	St.Dev	N	Mean	St.Dev	N	Mean	St.Dev
[1]Assets 18 (ln)	400	9.789	2.408	250	9.09	2.14	150	10.955	2.384
[1]Assets 17 (ln)	401	9.767	2.337	251	9.133	2.023	150	10.827	2.446
Board size	389	2.568	1.425	256	2.227	1.33	133	3.226	1.374
CEO Age	410	54.034	10.467	257	53.848	10.867	153	54.346	9.785
Non-owner	413	.378	.485	257	0	0	156	1	0
Ownership CEO	392	.37	.401	257	.565	.367	135	0	0
CEO Duality	410	.449	.498	257	.591	.493	153	.209	.408
Growth EBIT 17	382	.812	7.762	240	.56	7.258	142	1.238	8.556
Growth EBIT 16	370	.237	14.4	231	1.696	11.852	139	-2.187	17.631
Growth EBIT 15	292	1.966	35.149	186	2.054	23.445	106	1.813	49.552
ROA 17	403	7.188	29.723	252	8.596	26.17	151	4.838	34.826
ROA 16	388	7.474	29.922	242	10.79	29.848	146	1.978	29.329
ROA 15	373	10.851	29.738	232	11.995	27.984	141	8.968	32.434
Liquidity 17	398	25.843	406.896	248	4.655	28.58	150	60.874	661.66
Liquidity 16	386	16.292	239.964	241	3.976	9.549	145	36.763	391.31
Liquidity 15	371	18.328	277.539	231	4.07	13.287	140	41.853	451.50
Female CEO	411	.068	.252	257	.051	.22	154	.097	.297
Female Chairman	389	.062	.241	256	.055	.228	133	.075	.265
Females on the board	389	.107	.22	256	.096	.223	133	.128	.214

[1] Log of numbers in 1000 NOK
D = Dummy variable

Firm size is one of the essential firm characteristics because we assume that larger firms have more sales, assets, and less probability of going bankrupt. We further assume that larger companies are able to pay their top executives more than smaller firms. Hence, we find it essential to control for firm size in order to avoid skewed results, and we use *Assets* for this purpose. *Table 7* reveals that non-owners typically are in charge of larger firms, which is not surprising. We observe that ROA in 2017, 2016 and 2015 vary a lot looking at the standard deviations. Further investigation also shows that this is due to negative outliers from the same firm. Additionally, firms with non-owner CEOs show a much higher mean and standard deviation of liquidity, which indicate that there might be outliers present in this group. We discuss the removal of outliers in *Section 6.3.5*.

The average ownership share is 37 %. This is higher than the median of 20 %, which indicates that a decent number of our CEOs have large ownership shares. The non-owner dummy variable tells us that 37.8 % of our observed companies have a non-owner CEO. Because of that, we have two relatively large groups to compare. One can also observe variations in the number of observations, *N,* of the different variables. The reasons are mainly that some companies did not operate in all years between 2015 and 2018, and blank values. EBIT growth shows high mean values and standard deviation, indicating large outliers (discussed in *Section 6.3.5)*. Further investigation shows that the median of growth in EBIT from 2016 to 2017 is 5.3 %, while the growth from 2015 to 2016 is -6.9 %. This can explain the difference in the growth rate of CEO

compensation between the years for non-owners, given that their pay is more coupled to performance. OSLO Shipping Index also coincides with these observations.

6.2 Regression analysis

We will present our results from the OLS regressions in this section. The focus in subsection 6.2.1 will be on identifying the difference in pay between owners and non-owners. The analysis is both on CEO pay from 2017 and 2018. Subsection 6.2.2 presents the estimated cost of having a non-owner CEO, and we will also study the effect of ownership percentage. Subsection 6.2.3 aims to examine differences in pay-performance sensitivity. Three variables are used as a performance measure, growth in EBIT, return on assets (ROA), and the liquidity ratio.

6.2.1 Difference in pay between non-owner and owner CEO

The relationship between CEO compensation and ownership is presented in *Table 8*. We will discuss the relationship between the explanatory variables and CEO pay in 2018 and 2017. For the 2017 numbers, we have corrected for heteroskedasticity.

Table 8 – CEO pay 2018 & 2017

	(1) **CEO pay 18 (ln)**	(2) **CEO pay 17 (ln)**
Assets 18 (ln)	0.154***	
	(6.35)	
Assets 17 (ln)		0.147***
		(6.64)
CEO Duality	-0.0610	-0.158
	(-0.56)	(-1.45)
CEO Age	0.00185	0.00436
	(0.43)	(1.15)
Non-owner	0.470***	0.390***
	(4.59)	(3.79)
Board Size	0.0341	0.0585
	(0.87)	(1.51)
Female CEO	-0.664***	-0.306*
	(-3.63)	(-1.69)
Female Chairman	0.315	0.440**
	(1.30)	(2.48)
Female on the board	-0.0511	-0.385*
	(-0.20)	(-1.84)
Constant	5.152***	5.042***
	(16.85)	(18.34)
N	298	291
R^2	0.3674	0.4151
adj. R^2	0.3521	0.4006

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Assets have a significant impact on CEO compensation at a one percent level. This finding is not surprising as we would expect larger firms with a higher cash flow being able to pay their top-executive more. Besides, there may be a higher degree of responsibility for the CEOs in larger companies, which indicates higher compensation. The coefficients suggest that a company with 100 % more assets than another company provides the CEO with 15.4 % higher compensation. With 2017 numbers, 100 % more assets lead to 14.7 % higher compensation.

The coefficient for non-owners displays a positive relationship between *not* being an owner of the firm and compensation. The effect is significant at a one percent level. A non-owner CEO appears to earn as much as 47.0 % more on average than an owner CEO in 2018, all else equal. The difference is less in 2017 at 39.0 %. This is evidence in favor of *Hypothesis 1*. These results are consistent with agency theory, but they contradict the managerial power perspective. *CEO duality* correlates negatively with compensation in 2017 and 2018. However, the effect is insignificant in both years. Since the CEO in most cases with duality also is an owner of the firm, we would expect to see this relationship. There is evidence of a negative relationship between *female CEO* and CEO compensation, a result that is not surprising. The size of the coefficient, however, is larger than we had expected in advance.

The coefficient for *board size* is not significant but shows a positive relationship for both years, indicating that larger boards are associated with *higher* compensation. The board size variable is likely correlated with firm size to some extent, as one could assume that larger firms have larger boards. Hence, some of the effects we expected to see in the board size coefficient may be captured by the variable for assets. The correlation matrices *(Table 15 & 16* in the appendix) confirms a correlation, albeit not strong enough to cause multicollinearity problems. CEO age is not significant but shows a positive relationship. This indicates that older CEOs earn more. The sign of the coefficient was expected in advance. Higher age is often equivalent to more experience and higher abilities to run a firm, which in turn increases pay.

The analysis suggests that the gender composition of the board impacts CEO compensation. Both *Female chairman* and *Females on the board* are significant in 2017. All else equal, the model suggests that a CEO in cases of female chairman receives as much as 44.0% more in compensation than CEOs with a male chairman. This effect is not significant in 2018, but the relationship remains positive. However, compensation is negatively correlated with females on the board in 2017. The interpretation is that the compensation decreases with 38.5 % if all the members on the board are female. This means that a higher gender balance on the board

decreases the executive pay as opposed to a board consisting only of men. Nevertheless, this effect is not significant in 2018. Even though the effect continues to be negative, the size of the coefficient drops substantially compared to 2017. Different years have different samples of firms. Some firms are included in both years, and others are not, which may be an explanation of the change in coefficient between the years.

***Result 1**: Non-owner CEOs receive considerably higher compensation than owner CEOs.*

Discussing the findings

Our findings in *Table 8* matches the findings of Randøy & Nielsen (2002), and Oxelheim & Randøy (2008), which indicate that unlisted and listed firms in Norway share the same characteristics regarding executive compensation. However, the findings contradict the research of Cohen & Lauterbach (2007), Chourou (2010), and Amdouni & Boubaker (2015). This is interesting since Randøy & Nielsen (2002) and Oxelheim & Randøy (2008) also look at Scandinavian companies, while the other studies examine countries outside the Scandinavian borders. The findings observed in the Scandinavian countries are what we would expect to see according to the agency theory. Thus, there seems to be something else explaining executive pay in other countries. One explanation may be related to the managerial power perspective. Owners in other parts of the world might exert their managerial power to a higher degree than owners in Norway in order to demand a higher salary.

The agency theory focuses on incentivizing external managers. Nevertheless, the contracts of the Norwegian non-owners may be inefficient due to asymmetric information. According to Bebchuk and Fried (2006, p. 19), performance-based pay is a good way to incentivize managers. However, this form of compensation must a have higher expected value than fixed pay in order to compensate for the additional risk. If the performance measures are easily manipulated or not controlled for exogenous shocks, this could mean that the top executive is overpaid. Additionally, shipping involves much industry-related knowledge, and it is conceivable that there is a degree of portability within the industry. Non-owners are likely more portable in terms of changing jobs, and companies may pay extra in order to retain their managers and the knowledge they possess.

Another explanation might be the market for CEOs in the shipping industry. An owner CEO is not required to pay him or herself market price, but in order to recruit and retain managerial

talents, firms must comply with the market prices. Owners, on their side, have self-interests in the firm, and they might choose to keep the money inside the firm and take out dividends if it performs well. Dividends can also be used to camouflage the owners' payments. Sometimes it might be questionable to compensate oneself highly compared to the employees, making dividends a preferable solution compared to high salaries. Our survey indicates that dividends are not commonly used to substitute salary, and that some CEOs restrain their compensation in order to keep the general wage level within the firm down.

Randøy and Nielesen (2002) argue in their study that the Scandinavian egalitarian and social democratic culture has contributed to decouple firm performance from CEO pay. Cohen and Lautherback (2007) on their side state that weak corporate governance in Israel gives the owners much freedom in deciding their own compensation. Also, Amdouni and Boubaker (2015) highlight the weak legal system of France. Norway have strong social norms regarding not putting oneself above others. In general, this means that if an owner rewards himself with a much higher compensation than the average worker, he will provoke reactions. Thus, the social norms and focus on income equality in Norway might put some additional restrictions on the pay of top executives compared to other countries. Overall, our findings indicate that the managerial power perspective is inferior in explaining CEO compensation for Norwegian firms.

6.2.2 The agency cost of having a non-owner CEO

Section 1.2 argues that the difference in pay between owners and non-owners represents an agency cost. Evidence from the previous section *(Table 8)* suggests that there might be a relevant and significant agency cost regarding the compensation of top executives without ownership. Based on the 2018 numbers in *Table 8*, a company that goes from having an owner CEO to a non-owner CEO, must pay a non-owner CEO 47 % more compared to an owner CEO, keeping everything else fixed. Using the 95 % confidence interval, an all else equal equation for the CEO pay of a non-owner would be:

$$(1) \qquad CEO\ pay_{non-owner} = CEO\ pay_{owner} * (1.47 \pm 0.20)$$

A slightly more moderate estimate based on the 2017 confidence interval is:

$$(2) \qquad CEO\ pay_{non-owner} = CEO\ pay_{owner} * (1.39 \pm 0{,}20)$$

**Note that* $\pm$ 0.20 *in both equations does not mean that we assume that these numbers are identical, but the difference between them is so small that both numbers are rounded down to 0.20.*

Whether or not this difference in pay is an incentive cost can be discussed. In *Section 3.1.1*, we presented theory on information asymmetries. If non-owners are better at hiding their flaws and less attractive traits, they can negotiate better contracts for themselves. All information that reveals the actual level of effort and skill of the manager may not be visible for the owners. If a significant fraction of CEO compensation is performance-based bonuses, the difference in pay between non-owners and owners might be explained as an incentive cost to align interests. If the compensation is mainly fixed, this could be an indication of more lucrative contracts because of hidden information or hidden actions. Higher base salary may also be intended as an incentive, even though studies show that these kinds of incentives are not efficient, see for example Bebchuk & Fried (2004). However, both explanations above represent agency costs. The question is whether this cost is apparent for incentive purposes or that the principals propose and accepts contracts that seem reasonable given the information they have. Our survey answers will provide deeper insights regarding pay composition.

One disadvantage of using only the non-owner dummy to control for ownership, is that owners with small ownership percentages are placed in the same category as sole owners. Thus, the non-owner coefficient may be too low. To correct for this, we will now present some slightly altered models to investigate how the variation in ownership percentage affect CEO pay. The model using 2017 numbers is corrected for heteroskedasticity.

Table 9 – CEO pay 2018 & 2017 related to CEO ownership percentage

	(1)	(2)
	CEO pay 18 (ln)	**CEO pay 17 (ln)**
Assets 18 (ln)	0.160***	
	(6.49)	
Assets17 (ln)		0.142***
		(6.83)
CEO Duality	0.00477	-0.0409
	(0.04)	(-0.38)
CEO Age	0.00325	0.00753**
	(0.75)	(1.98)
Ownership % CEO	-0.557***	-0.655***
	(-3.58)	(-4.88)
Board size	0.0208	0.0400
	(0.52)	(1.11)
Female CEO	-0.601***	-0.284
	(-3.26)	(-1.52)
Female Chairman	0.272	0.423**
	(1.11)	(2.01)
Females on the board	-0.0525	-0.389
	(-0.20)	(-1.64)
Constant	5.384***	5.298***
	(16.40)	(18.41)
N	298	291
R^2	0.3503	0.4347
adj. R^2	0.3323	0.4187

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Assets are still positively correlated in both years. The coefficient of age is positive in both years and now significant at a five percent level in 2017. However, the coefficient is insignificant in 2018. The dummy variable for a female chairman is positively correlated with CEO compensation, and the effect is significant, looking at the 2017 numbers. This evidence suggests that a CEO that works under a female chairman receives 42.3 % higher compensation, all else equal.

