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Tuomas Eliala

# CEO COMPENSATION AND FIRM PERFORMANCE

Evidence from the S&P 500 1993–2016

Master's Thesis in
Finance

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**UNIVERSITY OF VAASA**
**Faculty of Business Studies**
**Author:** Tuomas Eliala
**Topic of the Thesis:** CEO Compensation and Firm Performance: Evidence from the S&P 500 1993–2016
**Name of the Supervisor:** Timo Rothovius
**Degree:** Master of Science in Economics and Business Administration
**Department:** Department of Accounting and Finance
**Major Subject:** Accounting and Finance
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**ABSTRACT**

This master's thesis paper examines the relationship between CEO compensation and firm performance in the United States stock market S&P 500. Corporate governance has been an essential topic in an accounting and finance domain related to business studies and academic publications during the past decades. Executive, especially the CEO, compensation has growth rapidly these days, which has caused criticalness of the justification among shareholders and stakeholders. In particular, the compensation of the CEO has been heated discussion among academic and business world. The importance of corporate governance is growing more extensive, and the relationship between principles and agents in business is tightly bounded.

The purpose of this thesis is to examine the effect of the CEO's compensation on firm stock performance in S&P 500 firms from 1993 to 2016. The thesis uses executive compensation data of the Compustat Execucomp database and S&P 500 firms' financial data from the same database. The paper aims to to find how CEO compensation products, salary, bonus, and other compensation, are associated with firm performance. Additionally, the paper strives to find how CEO compensation was associated in 1993–2003 and 2004–2016 periods and compares those two characters results. Moreover, the thesis examines the pre-crisis period 2004–2006 and the crisis period 2007–2009 outcomes. The study finds a negative relationship between executive compensation and profitability, as measured by ROA and ROE. There is found a negative association with firm value, as measured by Tobin's Q, and managerial compensation. The results show that applying corporate governance; a high valued CEO decrease firm performance or value.

**KEYWORDS**: corporate governance, executive pay, CEO compensation, firm performance

# 1. INTRODUCTION

In this master's thesis, I investigate CEO compensation and incentives and how they associate to firm financial performance in 1993–2016. The paper discusses CEO compensation; however, the discussion covers as well as another executive's compensation as a whole subject. The duties of the executives are developing the firm strategy and business model, as well as; they oversee the operative management of the corporation. Executives require monetary compensation for their work as do other employees. Instead, executive compensation is more considerable than daily management incentives, yet the determination of the packages might be divergent. The terms of compensation packages must obey their level and structure to attract, retain, and motivate experienced executives to gain shareholder or stakeholder value as high as possible. The compensation program has accepted by the compensation committee and the independent directors of the board. The common impression of executive compensation is that it has spurred to executives behave in a short-term goal instead of long duration in firm success. (Larcker & Tayan 2016: 211.)

CEO, along with executive compensation, has shown a remarkable association with firm profitability and valuation. Mehran (1995) found that executive compensation can improve firm performance when they use equity-based and the portion of shared held the executives. Additionally, Mehran (1995) found that the form of the pay is prior than the level of compensation to drive executives to upturn the value of a business. Additionally, Brick, Palmon, and Wald (2006) paper support that executive compensation is highly associated with the monitoring and effort needs of executives to confirm value growth. Furthermore, the paper discoveries a significant positive association among CEO and director compensation which can due to the omitted variables or to overcompensation of executives and managers related to weak monitoring Correspondingly the, papers by Bebchuk, Cremers, and Peyer (2011), likewise Correa and Lel (2016) found rather a negative association than a positive association among firm performance and CEO compensation. Besides, a paper by Khan and Vieito (2013) did not found a notable relationship between CEO compensation and firm financial performance.

Interesting of this study is to find out how CEO pay is associated with firm performance measured by ROA, ROE, and Tobin's Q. The paper uses primarily the most common features of executives' compensation, which are CEO salary and bonus. Additionally, the third variable to define CEO compensation is other compensation variable which consists

of, for example, employee benefits and other personal benefits, the share of payments, life insurances, tax allowances, cut-price share acquisitions, consulting benefits, and rewards for charitable awards programs. (Compustat Execucomp 2018.)

## 1.1 Purpose of the study

The purpose of the thesis is to examine how CEO compensation effect to stock return association in S&P 500 stock exchange. I am using annual data from the S&P 500 exchange and executive compensation database for the period from January 1993 to December 2016. The time period is 24 years and I aim for investigating how the executive compensation association to firm financial performance is changed with time. The paper uses the longest possible period for CEO compensation which is provided from the Compustat Execucomp database. As in the research papers what this piece of work investigates, there are differences between the CEOs and the companies' results at the beginning of the review period and correspondingly the last part has different results among compensation and firm performance. It depends on issues as time or location (e.g., Mehran 1995; Correa & Lel 2016; Tarkovska 2017). However, the research papers are described in the literature review in the fourth chapter. This paper looks at is there found link between CEO's compensation in firm financial performance. I am investigating how well executive compensation reflects firm financial value and profitability using statistical methods.

Executives can be related to superheroes who work hard, and they are paid well for that hard work. They are chosen to their position after the specific experience, education, and characteristics which top-level executive's need. They are chosen from many candidates and that's why they might be meriting to get high remuneration of extremely challenging duty, and the time what they spend to develop the firm financial expansion to the best of their ability. Salas (2010) investigated how managerial entrenchment affects to stock return. Entrenchment can be defined as an executive who has more power and is more valuable prestige than other managers. They might have a long career in a specific firm and has improved a company success with their contribution. Managerial entrenchment is hard to measure but it can be related to prior studies. For example, CEO age, CEO tenure and CEO career experience can be used to be proxies for entrenchment. (Salas 2010.)

## 1.2 Research problem

A research question in this paper is how executive compensation is associated with the condition of firm financial performance in the United States exchange market S&P 500. This paper attempts to find the answer to this question and find their affiliation between those two constituents. Executives reward might be indeed a vast and thesis tries to solve is there inherently positive, negative, or no association between those to economic success. The paper attempt to look for an answer can large executive compensation package create value to share- or stakeholder.

This paper research problem originates the possible association between those two possessions where executive compensation has been called unreasonable into question when an economic stroke has abated, but companies' executives still are rewarded in a huge compensation package. (Bainbridge 2012.)

## 1.3 Structure of the study

Structure of the paper is following. Next chapter after this introduction part is background and motivation where corporate governance and executive compensation concepts are covered at a general level. Following part includes information on academic publications which are related to this paper research theme. Additionally, the hypothesis is introduced in that chapter. Following is the data and methodology description part where is explained the empirical research instructions what is used in regression analysis. The next part contains empirical results and findings of the research. There is the first section where three different independent variables are investigated separately, and the second sections use different periods to investigate results and differences in those outcomes. To addition, the results in the pre-crisis period 2004–2006 and the crisis period 2007–2009 is shown at the end of the paragraph. The last section is a summary and conclusion where ideas are put together. After that is the reference list.

# 2. BACKGROUND AND MOTIVATION

Four covered topics are related to this paper subject. They are corporate governance, agency theory, executive compensation, and chief executive officer. To addition, the last chapters are about criticism of the study and the impact of cultural differences and compensation growth. The last chapter includes two figures, which illustrates the impact of compensation, cultural differences, and compensation growth. The following part explains these topics, which are essential to the paper background and motivation.

## 2.1 Corporate governance

Used definition of corporate governance resides with the established composition, legal rules, and best practices that regulate which assembly of delegates is authorized to make specific decisions, how the assembly of delegates are chosen, and the standards that ought to direct decision making. Principles of corporate governance descend from multiple sources, and as a result of this includes multiple forms. Governance principles are based on rules of practice, which is based on social norms, laws enforced privately through reputational sanctions or economic processes. Corporate governance target is to make sure that the right questions get questioned and that checks and balances in a spot to secure that the answers mirror what is best for the making of a durable, maintainable and renewable value of the company. Best practice means corporate governance methods which are merely aspirational. Part of corporate governance comes from the hard law of corporation statues and judicial opinions which are enforced by legal sanctions. (Bainbridge 2012: 2.)

On the whole, bases as mentioned above, cooperatively identify the ends the firm is founded to pursue and the purpose why they carry on business. The corporation determines the contents of rules and practices for making a decision on corporate affairs, how rights and responsibilities are disseminated among different constitutions, and how they monitor the performance of those constitutions. Altogether corporate governance contains tools, methods, and affairs by which organizations are controlled and directed. (Bainbridge 2012: 2.)

A research paper by Bebchuk, Cohen, and Ferrell (2009) examine the importance of corporate governance in firm valuation between the years from 1990 to 2003. They use monthly returns in the S&P 500 market, which includes information on between 1400

and 1800 firms. The paper follows Investor Responsible Research Center (IRRC), which includes 24 provisions and two different governance indices in instruction. Corporate governance is measured typically in a different variation of indices. For example, Bebchuk et al. paper use a six-provision entrenchment index, E-index, which includes staggered boards, limits to shareholder improvements of the bylaws, overall majority qualifications for mergers and overall majority qualifications for concession improvements, shareholder rights plan and golden parachute adjustments. Correspondingly, the second method is G or GIM-index is used in Gompers, Ishii, and Metrick paper (2003). A board-based governance index contains information of 1500 U.S firms in the years 1990–1999 in their paper. They combine 24 different divisions of the same sort characteristics as E-index contains.

## 2.2 Agency problem

In this chapter, I define a problem in corporate finance, which has a strong influence on corporate governance how to contend with the problem of managerial compensation and performance measurement. The agency problem is defined that the firm's managers might have personal incentives which might deviate shareholders principle to maximize assets' value. Managers personal interest and exterior investors financial objectives can be obsessed with a different kind of wealth maximizing. For example, principals are seeking to maximize their wealth when correspondingly agent attempt to get personal benefits what might be, for example, an expensive fancy company car. In agent problem, shareholders are assorted to be owners of a company, and managers are assorted to be employees of the company. The issue of an agency problem is that the manager has the power to affect the firm financial performance. Top management should try to ensure that middle management and employees have the right enticements to discover invest in profitable projects (Brealey, Stewart & Allen 2017: 302).

Jensen and Meckling (1976) proposed the first invention of agency theory in their paper. They investigated the theory of managerial behavior, agency costs and ownership structure. Especially, CEO compensation for incentive reason association with firm performance was their specific interest in the paper. The paper finds out large firms' tendency to use equity-based compensation or bonuses models which are connected to performance. Large firms can be expected to get more that kind of rewards. Additionally, executives of large firms seem to receive a higher amount of compensation compared to small firms' executives. (Jensen & Meckling 1976.)

Bealey, Stewart, and Allen (2017) determine five intentions why it is challenging to develop incentives correct shape through a sizeable organization. First, top management cannot analyze every project during the year. They have no method to know enough details of each one projects to make intellectual select. Second, the investment project configuration includes investment decisions that top executives cannot monitor every alternative that was considered, which can also be rejected by the project financier. Third, plenty of capital investment does not appear in the capital financial plan. For example, several projects contain research and development, employee tuition, and advertising expenses considered to expand a market or acquire the contented customer. Fourth, operating management may carry extra inventories of raw material what they will not have to worry about laying in stores. They might buy new equipment through the firm has previous devices which might be proper to use. Several minor acquisitions accumulate noteworthy real money. Fifth, the executive might be a target to the equivalent types of attractions that afflict a lower level of organization (Brealey et al. 2017: 302–303).

