Compensation peer-groups, are similar companies rewarding their CEO's in the same way.

Are CEO's using compensation peer groups to inflate their compensation?

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1.0 Introduction

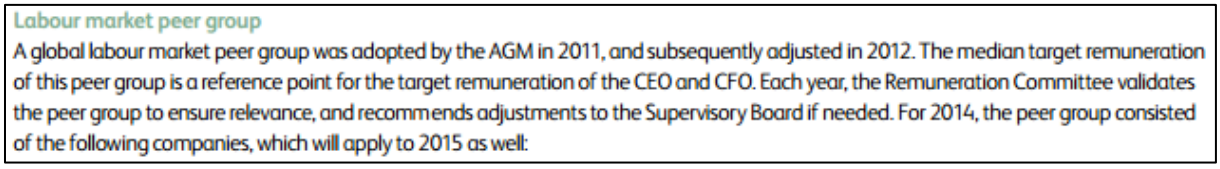
The compensation of CEOs and other high level managers in The Netherlands is a much debated topic by the media, the government and the general public, especially since the 2008 financial and following economic crisis when the Dutch government was forced to bail out a multitude of financial institutions. Although it is mainly the level of salaries and bonuses in the financial sector that are being criticized, recently the (excessive) compensation of high level managers of housing associations (Vestia) has become the subject of public and political scrutiny.

The public outrage regarding the continuing rise in CEO compensation, "graaicultuur", is however not contained to the before mentioned specific situations. The ongoing rise in the compensation of executives (will be referred to as CEO in this paper) of public companies has created public unrest as ordinary people find it hard to understand this continuous increasing compensation in times where, according to the Dutch Central Bureau of Statistics, average disposable income for the general population is declining. It is becoming increasingly apparent that the compensation of executives is becoming detached from both the salary of the average worker and from the companies they run (Elson and Ferrere, 2013).

The effects of excessive CEO compensation is not only a political or public issue, it is also an important economic issue. Recent remuneration proposals of several Dutch companies (including Delta energie, ICT Automatisering and PostNL) caused outrage by shareholders at their respective annual meetings (Frentrop, 2012). CEO compensation used to be a matter between shareholders, the board of directors and the CEO in where they would discuss and set the level and composition of a CEO's compensation. Recently, more interest groups and the general public have entered the discussion and try to influence the decision making process.

As stated before, the general public cannot find a justification for the deemed excessive amount of compensation that CEOs are receiving. An often used argument in defense of the compensation package of the CEO, in both government owned companies and in publicly traded companies, is the fact that a CEO's compensation has to be set at market level to be competitive with a CEO's outside opportunities. Companies are forced by the labor market to pay their CEO a certain level of compensation for retention. A common method for determining the market level of CEO compensation is the use of compensation peer groups, 96% percent of all companies listed on the AEX index disclose the use of this method in their 2014 annual reports. These peer groups are used for benchmarking the compensation level and structure of the CEO, and occasionally other high level managers, to compensation practices of comparable companies and is a driving factor in determining both the level and structure of CEO compensation (Bizjak et al, 2011). By using compensation peer

groups for determining the CEO's compensation package, companies select a group of similar and competing firms and tie their CEO compensation to the reported CEO compensation within the selected peer group. For example the following paragraph in Heineken NV's 2014 annual report:



Labour market peer group

A global labour market peer group was adopted by the AGM in 2011, and subsequently adjusted in 2012. The median target remuneration of this peer group is a reference point for the target remuneration of the CEO and CFO. Each year, the Remuneration Committee validates the peer group to ensure relevance, and recommends adjustments to the Supervisory Board if needed. For 2014, the peer group consisted of the following companies, which will apply to 2015 as well:

Source: Heineken NV – annual report 2014

Although there are valid economic reasons for the practice of compensation benchmarking, much controversy exists weather these compensation peer groups cause companies, that are in the lower scale of the peer group distribution, to upgrade the compensation of their high-level executives and therefore have an inflating effect on compensation levels. Another critic is the fact that the peers are opportunistically chosen by powerful CEO's and their captured boards in a way that inflates CEO compensation (Bizjak et al, 2011) and compensation is being targeted to be in the upper levels of the peer group compensation scale. The peer group can also be opportunistically chosen to justify the selected level and structure of CEO compensation. When executive compensation is based on market data rather than based on the specific circumstances of a company, public outcry can occur. For example the recent issue's financial institutions have with increasing compensation of executives after they have been bailed out by their government. These increases in compensation is usually explained as being a necessity in retaining key employees and staying competitive on the labor market.

The academic literature is extensive on executive compensation but there is no definitive answer yet on the cause of the recent steep rise in CEO compensation. The purpose of this paper is to assess whether compensation peer groups are properly structured and provide evidence on the extent to which these peer groups are used to inflate CEO compensation. The current academic literature on CEO compensation will be enriched with an analyses of one of the factors that has been proven to play a role in the recent steep rise in CEO compensation, the use of compensation peer groups. The effect of a company's corporate governance characteristics on the selection of the peer group will be investigated. When these mechanisms are lacking in strength or are captured by the CEO, the CEO has an opportunity to extract excess rents and set his compensation above the level justified by the market. These findings would affect policy makers because it leads to a better understanding of the factors that have an effect on CEO compensation and how CEO power can lead to socially and economically undesirable levels and structures of compensation.