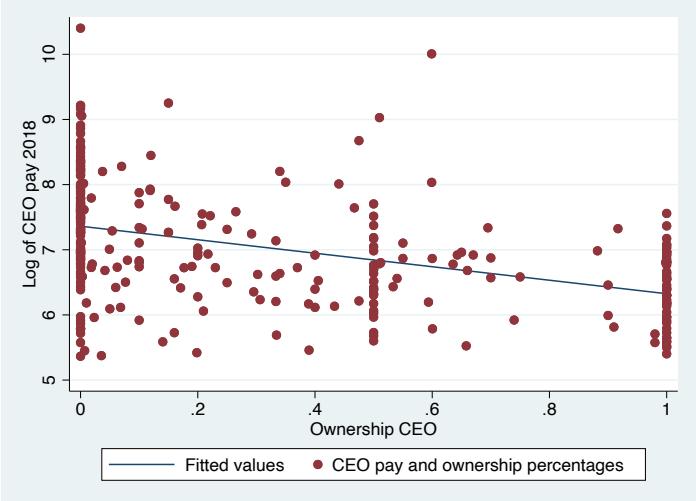

Figure 3 – Scatterplot of CEO pay and ownership percentages

A scatterplot of CEO pay in 2018 and Ownership *(Figure 3)* shows the relationship between the two variables. It is relatively easy to observe the negative relationship between ownership percentage and pay. Nevertheless, the many zero, 50 %, and 100 % observations gather many observations on the left, the middle, and the right part of the scatterplot. The regressions in the previous section treat the dotted "line" of observations with zero percent ownership as the group of non-owners and rest as owners. The results in this section are clearly suggesting that owners earn less than non-owners, but it highlights the importance of ownership percentage. These results indicate that agency costs are apparent even when the CEO is an owner, but it is decreasing in ownership percentage.

Using the 95 % confidence interval, an all else-equal estimation of the 2018 compensation of an owner would be:

$$(3) \qquad CEO\ pay_{owner} = CEO\ pay_{non-owner} * (-0.56 \pm 0.31) * ownership\ pct.$$

A slightly different estimate based on the 2017 confidence interval is:

$$(4) \qquad CEO\ pay_{owner} = CEO\ pay_{non-owner} * (-0.66 \pm 0.26) * ownership\ pct.$$

It makes sense to think of the ownership percentage as a measure of how personally invested the CEO is in the business. If the personal investment is high, the compensation can be lower. This could be a result of the possibility of compensating oneself through dividends instead of salaries and bonuses. Dividends are more invisible than salaries, and owner CEOs may thus be motivated to hold back on salary payments. Besides, more dividend payments could also benefit the other owners, making them more likely to accept such arrangements for the CEO. Therefore, one cannot rule out the possibility that the results are due to self-serving reasons, and not linked to the owner CEOs being more inner motivated. However, since non-owners cannot be paid through dividends, the difference in compensation might still be an agency cost. One has to pay the non-owner significantly more because he or she is not as personally invested in the firm as owners are. Thus, there seems to be substance to the argument of Randøy and Nielsen (2002) that ownership shares could be used as a substitute for monitoring, indicating that the board could decrease compensation by offering the CEO shares in the company.

Result 2: *CEO pay is decreasing in CEO ownership percentage.*

6.2.3 Difference in pay sensitivity between owners and non-owners

In this section, we are going to study the difference in pay sensitivity between owners and non-owners. We first present two models with EBIT and ROA as a measure of performance. The effect of performance on change in CEO pay for owners compared to non-owners can be picked up by the interaction terms. In this case, we have multiplied the different measures of performance with the non-owner dummy. Note that we now look at the percentage change in CEO pay, denoted as ΔCEO pay.

Table 10 – The sensitivity of CEO pay related to performance

	(1) **ΔCEO pay 18**	(2) **ΔCEO pay 18**	(3) **ΔCEO pay 17**	(4) **ΔCEO pay 17**
CEO Duality	-0.0607	-0.0566	0.0789	0.118**
	(-1.24)	(-1.15)	(1.35)	(2.14)
CEO Age	-0.00181	-0.00209	-0.000419	-0.00314
	(-1.01)	(-1.23)	(-0.29)	(-1.27)
Growth EBIT 17	-0.00327			
	(-1.10)			
N.O. growth EBIT 17	0.00376			
	(0.70)			
Growth EBIT 16	-0.00325		0.00171	
	(-1.58)		(0.98)	
N.O. growth EBIT 16	0.0111**		-0.00729	
	(2.37)		(-1.08)	
Growth EBIT 15			0.00192	
			(0.96)	
N.O. growth. EBIT 15			-0.00236	
			(-0.90)	
ROA 17		-0.000867		
		(-0.63)		
N.O. ROA 17		0.00213		
		(1.03)		
ROA 16		0.000156		0.00210**
		(0.14)		(2.21)
N.O. ROA 16		-0.00156		-0.00143
		(-0.74)		(-0.79)
ROA 15				-0.00124
				(-1.63)
N.O. ROA 15				0.000598
				(0.42)
Board size	-0.0336*	-0.0337*	0.0249	0.0462**
	(-1.70)	(-1.71)	(1.47)	(2.38)
Assets 17 (ln)	0.0102	0.0114	0.00886	0.00678
	(0.74)	(0.84)	(0.61)	(0.51)
Constant	0.183	0.186	-0.149	-0.0417
	(1.40)	(1.49)	(-1.01)	(-0.26)
N	236	244	180	232
R^2	0.0429	0.0283	0.0506	0.0745
adj. R^2	0.0092	-0.0047	0.0061	0.0413

All regressions are robust to heteroskedasticity
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 10 shows the results of the models describing pay sensitivity. Model 1 uses EBIT as a measure of performance, and Model 2 uses ROA. Growth in EBIT from 2015 to 2016 does not have a significant impact on changes in CEO pay from 2017 to 2018 in general, but the growth for non-owners in the same period is significant at a five percent level. This finding supports our second hypothesis and suggests that the compensation of non-owners is more sensitive to performance. The changes in EBIT from 2016 to 2017 does not have a significant effect on changes in CEO pay from 2017 to 2018, but the sign of the coefficients does again support our hypothesis. Model 1 might also indicate that a change in performance takes some time to influence the pay. This seems plausible, as one year's financial performance may not be available before a couple of months into the following year (e.g., through annual reports). Also,

renegotiation of compensation is unlikely done in “real-time”, leading to a lagged increase in compensation.

ROA variables are insignificant for both years, and the signs of the coefficients are inconsistent. Summary statistics of the ROA variables (*Table 7)* showed much variation. The correlation matrix (*Table 15* in the appendix) shows some correlation between ROA and growth in EBIT. However, the correlation is not very strong. Thus, it is not surprising that we see different results when we use these different variables as a proxy for performance.

Model 3 and Model 4 examines the same as Model 1 and Model 2 but jumps back one year on both the dependent variable and the independent variables. Growth in EBIT from 2015 to 2016 is insignificant and with different signs. Model 3 does not support *Hypothesis 2*. In Model 4, CEO duality is significant at a five percent level, and ROA in 2016 is significant at a ten percent level. The effect is though ambiguous, as the correlation is positive in 2016 and negative in 2015. Board size is significant at a ten percent level in Model 1, 2, and 4. However, the signs of the coefficient are negative when using 2018 change in compensation and positive using 2017 change.

We observe a positive relationship between the increase in EBIT and pay. However, an issue with EBIT as a performance measure is that without controlling for exogenous shocks, the CEO could be rewarded and punished for events that is out of his or her control. For example, the shipping industry is highly dependent on the shipping rates, which is determined by the market (e.g., look at the *OSLO Shipping Index* which we mentioned in *Section 6.1.1*). If the industry is doing well, most firms experience growth in EBIT. If the company in question increases EBIT, but lower than the industry in general, the CEO should not be rewarded. On the other side, the CEO should be rewarded if the company experience a higher increase in EBIT than the industry in general. Furthermore, if the industry is doing well, this might increase the portability, and firms are more obliged to offer a bonus for the increased EBIT in order to retain their manager, even though the performance is below the industry average.

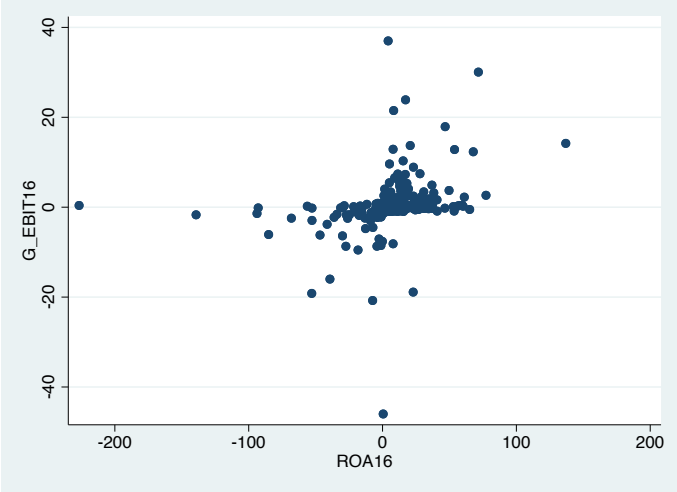

Figure 4 – Scatterplot of EBIT growth and ROA

Figure 4 confirms what we mentioned earlier about ROA and EBIT growth not following each other that well. This can be one reason we observe inconsistent results regarding pay-performance sensitivity. Inconsistencies motivate us to do the same analysis using a different measure of performance, liquidity.

Table 11 – The sensitivity of CEO pay related to performance, using liquidity ratio

	(1)	(2)
	ΔCEO pay 18	**ΔCEO pay 17**
CEO Duality	-0.0505	0.104*
	(-0.99)	(1.95)
CEO Age	-0.00166	-0.00302
	(-0.94)	(-1.22)
Liquidity 17	-0.00191	
	(-0.38)	
N.O. Liquidity 17	-0.00265	
	(-0.10)	
Liquidity 16	-0.00528	-0.00512
	(-0.96)	(-1.36)
NO_Liquidity 16	-0.00343	-0.0273**
	(-0.15)	(-2.51)
Liquidity 15		0.00112
		(0.22)
N.O. Liquidity 15		0.00762
		(0.87)
Board size	-0.0288	0.0420**
	(-1.46)	(2.19)
Assets 17 (ln)	0.0136	0.0131
	(0.99)	(0.94)
Constant	0.142	-0.0685
	(1.07)	(-0.44)
N	242	231
R^2	0.0285	0.0750
adj. R^2	-0.0049	0.0417

Both regressions are robust to heteroskedasticity
t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The first model in *Table 11* does not support our second hypothesis. In Model 2, the compensation of non-owners is negatively correlated using liquidity as a measure of firm performance, and the coefficient is significant at a five percent level. This does not support our

hypothesis, as we expected a positive relationship. Numbers for 2015 show a positive relationship between performance and change in pay, but the coefficients are not significant. Like Model 4 in *Table 10*, we observe a positive correlation between CEO duality and board size for the change in pay in 2017. This effect is statistically significant at a ten percent and five percent level respectively. Liquidity ratio as a proxy of performance provides us with no evidence of higher pay-performance sensitivity for non-owners.

> ***Result 3:*** *We find evidence in favor of Hypothesis 2 using EBIT as a performance measure, but no evidence using ROA and liquidity ratio.*

6.2.4 The theoretical applicability of our result

Agency theory predicts that non-owners are compensated higher than owners, and that the compensation is more sensitive to performance. This fits with our empirical findings. Consequently, there is no evidence that owners exert their power to receive excess payments. CEO compensation is also decreasing with ownership percentage, which indicates that less incentives are needed when ownership increases. Both theories predict higher pay sensitivity of non-owners. Overall, we can conclude that agency theory is better at explaining CEO pay in Norwegian shipping firms. Results from similar studies on listed Norwegian firms indicate the same relationship between ownership and pay. However, empirical studies from different parts of the world typically find the opposite. Our survey answers are presented in *Section 6.4* and will shed light on our findings and address the reasons behind them.

6.3 Robustness of our results

We will now discuss the adjustments we have done in our research due to robustness concerns, and why we might have some issues regarding endogeneity. The results of the various tests performed in this section also explain alterations done to the model in the previous section *(Section 6.2)*. The tests are based on the Gauss-Markov assumptions described in *Appendix A3.*

6.3.1 Linearity

To check for linearity, we created a scatter plot *(Appendix A2)* of total CEO pay and total Assets. From the plots, we see that most of the data is placed in the bottom left corner, indicating that a log-transformation might be necessary. This also makes intuitive sense as linear-scale regressions inform on absolute changes while log-scale present the relative changes. When

discussing monetary sizes like compensation and assets, it is more expedient to talk about percentage changes and not absolute changes, as the firm sizes vary a lot in the dataset. By log transforming both *Assets* and *CEO pay* we get a much better scatter plot *(Appendix A2).* The summary statistics and scatterplots indicate that we should use the log of CEO pay in our analysis.

The current model shows the changes in CEO pay as a constant percentage of the independent variables instead of providing an absolute number, which is more comparable across firms regarding firm size and other firm characteristics. The model is generically written as:

$$ln\,(y) = \beta_o + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + u$$

6.3.2 Multicollinearity

Table 14 in the appendix shows a correlation between the different variables in our models studying differences in total pay. Correlations in the two first columns are not an issue, as CEO pay in 2018 and 2017 is our dependent variables. Unsurprisingly, CEO duality correlates with ownership percentage, and the dummy for non-owner is negatively correlated with ownership percentage. Board size correlates with most of the variables, and so does non-owner. However, the correlations are not very strong, and checking VIF values confirms that multicollinearity should not be a problem in these models.

Moving on to the variables used for explaining the difference in pay sensitivity (*Table 15* & *16* in the appendix), the liquidity variables between the years are very correlated. At first sight, this is an indication that liquidity is relatively constant from year to year. Though, the other performance variables are not nearly as correlated with each other. The problems of multicollinearity are confirmed when looking at the VIF-values for our models on sensitivity. However, the issue does not appear in the actual analysis, because very large values that inflates correlation are removed as outliers. Thus, we do not have problems regarding multicollinearity in our analysis.