The main issue is in agency theory, how can firm owners do monitor over company management. A shareholder is challenging to control what the management employee is undertaking. A firm can use various type methods to control over management, but some methods are difficult to exercise because of the high costs. The methods can be incentive schemes and contracts, remuneration contracts, and exploit their voting rights. (Solomon 2004: 17–21.)

## 2.3 Executive compensation

Executive's primary duties are developing the firm strategy and business model and oversee the operational management of the corporation from which they require monetary compensation for their effort. Structure of the compensation needs to be appropriate in term of their level and composition to arouse, maintain and inspire authorized executives to increase shareholder and stakeholder worth. The compensation program is permitted by the compensation committee and the directors of the board. Compensation plan discussion is done in cooperation with the human resources and finance departments and external compensation consultants. Sovereign directors of the board votes to compensation packages to be accepted. Equity-based compensation structures need to be obliged to follow the ayes of shareholders. In the annual report is explained the further

information of the compensation plan, which includes the fair value of the total compensation aimed at the executives in the last three years. There is information on values realized by concerned executives through the realized or conferring of equity-based remunerations. The challenge of the compensation program is to make sure that the decisions made by the CEO or the other executive are in the long-term interest of shareholders. The precise quantity of compensation to be accepted is the smallest quantity it needs to fascinate and maintain a skilled executive. However, the labor market for senior executives does not represent to be excellent efficient since there is possibility difference between supply and demand. Additionally, there might be trouble in estimating the excellence of applicants. Then a board has the challenge to recognize the right executive and market compensation what needs to fascinate those applicants. Furthermore, a member of the board may arrange deficient control when the compensation committee is planning frame of compensation. The problem can be because of an absence of autonomy, deficient engagement, or deficiency of authority comparative to the executive. Because of those issues, the executive compensation package might be distorted in term of both size and structure. (Larcker & Tayan 2015: 211–2013.)

Executive compensation appeared a contentious issue in the last decade. Many business stakeholders as politicians, regulators, an activist shareholder, and host of other opinion makers and ordinary citizens in common with grumbled corporate executives who are getting ever wealthier while the economy grappled. For instance, American politicians have criticized chief executives who are earning in 10 minutes more money than regular employees gain in a year. Recently executive compensation regulations have become tighter than in past decades. However, one can have criticized that is these arrangements addressed to actual corporate governance failures or is they purely a provision to majority reprimand. One can moreover question whether the latest controls are expected to be successful (Bainbridge 2012: 109).

The polemics of executive compensation begin from the 1930s in the U.S business economy. The Securities and Exchange Commission (SEC) has enhanced the control of executive compensation further the present from the 1930s economic recession. The 1930s recession invite criticism, which was primarily targeted for the compensation paid to executives of the industrial or financial high-flyers. A million-dollar compensation was considered to be limit what no one can be more worth in a year. The executive compensation growth remains unchanged until the 1980s when the lines of thought turn inside out by rapid economic growth and high inflation rate. At that period from the 1940s to end of the 1970s high marginal earnings taxes aided to reduce the total largeness of

executive compensation. The top-level executive would pay more than 70% of taxes of his or her incomes. A compensation structure change from fixed salaries and annual bonuses to a variable pay bound by long-term accomplishment goal and stock options. Fork out an increase above 10 million dollars in the 1980s. However, in the 1990s and 2000s, the endemic assumption of stock options intensifies the issue, and the executives' pay out exceeded a billion mark in that period. (Larcker & Tayan 2015: 212–213.)

Nevertheless, during the financial crisis of 2008 and the subsequent recession, executive compensation standard declined. Regardless, after the end of the downturn, the upward tension begins again and pay out standards achieved recent peaks. (Larcker & Tayan 2015: 212–213.)

Jensen and Murphy (1990) examine pay-performance and top-management incentives relation. They include a pay-performance observation salary, options, stockholding, and discharge. Their sample period is from 1974 to 1986 and data of over 2000 executives listed in the Executive Compensation Surveys. Surveys include information on the CEO of more than 1000 companies for a total of roughly 10 400 CEO-years of data. Data is from the U.S firms. The paper result in a CEO and pay-performance relation shows that CEO wealth turns into 3.25 dollars for every 1000-dollar change in shareholder wealth. However, as the research by Jensen et al. (1990) and Yarram and Rice (2017) strengthens for an optimal contracting concept where the market for the management-labor market is reasonable, and the executive reward is solved by a set of financial issues relating to firms and CEOs.

Murphy (2003) investigate firms compensation packages nine years' time period from 1992 to 2001. He defines in this paper "new economy" firms which are small in turnover, but they have high market value. Besides, Murphy (2003) state that those firms tend to count on equity-based compensation. Notably, they offer in high likelihood stock options or restricted stock to executives whereas "old economy" firms abide by traditional compensation products.

Executives compensation includes bonuses, non-monetary rewards, or other financial compensation given to top-level executives for their loyalty and achieving the given duties and responsibilities. Additionally, executive compensation is what they will reward; then, they achieve appointed results for the corporation. There are several variant forms to consist the offset such as cash payoff, annual bonus, option grants, retirement packages, executive perks, and long-term incentive plans. The cash payment is annual

salary what executive regularly get in the year. It is imposed at the beginning of the year. The annual bonus is supplementary payment, which is in most cases in the form of the cash award is the annual firm performance surpass specified financial and nonfinancial target. Its amount is disclosed as a percentage of fixed salary and can contain an assured lowest and highest amount. The option grant is derivative, which is defined as the right to buy or sell shares in the future at a fixed exercise price. A stock option is often equal to the stock price on the grant date. Option grants have entrusting requirements and expire after ten years. A firm might implement a requirement to hold requirements as hold to retirement or hold past retirements. These requirements are aimed at long-term ownership and are proposed to support the executive's interests with the interests of shareholders. Additionally, option grants can be restricted stock or performance shares units which the first is a straight grant of shares that are controlled in term of transferability and are the issue to time-based entrusting timetable. The second of previously mentioned is equity awards, which are granted merely after specific financial or nonfinancial targets are reached during a three-to-five-year term. The rest of the executive compensation package can be perquisites, contractual agreements, or other benefits. (Raviv & Sisli-Ciamarra 2013; Larcker et al. 2015: 214–215.)

Coles, Daniel, and Naveen (2006) paper examine managerial incentives and risk-taking in the U.S firms in time 1992–2002. They find that management compensation is associated with higher sensitivity to the volatility of share prices, encouraging firm key people to accept risky investments. Furthermore, adjusting the sensitivity of CEO wealth to performance (delta), using modeling and econometric solutions for the endogenous response consequences of company risk and policy decisions they discovered the higher sensitivity of CEO wealth to stock volatility (vega) implements riskier policy decisions investing more to research and development and investing less in property, plant, and equipment. Moreover, after adjusting vega, management seems to concentrate on fewer business areas and higher leverage. (Coles, Daniel & Naveen 2006.)

Executive compensation, which is structured and implemented by the board of directors and compensation committee, is influenced by the compensation strategy. That is based on the legislation of executive compensation, public opinion, and the opinions of the company's personnel. Compensation level and structure must be personalized for the CEOs individual characteristics as well as firm features. Other influences defining the level and structure of CEO compensation are monetary benefits and living environment. Companies that are in contaminated, excessive crime level, or nasty geographical position pay higher compensation to their CEOs. However, the likelihood to pay higher

compensation is more significant when the CEO is hired outside, and when the CEO has short-term career concerns. One of the most typical conducts to evaluate executive compensation plan is to pay versus performance contrast. It helps firms to detect whether their CEO is overpaid or not. The method to detect that is to look at the change in annual executive pay change and compare to the annual stock price. In other words, with the executive compensation change in reward goes over the change in share price, the executive compensation will be considered as an overpayment. (Deng & Gao 2013; Becker 2006.)

Likewise, the alternative to pay versus performance method to estimate CEO compensation proposal is to liken to his or her peers in the equivalent industry. While the compensation level of CEOs for market leaders and firm founders can be slightly higher in contrast. However, executives or managers compensation levels in the same industry are comparable. In other words, firms typically admit higher compensations for the founder of the corporation or a high-class CEO than other executives or managers. On the other hand, if an executive who is not the founder of the firm and earning as much compensation than the founder, he or she can be denoted to be overpaid. (Bolton, Mehran & Shapiro 2015.)

## 2.4 Chief Executive Officer

A Chief Executive Officer (CEO) is the top-level executive who has a responsibility of firm daily leading and who do major corporate decisions making. Additionally, a person who be the leader of the overall operations which serves as the most critical communication point between the board of directors and firm operations. A CEO is not only always executive but also occasionally chairman of the board. When all investors, lenders, customers and other shareholders desire whom they would want to be a CEO, they likelihood desires he or she to be executive who forecast the upcoming events and lead the firm appropriately. So, people want the CEO who is capable of superior quality, experience, reserves, incentive, and influence to keep the firm prepared for change and guide the substantial advantage from changes. He or she needs to be sufficiently authoritative to meet expectations and liable to secure it is done correctly. The main challenge for the all corporate governance member is to secure that the choices made by the managing directors are in the long-range interests of the shareholders. (Monks & Minow 2011: 354.)

Firms have a request for skilled a CEO who can manage a business at the top-level. The labor market for chief executives is the place where supply and demand of the virtue of ability are balanced to find a person who handles these responsibilities correctly. So, in order to the selection of the CEO to be done correctly, information need be open on the demand of the firm and the virtue of the ability of the persons applying to perform in the top-level executive characters. (Larcker et al. 2015.)

CEO pay is made up typically from two components: base salary and annual bonus plans. Base salary is formed over general industry salary surveys which are augmented by detailed analysis of selected industrial or market users. The surveys are arranged, for instance, a firm size which can be based on turnover or market value. Nonetheless, CEOs base salaries are essential constituents of the CEO contract of employment. The fact is that even the base salary should be fixed, risk-averse CEOs will prefer a demand for higher wages to base salary rather than goal bonus or inconstant compensation. Annual bonus plans are made up for profit-aiming firms' executives for a fiscal year. They are paid based on an annual performance targeting to motivate top executives to achieve organizational performance for a year. (Murphy 1999: 2497–2499.)

Nevertheless, grandeur and dominance of CEO bonuses, they are often articulated in the firm proxy report on flimsy grounds. CEO bonus plans can be sorted in three ways: performance measures, performance standards, and the arrangement of the pay-performance association. However, subject to the payment of the bonus is that at least the performance requirement is reached. Performance measures are presented as a proportion of the performance objective standard or target bonuses. Those are granted for reaching the performance standard. (Murphy 1999: 2497–2499.)

Additionally, granted bonuses have an upper limit, which is a proportion or numerous of the target bonus. The scope among the least and upper limit reward is considered to be the incitement district where additional expansion in performance reflects additional enhancement in bonuses. (Murphy 1999: 2497–2499.)

Morse, Nanda, and Seru (2011) investigate compensation contracts rigged by powerful CEOs in the U.S in the time period 2001–2003. They present that the board of director's responsibility is to counsel and observe managerial directors working in a way that causes better shareholder safety reducing agency problems. When a board is comparatively weak, the CEO can exploit primary leading position in the firm. Correspondingly, active board, and stronger governance between other aspects reduce powerful CEO drawback.

Additionally, a powerful CEO, which is besides a member of the director, can readily be self-seeking executive. Morse et al. (2011) find out that powerful CEOs has a more extensive salary and returns from the rigging. Dominant CEOs are an insensitive stage to rig compensation contracts against a weak board.