6.3.3 Heteroskedasticity

In order to ensure that our estimated coefficients are valid, we tested the data for heteroskedasticity. We used the *White test* and the *Breusch-Pagan (BP) test,* which both test the null hypothesis that homoskedasticity is present. The White test show little evidence of heteroskedasticity, but the BP test describes another picture. The BP test shows a clear rejection

of the null hypothesis in every model except the model with 2018 pay, indicating that heteroskedasticity is present in the other models.

When using STATA, we can correct for heteroskedasticity by using the *robust* command. Now STATA will produce robust standard errors, t-tests, and confidence intervals in order to make our inference valid. The effects of using heteroskedasticity robust regressions are slim. The biggest change is regarding EBIT, which goes from being significant at a 10 percent level to the 5 percent level (*Table 10,* Model 1). Moreover, we see a small change in the t-statistics of liquidity and board size, but these changes are so small that it does not affect our discussion. Since the use of robust show little changes, we are not worried that our analyses are invalid, but we used the robust command in relevant cases to ensure that our test statistics are not biased.

6.3.4 Endogeneity

Problems with endogeneity occur when the error term correlates with an explanatory variable. CEO tenure can be an example, as tenure possibly correlates with both pay and age. Endogeneity problems lead to biased OLS estimates, and problems of endogeneity should therefore be addressed (Wooldridge, 2013, p. 87). Another concern is the reason why some companies have owner CEOs and others not. To be an owner could be an endogenous choice, and there may be several things that the error term picks up that correlates with both the non-owner variable and our dependent variable. For example, if the firm is a family business, the CEO is more likely to be an owner. A family business may also be smaller than a large corporation. Thus, being a family business may be correlated to assets, the CEO being an owner, and CEO compensation. These are all cases of unobserved heterogeneity.

Wintoki, Linck & Netter (2008) portray two other types of endogeneity. *Simultaneity* happens when the explanatory variables are a function of the outcome variable. In our case, this might be an issue if CEO pay is important in describing firm performance. This can generate a bias in the estimates on how performance affects pay. Wintoki et al. (2008) also argue that there is a third and frequently overlooked source of endogeneity. The performance today might affect future board structures and governance choices, which in turn will affect firm performance in the future. A similar example can be used when thinking about ownership structures. The ownership structure today affects future ownership decisions, which will affect future performance. A problem can thus arise if ownership structure, or the fact that the CEO is an owner, both affect pay and performance.

6.3.5 Dealing with outliers in the models of pay-sensitivity

The summary statistics in *Table 7* indicate that there are some outliers in our variables on performance. A commonly used limit for outliers is three times the standard deviation from the mean. This suggests an upper limit between approximately 95 and 100 for ROA, based on the mean and standard deviation for all years. Therefore, we went for an upper outlier limit of 100. A lower limit of -82 was set using the same logic.

The rule of thumb of three times the standard deviation from the mean is a bit trickier with growth in EBIT and liquidity. The reason is that the standard deviation and mean vary a lot between the years, while ROA is more consistent. Therefore, a visualization of the variables was necessary to look for outliers. After we removed the upper observation of liquidity from 2016, an observation as high as 4711, we see the following distribution of observations *(Figure 5):*

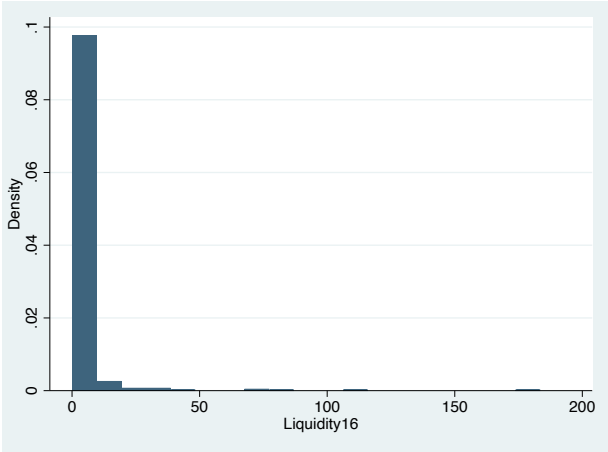

Figure 5 – Distribution of liquidity 2016

Liquidity above 50 seems like outliers. The same pattern is visible, looking at liquidity for 2017 and 2015. Therefore, we decided to remove liquidity observations above 50 for all the relevant years. Removing these outliers solved the problems of multicollinearity that we discussed earlier. There are no negative liquidity numbers, and we do not need to worry about negative outliers. A histogram of EBIT shows more or less the same as liquidity *(Figure 6).* The 2015 and 2017 numbers also gave us an indication of negative and positive outliers below -50 and over 50 as well. Therefore, the decision regarding EBIT was to remove observations above 50 and below -50. Regression results did change when we removed the largest (smallest) outliers, but further reduction below 50 did not change the results much.

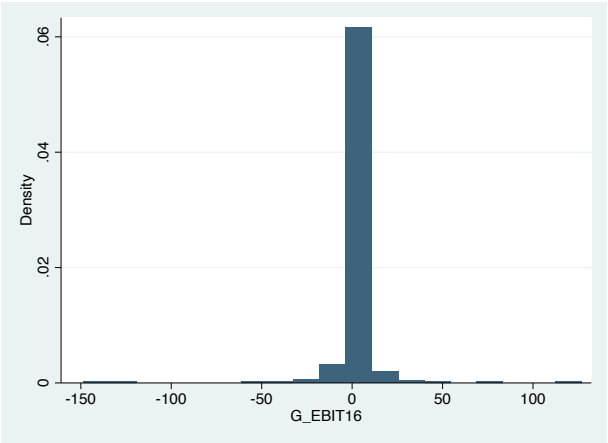

Figure 6 – Distribution of growth in EBIT 2016

6.3.6 Limitations in our analysis

Evidence in favor of *Hypothesis 1* is present in both the descriptive statistics and the regressions. Though, one shortcoming of the model is that we are missing data on some of the CEO characteristics. These characteristics include education, tenure, skill level, and so on. For example, how long a CEO has worked in the company and been in the position as the top executive may reflect his level of pay. Regarding the variables on female CEOs and female chairmen, the numbers of observations are quite low. The validity of the estimates is affected by this, and we cannot confidently conclude on the gender effects.

The analysis of pay-sensitivity shows inconsistent results. This is apparent because different measures show inconsistent correlation with the change in CEO pay, but also because the firms might use other performance measures when monitoring CEO performance. One possible issue is a change of CEO during the period we examined. This could lead to further inaccuracies regarding the change in pay, especially when looking at the change in compensation from 2016 to 2017. The further away from today we examine pay sensitivity, the more likely it is that a change of the top executive has occurred. We have also discussed possible endogeneity problems in *Section 6.3.4*. Besides, the models examining pay-sensitivity show low adjusted R-squares, indicating that the models do not explain much of the changes in pay.

6.4 A qualitative survey on CEO pay

To further investigate the dynamics of CEO compensation, we created a survey and sent it out to the top executives in our dataset. The purpose of the survey is to acquire deeper and wider insights, but also to test the credibility of our findings in the previous sections. This way, we

can capture factors regarding executive pay that might not be covered by the publicly available variables. This thesis has only used total cash compensation because it is the only form of compensation publicly available. However, stock options, pensions, and other perks may be just as crucial as cash compensation for some executives. In addition, the actual composition is not visible using financial statements. It is also interesting to map out what CEOs themselves consider the most important means of incentives.

In the following subsections, we are going to present the questions that provide relevant and additional information regarding our earlier findings. The complete survey is placed in the Appendix together with the answers.

Background on motivation

The survey will address aspects of motivation and the following will include theory and background on this subject. We have discussed the need for proper incentives for the CEO to perform at the desired level. Incentives are meant to motivate managers to exert sufficient effort. Therefore, a motivated manager is essential in order to ensure the success of the company. However, we believe that the source of motivation differs from non-owners and owners.

Intrinsic motivation comes from the work itself and provides the manager with a sense of purpose and meaningfulness (Thomas, 2009, p. 47-59). According to Thomas (2009), four specific intrinsic rewards makes a person feel particularly satisfied with their work; *a sense of choice, a sense of meaningfulness, a sense of competence and a sense of progress*. People who have a passion for the work they perform and feel that it is worth their time and energy, will have a sense of meaningfulness in their workday. Second, a worker who can use his personal judgments and act out of his own understanding will feel a sense of choice and independence. Thirdly, when having chosen a task to perform, the sense of competence comes from performing the task well and the feeling of succeeding in the job. The last reward Thomas (2009, p. 55) presents is a sense of progress. This reward is connected to the feeling of accomplishment and that the work is moving forward.

Compensation based on money and other tangible benefits like bonuses, perks and commissions are forms of extrinsic rewards given to the manager. Monetary compensation is necessary because it motivates us, as well as being connected to a sense of justice, status, and value (Alvesson, 2011). However, new research states that there are other factors in our life that drive us besides money (Cappelen & Tungodden, 2012). Too much focus on performance and pay

could reduce the inner motivation of the worker (Alvesson, 2011; Kuvaas, 2019; Cappelen & Tungodden, 2012). Cappelen and Tungodden (2012) highlight the importance of moral motivation and argues that even though the economic aspect of the job is an essential source of motivation, people tend to make a trade-off between the monetary compensation and what they believe is right.

The connection between monetary compensation and other forms of motivation incentives are important to understand in a pay-setting process. Using a hefty salary as a motivational incentive may have little effect if the manager already inhabits his desired welfare, and instead is motivated by work that he feels passionate about. A study conducted by Ariely, Gneezy, Mazar, and Loewenstein (2009) find that financial rewards are like a double-edged sword. They did several studies on people in different parts of the world and found that financial rewards, to a degree, will provide better performance. However, too large rewards will also induce stress, and because people get preoccupied with the compensation, the performance diminishes If the workers are weakly (or potentially very well) compensated, this could reduce their inner motivation and hurt their performance.

As we have seen, monetary compensation is a mean to enhance performance to some degree. However, it is rarely the only thing that drives the manager, at least not after reaching a certain point of compensation. An owner is typically more tied to the company in terms of personal pride, social status, and capital. These factors are, to a much larger extent than for non-owners, determined by the firm performance. Moreover, since the company is their own, and possibly a company they have established from the ground, the owner CEO may have a greater belief in the firm and its purpose. Thus, we expect owner CEOs to be more satisfied with their work and more intrinsic rewarded throughout their day and while performing their tasks.

6.4.2 Methodology

The survey was sent out to the CEOs with public contact information, which amounted to a total of 224 CEOs. This number represents 54% of the total dataset. From the survey, we wanted to disclose characteristics about the CEOs and their compensation that the collected data could not provide. In order to compare the answers to the data we already inhabit, we asked about gender, age, and ownership. The goal is that the survey will provide us with new information that gives us more insight into our quantitative findings. Preferably, it will uncover how the CEOs are compensated besides fixed salary, and if the pay is coupled to performance. In addition, we

included a section about motivation as we believe this to be different for owners and non-owners.

The survey consisted of 20 questions. We chose to present most of the questions as multiple-choice in order to make the survey feasible for the respondents. However, we included two open questions to get the CEOs' comments on some main areas of our research. The purpose of these questions was to uncover how performance is measured and if the CEOs have any thoughts on why non-owners receive more compensation than owners.

6.4.3 The respondents

Of the 224 CEOs contacted, 66 responded. This constitutes a response rate of approximately 29.5 %, which is satisfying. 76 % of the respondents are between 45 and 64 years. The poor gender balance in our dataset is illustrated by the fact that 95 % of the respondents were male. The share of owners is 60.6 %, which is approximately the same as in the dataset. In total, there were 40 owners and 26 non-owners that answered the survey. The ownership percentages of the respondents are presented in *Figure 7.*

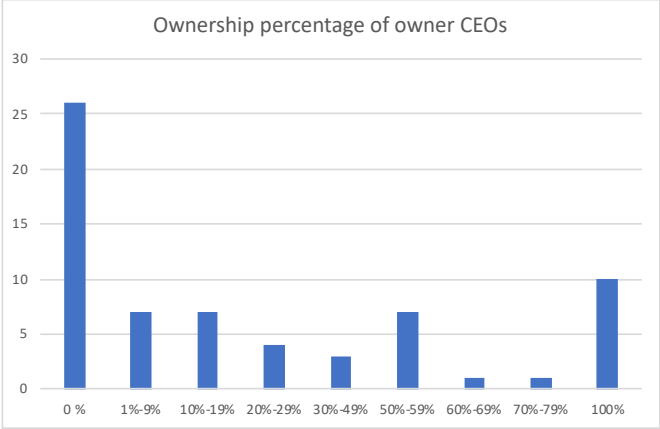

Figure 7 – Distribution of ownership percentage

Furthermore, we asked questions about the education of the top executives. Most of the respondents had a master's or bachelor's degree, but quite a few had just high school or none of the above. The distribution is presented in *Figure 8.*

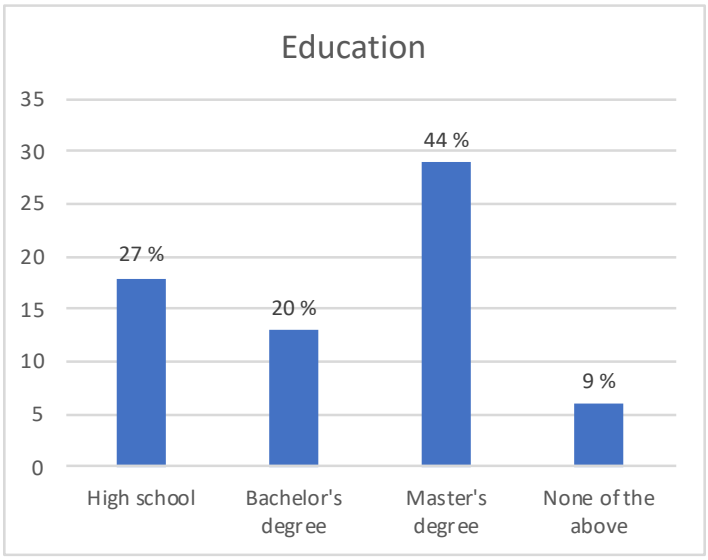

Figure 8 – The education of the respondents

The average CEO has worked in the current company for fifteen years. The average tenure as the top executive is eleven and a half years, illustrating that the tenure in our dataset is considerably high. This information was not provided by our dataset and is thus interesting to observe. We have mentioned how missing tenure could be a problem in our model as we are not able to observe the extent of portability within the industry. These findings indicate that the level of portability is low. Whether or not this is due to the companies paying high salaries to retain talent or not is difficult to say. However, it seems unlikely that people stay in a company for fifteen years because of the compensation alone.

6.4.4 Results

The composition of CEO compensation

The question on the composition of CEO compensation is essential to understand pay sensitivity. Based on the theory we have presented and our analysis, we expect that the non-owners receive more performance-based pay than owners. The results are summarized in *Figure 9.*

Except for one respondent, all of the CEOs answered that they receive a base salary. However, the key finding is that as much as 65.4 % of the non-owners responded that they receive performance-based bonuses, while only 17.5 % of the owners responded the same. Thus, the managerial power perspective seems to fit the owners' answers regarding performance-based pay. The answers clearly indicate that non-owners have higher pay sensitivity related to performance, which is supported by agency theory. On the other side, if the performance is measured by firm performance, and not CEO performance, the effect might be that non-owners

earn more than owners if the industry generally is doing good. Thus, this finding is evidence in favor of *Hypothesis 2,* while it also can explain why non-owners earn that much more.

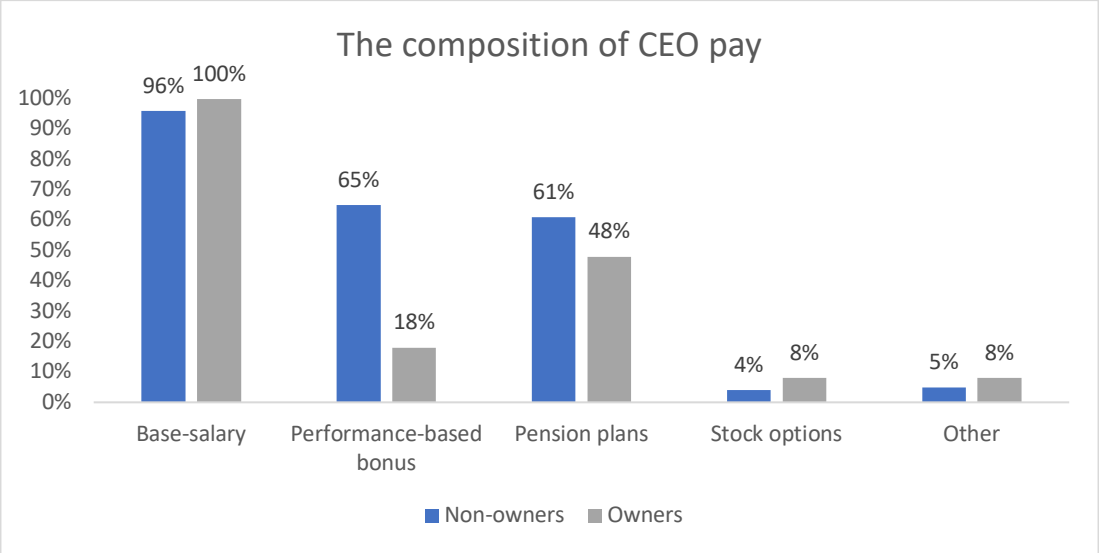

Figure 9 – The composition of CEO pay

Continuing, we asked how performance is measured. This was an open question, which 22 of the respondents answered. In our OLS analysis, we used a total of three performance measures, EBIT, ROA and liquidity ratio. In the analysis, we find indications that EBIT might be used as a performance measure in the shipping industry. ROA and liquidity, on the other hand, did not appear to be related to the changes in compensation. According to the survey, profits the most commonly used measure for performance, reported by 45 % of the respondents. It is unclear how profits are measured. One likely measure is meeting a predetermined profit goal. Nevertheless, one respondent explicitly replied that he received a percentage of the profits as a bonus, signifying that there are several ways of measuring performance based on profits. Furthermore, 32 % answered that their performance was measured by KPI's, but they did not specify if these were financial or non-financial.

EBIT or EBITDA was reported by 18 % of the respondents. EBIT can be closely related to profits, which could be the reason we observed a relationship with EBIT and growth in compensation in *Section 6.2.3*. On the other side, profits can also differ substantially from EBIT since financial income and costs often are significant. An important question is then if it is the level or the growth in EBIT that is used as a performance indicator. Generally, it seems likely that performance indicators differ from company to company. The key takeaway is that there are many different practices in measuring performance. This could, in turn, make it challenging to interpret pay sensitivity based on a few performance measures from financial

statements. However, the survey answers confirm that non-owners receive more performance-based bonuses.

Result 4: *Non-owner CEOs receive performance-based bonuses to a higher extent than owner CEOs.*

From the survey, we wanted to discover if the top executives themselves regard their compensation as sensitive to performance. Based on the analysis in *Section 6.2* and *Result* 4, we would expect that non-owners, to a larger extent, believe that their compensation is affected by performance. The survey answers confirm this. The evidence is much clearer when looking at CEO performance *(Figure 10)* instead of firm performance *(Figure 11)*. However, some owners also report that compensation is affected by performance. Since the owners have more stakes in the company, it is natural that they regulate their own compensation and dividends to whether the firm does well or not. It seems highly unlikely that an owner will provide himself with a bonus or high salary if the company is struggling to meet ends.

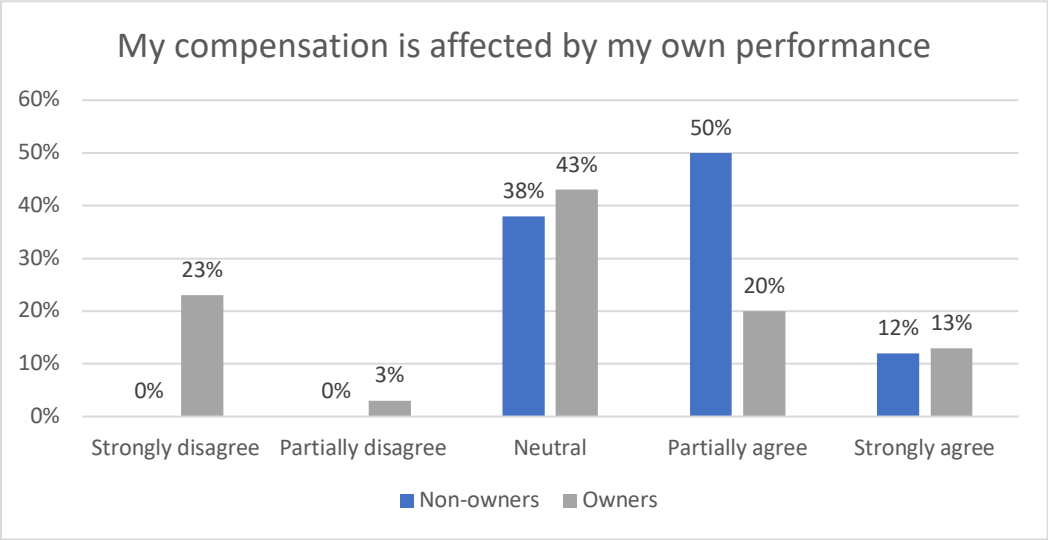

Figure 10 – CEO compensation and CEO performance

Over 60% of the non-owners state that performance, both firm and individual, have an impact on their compensation. An interesting observation is that none of the non-owners respond that their compensation is *not* affected by their performance, while 26 % of the owners state that individual performance has little to no impact on their pay. Thus, *Figure 10* and *Figure 11* do, to some extent, support our hypothesis of non-owners having a higher degree of pay sensitivity. The findings are also consistent with the agency theory regarding incentivizing the agent to align interests.

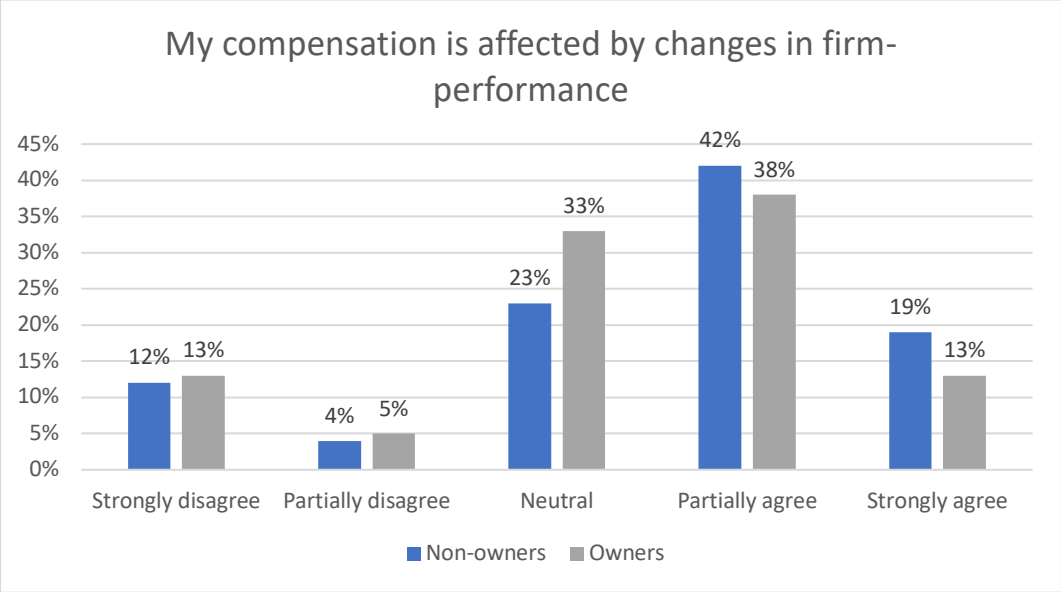

Figure 11 – CEO compensation and firm performance

Furthermore, we asked to what degree the CEOs could influence their pay. There is clear evidence of owners inhabiting a higher degree of power in the pay-setting process than the non-owners. A third of the owners respond that they can affect their pay to a *very large* extent *(see Appendix A6 "Q15…")*. None of the non-owners feel the same, but 15% state that they have a *large* influence on their pay. The remaining non-owners claim that they have *some* or *little* influence regarding their compensation. This is not surprising as they are hired and compensated within the boundaries of the company.

We observe that 77% of the non-owners renegotiate their compensation every year, allowing their contracts to be adjusted based on last years' merits *(see Appendix A6 "Q16…")*. This makes sense if their pay is more performance-based and thus require adjustments more often. Company goals may differ from year to year, and it is reasonable to renegotiate more frequently if one aspires to incentivize the top executive sufficiently. When looking at the owners, 43% say that they renegotiate every year and 23 % every other year. The last fraction of owners (3 CEOs) responded that the renegotiation takes place outside the listed categories. When asked to specify, most answers were "never" or "when needed."

The CEOs' perspective on Result 1

We continued to ask the CEOs why they believe our findings indicate that non-owners receive more compensation than owners. The purpose was to capture a more nuanced picture of our data and to see if the two parties have the same understanding of the pay-setting process. This

question was open for comments and answered by 49 of the respondents, 31 owners, and 18 non-owners.

Owners and the non-owners seem to have a different understanding of why owners earn less. More than half of the non-owners believe that the owners earn less because they have the possibility of taking out dividends. However, from our question earlier in the survey, we find that 75% of the owners rarely or never pay out dividends to complement their regular pay. Instead, the owners seem to agree that self-interest in the company is a great part of the explanation. They emphasize loyalty, motivation, and responsibility towards the company. Moreover, a few mentions that being an owner is a form of compensation itself and that it is better to save the money in the firm. This way, the owner can enjoy the increase in stock value, rather than paying out high salaries.

Many also emphasize that the opposite applies to the non-owners. Since they have no personal stakes in the company, they are not affected by poor outcomes in the same way. Thus, they need to be more monetary incentivized. A few also mention that there is a market for CEOs, and when hiring external managers, they must compensate accordingly in order to attract and retain talents.

> *"I agree with this hypothesis. I was once a manager in a company where I held the majority ownership. My salary at that time was substantially lower than the one I receive now after we have gotten professional co-owners."*
>
> – *Non-owner*

The last interesting finding of this question is that a few of the owners seem to keep their salary to a minimal level, deliberately in order to send a positive signal and keep the general wage level from increasing too much. This relates to owners having a personal stake in the firm as salaries constitute a large part of the firm's fixed costs. It seems plausible that owners are more focused on keeping the costs down as this directly affects the value of their ownership shares. As for sending a positive signal, it might be motivating for the employees to know that the top executive does not earn multiple times what they do. This indicate that social norms in Norway restrict managerial power.

> *"An owner is more loyal to the company and wishes to keep the general wage level in the firm down. If the top executive receives high compensation, this will often cause the general wage level in the company to increase as well."*
>
> – *Owner*

Individual perception of variation, security and pay as motivation

We wanted to figure out how the CEOs perceive their own compensation regarding variation, motivation, and security. In terms of variation, we observe that most of the CEOs do not feel that their compensation varies a lot from year to year *(Table 12)*. In total, there is not much separating owners and non-owners regarding this question, and it seems like the compensation on average experience little variation.