## 2.5 Criticism of the CEO compensation

CEO incentive has caused criticism among shareholder and academic discussion. They have represented CEO pay being dedicated to the absence of suitable incentives for a better result, and relevant take the consequences for the pitiable result. Additionally, reducing CEO pay levels have been suggested by the shareholders and academic discussion. The proposed alternative for CEO pay is in terms of increasing the relationship between pay and performance, for instance, using the form of stock options. (Murphy 1999: 2515.)

After the economic failure in 2008, a new period of executive compensation instigated. The disaster of notorious investment services caused the economic failure as Lehman Brothers, Merrill Lynch, Bear Stearns, and AIG. The compensation authorities identified that executive compensation was both the sign and the cause of the uncertainty that occurred in the financial sector. Consequently, executive compensation got increased attention, which caused an incredible level of involvement by the federal government in regulating the structure and disclosure of executive pay. Primary to be concerned by the new regulation, the Emergency Economic Stabilization Act of 2008 and the American Recovery and Reinvestment Act of 2009, were associations that were obtaining financial support through the Treasury Department's Troubled Assets Relief Program (TARP). They turn out to be the issue to numerous remarkable of gradually an aggressive constriction on CEO compensation. However, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Act) was authorized into law that had a straight and noteworthy influence on the executives, directors, shareholders, and publicly traded corporations. The Acts have influenced significantly to requirements connected to executive compensation and corporate governance, i.e., the discovery of mistakenly granted compensation, executive compensation bulletin, and internal pay capital, bulletin observing executive and director hedging, polling by brokers, CEO duality and compensation committee independence. To conclude, firms have been relatively permitted to select the CEO compensation quantity and construction, but after the recent events, restrictions have been imposed on it. (Schneider 2011.)

Tosi and Gomez-Mejia (1994) investigated CEO compensation monitoring and firm performance in the U.S market in the period 1982–1986. Their data is from the Compustat database. Fama (1980) examined agency problems and the theory of the firm where a common consideration for monitoring practices is that it has a positive connection with firm performance. Rivalry among companies coerces into doing intensive censoring the achievement of the whole group and separate managers. Additionally, Fama (1980) states that the incentive problems to be because of decision making in a firm is delegated to executives who are not the shareholders of the firm. Executives come up against restraint and prospects offered by inside an external surface the company by the marketplace. Respectively, Tosi and Gomez-Mejia (1994) found demanding monitoring or relying solely on monitoring might have disadvantage effects. Tosi and Gomez-Mejia (1994) discovered intense monitoring had hesitated the alignments of agent and principals' interest, which consequences decreasing returns from monitoring. Monitoring mostly appears operating with fixed and conditional incentive following the interest of the executive and shareholders. (Fama 1989; Tosi & Gomez-Mejia 1994.)

## 2.6 The impact of cultural differences and compensation growth

Locations, with comparable economic structures and there are regular transmissions of expatriates, can use combined an average of expatriate compensation package into one united area for the intention of making the balance sheet adjustments. This combination method permits the firm to make retrenchment adjustments which effect in significantly lesser depreciation than a standard balance sheet and is inexpensive than the parent company scheme. However, those firms that use do not put the overseas premiums to the compensation package, below the way of thinking that the general level of cultures in those countries are parallel. Think about the business and cultural discrepancy among Denmark and Norway. They are indisputably vital but more challenging is to adjust the expatriate assignment between the U.S and Japan. Besides, countries that have a remarkable volume of transfers among countries, then the level of compensation differences increases. (Lomax 2001: 215.)

**Figure 1.** Median CEO compensation in 2013 for large companies. Brealey et al., 2017: 307.

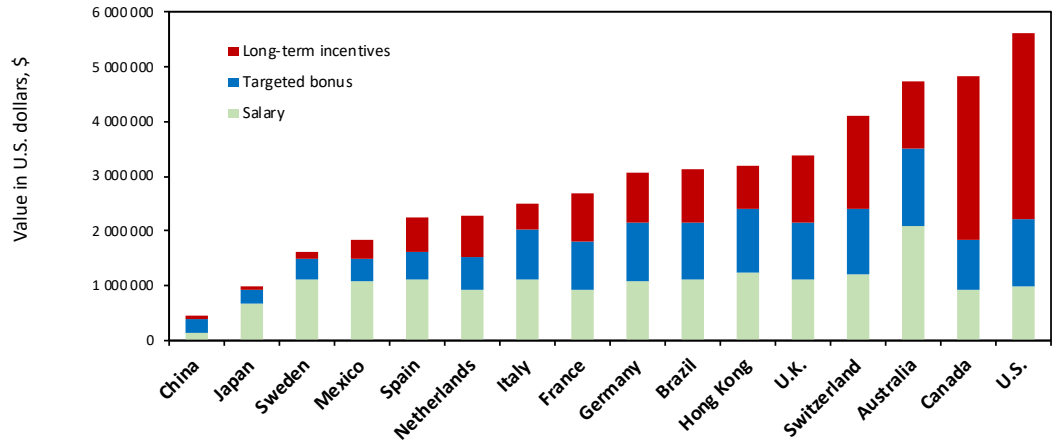
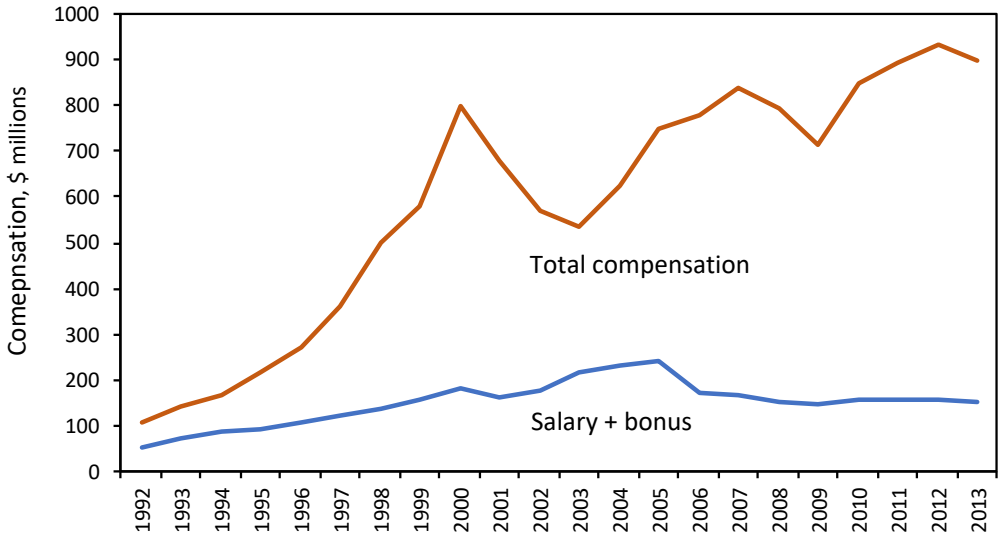



**Figure 2.** Evolution in compensation of the CEOs of firms in the S&P 500 Index in 1992–2013. Brealey et al., 2017: 307.




The compensation level and structure of the managing directors vary between countries which are presented in figure one. Comparing the median pay of top executives in large firms, the U.S. has had remarkably higher levels of CEO pay, as they receive two times

the pay of France CEOs and over ten times the compensation of Chinese CEOs. A noteworthy portion of the CEO compensation in the U.S. and Canada come from variable bonuses, stock options, as well as long-term incentive plans and they, are comprehensively dependent on performance, whereas the Eurozone compensation appears to be composed typically of base salary and target bonus. Additional discovery is that Chinese and Japanese CEOs get notably compensated less than CEOs in other countries, which might be connected to the management ethos in those countries. However, managerial director compensation in the U.S decreased during the 2008–2009 financial crisis, which is shown in figure two. There has been a steady upward trend in compensation. Managerial director growth has come mostly from the pay of stocks and options. CEO pay has got great distress about excessive pay for the moderate result. Highly rewarded CEO may leave behind problematic and floundering firms after an announcement of causeless excessive compensation. Excessive compensation often reflects more significant problems with the firm's economic situation. As you can see in the second figure below, compensating levels decreased around global recessions in 2001–2002 and 2008–2009. (Brealey et al. 2017: 307–308.)

# 3. LITERATURE REVIEW AND HYPOTHESIS

The subsequent literature review paragraph includes details of the following topics: corporate governance and financial performance, executive compensation, and firm performance, and CEO compensation and firm performance. Additionally, hypotheses are shown after the literature review part. The thesis contains the null hypothesis, the first alternative hypothesis, and the second alternative hypothesis which are shown in the last chapter.

## 3.1 Corporate governance and financial performance

Bhagat and Bolton (2008) investigate corporate governance, especially the relationship between corporate governance and corporation financial performance. The sample period is 1990–2004 in the U.S stock market. The data consists of control variables, other endogenous variables, performance variables, and other variables. They use the annual accounting data where performance measure is ROA and Tobin's Q. The governance variables are a different type of indices or variables as CEO chair-duality, CEO ownership, board size, CEO age, and CEO tenure. The indices were GIM and BCF, which measure the goodness of corporate governance. The paper includes the endogeneity of the relationship between corporate governance, capital structure, and corporate ownership structure. They find that governance indices, stock ownership of board members, and CEO-chair split-up are significantly positively associated with firm financial performance.

Additionally, the paper Bhagat and Bolton (2008) found that the likelihood of regulated management turnover can improve the stock ownership of board members. The paper investigates, and it shows a negative association to firm current and the time to come performance. Altogether, the paper states that enhanced corporate governance is associated with current and future operating performance. However, the time to come stock market performance is not associated with either a positive or negative association to any of governance characteristics.

Huson, Parrino, and Starks (2001) found that a CEO was firing for the evidence of reduced performance, which has become more widespread. They discover that the recurrence of obligatory CEO turnover was doubled between the period of 1983 to 1994 when they compare it to the likelihood between the years from 1971 to 1982.

Additionally, Huson et al. (2001) found that when a CEO was designated after mandatory CEO turnover, the new managing director was more probable to be recruited from outside of the firm in the second research period. However, they examined that modifications in the strength of the takeover market are not connected by modifications in the delicacy of turnover of managing director to company performance. Huson, Malatesta, and Parrino (2004) investigated a similar topic and focused on managerial succession and firm performance in the U.S in the period from 1971 to 1994. The median heir is a 53 years old personage, and tenure has been around 19 years, and 19% of just hired CEOs are externals. They investigated the period after managerial director turnover accomplishment enhancements appeared to follow firms that hired external CEOs. So, investors can interiorize managing director turnover notice as performance developments.

Gompers, Ishii, and Metrick (2003) examine in their paper governance index association to firm value. Higher G-index value strikes good corporate governance. They use Tobin's Q as a measure of financial performance. Their U.S data sample period is from 1990 to 1990. They find a positive connection between corporate governance and firm value. To be precise, they compare firms with weak and strong shareholder rights and find that substantial shareholder rights lead to advanced firm valuation, sales growth, and inferior capital expenditure. Correspondingly, weak shareholder rights lead to inferior revenues, inferior sales growth, higher capital costs, and an upper quantity of corporate acquisitions. The difference between weak and robust shareholder right to firm performance is 8,5% by a year. Additionally, the index upturn is related to a lower value for Tobin's Q. That amount upturns until the end of the sample period and associated lower value for Tobin's Q.

Bebchuk et al. (2009) investigates corporate governance related to firm value using the IRRC and the governance index in the sample period 1990–2003 using the U.S stocks data. They use an advanced version of the IRRC and governance index where they add them entrenchment characteristics to their version. They found that development in corporate governance is associated with a sharp decrease in firm value. Furthermore, higher governance index value causes substantial negative abnormal revenues. They find that entrenchment provisions are negatively associated with firm valuation. Additionally, they say shareholder and their consultant to be a better focus on the main corporate governance provisions that highly matter for firm value.

Erkens, Hung, and Matos (2012) examine corporate governance in the financial crisis between the years 2007 and 2008. The sample consists of 296 finance companies which

are worldwide from 30 nations. They find out that financial companies that have an independent board and greater ownership of institutional possession experience reduce the performance within the financial crisis. The paper uses a buy-and-hold strategy to measure stock returns. The higher level of risk-taking explains the inferior stock returns by institutional ownership, but they cannot explain the reason behind that. However, it can be settled by the amount of equity. A paper shows that firm performance may change under a financial crisis. Altogether, the paper states that companies with a more significant number of independent boards increased equity significantly measured by total assets in time period 2007–2008.

Ammann, Oesch, and Schmid (2011) examine corporate governance and firm value using an international point of view. They have a sizable dataset which consists of information of 22 developed countries, 6663 observations and 2300 firms in the time period 2003–2007. The proxy to measure the quality of corporate governance is Governance Metrics International (GMI) where data is collected from the U.S and non-U.S firms altogether reaching the MSCI Worlds and the MSCI EAFE index. The paper is searching relationship among firm-level corporate governance and firm value. They developed an index of the set of 64 governance characteristics which are equally weighted in research.

Additionally, Ammann et al. (2011) have two alternative indices which are slightly modified versions of the first index. The results state that internal corporate governance and firm value have a statistically significant positive association. Consequently, the finding supports an idea that decent corporate governance might help with agency problems which affect positively to firm value. Furthermore, the paper investigates a corporate's social responsibility. They find a strong positive relationship among a corporation's social responsibility and firm value. Besides, the implementation price implementation of corporate governance is smaller than the monitoring benefits and developing advanced cash flows accumulating to shareholders and lower costs of capital.

## 3.2 Executive compensation and firm performance

One of the earlier researches of executive compensation is a research paper by Mehran Hamid (1995). His study examines executive compensation structure, ownership and firm performance between the years from 1979 to 1980 The data consists of 153 randomly selected manufacturing firms. He found that firm performance is positively associated with the proportion of equity held by executives and to the proportion of their

compensation that is equity-based. He uses Tobin's Q and ROA to measure firm performance. Under these circumstances, compensation affects the CEO's motivations in methods that have a significant impact on the company's efficiency. Additionally, he finds a shred of intercessor evidence that supports incentive remuneration and he recommend the form of the compensation package is more important than the level of compensation to drive executives to increase firm value. Altogether, the paper state that executive compensation is a virtuous subject and it can growth firm performance when one uses equity-based and the percentage of shares held by executives. Moreover, the paper results endorse the present compensation structure that is gradually focused on equity-based compensation and other durable executive pay policies even data is comparatively old.

Leonard Jonathan (1990) paper investigates executive pay and firm performance in 1981–1985. The paper sample consists of 439 large U.S firms' data. Firm performance is measured by ROE in the paper. The paper mention tournament theory which states that salary or compensation differences are reasonable because of absolute differences are more reasonable than percentage differences. It is important to create better heterogeneity at the firm higher management level. The author discovers higher positive association among long-time compensation packages and ROE than firms without such compensation packages. Up to the end of the sample period, large firms have agreed compensation packages introduction. Today is more common that firms have adopted incentive plans to managers than in the 1980s. Overall, compensation plans are an important method for motive executives to increase firm performance.

A study by Kato and Long (2006) examines executive compensation, firm performance and corporate governance relationship in China exchange market where the sample firms are listed in the Shanghai and Shenzhen stock markets. They focus on the paper is privately and state-owned companies. The research period is from 1998 to 2002. They found statistically significant sympathies and elasticities in China of annual cash compensation including salary and bonus for a top executive in regard to owners' value. To put it more accurately, sales growth appears to be associated positively with executive compensation. However, Chinese executives are punished for unprofitable performance and they are punished for lessening returns nor compensated for growing returns. Additionally, state-owned firms decline the pay-performance relation for executives due to agency problem to be more challenging to concerned firms.

Bebchuk et al. (2011) investigate in their paper how does the CEO pay slice (CPS) affects to firm financial performance. More specifically, they examine the value, performance and the behavior of public firms' and the importance of the CEO and other executives. The CPS variable definition is a percentage of the total compensation to top five executives which goes to the CEO. Compensations can be salary bonuses, other annual pay, the total value of restricted stock granted that year, Black and Scholes value of stock options granted that year or long-term incentive layouts. They use U.S firms' data between 1993 and 2004. Data includes 12011 firm observation, 2015 firms, and 3256 different CEOs. Their compensation data is provided by Compustat's Execucomp database and other databases what they used is Center for Research in Security Prices (CRSP) and IRRC. They use the panel regression method to determine CPS effects to firm financial performance. Tobin's Q is the main market-based performance measure, and another is the return of asset (ROA) which is an accounting-based performance measure. The CPS is firm-year annually dated data which includes the total compensation of every year. The paper findings are that the CPS in negatively associated to the value of a company measured by Tobin's Q. Therefore, superstar CEOs reduce the company's value. Bebchuk et al. (2011) discover that the CPS negatively connected to profitability which is measured by ROA. Altogether, the paper suggests that too large compensation causes less profitability and valuation of firm measured by Tobin's Q and ROA. Thus, the research states that corporation should be careful to pay too large compensations to executives.

A paper by Correa and Lel (2016) examines the relationship between Say of Pay laws, executive compensation, pay slice, and firm valuation around the world. The sample includes data from 38 countries in time period 2001–2012. Data contains countries like the U.S., the U.K., Germany, Canada, and Japan and they have been accumulated from the S&P Capital IQ (CIQ) database which includes information on global executive compensation in 119 countries. Data is converted into U.S dollars. Say of pay (SoP) laws dummy is used in the paper. When it equals to one it means that for the time period executive compensation is following the corporate law of shareholder right to vote executive pay slice and zero otherwise. SoP laws are defined to be an exogenous shock to find the effect of CEO pay slice to firm valuation. As in Bebchuk et al. (2011) paper total CEO pay is total annual compensation of the top executive and the CEO pay slice is the proportion of the CEO pay of the top five executives. The paper findings are the CEO compensation evolution is inferior in the period following the adoption of SoP laws. The results are more visible to firms with problematic pay practices and weak corporate governance setting in the pre-SoP law period and the executive pay disparity reduce after

SoP adoption is over. The effects are concerted in corporations with high excess pay and shareholder disagree, extensive CEO tenure and less independent boards. Altogether, the paper state that SoP laws are affected to changes in CEO pay policies and the association has a significant effect. Moreover, the paper reveals a negative association between CPS and firm performance. (Correa & Lel 2016.)

Executive compensation is not purely examined in the U.S market instead there are publications of the other continent explorations. A paper by Buigut, Soi and Koskei (2014) considers determinants of CEO compensation in the United Kingdom (U.K) in the years from 2008 to 2010. They include details of the 20 firms in their sample. The used methodology is a multiple regression model. In the paper CEO compensation is positively associated with firm profitability in addition to managing directors pay growth due to the company's performance. It is required for companies to combine firm and individual performance rewards to combat the agency's problems. Additionally, the paper finds that CEO ownership has a positive and significant association to executive compensation. One other association is the percentage of independent executives is associated negatively to CEOs compensation level. The wide CEOs' ownership gives higher wage levels to a base wage, equity compensation, and discretionary compensation. Discretionary compensation means an award what is not planned to be given, but it is given to unexpected success which company achieves. (Buigut, Soi & Koskei 2014.)

Another research of the U.K executive compensation is an article by Al-Najjar, Ding and Hussainey (2016) where they especially focus on the CEO pay slice characteristics in 2003–2009. The study is mostly comparable to Bebchuk et al. (2011) paper. The main difference to Bebchuk et al. (2011) paper is the findings which are on the opposite side. They find advanced CPS has a positive relationship firm performance when they limit the firm-specific characteristics and corporate governance effects. Besides they investigated that CEO duality and large board size variables are associates negatively to CPS magnitude. Altogether, the study gives the impression that executive compensation can be related to executive skills rather than authority and great executive compensation can be valuable.

Comparable an article is Tarkovska's (2017) research where she examines CPS in the U.K between 1997 and 2010. The paper data consist of non-financial firms from the London Stock Exchange (LSE). The paper topic examines the association between CPS and the value of the firms in the U.K. More precisely, they concentrate CPS adjusts the effectiveness of the board performance by inspiring collaboration and unity among board

members. So, the paper shows a negative relationship between CPS and firm performance measured by Tobin's Q. A dynamic generalized method of moment (GMM-system) estimator is the used methodology in the paper. The empirical analysis data is in panel data form. The study findings are that high CPS cause in high likelihood negative effect on management team's spirit and motivation. Besides, the study suggests that firms do better after the implementing of SoP in the U.K in 2002. A tournament incentive is supported when a subsample is considering the CEOs who age is above 60 years. However, the research result advocates that a high CPS can be used as a tournament incentive for firms in the U.K with the CEOs who can be changed in the short-term. Altogether, Tarkovska (2017) paper supports the importance of studying the executive compensation issue at the board level as well as supporting the recent ideologies of the U.K. corporate governance guidelines. The paper findings are similar to Bebchuk et al. (2011) and Correa and Lel (2014) papers. The results in the U.K and the U.S seems to be in line. Tarkovska (2017) discusses in her paper that the negative association between CPS and company performance might differ the U.K and U.S contexts. Particularly in the U.K is normal to propose the social comparison argument as a significant cause for the negative relationship between these.

Australian researchers Yarram and Rice (2017) paper examines executive compensation between Australian mining and non-mining companies. Especially they focus is at risk-taking, long and short-term incentives. The sample contains details of Australian Exchange (ASX) listed miners and non-miner's companies from 2005 to 2013. They have information on 129 mining and 332 non-mining corporations. They find that larger firms have higher compensation. Correspondingly, profitability is positively associated with total executive compensation. In a negative association, they see the compensation as growth, performance and higher remarkable ownership. In general, Australian corporation pay-performance sensitives are low compared to the U.S. to the corresponding figures. The overall result supports the study for the optimal contracting concept and does not help the managerial power approach. (Yarram & Rice 2017.)

In case to compare the different results of the papers and attempt to explain the reason for those difference. First of all, all the papers have dissimilar data and variables what they use are not exactly identical. Additionally, the studies have different sample time period what they use and different locations, i.e., the U.K or the U.S. When one compare Al-Najjar et al (2016) and Tarkovska (2017) studies and especially tables four and six, one can see that they have different methodology and variables used in their regression analysis. Moreover, the sample size and sample periods are different in those papers. To

be more precise, Al-Najjar et al. (2016) paper limits the firm-specific characteristics and corporate governance effects which may affect to get results what is aimed to get a positive association between the CPS and firm performance.

## 3.3 CEO compensation and firm performance

Brick et al. (2006) paper investigate CEO compensation, director compensation, and firm performance in the U.S. market between the years from 1992 to 2001. To be precise, the paper researches how excessive compensation for executives and CEOs is associated with company underachievement. The paper efforts to get a piece of evidence is there be found cronyism. Cronyism means an environment of weak governance where managers and executives place their interest ahead of the importance of investors. They use CEO cash compensation, CEO total compensation, director cash compensation, and director total compensation as the dependent variables. The independent variables are firm, CEO, and governance characteristics. A data sample consists of 1300 companies from Standard and Poor's Execucomp and Compustat databases. They measure firm performance using Tobin's Q and ROA parameters. The paper supports that executive compensation is highly linked to the monitoring and effort needs of executives to ensure value growth. (Brick et al. 2006.)