Table 12 – The CEOs' perception of variation, pay as motivation and pay security

		Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree
My compensation varies a lot from year to year	Non-owners	39 %	27 %	19 %	14 %	2 %
	Owners	42 %	24 %	21 %	11 %	3 %
Pay is the most important source of motivation at work	Non-owners	19 %	23 %	27 %	27 %	4 %
	Owners	34 %	29 %	21 %	16 %	0 %
Pay security is important for me	Non-owners	4 %	4 %	23 %	31 %	38 %
	Owners	8 %	0 %	26 %	41 %	26 %

Note: percentages are rounded up/down

Next, we asked if compensation is the most important source of motivation for the CEOs and if pay security is essential in their everyday life. Both groups generally disagree with compensation being the crucial motivational factor. A higher portion of the non-owners claim neutral or agreeing to the statement. This could be an indication that non-owners are more motivated by pay. Both the owners and the non-owners seem to agree that pay security is vital for them. Still, there is a higher percentage of owners strongly disagreeing with the statement, further indicating that owners are less motivated by pay. This is also consistent with agency theory as non-owners need to be compensated for their risk and cost of effort.

Motivation

Since the non-owners observably receive a much higher level of compensation, we wanted to investigate if this could be a result of motivation at work. Due to the owner's self-interest in the company and the gap in pay found between owners and non-owners in *Section 6.2.1*, we expect that owners are *less motivated* by external sources like pay and status.

The motivational question in *Table 12* tries to uncover if monetary compensation is the *most essential* source of motivation. Nevertheless, motivation is complex, and a combination of sources likely motivates people. In order to further investigate what motivates the CEO's in their work, we included a question with nine statements regarding motivation *(Table 13)*. The range of questions spans from ordinary base salary as motivation, to the motivation of being a

positive contributor to society. The questions are designed to reflect intrinsic and extrinsic motivation. A side note to this part of the survey is that not all the owners responded to these questions.

There is some difference in the owners' and non-owners' responses regarding base salary *(Table 13)*. 70 % of the non-owner's state that they partially or strongly agree with base salary being a source of motivation, while only 46 % of the owners state the same. However, there is a higher degree of owners being neutral to the question compared to non-owners, and only four percentage-points dividing the two groups on the other end of the scale. Owners disagree slightly more regarding base salary. Hence, there are some slight indications that non-owners are more preoccupied with the monthly base-salary than the owners. Looking at the performance-based compensation, we see the same pattern. Non-owners seem to be more concerned with how they are compensated, and performance measures motivate over half of the respondents. This could be explained by the owners' stake in the firm. Therefore, they do not need as many extrinsic rewards in order to perform. These answers match the findings we discussed in the subsection above and predictions from agency theory.

Table 13 – The CEOs' opinions on what motivates them

		Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree
Base salary	Non-owners	12 %	0 %	19 %	58 %	12 %
	Owners	8 %	8 %	38 %	30 %	16 %
Performance-based pay	Non-owners	8 %	0 %	35 %	35 %	23 %
	Owners	15 %	6 %	45 %	27 %	6 %
Flexibility at work	Non-owners	4 %	4 %	23 %	46 %	23 %
	Owners	3 %	5 %	19 %	32 %	41 %
Status and career options	Non-owners	0 %	15 %	42 %	31 %	12 %
	Owners	24 %	14 %	41 %	19 %	3 %
Personal success at work	Non-owners	0 %	4 %	12 %	38 %	46 %
	Owners	3 %	5 %	14 %	43 %	35 %
Affiliation with the company	Non-owners	4 %	0 %	15 %	35 %	46 %
	Owners	0 %	0 %	13 %	29 %	58 %
The success of the company	Non-owners	4 %	0 %	8 %	35 %	54 %
	Owners	0 %	0 %	3 %	29 %	68 %
Challenges and sense of achievement	Non-owners	4 %	0 %	4 %	23 %	69 %
	Owners	3 %	0 %	3 %	32 %	63 %
Being a positive contributor to society	Non-owners	4 %	0 %	8 %	62 %	27 %
	Owners	3 %	0 %	21 %	33 %	44 %

Note: percentages are rounded up/down

Regarding status and career opportunities, there seems to be a clear pattern towards non-owners being more motivated by this (43 % against 22 %), which is a result that is not particularly surprising. Owners have likely been a part of starting the firm, or it is a part of their family

legacy. If they have invested in the firm later, they probably believe in the firm in terms of purpose and success. This provides the owners with a higher affiliation with the company, which we also observe to some extent from the survey. Another explanation could be that non-owner CEOs are inherently more ambitious since they have worked their way up to the position as a top executive. As a result of this, they may naturally care more about status and how they are perceived compared to the owner CEOs.

Both groups report that they are highly motivated by flexibility at work, but owners to a greater extent than non-owners. Flexibility could be tied to a sense of choice, which Thomas (2009, p.53) listed as one of the four intrinsic rewards. The personal stake for owners is somewhat reflected in the question regarding the success of the business. From the survey, we get our expectations confirmed. 97 % of the owners agree that the success of the firm is an essential source of motivation. However, this also seems to be essential for the non-owners, and a total of 87 % agreed to the statement. On the other side, non-owners appear to be somewhat more motivated by personal success than the owners.

Non-owners are more motivated by challenges and a sense of achievement in their daily work. However, the most surprising result is the motivation of being a positive contributor to society. 44 % of the owners strongly agree that being a positive contributor is motivating. However, when combining partially and strongly agree, we observe that non-owners in total find this more motivating than the owners (88 % compared to 79 %). 21 % of the owners are neutral. This is unexpected as we would assume that owners felt more of a connection between their company and society. However, there is not a major difference between the two groups, and overall, there seems to be much motivation in knowing that one contributes positively to society.

To sum up our findings regarding motivation at work, there are some differences between the two groups according to the answers. There is a pattern that non-owners score higher on extrinsic motivation, while owners score higher on intrinsic motivation. This does fit with our expectations, but because of our small sample, it is difficult to conclude with certainty.

6.4.5 Conclutions from the survey

The survey uncovered characteristics with the CEOs and their compensation that our data alone could not provide. Firstly, there appear to be differences in the pay composition, where non-owners receive performance-based compensation to a greater extent than owners. Non-owners

also claim that their compensation is greatly affected by individual performance. Our survey answers further reveal that the average tenure, both in the firm and as the CEO is high, which indicates that the top executives in the industry rarely move between companies. Regarding the CEOs' perspective on *Result 1,* non-owners believe that the difference in compensation between the groups is mainly related to dividend payments. Most owners, on the other hand, believe that the difference has to do with inner motivation, cautiousness, and commitment to the firm. When it comes to motivation at work, there is some evidence that non-owners are more motivated by extrinsic factors while owners are more intrinsic motivated.

Limitations in our survey data

First, our answers may be biased. We could only find contact information on 54 % of the firms in our dataset, which could cause problems if there is a particular reason why some of the information is not publicly available. Small companies may be a lot more challenging to track down than larger and more renowned firms. If this is the case, our sample of respondents may be skewed. Second, even though the response rate was approximately 30 %, we would have benefited from a larger set of answers. Lastly, there is always the possibility of misunderstanding and, thus, answers that do not reflect the CEO's real opinion. Nevertheless, we believe that the survey answers help us understand the dynamics of the CEO pay better. It is important to acknowledge that there might be some weaknesses in the survey and that we, therefore, must be critical when reviewing the answers. Nonetheless, we feel that the survey helped us validate the findings from the regressions and gave us more insight into our data. The CEO's reflections give us additional and interesting information about how they perceive the compensation gap.

7. Conclusion

We study the effect of ownership structures on CEO pay. Our approach differs from existing literature because we gather data on CEO compensation from unlisted firms in the Norwegian shipping and sea transport industry. The purpose is to disclose if non-owner CEOs receive higher compensation than owner CEOs and if their salary is more coupled to performance. By studying unlisted companies, the thesis provides insights into an area with limited research. The analysis is based on OLS regressions, and a qualitative survey sent out to the top executives in our dataset. Two main theories are tested; agency theory and the managerial power perspective.

Our first result is that non-owner CEOs are compensated substantially more than owners, on average between 39 % and 47 %, which is evidence in favor of *Hypothesis 1.* The difference is significant for both 2017 and 2018 and appears to be an agency cost in order to compensate the non-owners for incentive purposes and risk reduction. We also find evidence that the difference in pay increases with ownership percentage. This indicates that ownership could be used to reduce agency problems and as a substitute for cash compensation. Former research on ownership and compensation conducted on listed companies in Norway and Sweden provides the same findings. Hence, listed and unlisted companies in Norway seem to share similar characteristics regarding ownership structures and executive compensation. Over half of the non-owners believe the difference in pay is due to the possibility of dividends for owners. Owners highlight inner motivation, cautiousness, and commitment as essential explanations. Looking at the owners, as much as 75 % state that they rarely or never take out any dividends instead of salary. Overall, agency theory provides the best predictions for the relationship between ownership and CEO pay in our data.

We find some evidence in favor of *Hypothesis 2,* that the compensation of non-owners is more sensitive to firm performance. This is apparent when using growth in EBIT as a performance measure. Other models using ROA and liquidity does not provide any evidence in favor of the second hypothesis. However, our survey showed that approximately 65 % of the non-owners receive performance-based bonuses, while approximately 18 % of the owners responded the same. This supports our finding of higher pay sensitivity for non-owners. Nevertheless, the performance measures seem to vary from firm to firm, which is likely a reason we did not find any sign of higher pay sensitivity when using ROA and liquidity. Profits are the most used performance measure according to the CEOs themselves, but unspecified KPI's and EBIT are also reported as measures. Furthermore, we find that non-owners score a little higher on

extrinsic motivation while owners score higher on intrinsic motivation. Overall, predictions from agency theory fits our data better than predictions from the managerial power perspective.

Our dataset has a few limitations. A sample bias may be present due to companies reporting CEO compensation as zero in the financial statements. Another sample bias may be present in our survey answers, as we could only find contact information for approximately half of the dataset. The response rate is quite good, but we would benefit from a larger sample. Endogeneity related to whether the CEO is an owner or not is also a potential issue. Inaccuracies in the historical data may be present due to a change of the top executive during the relevant years. Though, our survey indicates that most CEOs have been at the current position for a long time.

Recommendations for future research

There are many ways of researching CEO compensation. In our study, we have focused on the Norwegian shipping industry and mainly studied one year at the time. For further research, it could be interesting to compare CEO compensation across borders, as we have seen from comparable studies that ownership does not have the same effect on pay in different geographic regions. We believe the forces behind this would be fascinating to research and understand. In addition, it could be interesting to study ownership over a more extended time period in order to fully understand the effect of performance. Finally, there are some interesting findings regarding gender and CEO compensation. Due to a small sample of females, we recommend researching a more gender-balanced industry in order to conclude on the effects of gender.

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Appendix

A1 – Histograms of CEO pay, level and log

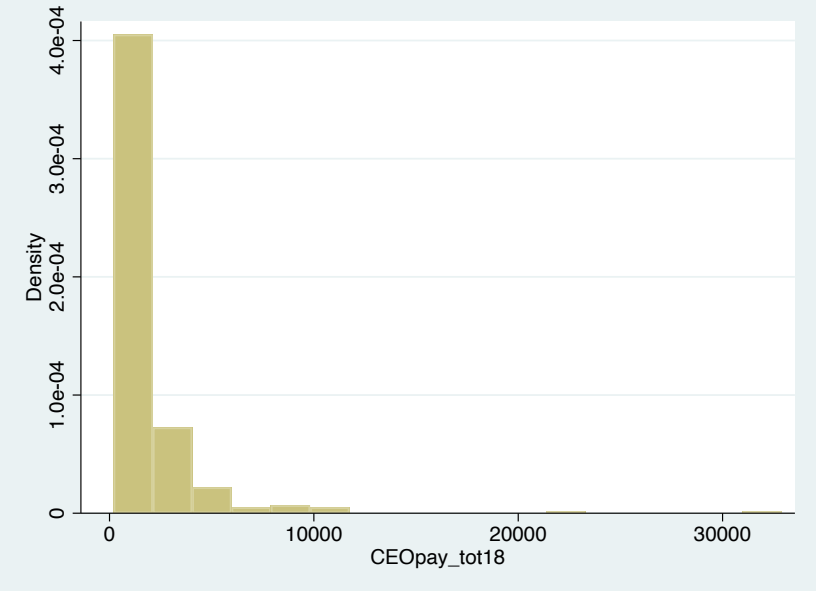


Figure 12 – Histogram of total level CEO pay 2018

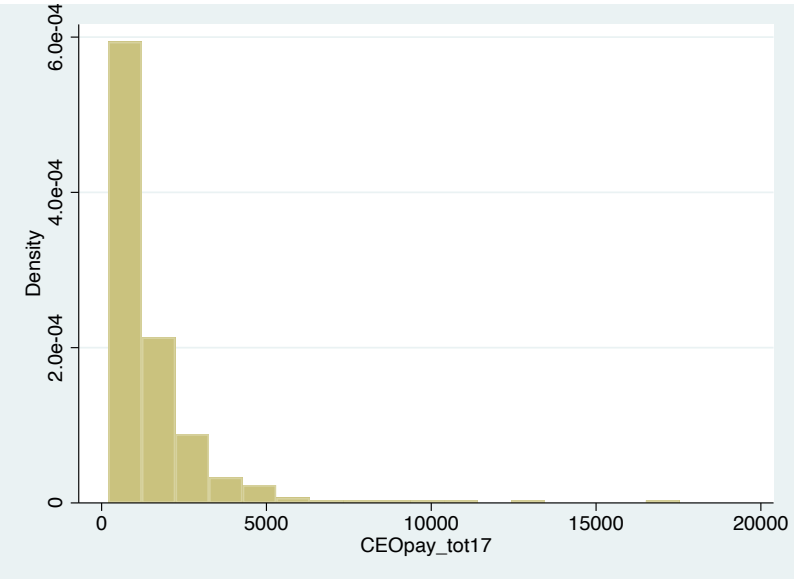


Figure 13 – Histogram of total level CEO pay 2017

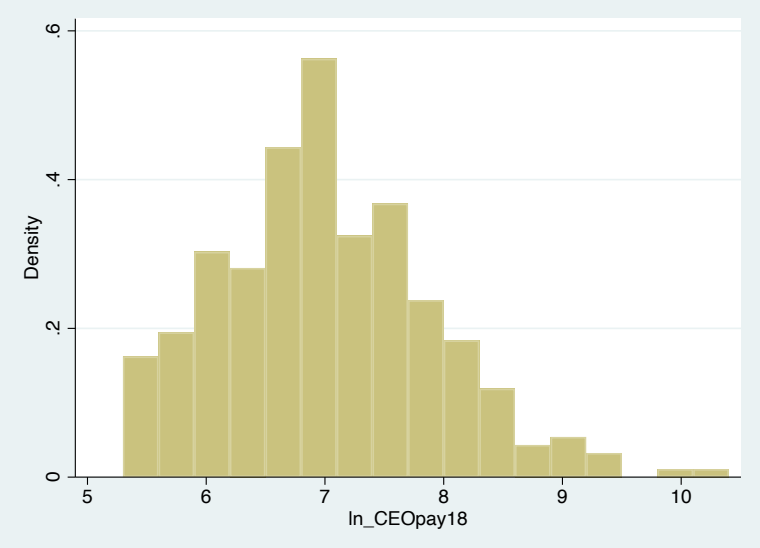


Figure 14 – Histogram of total log CEO pay 2018

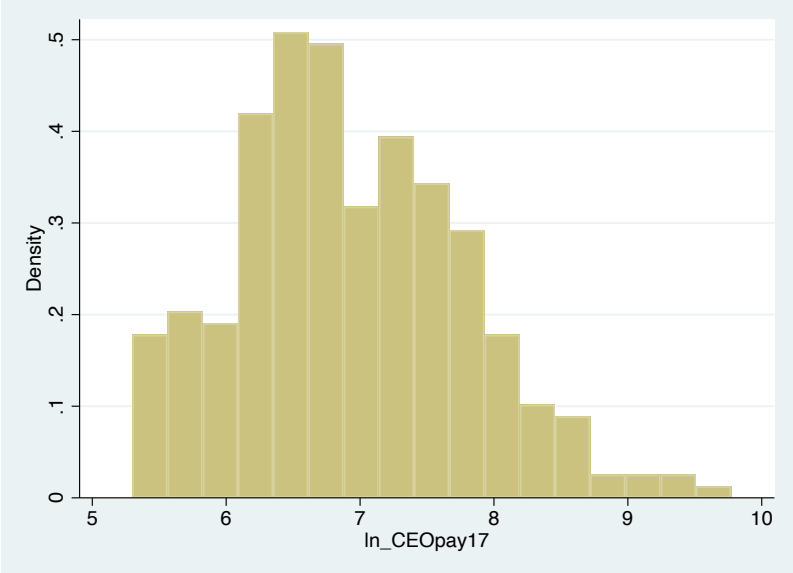


Figure 15 – Histogram of total log CEO pay 2017

A2 – Scatterplots of CEO pay and control variables

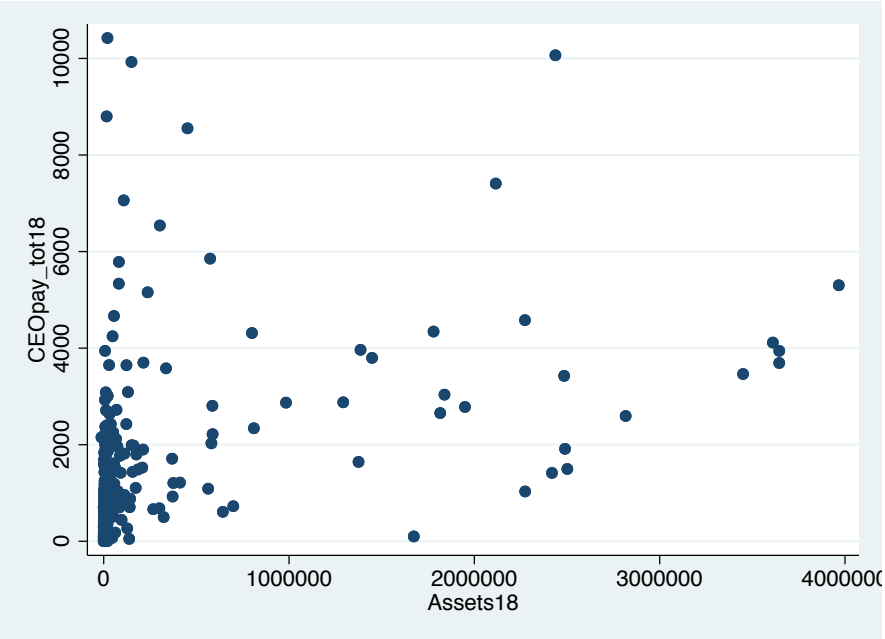


Figure 16 – Scatterplot of level CEO pay and level assets 2018

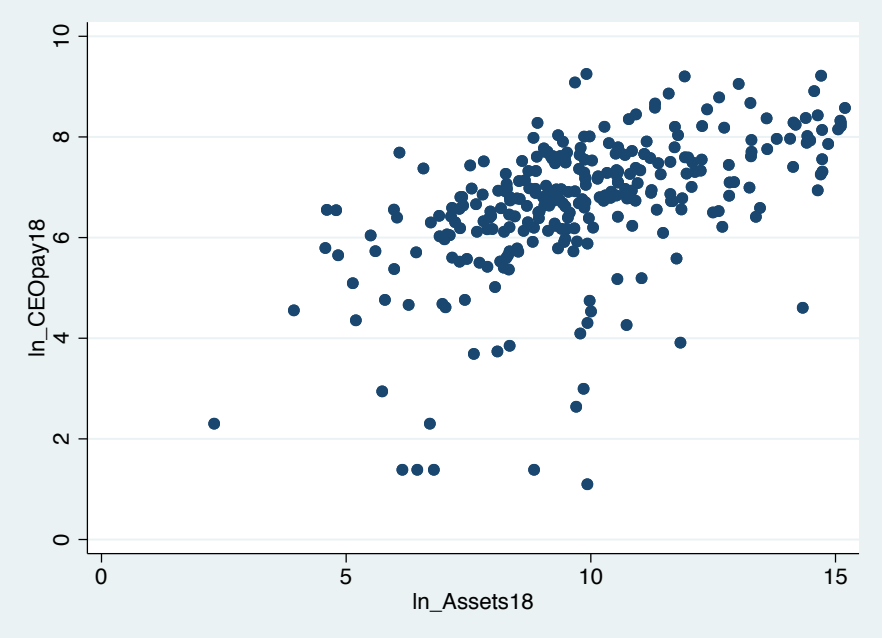


Figure 17 – Scatterplot of log CEO pay and log of assets 2018

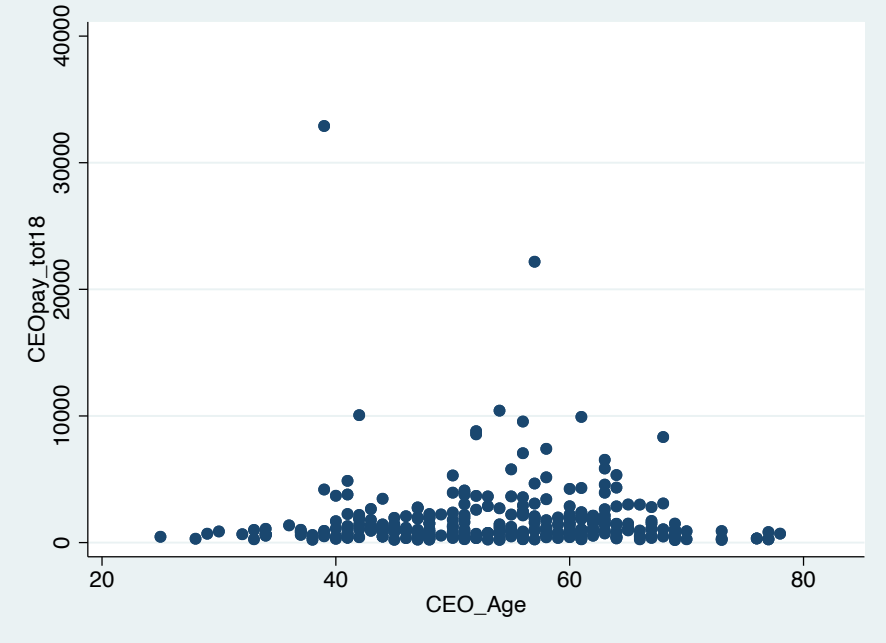


Figure 18 – Scatterplot of level CEO pay and CEO age

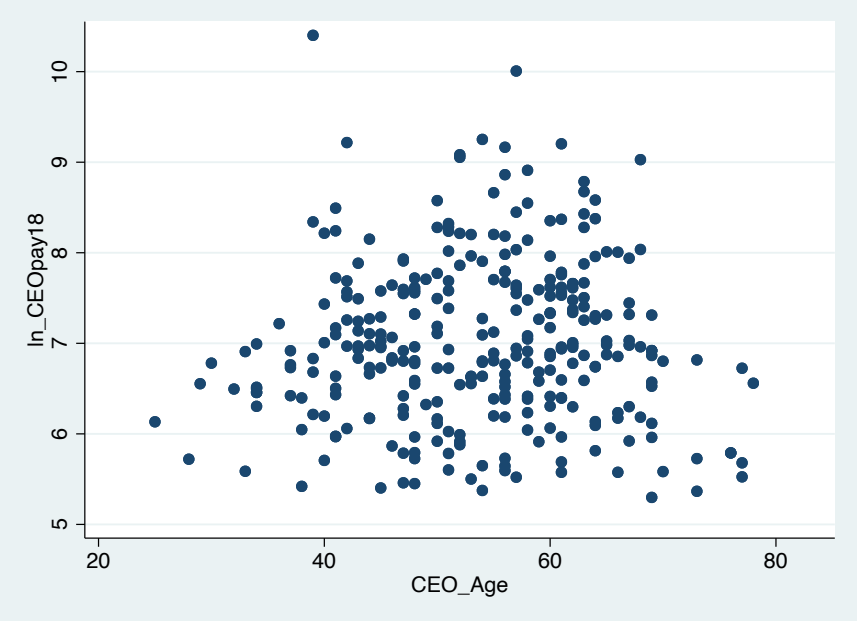


Figure 19 – Scatterplot of log CEO pay and CEO age

A3 – Assumptions for OLS regressions, Gauss-Markov theorem

The Gauss-Markov theorem states that if the data fulfil a set of assumptions, the OLS method is the "best linear unbiased estimator" (BLUE), and thereby justifying the use of this method over any other competing estimator (Wooldridge, 2013, p. 102). In the following, we will go through the assumptions as a basis for our research.

Linearity

The first assumption is that the multiple regression follows a linear model written as:

$$y = \beta_o + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + u$$

For the model to be linear, it has to be linear in the parameters $\beta_o + \beta_1 + \beta_2 + \ldots + \beta_k$. These parameters determine the direction and strengths of the relationship between *y* and the independent variables x_1, x_2, and so on (Wooldridge, 2013, p. 71).

When the model is linear, the linear regression can fit a straight line through the data. When the assumption is violated, the data will no longer follow a straight line. This will cause the estimates to be biased.

Random sampling

The next assumption is that we have a random sample n, $\{(x_{i1}, x_{i2}, \ldots, n_{ik}, y_i): i = 1, 2, \ldots, n\}$ of the population in question. This means that all individuals of the population have an equal possibility of being drawn. We can thus write the equation above in terms of random sample like this:

$$y_i = \beta_{io} + \beta_{i1} x_{i1} + \beta_{i2} x_{i2} + \ldots + \beta_{ik} x_{ik} + u_i, \qquad i = 1, 2, \ldots, n$$

i denotes the observation in the sample, and the subscript reflects the variable number on *x*.

An advantage of cross-sectional data is that one can often assume that they represent a random sample of the population where all members of the population are equally likely to be included in the analysis (Wooldridge, 2013, p. 6). Our dataset, however, most likely have a sample selection problem, meaning that it is not appropriate to assume that it is a random sample. The reason for this is that a big fraction of Norwegian shipping businesses has not reported any CEO compensation. This could be due to reporting errors, failing to report or that the CEO is being

paid by a different company in the same group. Moreover, it could also be that the company is newly started resulting in the CEO not being able to take out salary and thus that there is nothing to report in the current year.

No perfect collinearity

The third assumption is that there should be no exact linear relationship between the independent variables in the sample, and thus in the population. The independent variables can be correlated but not perfectly correlated. In fact, in a multiple regression, we include variables we expect to be correlated so that we can hold them fixed in the analysis (Wooldridge, 2013, p. 84).

If some of the independent variables in our model are highly correlated with each other, we have multicollinearity. The problem regarding multicollinearity is that the model will not be able to estimate the relationship between the dependent and independent variables precisely. If two independent variables in our model are highly correlated, there will be problems in estimating how the variables are correlated with the dependent variable. The standard errors are also likely to be too high. The signs and size of the coefficients might vary between different samples. VIF-values can be used to check for multicollinearity. A score below 10 should be tolerated, but a value below 5 is preferred (StatisticsSolutions, n.d.). A correlation matrix of our variables will give us an indication of potential multicollinearity problems.

Zero conditional mean

The most crucial assumption for unbiasedness is the assumption of "zero conditional mean" which states that the expected value of u, the error term, is zero for any given value of the explanatory variables (Wooldridge, 2013, p. 86). This can be shown as followed:

$$E(u|x_1, x_2, \dots, x_k) = 0$$

If the assumption of zero conditional mean holds, we say that we have exogenous independent variables. However, if the $E(u|x_1, x_2, \dots, x_k) \neq 0$, we use the term endougenous independent variables (Wooldridge, 2013, p. 87).

There are a variety of things that could cause the assumption of zero conditional mean to fail. For example, one needs to ensure that the model is not misspecified. This could be the case if one forgets to include a quadratic term in the equation or that one use level variables when the

true model require log variables. We will also get a problem if we omit an important factor that is correlated with $x_1, x_2, \dots, x_k$, which will cause omitted variable bias and cause the assumption to fail (Wooldridge, 2013, pp. 88-89). The assumption of zero conditional mean put restrictions on the relationship between the explanatory variables and the unobserved variables in the error term *u* (Wooldridge, 2013, p. 87).