Additionally, the paper discoveries a significant positive connection among CEO and director compensation, which can due to the omitted variables or overcompensation of executives and managers related to weak monitoring. Altogether, Brick et al. (2006) suggest the relationship among corporation performance and overcompensation to be negative. The positive association is found between CEO and director compensation relationship they suggest being due to cronyism. (Brick et al. 2006.)

Sun, Wei, and Huang (2013) research paper examine CEO compensation and firm performance in the U.S. property and liability (P&L) insurance industry in 2000–2006. They use firm performance, the independent variables, as a proxy by efficiency estimated from data envelopment analysis. They use the dependent variable as the natural logarithm of compensation variables: cash compensation, incentive compensation, and total compensation. In the first step of the paper empirical research, they form data envelopment analysis model to evaluate efficiency outcomes, and in the second step, they use formed model to compare the level and construction of CEO compensation and efficiency for the sample. The paper finds a positive and significant association between

firm efficiency and CEO full compensation. Additionally, income efficiency is related more with the CEO cash compensation, and expense efficiency is a more frequent association with incentive compensation. Independent variables are not associated with ROA, which is used firm performance measurement in the academic papers. The reason for that could be the environment of P&L industry. The findings suggest that companies and policymakers focus build optimal compensation packages that inspire the CEOs to increase the shareholder's wealth. The paper members used efficiency as a performance measurement because of the environment of the insurance industry where the insurance claims may take years to resolve, and claims are challenging to forecast. The methodology is more suitable than accounting and financial ratios in the insurance industry because it allows revealing the result of changes in the exogenous environment, which are above managers' control.

Ozkan Neslihan (2011) paper examines CEO compensation and firm performance in the U.K. non-financial firms in the time period 1999–2005. Data consist of 390 firms, 2304 annual firm observations, which are in panel data form. CEO compensation includes salary, bonus, and equity-based constituents. Ozkan Neslihan (2011) uses the GMM-system method which controls unnoticed firm-specific effects, indigeneity of independent variables, and corporate governance variables. Total compensation is defined as base salary, cash bonus, stock options, and long-term incentive plans. Empirical work uses the OLS regression model, where firm performance is measured by the stock return, and Tobin's Q is measured by growth opportunities in the paper. The article outcome shows a positive and significant association among the level of CEO cash compensation and firm performance. To be precise, using natural logarithms of cash compensation and total compensation as the dependent variables. The writer found a positive, statistically significant association between cash compensation and stock return. In addition, a total compensation association with firm performance is a positive but not significant relationship. CEO cash compensation or total compensation related to growth opportunities have no significant association. Furthermore, CEO tenure is related to lower pay-for-performance compassion of option grants, which can point to the conclusion that the entrenchment effect of CEO affects to reduce pay-for-performance sensitivity. In addition, the proportion of non-executive directors on the board is not associated with CEO cash compensation. (Ozkan 2011.)

A paper by Bhagat and Bolton (2014) examines an association among financial crisis and bank executive incentive compensation. They have a sample of the 14 largest U.S. financial institutions in time 2000–2008. The paper states that compensation which is

based on restricted stock and restricted stock options induce to decent results. (Bhagat & Bolton 2014.)

Khan and Vieto (2013) examine the association among CEO gender and firm performance. Data consists of the U.S. market (S&P 1500) firms from 1992 to 2004. They use two sets of the independent variables, which are financial and governance variables. Governance variables are, for instance, CEO tenure and number of board meetings in a fiscal year. Both of those variables are used in natural logarithm forms in the statistical investigation. The paper found out companies with a male CEO seems to underperform compared to those firms who have a female CEO. Additionally, Khan and Vieto (2013) show that a female CEO lead firm incline to be more profitable measured by the return of an asset. Moreover, it appears that the company's risk level is smaller when the CEO is female. However, the study explores risk-taking among genders, but there is not statistically significant evidence between gender's adventurists. Altogether, Khan and Vieito (2013) did not found a link between CEO compensation and firm profitability where the natural logarithm of CEO total compensation was used as the dependent variable. (Khan & Vieto 2013.)

A paper by Shah, Akbar, Liu, Liu and Cao (2017) examine CEO compensation and banks' risk tolerance in period 2002–2008 and 2009–2013 in the U.S. They attention goes pre-crisis and post-crisis financial crisis periods, and they examine how they discrepancy in those periods. The paper investigates the impact of CEO compensation because firms' risk tolerance becomes a severe problem during the financial crisis in 2007–2008 that swallowed the global economy to a hard situation. Especially the banking and finance sector were beleaguered because of CEO compensation and risk-taking. Banks were in a controlled situation, but at the same time, they could type their own choices, which impact the riskiness of the organizations. The choices determine the level and structure of CEO compensation, which impacts notably the risk-taking the behavior of CEOs that has as well impact to banks' financial performance. The research uses a different kind of measures of risk as total risk, systematic risk, and idiosyncratic risk. In the pre-crisis period, the CEOs received bonuses decrease banks risk-taking in all three measures of risk. In the post-crisis period, the CEOs received restricted shares, and the options granted seemed to reduce banks' risk tolerance. They find a positive effect of the Troubled Asset Relief Program (TARP) on banks' risk. Additionally, the duration of time to maturity of options affect banks' risk-taking conduct. Altogether, the research outcome appeared a significant effect on CEO compensation to firm performance because compensation

structure can reduce risk-taking affecting firm performance and motivating executives to increase principals' wealth. (Shah, Akbar, Liu, Liu & Cao 2017.)

A paper by Kaplan, Klebanov, and Sorensen (2012) investigates the CEO individual characteristics' influence on firm financial performance using the CEO's operating on private equity funds between the years from 2000 to 2006. They find a positive association between CEO characteristics, like effectiveness, persistence, aggressiveness, proactiveness, the capability to organize and management abilities, and firm performance. Additionally, the CEO's features are positively related to CEO accomplishment. However, the study finds a positive association between CEO' characteristics execution, resoluteness, and overconfidence.

Fiordelisi and Ricci (2004) paper examine corporate culture and CEO turnover association among the U.S. publicly listed companies. They attempt to discover the influence of culture on CEO turnover and firm financial achievement in the period from 1992 to 2011. However, their study detects a robust negative association among firm performance and CEO turnover. In addition, dissimilar company cultures have a different influence on the likelihood of changing the managing directors. The likelihood is positive in competition and creation is supporting cultures, and likelihood is negative in highly controlled and antiseptic supporting cultures. (Fiordelisi & Ricci 2004.)

Gabaix and Landier (2008) explore U.S. CEO compensation from the year 1980 to 2003. They built up a modest balance model which can predict the effect of CEO talent in a sizeable company. The model defines the level of CEO compensation over companies and across time. They found a slight deviation in CEO talent, which, despite everything entitles enormous compensation discrepancy. Large businesses volume justifies most of CEO compensation outlines. The growth of CEO compensation, from the year 1980 to 2003, can significantly support the growth in the market value of large companies. (Gabaix & Landier 2008.)

## 3.4 Hypothesis

The paper attempts to answer to question whether corporate governance has an influence on firm financial performance, in particular, whether firm performance is affected by higher executive compensation. The paper limit executive compensation to CEO compensation, which gives the impression of the firm's top executive and his or her

influence on firm financial performance. Mehran (1995), Bebchuk et al. (2011), Brick et al. (2006) and Ozkan (2011), etc. papers have been supporting to form this paper hypothesis: the null hypothesis, the first alternative hypothesis, and the second alternative hypothesis. Mehran (1995), Sun et al. (2011) and Ozkan (2011) papers mostly lean to the first hypothesis and Bebchul et al. (2011), Brick et al. (2006) and Correa and Lel (2016) to the second alternative hypothesis. Taken together, the null hypothesis states that CEO compensation has no association to firm performance, and there is no relationship between those two factors. The null hypothesis does not have an agency problem, and companies have set the right level of compensation according to the importance of the top executive individual. The null hypothesis can be presented as follow, which is based on the papers which I mentioned above:

*$H_0$ = There is no association between CEO compensation and firm financial performance.*

To address the alternative hypothesis, CEO compensation is positively associated with firm financial performance, and there is a positive relationship between those two factors. Based on previous literature, some papers have found a positive association with CEO compensation related to firm financial performance. For example, Mehran (1995), Bebchuk et al. (2011), Brick et al. (2006) and Ozkan (2011), etc. papers have guided to form a first alternative hypothesis. To address the second alternative hypothesis, CEO compensation is negatively associated with CEO compensation. For example, Bebchuk et al. (2011) Brick et al. (2006) and Tarkovska (2017), etc. found a negative relationship between the CEO pay slice and executive compensation. More specifically, CEO compensation is negatively associated with Tobin's Q. In that paper, executive compensation is also negatively associated with profitability, which is measured by ROA. According to, for instance, Mehran (1995) paper, I can set up the first hypothesis as follow:

*$H_1$ = CEO compensation is positively associated with firm financial performance.*

The alternative hypothesis is the opposite of the first hypothesis. According to literature reviews of the previous studies on the same subject, I can state that it can be high likelihood outcome to both alternative hypothesis results, for example., Bebchuk et al. (2011) Brick et al. (2006) and Tarkovska (2017). Here is the second alternative to the hypothesis as follow:

*$H_2$ = CEO compensation is negatively associated with firm financial performance.*
Related to, for example, Correa and Lel (2016) and Bebchuk et al. (2011) papers, they suggest that CEO compensation is negatively associated with firm financial performance. Thus, oversized executive compensation is unnecessary. Nevertheless, according to the opposite research article, I cannot be convinced of what is the accurate outcome between CEO compensation and firm performance. The expected result can additionally be diverse in a different time period. Because of this, I do the regressions analysis in different time periods, which is presented in the next chapter. Additionally, subsequent I examine individually time period 1993–2004 which hypothesis is based on Mehran (1995), Kato and Long (2006), etc. papers. Here is a third alternative to the following hypothesis:

*$H_3$ = CEO compensation is positively associated with firm financial performance in time period 1993–2004.*

Furthermore, I examine time period 2005–2016 which hypothesis is based on, for instance, Bebchuk et al. (2011), and Brick et al. (2006) papers. The fourth alternative hypothesis is presented as follows:

*$H_4$ = CEO compensation is negatively associated with firm financial performance in time period 2005–2016.*

After that investigation, where I examine separately time periods 1993–2004 and 2005–2016, I examine is there a noticeable difference in empirical results of the pre-crisis period 2004–2006 and financial crisis period 2007–2009. Shah et al. (2017) paper find that firms financial performance decrease in the financial crisis period which should decrease as well as executive compensation if compensation is performance-based. I strive for results is there a discrepancy between those two periods. Next, in this paper empirical research part, I examine the pre-crisis time period 2004–2006 which hypothesis is based, for instance., Erkens et al. (2012). Paper. The subsequent hypothesis is presented as follows:

*$H_5$ = CEO compensation is negatively associated with firm financial performance in the pre-crisis time period 2004–2006.*

In comparison, I investigate results in the crisis time period 2007–2009. If the association among CEO compensation and firm performance is negative in the pre-crisis time period, I will investigate whether the association will intensify during the crisis. Next alternative

hypothesis is based, for instance, Fahlenbrach and Stulz (2011) paper. The sixth alternative hypothesis is presented as follows:

*$H_6$ = CEO compensation is more negatively associated with firm financial performance in crisis time period 2007–2009.*

In empirical investigation section (the sixth paragraph) I test hypotheses in the S&P 500 market. In that regression analysis, I examine is a null hypothesis accepted or rejected. In the event that the null hypothesis is rejected respectively, the alternative hypothesis will be accepted. In the first empirical regression section, I examine the whole time period and then separately time period 1993–2004 and 2005–2016. Hereafter, I examine the pre-crisis time period 2004–2006 and the crisis time period 2007–2009. In the next paragraph, I introduce data and methodology what I use in the empirical regression analysis section.

# 4. DATA AND METHODOLOGY

This chapter explains data and methodology what is used in this master's thesis empirical part. Additionally, dependent variables, independent variables, and control variables are presented. Moreover, the formula what is used in the statistical analysis is formed in this chapter at the end.

## 4.1 Data description

This section describes data what is used in the research empirical study part. I use panel data analysis in the empirical part. Data is collected from a Compustat Execucomp database which contains information of executive compensation of publicly listed firms in the S&P 500 index, which is also known as S&P LargeCaps market index. In this paper, I use a dataset of the S&P LargeCap between the years from 1993 to 2016. So, the period is 16 years, which is targeting to find outcomes on CEO compensation to firm performance. The period was chosen for the reason that it lets me examine the more extended period effect on CEO compensation and firm performance. Moreover, I can investigate two different but as long periods 1993–2004 and 2005–2016. Additionally, I can investigate the pre-crisis and crisis periods. It allows me to see if there are differences in those periods. The sample in this study consists of 8650 observations, where are 11 different variables used in statistical analysis. The executive compensation data is from Compustat Execucomp database, more precisely from Anncomp, Coperol, and Person database items. Financial data is from Codirfin and Colev database items. I use MS Access to collect data from a database and from Microsoft Excel to process data in an accessible form to Eviews program (Compustat Execucomp 2018).

### 4.1.1 Dependent variables

In this paper, I use three dependent variables to examine how independent variables affect those variables. I use *Tobin's Q*, *ROA* and, *ROE* as dependent variables. *Tobin's Q* measurers firms' valuation, how to market equity value is to total asset value. It is used to see independent variables associated with the dependent variable. *ROA* and *ROE* are likewise commonly used to measure profitability and used the opposite variable to the independent variable to see the associations. For example, in Bebchuk et al. (2011) paper is used *Tobin's Q* and *ROA* as the dependent variable to see how executive compensation

correlates to firm performance. *ROE* is used as well to measure firm performance, i.e., Leonard (1990) paper use *ROE* to measure firm performance related to executive pay. *Tobin's Q* is defined by market equity value divided by the total value of assets. *ROA* is defined by net income divided by book value of assets. *ROE* is defined by net income divided by shareholder's equity value. (Compustat Execucomp 2018.)

### 4.1.2 Independent variable

I use three independent variables in the statistical analysis, which are *CEO salary*, *CEO bonus* and*, CEO other compensation.* Variables are chosen because those variables are available evenly and well-matched to full-time period. *CEO salary* is an Execucomp product salary which is the dollar value of the base salary by the named CEO. The product is from an Anncomp table. *CEO bonus* is an Execucomp product bonus which is the dollar value of a bonus earned by the named CEO. The product is from an Anncomp table. *CEO other compensation* is an Execucomp product othcomp which is other compensation which is the dollar value of the other compensation by the named CEO. That can be fringe and personal benefits, contributions to bring into the assets of the company, notice or change-in-control payments, life policy benefits, gross-ups, and other tax repayments, cut-price share acquisitions, etc. All of three variables are originally in thousand units. I convert those variables to natural logarithm to the regression. In this paper is only shown the values in a converted form. (Compustat Execucomp 2018.)

### 4.1.3 Control variables

In statistical test data is five control variables. The variables are *firm size*, *CEO tenure, executive director, CEO gender*, and *CEO age*. *Firm size* is the natural logarithm of total assets of the firm, which is used control variable to measure company magnitude. Larger companies are more stable and less dependent on clientele or key employees, and therefore, the business is more valuable since its less risky. The second variable, *CEO tenure*, is defined by table ANNCOMP current year subtract COPEROL product become CEO. *CEO tenure* means the CEO experience in the CEO position, and it is measured in years. *Executive director* variable is a dummy variable where one means that CEO belongs to the board of directors. Correspondingly zero means that the CEO is only in executive officer. *CEO gender* dummy variable where value one means male gender and

zero female genders. *CEO age* variable in the current age of the executive officer. (Compustat Execucomp 2018.)

## 4.2 Methodology

The used methodology in this paper is a linear ordinary least-squares (OLS) regression model, which is run in a statistical program. The statistical program what is used in the thesis is Eviews. The empirical examination will be continued by studying the association between CEO compensation and financial performance in an ordinary least squares multivariate setup. To determine the linear association among the independent variables (CEO compensation) and dependent variables (firm financial performance), the subsequent regression model is formed:

(1) $Financial\ performance_{i,t} = \alpha + \beta_{1–3}\ (CEO\ compensation\ variables)_{i,t} + \beta_{4–8}\ (control\ variables)_{i,t} + \varepsilon_{i,t}$

where the dependent variable is firm financial performance measures, which are three alternatives, *ROA, ROE* or *Tobin's Q,* for firm *i* at time *t*. The regression will be executed three times for all variable which signifies that *CEO salary, CEO bonus,* and *CEO other compensation* are investigated separately, for firm *i* at time *t*. In apiece of the optional regressions, the control variables, *firm size, CEO tenure, executive director, CEO gender* and *CEO age* are involved, for firm *i* at time *t*. $\alpha$ is an intercept of the regression line. $\beta$ means the coefficients of the variables. $\varepsilon$ presents an error term, for firm *i* at time *t*. Heteroscedasticity is verified by the White's test.

# 5. EMPIRICAL RESULTS

This chapter presents the empirical results of the regression analysis. Firstly, descriptive statistics are presented. Secondly, the correlation matrix is shown. Thirdly, regression results are exposed using independent variables separately. Thirdly, different periods of results are shown. Fourthly, regression results are shown in the pre-crisis period 2004–2006 and the crisis period 2007–2009.

## 5.1 Descriptive statistics

Data which is used in the regression analysis is shown in descriptive statistics that show data in summary. Table 1 presents descriptive statistics for the selected variables in the period 1993–2016. The table contains 11 variables and their mean, median, maximum, minimum, standard deviation values, and a number of observations. The first three variables are dependent, the three following variables are the independent variables, and the last five values are control variables. Totally 8532 observations were included in the statistical analysis. As you can see, independent variables (*ROA*, *ROE* and, *Tobin's Q*) shows that the companies have comparatively decent financial performance numbers when *ROA* and *ROE* variables are positive. *ROE's* mean and median values are near triple compared to *ROA's* mean and median values. *ROA* with a mean of 0.06 and *ROE* with a mean of 0.15 are decent when means are positive, and companies do a roaring business. Moreover, *Tobin's Q* mean value 1.32 implies that the observed firms are slightly overvalued; in other words, the total equity market value is a bit higher than the total asset value. CEO compensation variables: *CEO salary*, *CEO bonu*s and, *CEO other compensation*, are the natural logarithm of those CEO compensation original values. Independent variables highest mean and median values have *salary* variable, *other compensation* has the second place, and *bonus* has the third place. *Salary* mean is 6.74 and median 6.86, bonus mean is 3.30, and median is 3.42. Respectively, CEO *other compensation* values are 4.51, and 4.77. *Firms' size* mean is 8.64, which is the natural logarithm of total assets. *CEO tenure* mean is 6.76 years. So, CEO's have seven years of experience in CEO position on average. *Executive director* variable mean is 0.98, and likewise, *CEO gender* variable mean is on the same number. So, 2% of CEO's in not additionally a member of the boards and 2% of CEO's are females. They are the same in the descriptive statistics because of the rounding of the numbers. Furthermore, 98% of CEO's are males, and only 2% are females in the sample. CEO's mean age is 56, and the median is 57 years.

**Table 1.** Descriptive statistics.

| Variable | Mean | Median | Max. | Min. | Std. dev. | No. of obs. |
|---|---|---|---|---|---|---|
| ROA | 0.06 | 0.05 | 0.48 | -0.46 | 0.07 | 8532 |
| ROE | 0.15 | 0.15 | 1.68 | -1.70 | 0.19 | 8532 |
| Tobin's Q | 1.32 | 1.01 | 5.50 | 0.00 | 1.09 | 8532 |
| Salary | 6.70 | 6.86 | 9.00 | 0.00 | 0.75 | 8532 |
| Bonus | 3.30 | 3.42 | 11.25 | 0.00 | 3.48 | 8532 |
| Other compensation | 4.51 | 4.78 | 11.48 | 0.00 | 1.76 | 8532 |
| Firm size | 8.64 | 8.72 | 13.09 | 1.33 | 1.58 | 8532 |
| CEO tenure | 6.76 | 5.00 | 53.00 | 0.00 | 6.78 | 8532 |
| Executive director | 0.98 | 1.00 | 1.00 | 0.00 | 0.14 | 8532 |
| Gender | 0.98 | 1.00 | 1.00 | 0.00 | 0.14 | 8532 |
| Age | 56.51 | 57.00 | 86.00 | 28.00 | 6.52 | 8532 |

## 5.2 Correlation

Table 2 presents the correlation matrix of statistical data. The first number in the charts shows the statistical significance of correlation and star mark the statistical significance. Financial performance variables (dependent variables) relationship appears to be positive and pure between those three variables, which are *ROA, ROE* and *Tobin's* Q. *ROA* associates positively and significantly among *ROE* and *Tobin's Q*. Correlation between the dependent variables and CEO compensation (independent) variables, *salary*, *bonus* and *other compensation,* seems to be highly correlated with two or more variables. *ROA* has a robust negative association with one of those independent variables, which is the *salary* variable. *ROA* has no significant correlation to *bonus* or *other compensation* variables. Respectively, *ROE* has a strong positive association to *salary* variable. *Tobin's Q* has a strong and negative correlation among all three CEO compensation variables. *ROA* has a strong positive correlation with *firm size* control variable. A significant positive correlation is found between *ROE* and *firm size* and a strong negative relation between *ROE* and *CEO tenure*. *Tobin's Q* has a noteworthy negative correlation with the *CEO age* control variable. Correspondingly, a positive association is found among *CEO tenure, executive director* control variables. *Tobin's Q* has a significant negative correlation to *firm size* variable. The outcome of the correlation matrix is that the dependent variables have a negative association in total among the independent variables, which supports the second alternative hypothesis which states a negative relationship among CEO compensation and firm financial performance.

**Table 2.** Correlation matrix.

| Variable | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) | | (10) | | (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) ROA | 1.000 | | | | | | | | | | | | | | | | | | | | |
| (2) ROE | 0.730 | * | 1.000 | | | | | | | | | | | | | | | | | | |
| (3) Tobin's Q | 0.274 | * | 0.273 | * | 1.000 | | | | | | | | | | | | | | | | |
| (4) Salary | -0.041 | * | 0.033 | * | -0.136 | * | 1.000 | | | | | | | | | | | | | | |
| (5) Bonus | -0.002 | | -0.005 | | -0.036 | * | -0.029 | | 1.000 | | | | | | | | | | | | |
| (6) Other comp. | -0.008 | | 0.035 | * | -0.111 | * | 0.338 | * | -0.044 | * | 1.000 | | | | | | | | | | |
| (7) Firm size | 0.107 | * | 0.172 | * | -0.203 | * | 0.181 | * | 0.106 | * | 0.259 | * | 1.000 | | | | | | | | |
| (8) CEO tenure | 0.009 | | -0.035 | * | 0.063 | * | -0.037 | * | 0.016 | | 0.039 | * | -0.067 | * | 1.000 | | | | | | |
| (9) Executive dir. | 0.021 | | 0.005 | | 0.0034 | | -0.075 | * | 0.078 | * | -0.026 | | 0.018 | | -0.005 | | 1.000 | | | | |
| (10) Gender | -0.009 | | -0.013 | | -0.011 | * | -0.027 | | 0.073 | * | -0.045 | * | -0.035 | * | 0.065 | * | -0.008 | | 1.000 | | |
| (11) Age | -0.023 | | -0.001 | | -0.102 | * | 0.120 | * | 0.010 | | 0.170 | * | 0.108 | * | 0.422 | * | -0.069 | * | 0.050 | * | 1.000 |

* presents statistical significance at the 0.01 level.