Homoskedasticity

The last assumption states that the error, *u,* should have the same variance for all values of the explanatory variables (Wooldridge, 2013, p. 93). Written as:

$$Var(u|x_1, \dots, x_k) = \sigma^2$$

Meaning that the variance of the error term is independent of the explanatory variables $x_1, x_2, \dots, x_k$. When this is true the model display homoscedasticity, and if the assumption fails it display heteroskedasticity. When heteroskedasticity is present, the variance changes with the independent variables in the model (Wooldridge, 2013, p. 93).

Unlike the assumptions above, a violation the homoskedasticity assumption does not impact the unbiasedness and consistency in the OLS estimators, nor does it affect the interpretation of R-squared and adjusted R-squared. However, it will affect the estimator's variance and cause Var(β_j) to be biased. Since the OLS standard errors is based directly on the variances, heteroskedasticity causes them to be invalid in terms of constructing confidence intervals and t-statistics, as well as F-statistics. Thus, the statistics used to test hypotheses are not valid in the presence of heteroskedasticity. Since hypothesis testing is such a big part of the econometric analysis, heteroskedasticity cause the OLS inference to be faulty and we cannot say that OLS is the most efficient estimator (Wooldridge, 2013, pp. 94-95).

As mentioned in the introduction to this section, when all of the Gauss-Markov assumptions hold, the OLS regression is the best linear unbiased estimator for the population parameters:

$$E(\beta_j) = \beta_j, \qquad j = 0, 1, \dots, k$$

A4 – Correlation matrices

Table 14 – Correlation matrix, differences in CEO pay

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)CEO pay 18	1.000											
(2)Assets 18	0.529***	1.000										
(3)CEO pay 17	0.894***	0.586***	1.000									
(4)Assets 17	0.523***	0.941***	0.574***	1.000								
(5)CEO Duality	-0.291***	-0.411***	-0.367***	-0.366***	1.000							
(6)CEO Age	0.023	0.050	0.047	0.042	0.105**	1.000						
(7)Ownership % CEO	-0.439***	-0.523***	-0.527***	-0.492***	0.615***	0.099*	1.000					
(8)Non-owner	0.430***	0.375***	0.440***	0.351***	-0.372***	0.023	-0.670***	1.000				
(9)Board size	0.348***	0.541***	0.422***	0.526***	-0.568***	-0.015	-0.536***	0.333***	1.000			
(10)Female CEO	-0.131**	-0.033	-0.069	-0.054	-0.031	-0.020	-0.085*	0.090*	0.058	1.000		
(11)Female Chairman	0.018	-0.059	0.049	-0.041	-0.066	-0.116**	-0.045	0.040	0.051	0.333***	1.000	
(12)Females on th board	-0.004	-0.022	-0.001	-0.004	-0.093*	-0.051	-0.090*	0.069	0.126**	0.340***	0.656***	1.000

**** p<0.01, ** p<0.05, * p<0.1*

Table 15 – Correlation matrix, change in CEO pay, 2018-model

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)ΔCEO pay 18	1.000																
(2)Assets 17 (ln)	0.070	1.000															
(3)CEO Duality	-0.062	-0.366***	1.000														
(4)CEO Age	-0.044	0.042	0.105**	1.000													
(5)G. EBIT 17	-0.065	-0.022	-0.009	0.023	1.000												
(6)G. EBIT 16	-0.028	-0.019	0.085*	0.093*	-0.026	1.000											
(7)N.O. G. EBIT 17	-0.037	-0.025	-0.008	0.056	0.671***	0.012	1.000										
(8)N.O. G. EBIT 16	0.013	-0.011	0.040	0.068	0.019	0.758***	0.023	1.000									
(9)ROA 17	0.005	0.137***	-0.044	-0.004	0.193***	0.053	0.108**	0.089*	1.000								
(10)ROA 16	0.041	0.037	-0.051	-0.020	-0.078	0.155***	-0.034	0.046	0.456***	1.000							
(11)N.O. ROA 17	0.022	0.184***	-0.128**	-0.025	0.118**	0.069	0.184***	0.103**	0.705***	0.372***	1.000						
(12)N.O. ROA 16	-0.025	0.134***	-0.130**	-0.067	-0.014	0.031	-0.018	0.044	0.451***	0.591***	0.668***	1.000					
(13)Liquidity 17	-0.004	0.059	-0.045	-0.093*	-0.005	-0.003	-0.004	0.001	-0.021	-0.010	-0.014	0.005	1.000				
(14)Liquidity 16	-0.004	0.070	-0.047	-0.099*	-0.009	-0.014	-0.006	-0.014	-0.028	-0.008	-0.021	0.008	0.998***	1.000			
(15)N.O. Liquidity 17	-0.004	0.063	-0.050	-0.096*	-0.005	-0.004	-0.004	0.000	-0.020	-0.009	-0.014	0.005	0.998***	0.999***	1.000		
(16)N.O. Liquidity 16	-0.004	0.070	-0.052	-0.098*	-0.006	-0.015	-0.005	-0.015	-0.025	-0.008	-0.020	0.008	0.998***	0.999***	0.999***	1.000	
(17)Board size	-0.025	0.526***	-0.568***	-0.015	-0.012	-0.101*	-0.028	-0.040	-0.014	-0.034	0.031	0.079	0.017	0.021	0.022	0.024	1.000

**** p<0.01, ** p<0.05, * p<0.1*

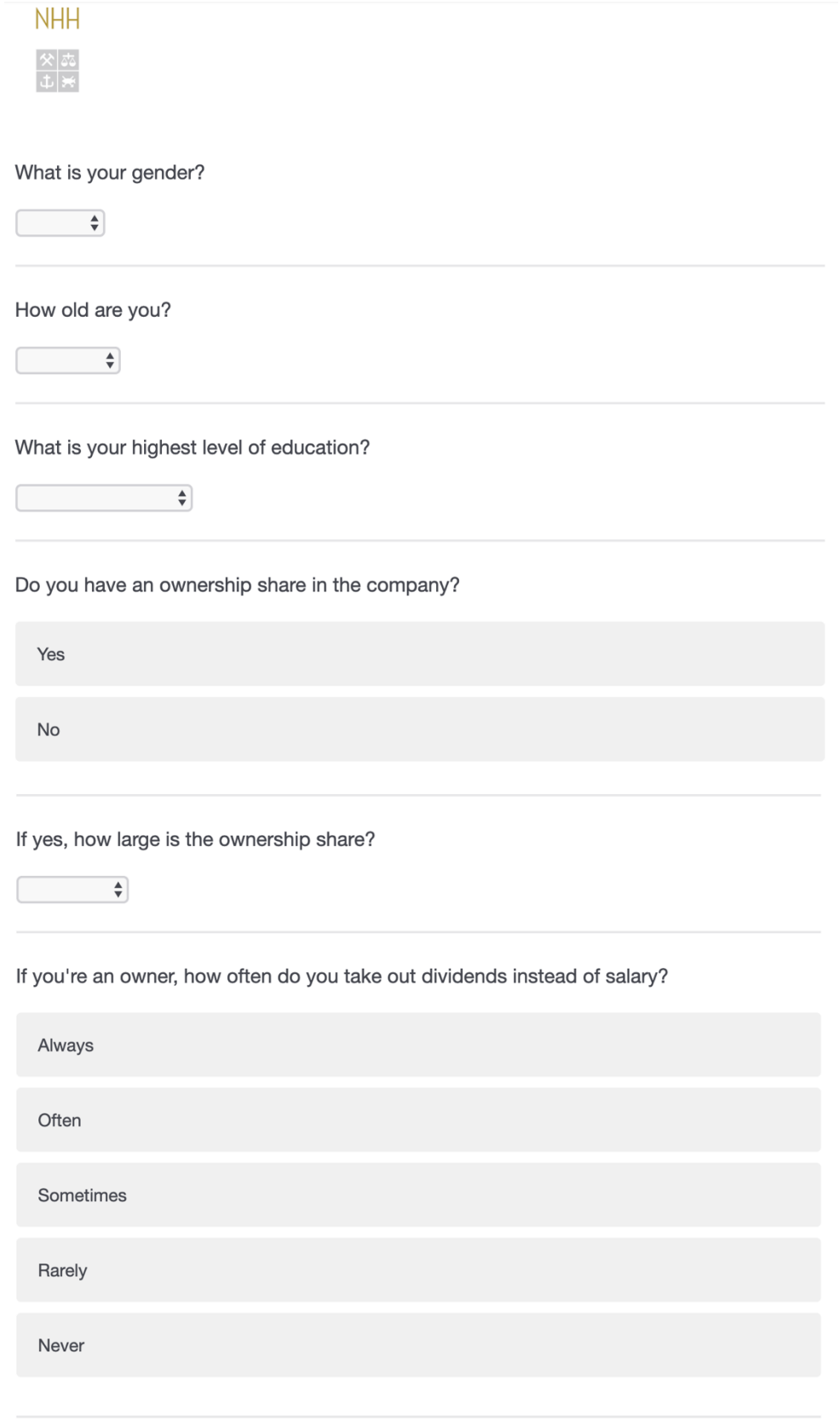
Table 16 – Correlation matrix, change in CEO pay, 2017-model

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)ΔCEO pay 17	1.000																
(2)Assets 17 (ln)	0.039	1.000															
(3)CEO Duality	0.030	-0.366***	1.000														
(4)CEO Age	-0.112*	0.042	0.105**	1.000													
(5)G. EBIT 16	0.011	-0.019	0.085*	0.093*	1.000												
(6)G. EBIT 15	0.004	-0.007	0.018	-0.111*	-0.002	1.000											
(7)N.O. G. EBIT 16	-0.064	-0.011	0.040	0.068	0.758***	0.002	1.000										
(8)N.O. G. EBIT 15	-0.010	-0.021	-0.017	-0.077	-0.001	0.846***	-0.001	1.000									
(9)ROA 16	0.060	0.037	-0.051	-0.020	0.155***	0.053	0.046	0.055	1.000								
(10)ROA 15	-0.069	0.054	-0.026	-0.048	-0.047	0.151***	0.011	0.106*	0.467***	1.000							
(11)N.O. ROA 16	-0.009	0.134***	-0.130**	-0.067	0.031	0.078	0.044	0.091	0.591***	0.510***	1.000						
(12)N.O ROA15	-0.019	0.139***	-0.136***	-0.141***	-0.021	0.122**	-0.012	0.150**	0.427***	0.643***	0.758***	1.000					
(13)Liquidity 16	-0.018	0.070	-0.047	-0.099*	-0.014	0.016	-0.014	-0.004	-0.008	0.000	0.008	0.023	1.000				
(14)Liquidity 15	-0.028	0.066	-0.046	-0.105**	-0.004	-0.004	0.001	-0.002	-0.010	0.003	0.007	0.024	0.999***	1.000			
(15)N.O. Liquidity 16	0.012	0.070	-0.052	-0.098*	-0.015	-0.006	-0.015	-0.000	-0.008	0.002	0.008	0.024	0.999***	0.998***	1.000		
(16)N.O. Liquidity 15	0.002	0.065	-0.049	-0.105**	-0.003	-0.004	0.000	0.004	-0.009	0.003	0.007	0.025	0.999***	0.999***	0.999***	1.000	
(17)Board size	0.132**	0.526***	-0.568***	-0.015	-0.101*	0.008	-0.040	0.001	-0.034	-0.047	0.079	0.095*	0.021	0.015	0.024	0.019	1.000

**** p<0.01, ** p<0.05, * p<0.1*

A5 – The survey

Note that the survey is translated from Norwegian.


NHH

What is your gender?

How old are you?

What is your highest level of education?

Do you have an ownership share in the company?

Yes

No

If yes, how large is the ownership share?

If you're an owner, how often do you take out dividends instead of salary?

Always

Often

Sometimes

Rarely

Never

If you are taking out dividends, how much does the amount vary with firm performance?

- To a very large extent
- To a large extent
- To some extent
- To a small extent
- To a very small extent

Do you have a position on the board in the company you lead?

- Yes
- No
- Chairman

How many years have you worked in your current company?

How long have you been in your current position?

Which of the following forms of compensation do you receive?

- Basse-salary
- Performance-based bonus
- Stock options
- Pension plans
- Other, please specify:

Your compensation is affected by firm performance

- Strongly disagree
- Partially agree
- Neutral
- Partially agree
- Strongly agree

Your compensation is affected by your own performance?

- Strongly disagree
- Partially disagree
- Neutral
- Partially agree
- Strongly agree

If you receive performance-based bonus, how is your performance measured?

To what extent do you feel that you can affect your own compensation?

- To a very large extent
- To a large extent
- To some extent
- To a small extent
- To a very small extent

How often is your compensation renegotiated?

- Every 6 months
- Every year
- Every other year
- Other, please specify:

To what extent do you think the ownership of the CEO affects his compensation?

- To a very large extent
- To a large extent
- To some extent
- To a small extent
- To a very small extent

Our results indicate that CEOs that does NOT have ownership shares in the company receive higher compensation than CEOs with ownership shares. Why do you think this is the case?

How much do you agree with the following statements about compensation?

	Strongly disagree	Partially agree	Neutral	Partially agree	Strongly agree
My compensation varies a lot from year to year	○	○	○	○	○
My compensation is the most important source of motivation	○	○	○	○	○
Pay security is important for me	○	○	○	○	○

What motivates you to do a good job?

	Strongly disagree	Partially agree	Neutral	Partially agree	Strongly agree
Base-salary	○	○	○	○	○
Performance-based bonus	○	○	○	○	○
Flexibility at work	○	○	○	○	○
Status and career options	○	○	○	○	○
Personal success at work	○	○	○	○	○
Affiliation with the company	○	○	○	○	○
The success of the company	○	○	○	○	○
Challenges and sense of achievement	○	○	○	○	○
Being a positive contributor to society	○	○	○	○	○

A6 – The survey answers

Note that the survey is translated from Norwegian.