## 5.3 Regression results

Following paragraphs include the results of empirical regression analysis. Firstly, the results of CEO compensation and firm performance in 1993–2016. Secondly, the results of CEO compensation and firm performance in the separate periods between 1993–2004 and 2005–2016. Thirdly, the results of CEO compensation and firm performance in the pre-crisis period 2004–2006 and the crisis period 2007–2009.

### 5.3.1 CEO compensation and firm performance in 1993–2016

Table 3 illustrates the results of regression analysis between dependent variables and *CEO salary* as an independent variable during the period 1993–2016. The estimated coefficients of variables are presented first with the appropriate t-value in the brackets below. The results show a negative statistically significant association among *ROA* and *salary* as well as *Tobin's Q* and *CEO salary* at even 1% level where the coefficient for *ROA* is -0.005 with a t-statistic of -4.97 and the coefficient for *Tobin's Q* is -0.130 with a t-statistic of -8.12. This indicates that *CEO salary* has a negative impact on the company's performance when regression takes account the dependence of *ROA* and *Tobin's Q. ROE*, as the dependent variable, has no significant association to *CEO salary.* Additionally, *ROA,* as the dependent variable, has a significant positive association to *firm size* and *CEO tenure* at least at 1% level. *Tobin's Q* has a significant negative association to *firm size* and a significant positive association to *CEO tenure* control variable. Additionally, *ROE* and *firm size* have a positive and significant association. *ROA* and *Tobin's Q* have a negative involvement with *CEO age* control variable. The remaining control variables have a significant and positive association to *executive director* control variable at 5% level and a negative association to *CEO gender* control variable at 10% level to *Tobin's Q* as the dependent variable.

**Table 3.** CEO salary as the independent variable and financial performance 1993–2016.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.063*** | -0.008 | 4.09*** |
| | (5.44) | (-0.23) | (21.79) |
| Salary | -0.005*** | 0.001 | -0.130*** |
| | (-4.97) | (0.41) | (-8.12) |
| Firm size | 0.005*** | 0.021*** | -0.116*** |

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| | (11.08) | (15.39) | (-15.42) |
| CEO tenure | 0.000*** | -0.001 | 0.0156*** |
| | (2.86) | (-1.52) | (8.29) |
| Executive director | 0.006 | 0.001 | 0.198** |
| | (1.17) | (0.08) | (2.40) |
| Gender | -0.003 | -0.008 | -0.138* |
| | (-0.64) | (-0.56) | (-1.69) |
| Age | -0.000*** | -0.000 | -0.019*** |
| | (-3.43) | (-0.91) | (-9.44) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 8532 | 8532 | 8532 |
| Adj. $R^2$ | 1.5% | 2.9% | 6.3% |
| F-stat. | 5.54 | 9.70 | 20.76 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

Subsequent Table 4 consists of the same variable variables as the previous Table 3, but the independent variables are different. The independent variable is *CEO bonus*. The time period is 1993–2016 in Table 4. The constant is statistically significant with *ROA* and *Tobin's Q*. *CEO bonus* appears to be connected negatively to *ROA* and *ROE* at even 1% level where the coefficient for *ROA* is -0.001 with a t-statistic of -2.97 and the coefficient for *ROE* is -0.003 with a t-statistic of -3.28. Additionally, it is negatively statistically significant to *Tobin's Q* at 5% level where the coefficient is -0.010 with a t-statistic of -2.27. *Firm size, executive director, CEO gender and CEO age* control variables appeared to be statistically significant in Table 4, where at least one of three were statistically significant at least 10% level.

**Table 4.** CEO bonus as the independent variable and financial performance 1993–2016.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.038*** | 0.003 | -3.394*** |
| | (3.66) | (0.12) | (20.37) |
| Bonus | -0.001*** | -0.003*** | -0.010** |
| | (-2.97) | (-3.28) | (-2.27) |
| Firm size | 0.005*** | 0.021*** | -0.126*** |
| | (10.52) | (15.97) | (-16.99) |

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| CEO tenure | 0.000*** | -0.001 | 0.017*** |
| | (3.21) | (-1.52) | (8.81) |
| Executive director | 0.007 | 0.001 | 0.230*** |
| | (1.39) | (0.37) | (2.77) |
| Gender | -0.003 | -0.007 | -0.131* |
| | (-0.55) | (-0.48) | (-1.60) |
| Age | -0.001*** | -0.000 | -0.021*** |
| | (-4.04) | (-0.86) | (-10.45) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 8532 | 8532 | 8532 |
| Adj. $R^2$ | 1.3% | 3.0% | 5.6% |
| F-stat. | 4.99 | 10.08 | 18.52 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

Subsequent Table 5 describes the same table as the previous table, but an independent variable is another substitute for the CEO, which is *CEO other compensation*. The constant is statistically significant among *ROA* and *Tobin's Q,* but with *ROE,* the constant appeared not to be statistically significant. *CEO other compensation* variable shows negative and statistically significant association to *ROA* and *Tobin's Q* at even 1% level. The coefficient for *ROA* is -0.001 with a t-statistic of -2.90, and the coefficient for *Tobin's Q* is -0.033 with a t-statistic of -4.70. At least one of the three control variables of each type appeared to be statistically significant at least 10% level.

**Table 5.** CEO Other compensation as the independent variable and financial performance 1993–2016.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.036*** | -0.001 | 3.375*** |
| | (3.52) | (-0.047) | (20.30) |
| Other compensation | -0.001*** | -0.001 | -0.033*** |
| | (-2.90) | (-0.65) | (-4.70) |
| Firm size | 0.005*** | 0.021*** | -0.117*** |
| | (10.72) | (15.33) | (-15.28) |
| CEO tenure | 0.000*** | -0.001 | 0.017*** |
| | (3.23) | (-1.54) | (8.86) |

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Executive director | 0.007 | 0.001 | 0.232*** |
| | (1.42) | (0.06) | (2.80) |
| Gender | -0.004 | -0.009 | -0.147* |
| | (-0.70) | (-0.58) | (-1.78) |
| Age | -0.001*** | -0.000 | -0.019*** |
| | (-3.61) | (-0.77) | (-9.72) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 8532 | 8532 | 8532 |
| Adj. $R^2$ | 1.3% | 2.9% | 5.8% |
| F-stat. | 4.97 | 9.71 | 19.15 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

### 5.3.2 CEO compensation and firm performance in the separate periods 1993–2004 and 2005–2016

This paragraph shows CEO compensation and firm performance in the separate periods of 1993–2004 and 2005–2016. Moreover, the empirical result of panel regressions present is their difference for a previous and subsequent period results. As in the literature review section inform, there are divergent outcomes for different papers. The papers examine itemized those periods, which may affect the results. The paper uses different sample periods; hence earlier studies show more often a positive association (Mehran 1995) and more recent studies a negative association (Bebchuk et al. 2011).

Following chapter represents CEO compensation as an independent variable, financial performance as a dependent variable and control variables results in two distinct periods' 1993–2004 and 2005–2016. Control variables are the same as in the previous chapter. The regression results are used to find out whether there are any results in these periods. In table 6 is presenting CEO compensation and financial performance in 1993–2004. The estimated coefficients for *CEO salary* are negatively and statistically significantly associated with *ROA* and *Tobin's Q* at 5% and 1% level. The coefficient for *ROA* is -0.004 with a t-statistic of -2.42, and the coefficient for *Tobin's Q* is -0.101 with a t-statistic of -3.61. The estimated coefficient for *CEO bonus* is otherwise positively and statistically significant for *ROA* at 10% and *Tobin's Q* at 1% level. The coefficient for *ROA* is 0.001 with a t-statistic of 1.68 and the coefficient for *Tobin's Q* is 0021 with a t-statistic of 2.60. The estimated coefficients for *CEO other compensation* did not show any significant

relationship with the dependent variables. Control variable *firm size* presents a significant association to *ROA* and *ROE* at even 1% level. Correspondingly, *firm size* variable shows a negative association with *Tobin's Q* at 1% level. Control variable *CEO gender* is negatively statistically significant at 1% level with *ROE* and negatively statistically significant at 1% level with *Tobin's Q* in Table 6. Additionally, it has a negative and statistically significant association only with *ROE* at 5% level. Control variable *CEO age* is related to dependent variable *ROE* at 10% level in Table 6. The remaining control variables did not show a significant association in Table 6.

**Table 6.** CEO compensation and financial performance in 1993–2004.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.048 | -0.175* | 4.475*** |
| | (1.37) | (-1.82) | (8.20) |
| Salary | -0.004** | 0.003 | -0.101*** |
| | (-2.42) | (0.557) | (-3.61) |
| Bonus | 0.001* | 0.001 | 0.021*** |
| | (1.68) | (1.03) | (2.60) |
| Other compensation | 0.001 | -0.000 | -0.003 |
| | (1.23) | (-0.02) | (-0.36) |
| Firm size | 0.005*** | 0.021*** | -0.115*** |
| | (5.97) | (9.13) | (-8.91) |
| CEO tenure | 0.000** | -0.001 | 0.015*** |
| | (2.10) | (-1.62) | (5.48) |
| Executive director | -0.022 | 0.020 | -0.085 |
| | (-0.73) | (0.25) | (-0.18) |
| Gender | 0.020 | 0.157*** | -1.075*** |
| | (1.52) | (4.43) | (-5.34) |
| Age | -0.000 | -0.001* | -0.010 |
| | (-1.37) | (-1.70) | (-3.29) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 3408 | 3408 | 3408 |
| Adj. $R^2$ | 1.2% | 3.6% | 5.4% |
| F-stat. | 3.19 | 7.63 | 11.24 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

The same regression method, as in Table 6, is presented in Table 7 below, but the period is 2005–2016. The estimated coefficients for *CEO salary* are negatively and significantly associated with *ROA,* and *Tobin's Q* at even 1% level. The coefficient for *ROA* is -0.005 with a t-statistic of -3.57 and the coefficient for *Tobin's Q* is -0132 with a t-statistic of -6.28. Likewise, the estimated coefficients for *CEO bonus* are negatively and significantly connected with *ROA*, *ROE* and *Tobin's Q* at even 1% level in all those dependent variables. The coefficient for *ROA* is -0.001 with a t-statistic of -4.33, the coefficient for *ROE* is -0.005 with a t-statistic of 4.87, and the coefficient for *Tobin's Q* is -0.019 with a t-statistic of -3.42. Moreover, the estimated coefficients for *CEO other compensation* are also negatively statistically significant for *ROA* at even 1% level and *Tobin's Q* at 10% level. The coefficient for *ROA* is -0.002 with a t-statistic of -3.67, and the coefficient for *Tobin's Q* is -0.037 with a t-statistic of -3.77. Control variable *firm size* appears to be associated positively and statistically significantly related to the results of both *ROA* and *ROE* dependent variables. Moreover, there is also a strong negative association between *Tobin's Q* and *firm size*. Additionally, *CEO tenure* control variable is positively and significantly connected with *ROA* at 5% level and for *Tobin's Q* at even 1% level in Table 6 and Table 7. However, control variable *executive director* shows a positive and significant association with only *Tobin's Q* in Table 7 but not a sign of strong association in Table 6. Control variable *CEO age* has a negative and statistically significant connection to solely dependent variable *ROA* in Table 7.

**Table 7.** CEO compensation and financial performance in 2005–2016.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.081*** | 0.016 | 4.387*** |
| | (5.78) | (0.39) | (18.77) |
| Salary | -0.005*** | 0.001 | -0.132*** |
| | (-3.57) | (0.38) | (-6.28) |
| Bonus | -0.001*** | -0.005*** | -0.019*** |
| | (-4.33) | (-4.87) | (-3.42) |
| Other compensation | -0.002*** | -0.002 | -0.037* |
| | (-3.67) | (-0.90) | (-0.11) |
| Firm size | 0.005*** | 0.021*** | -0.110*** |
| | (9.26) | (11.79) | (-11.39) |
| CEO tenure | 0.001** | -0.000 | 0.017*** |

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| | (2.39) | (0.09) | (6.41) |
| Executive director | 0.006 | 0.000 | 0.187** |
| | (1.20) | (0.03) | (2.21) |
| Gender | -0.008 | -0.040** | 0.026 |
| | (-1.49) | (-2.41) | (0.29) |
| Age | -0.001*** | -0.000 | -0.024 |
| | (-3.30) | (-0.06) | (-8.82) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 5124 | 5124 | 5124 |
| Adj. $R^2$ | 2.4% | 3.3% | 8.1% |
| F-stat. | 7.74 | 10.06 | 24.76 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

5.3.3 CEO compensation and firm performance in the pre-crisis period 2004–2006 and the crisis period 2007–2009

The financial crisis, which was around years 2007, 2008 and 2009, might have influenced to CEO compensation and firm performance association, which this paragraph investigates. Moreover, this paragraph strives for comparison difference among the pre-crisis period 2004–2006 and in the course of the financial crisis. Firstly, the results under the pre-crisis period are shown. Secondly, the results during financial results are presented. Following tables use the same independent, dependent, and control variables as the previous empirical regressions.

Table 8 represents the results of the pre-crisis period 2004–2006. First of all, the independent variables did not show a strong association in Table 8. In that Table 8, only *CEO other compensation* variable is negatively highly significant at 1% level to *Tobin's Q* variable where the coefficient for *Tobin's Q* is -0.090 with a t-statistic of -4.77. To addition, following control variables: *firm size, CEO tenure, CEO gender, and CEO age*, appeared to be statistically significant for *Tobin's Q* in Table 8. *CEO tenure* appeared to be positively associated with *Tobin's Q* and the remaining ones negatively associated. Moreover, *firm size* control variable is indicated to be negatively and statistically significantly associated with *ROA* and *Tobin's Q* at even 1% level in Table 9. *CEO tenure* control variable appeared to be positively associated with *Tobin's Q* at 1% level.

Moreover, control variable *CEO gender* is negatively associated with *ROE* at 1% level. Furthermore, control variable *CEO gender* is negatively related to *Tobin's Q* at 1% level.

**Table 8.** CEO compensation and financial performance in the pre-crisis period 2004–2006.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.160 | -0.261 | 7.171*** |
| | (1.62) | (-0.96) | (4.66) |
| Salary | -0.001 | 0.014 | -0.079 |
| | (-0.29) | (1.57) | (-1.57) |
| Bonus | 0.001 | 0.001 | 0.001 |
| | (0.46) | (0.61) | (0.06) |
| Other compensation | 0.001 | 0.001 | -0.090*** |
| | (0.35) | (0.97) | (-4.78) |
| Firm size | -0.007 | 0.033* | -0.404*** |
| | (-0.95) | (1.73) | (-3.77) |
| CEO tenure | -0.000 | -0.001 | 0.019*** |
| | (-0.14) | (-1.06) | (3.39) |
| Executive director | -0.008 | 0.040 | 0.154 |
| | (-0.13) | (0.22) | (0.15) |
| Gender | -0.009 | 0.031 | -0.691** |
| | (-0.43) | (0.51) | (-2.04) |
| Age | -0.001 | -0.001 | -0.019*** |
| | (-1.54) | (-0.89) | (-3.74) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 1062 | 1062 | 1062 |
| Adj. $R^2$ | 0.4% | 0.2% | 5.7% |
| F-stat. | 0.59 | 1.18 | 7.37 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

Table 9 provides the result of CEO compensation and firm performance during the financial crisis in the years 2007–2009. Nevertheless, during the crisis, Table 9, show a notably stronger negative association to performance compared to pre-crisis results in

Table 8. The independent variables show a strong negative association to dependent variables where at least one of association among the independent variable and the dependent variable is at 1% level. *CEO salary* has s strong negative association to *Tobin's Q* variable at 1% level where the coefficient for *Tobin's Q* is -0.148 with at t-statistic of -3.29. Moreover, *CEO bonus* has a negative association to *ROA* and *ROE* at even 1% level and *Tobin's Q* at 10% level. The coefficient for *ROA* is -0.002 with a t-statistic of -3.73, the coefficient for *ROE* is -0.009 with a t-statistics of 4,67, and the coefficient for *Tobin's Q* is -0.020 with a t-statistic of -1.89. Additionally, *CEO other compensation* has a strong negative relationship to *ROA* and *Tobin's Q* at 1% level where the coefficient for *ROA* is -0.003 with a t-statistic of -3.05 and for *Tobin's Q* is -0.089 with a t-statistics of -4.43. According to Table 8 and Table 9, there is found a negative association among the independent and dependent variables at the crisis period but not hence strong association at the pre-crisis period. Altogether, these results indicate that association among CEO compensation and firm performance is negative and statistically significant at crisis period in 2007–2009. The pre-crisis period had a minor association between CEO compensation and firm performance, nonetheless only with one variable.

**Table 9.** CEO compensation and financial performance in the crisis period 2007–2009.

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Constant | 0.357*** | 0.393** | 8.350*** |
| | (5.83) | (2.01) | (7.79) |
| Salary | -0.004 | -0.002 | -0.148*** |
| | (-1.56) | (-0.26) | (-3.29) |
| Bonus | -0.002*** | -0.009*** | -0.020* |
| | (-3.73) | (-4.67) | (-1.89) |
| Other compensation | 0.001*** | -0.004 | -0.089*** |
| | (-3.05) | (-0.01) | (-4.43) |
| Firm size | -0.025*** | -0.010 | -0.513*** |
| | (-4.34) | (-0.52) | (-5.02) |
| CEO tenure | 0.000 | 0.001 | 0.019 |
| | (1.45) | (0.79) | (3.51) |
| Executive director | 0.013 | 0.018 | 0.254 |
| | (1.45) | (0.66) | (1.60) |
| Gender | -0.016 | -0.114*** | 0.160 |
| | (-1.29) | (-2.99) | (0.73) |

| | ROA | ROE | Tobin's Q |
|---|---|---|---|
| Age | -0.001 | -0.001 | -0.027*** |
| | (-1.64) | (-0.77) | (-5.14) |
| Period fixed effect | YES | YES | YES |
| No. of obs. | 1273 | 1273 | 1273 |
| Adj. $R^2$ | 3.7% | 1.9% | 7.8% |
| F-stat. | 5.94 | 3.41 | 11.71 |

*p < 0.1, **p < 0.05, ***p < 0.01. T-statistics are informed in parentheses.

Fahlenbrach and Stulz (2011) investigated bank CEO compensation and the financial crisis. The paper sample is from the year 2006 to 2008. They found that banks modest financial performance was because of unpredicted risk. Moreover, compensation which was affiliated with the interest of shareholders performed inferior. Banks, where CEOs had lesser compensations, performed better than banks with higher compensations. Especially, cash bonus and stock options had a disadvantageous effect on performance at crisis time. Fahlenbrach and Stulz justify that CEOs with more top compensations run a chance that other CEOs did not.

Additionally, CEOs lost plenty of wealth because of holdings of shares and to options. My paper results and Fahlenbrach and Stulz (2011) paper results refer to the conclusion that CEO compensation might weaken firm performance during the crisis. In other words, CEO compensation does not improve firm financial crisis at crisis time. Table 8 and Table 9 results support the fifth and sixth alternative hypotheses.

# 6. SUMMARY AND CONCLUSIONS

Based on academic research, we can detect that there is a relation between CEO compensation and firm performance. The purpose of this document was to provide information on CEO compensation and how it combines the company's financial performance with U.S companies between the years 1993 and 2016. A market index is the S&P 500 index, where the empirical analysis is examining how the CEO's compensation and financial results concerning different periods. Moreover, the study examined how the association changes with time. Notably, the paper strived to find is there found a disparity in two different 12-years period, and the pre-crisis and the crisis period. According to the executive compensation principles (Larcker & Tayan 2015, etc.), CEO compensation should be at parallel which justifies CEOs to executive firms to enhanced accomplishments.

Mehran (1995) examined an association with executive compensation and company performance. He found a positive relationship, which was the result of a somewhat aged sample. A paper by Bebchuk et al. (2011) found the opposite results where CEO compensation is negatively associated with firm performance. Bebchuk et al. (2011) sample are developed from more recent data than Mehran (1995) study. In addition, a study by Khan and Vieito (2013) did not found a relationship among CEO compensation and firm financial performance. Based on those previous studies, it is essential to absorb CEO compensation relevance to firm financial performance. Overall, it appears that the effect of time might affect CEO compensation and firm performance relationship.

This study was conducted by first investigate CEO compensation and firm performance for the entire period 1993–2016. Secondly, the association period is divided into two periods 1993–2004 and 2005–2016. Thirdly, the empirical analysis examines the pre-crisis period 2004–2006 and the crisis period 2007–2009. Firstly, when I investigate the whole period result. I find an overall negative association between CEO compensation and firm performance using CEO salary, bonus, and other compensation variables as the dependent variable and ROA, ROE, and Tobin's Q as the independent variables. In the results, I was using firm size, CEO tenure, executive director, CEO gender, and CEO age control variables. Secondly, I separated the period to two different periods, which were 1993–2004 and 2005–2016. The first earlier period did contribute a pure response for the association when the coefficients for the CEO salary were negative with ROA and Tobin's Q, and the estimated coefficients for CEO bonus were alternatively positive. CEO other compensation did not show a sign. The results of the second season 2005-2016

show a negative association. Thirdly, the paper found that a negative association becomes more evident during the crisis period compared results in the pre-crisis period. The pre-crisis period did not show a strong association.

The overall results present a negative association. The beginning of period results shows slightly weaker relation results, but the association strengthens in recent years. An explanation for change might change in regulation, and economic situation, firm returns level or CEO responsibilities (e.g., Bainbridge 2012). The paper suggests further research to investigate an association in different industries, for example, comparing information technology and electrical engineering industries. Additionally, the banking industry could be removed in the sample. In this thesis, all industries were included in the sample.

Moreover, for further research to examine different locations and compare their results, it is a wide range of CEO compensation around the world and the largest compensations come from the developed countries which have a status as a great power state Differences in the features of environments cause the dissimilarity among company construction of all business organization in diverse economies. (e.g., Brealey et al. 2017.)

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