Q1 – What is your gender

Gender	Count
Female	3
Male	63
Total	**66**

Q2 – How old are you?

Age	Count
26-34	2
35-44	11
45-54	25
55-64	25
65-74	3
Total	**66**

Q3 – What is your highest level of education?

Level of education	Count
High school	18
Bachelor's degree	13
Master's degree	29
None of the above	6
Total	**66**

Q4 – Do you have an ownership share in the company?

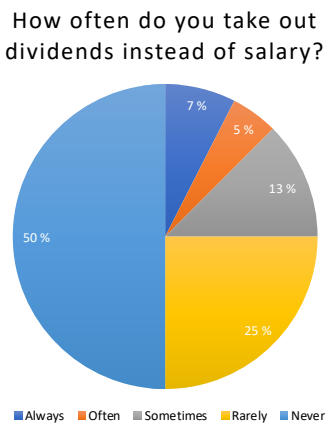
Are you an owner?	Count
Yes	40
No	26
Total	**66**

Q5 – If yes, how large is your ownership share?

Ownership percentage	Count
0 %	26
1%-9%	7
10%-19%	7
20%-29%	4
30%-49%	3
50%-59%	7
60%-69%	1
70%-79%	1
100%	10
Total	**66**

Q6 – If you're an owner, how often do you take out dividends instead of salary?

	Count
Always	3
Often	2
Sometimes	5
Rarely	10
Never	21
Total	**41**



Q7 - If you are taking out dividends, how much does the amount vary with firm performance?

Dividends vary with firm performance	Count
To a very large extent	12
To a large extent	7
To some extent	1
To a small extent	4
To a very small extent	2
Total	**26**

Q8 - Do you have a position on the board in the company you lead?

Position on the board	Count
Yes	36
No	22
Chairman	8
Total	**66**

Q9 – How many years have you worked in your current firm: Average of 15 years.

Q10 – How long have you been in your current position: Average of 11,5 years.

Q11 - Which of the following forms of compensation do you receive?

	Base-salary	Performance-based bonus	Pension plans	Stock options	Other
Owners	40 (100 %)	7 (17.5 %)	19 (47.5 %)	3 (7.5 %)	5 (7.6 %)
Non-owners	25 (96.2 %)	17 (65.4 %)	16 (61.5 %)	1 (3.8 %)	3 (4.5 %)

Other, please specify:
Car allowance
Rental of real estate
Fixed salary
Forced to take out dividends to pay wealth tax
Car, cell phone, broadband, papers, credit card
Dividends
Discounted stocks
Company car

Q12 - Your compensation is affected by firm performance

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
Owners	5 (13 %)	2 (5 %)	13 (33 %)	15 (38 %)	5 (13 %)	40 (100 %)
Non-owners	3 (12 %)	1 (4 %)	6 (23 %)	11 (42 %)	5 (19 %)	26 (100 %)

Q13 - Your compensation is affected by your own performance

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
Owners	9 (23 %)	1 (3 %)	17 (43 %)	8 (20 %)	5 (13 %)	40 (100 %)
Non-owners	0 (0 %)	0 (0 %)	10 (38 %)	13 (50 %)	3 (12 %)	26 (100 %)

Q14 - If you receive performance-based bonus, how is your performance measured?

2.75 % of net profits
Financial results and other KPI's
Profits before taxes
No bonus – dividend when the liquidity and profits allow it
Only dividends – Poor performance 0 dividends
EBIT and how you perform above the yearly budget
Profits and discretion
Profits, KPI
Key numbers
Discretionary based on profits
Pre-defined targets both financial and non-financial
Based on the development in variable unit cost
Performance kicks in only if the firm's profit goals are met. Performance is when the company is able to 'perform'.
Against specific kriterias/goals.
EBIT level on group bonus and, income on individual
EBIT
Profits.
Defined KPIs
Discretionary by the board
Partially company specific goals and profits, partially mother company/group profits, partially individual results.

Q15 - To what extent do you feel that you can affect your own compensation?

Owners	Percent	Count
To a very large extent	30 %	12
To a large extent	23 %	9
To some extent	38 %	15
To a small extent	8 %	3
To a very small extent	3 %	1
Total		**40**

Non-owners	Percent	Count
To a very large extent	0 %	0
To a large extent	15 %	4
To some extent	54 %	14
To a small extent	31 %	8
To a very small extent	0 %	0
Total		**26**

Q16 - How often is your compensation renegotiated?

Owners	Count
Every other year	9
Every year	17
Other, please specify	14
Total	**40**

Non-owners	Count
Every other year	3
Every year	20
Other, please specify	3
Total	**26**

Other, please specify

Owners	Count
Never	4
When needed and possible	2
When needed	2
Based on the National Insurance scheme	1
Every three to five years	1
Based on long-term budget	1
Yearly based on price index	1
When the market for CEOs change	1
(Blank)	1
Total	**14**

Non-owners	Count
Never	2
When needed	1
Total	**3**

Q17 - To what extent do you think the ownership of the CEO affects his compensation?

Owners	Count
To a very large extent	12
To a large extent	8
To some extent	9
To a small extent	8
To a very small extent	3
Total	**40**

Non-owners	Count
To a very large extent	3
To a large extent	11
To some extent	11
To a small extent	0
To a very small extent	1
Total	**40**

Q18 - Our results indicate that CEOs that does NOT have ownership shares in the company receive higher compensation than CEOs with ownership shares. Why do you think this is the case? *(Note: we have translated the answers from Norwegian)*

Ownership	Comments on Result 1
Yes	Owners focus on the firm's financial strength and future stock value. A hired CEO focuses on short-term revenue
Yes	CEOs with ownership shares evaluate their salary against the economy of the firm. They simply put the firm's wellbeing above own compensation
No	Possibility of dividends with lower taxation.
No	Possibility of dividends. The size of the firm surely plays a role. I assume that there are more CEOs that have ownership shares in small firms than in big firms. Larger firms probably have a greater ability to pay higher wages.
Yes	Ownership shares inspires to increased effort for future gain, while with no ownership you do not see the future gain.
Yes	Tax-motivated. Better to save in your own company than to burden the firm with high fixed salary.
Yes	Is independent of consequences if the company performs poorly as oppose to an owner.
Yes	We owners must show moderation. Every invoice must be paid before you think about yourself.
Yes	Because the majority shareholder believe he is better off by keeping ownership and management separated.
Yes	Responsibility
Yes	Because without ownership the CEO must be motivated by something else, which often is salary.
Yes	Owner values compensates for salary
Yes	An owner is more loyal to the company and wishes to keep the general wage level in the firm down. If the top executive receives high compensation, this will often cause the general wage level in the company to increase as well
No	It is possible they can compensate with dividends. By hiring an external CEO without ownership shares, you have to pay market salary for a CEO with the right competence.
Yes	Owners are more loyal to their firm.
Yes	With ownership comes a different (better) motivation. In addition, an owner-CEO will think that higher salary means higher general wage level and therefore less dividends.
No	The companies are bigger.
Yes	Dividends can be viewed as a part of salary.
No	Ownership shares is compensation.
Yes	When you sit on both sides of the fence with 100 % ownership, you see that the money yields a higher return on the company side than the private side.
Yes	To achieve a total compensation package.
Yes	Commitment

No	Because a non-owner CEO does not have the upside of the owner regarding profitability
Yes	I agree with this hypothesis. I was once a manager in a company where I held the majority ownership. My salary at that time was substantially lower than the one I receive now after we have gotten professional co-owners.
No	Because an owner with a significant ownership share gets paid partly through the ownership share, while a non-owner CEO is only compensated through salary.
No	Tax considerations. If you have enough to live, the money may as well stay in the company and build it.
Yes	With ownership shares you take more responsibility for the firm, and gladly take out less salary if it can help the firm in a year with less operation.
Yes	I think that this is correct. If you are to have a competent CEO you must pay, and if you don't get dividends the compensation needs to be higher.
Yes	They look at total compensation and then the sum must be fairly similar. I.e. without stocks the base-salary and/or bonus must be higher.
No	Dividends are taken out instead of salary.
Yes	Because they are closer to the firm and have an interest to build a solid firm. In our industry, there is a shortage of suitable CEOs, thus external persons need to be compensated accordingly.
Yes	That owner CEOs is more cautious about taking out salaries.
Yes	Owners are more cautious in regard to the survival of the company!
Yes	They lack the ownership entrepreneurial drive, a non-owner CEO in a company will never invest private funds in the firm! A non-owner will probably just let go and leave if he does not achieve the expectations. An owner-CEO has probably often invested significantly with his own funds and often thinks long-term, and not often adjust their own salary to protect the firm in challenging times (can probably say a lot more about this topic)
No	Owners wish a safe future for the company – rather takes out dividends if there is a possibility for that
Yes	In a family company, it is always difficult to discuss compensation with them that work in the company. I think that you are generally under-paid as an owner and CEO in family companies.
No	Because owner CEOs maybe are expected to affect dividends and hence get paid for their efforts through ownership. A non-owner without this opportunity expects to get better compensation and does maybe not have the risk of getting lower pay if the results becomes poorer (within limits).
No	Owner CEOs do often have other incentives in addition to salary.
No	The size of the firm may have something to do with it. Also, in what phase the company is in (a start-up must give compensation in form of stocks, while a more established company gives compensation more through actual salary).
Yes	Because non-owner CEOs cannot take out dividends and also may lose the job and be without monetary compensation.
Yes	Owners take responsibility for the firm's economic development.
Yes	The company is no longer entrepreneurial driven, but by a board.

Yes	Because you as an owner struggle to make the ends meet all the time. The workload is highest, but the increases in salaries only goes to the other employees.
No	Securing strong motivation for the development of the company.
Yes	Because they do not participate in the value development of the company and are compensated for this in the form of higher salary.
No	If you have ownership shares in the company, the possible dividends can be viewed as a part of compensation.
No	Owners create values in many ways.
No	Does not have the upside of the company`s growth.
No	They do not participate in the value creation in form of increased value of the stocks in addition to yearly dividends. Therefore, it is easier to reduce own CEO compensation, and a side effect of this is a positive signal-effect to the other employees. Indirectly you can therefore also affect the wage level (thus also the cost level) in the company.

Q19 - How much do you agree with the following statements about compensation?

Non-owners' perception on own compensation

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
My compensation varies a lot from year to year	9 (35 %)	8 (31 %)	4 (15 %)	5 (19 %)	0 (0 %)	26 (100 %)
Pay is the most important source of motivation at work	5 (19 %)	6 (23 %)	7 (27 %)	7 (27 %)	1 (4 %)	26 (100 %)
Pay security is important for me	1 (4 %)	1 (4 %)	6 (23 %)	8 (31 %)	10 (38 %)	26 (100 %)

Owners' perception on own compensation

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
My compensation varies a lot from year to year	16 (42 %)	9 (24 %)	8 (21 %)	4 (11 %)	1 (3 %)	38 (95 %)
Pay is the most important source of motivation at work	13 (34 %)	11 (29 %)	8 (21 %)	6 (16 %)	0 (0 %)	38 (95 %)
Pay security is important for me	3 (8 %)	0 (0%)	10 (26 %)	16 (41 %)	10 (26 %)	39 (98 %)

Q20 - What motivates you to do a good job?

Non-owners' opinions on what motivates them

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
Base salary	3 (12 %)	0 (0 %)	5 (19 %)	15 (58 %)	3 (12 %)	26 (100 %)
Performance-based compensation	2 (8 %)	0 (0 %)	9 (35 %)	9 (35 %)	6 (23 %)	26 (100 %)
Flexibility at work	1 (4 %)	1 (4 %)	6 (23 %)	12 (46 %)	6 (23 %)	26 (100 %)
Status and career options	0 (0 %)	4 (15 %)	11 (42 %)	8 (31 %)	3 (12 %)	26 (100 %)
Personal success at work	0 (0 %)	1 (4 %)	3 (12 %)	10 (38 %)	12 (46 %)	26 (100 %)
Affiliation with the company	1 (4 %)	0 (0 %)	4 (15 %)	9 (35 %)	12 (46 %)	26 (100 %)
The success of the company	1 (4 %)	0 (0 %)	2 (8 %)	9 (35 %)	14 (54 %)	26 (100 %)
Challenges and sense of achievement	1 (4 %)	0 (0 %)	1 (4 %)	6 (23 %)	18 (69 %)	26 (100 %)
Being a positive contributor to society	1 (4 %)	0 (0 %)	2 (8 %)	16 (62 %)	7 (27 %)	26 (100 %)

Owners' opinions on what motivates them

	Strongly disagree	Partially disagree	Neutral	Partially agree	Strongly agree	Total
Base salary	3 (8 %)	3 (8 %)	14 (38 %)	11 (30 %)	6 (16 %)	37 (92.5 %)
Performance-based compensation	5 (15 %)	2 (6 %)	15 (45 %)	9 (27 %)	2 (6 %)	33 (83 %)
Flexibility at work	1 (3 %)	2 (5 %)	7 (19 %)	12 (32 %)	15 (41 %)	37 (93 %)
Status and carreer options	9 (24 %)	5 (14 %)	15 (41 %)	7 (19 %)	1 (3 %)	37 (93 %)
Personal success at work	1 (3 %)	2 (5 %)	5 (14 %)	16 (43 %)	13 (35 %)	37 (93 %)
Affiliation with the company	0 (0 %)	0 (0 %)	5 (13 %)	11 (29 %)	22 (58 %)	38 (95 %)
The success of the company	0 (0 %)	0 (0 %)	1 (3 %)	11 (29 %)	26 (68 %)	38 (95 %)
Challenges and a sense of achievement	1 (3 %)	0 (0 %)	1 (3 %)	12 (32 %)	24 (63 %)	38 (95 %)
Being a positive contributor to society	1 (3 %)	0 (0 %)	8 (21 %)	13 (34 %)	17 (45 %)	39 (98 %)

A7 – OSLO Shipping Index

Figure 20 – OSLO Shipping Index (Oslo Børs, n.d.)