There is a considerable amount of academic literature, with mixed results, conducted in the United States on the effects of compensation peer groups on executive compensation and the influence of powerful CEO's on the process. A number of studies found that companies do have a preference for companies that are positioned in the upper levels of CEO compensation when selecting their peer groups and that the process of companies benchmarking their CEO compensation contributes to the steep rises in CEO compensation in recent years. A number of other studies found opposing results, the selected peer groups are found to be a reflection of the market for managerial labor and corporate governance characteristics had no effect on the relation between compensation peer groups and executive compensation. These studies however focus mostly on the level of CEO compensation and don't take the compensation structure of selected peer into account. More importantly, almost all of this research has been done in the United States where this issue has been more prominent on the agenda of shareholders and regulators. The subject of the effects of using compensation peer groups has received little attention in The Netherlands so far. Results found in the United States cannot one-on-one be applied to the situation in The Netherlands since compensation practices and governance characteristics differ from the United States to The Netherlands. CEO's are known to be more powerful and having more influence on company practices in the United States as opposed to their counterparts in the Netherlands. Compensation levels are considerably lower in the Netherlands and compensation structures differ with respect to the amount of risk faced by CEO's.

Based on the available data and existing literature this research aims at enhancing the understanding of to following question:

What is the effect of compensation peer groups on CEO compensation and how is this relationship being influenced by the corporate governance structure in Dutch companies.

This research uses the selected compensation peer groups as a way to assess the structure of CEO compensation and find out whether these compensation structures are efficient, or are being influenced by powerful CEO's. Based on the Dutch corporate governance code, "Code Tabaksblat", companies have to disclose the composition of their compensation peer group if used in decisions regarding CEO compensation. These disclosures will be used for extracting the actual peer companies and specific target used in setting compensation relative to the selected peer group. The research method used implies that the sample used is being limited to only the companies that are disclosing the composition of their compensation peer group. Most research done on executive compensation uses firm-level compensation, governance and performance characteristics to predict executive compensation and analyze possible deviations and biases. This approach treats firms as independent

actors which, in light of the prevailing use of compensation peer groups, it is somewhat paradoxical (Pittinsky and DiPrite, 2013). Due to the practice of compensation benchmarking, CEO compensation influences and is influenced by the surrounding business environment.

The outline of this study is as follows. Chapter 2 discusses the theoretical concepts that are the basis for explaining the problem stated in this study. A proper understanding of Agency theory, Managerial power, Corporate governance and the Compensation setting process and the interaction of these concepts on CEO compensation is the basis for this research. Chapter 3 covers the review of prior research done on effect of compensation peer groups on CEO compensation and contains the literature that contributes to, and will be extended by this research. Based on the previously discussed theoretical concepts and research, hypotheses are formulated in chapter 4. Chapter 5 contains a description of the research design, the sample of companies used and the necessary variables needed for a proper understanding of the hypotheses. An overview of the employed data and how collection methods is added. Chapter 6 contains the results of the analyses and provides the evidence in explaining the effect of compensation peer groups on CEO compensation. Chapter 7 discusses the results, lists the main findings, gives recommendations for future research and touches the limitations encountered.

2. Literature overview

Based on the existing literature, researchers employ two primary sets of conflicting explanations for explaining the effects of the use of compensation peer groups on CEO compensation. The first being market forces (executive pay reflects optimal contracting) and the second one being the managerial power hypotheses in which executive pay reflects rent extraction and managerial entrenchment (Pittinsky and DiPrete, 2013). The managerial power hypotheses is closely related to the strength of the corporate governance mechanisms within the respective company. In order to have a sound understanding of the forces that interact on the relationship of compensation peer groups on CEO compensation we need to define these concepts and analyze how they interact.

2.1 Agency theory and optimal contracting

The agency problem is first formulated in academic literature in de early 1970s and has become the dominant theory in explaining and setting executive compensation (Shapiro, 2005). Agency theory, also called the principal-agent theory, occurs when one person (the agent) is able and entitled to make decisions on behalf of another person (the principal). The CEO of a public company is an agent who is employed by shareholders, the principals, to make decisions on their behalf and in their

interest. The problem however arises when CEOs are not acting in the best interest of shareholders but rather are motivated by their own interests. The CEO and shareholders may have different goals and attitudes towards risk, creating conflicts in the contractual relationship. The main goal for an optimal contract is to align interests of both parties that are naturally incompatible. Prior research however has pointed out that the contracting processes of firms with their CEO is not efficient because managers will try to serve their own interests by maximizing their compensation packages and extract excessive rents (Bebchuk et al, 2003), thereby destroying value for the company and its shareholders. There are three fundamental assumptions underlying agency theory: Both parties are rational (1), self-interested (2) and the agent is both effort and risk averse (3) (Baiman, 1990).

There are several ways for shareholders to deal with the agency problem. First, compensation packages can be structured in a way that aligns the interests of both parties by offering performance based compensation such as bonuses, shares in the company or option packages. The second option for shareholders is to closely monitor CEO behavior. However, due to information asymmetry, this is costly and the specific CEO actions are often unobservable (Bloom and Milkovich, 1998). Based on the underlying assumptions of the model, the optimal compensation contract must reflect the trade-off between enough performance based compensation without shifting to much risk and compensation variability to the agent (Jensen and Murphy, 1990), this in turn would cause the agent to request to be compensated for this excess risk.

Based on the reasoning above if is not difficult to see why shareholders could be willing to agree on a compensation contract that rewards the CEO with a large compensation package with considerable bonuses in order to induce the CEO to act in their interests. By setting the optimal contract, shareholder value is created while preventing excessive rent extracting by the CEO (Goergen and Renneboog, 2011).

2.2 Managerial power and corporate governance

Based on the optimal contract we expect CEOs to be awarded for good performance and consequently being punished for bad performance. If executive compensation is really the outcome of market mechanisms and efficient contracting, it is hard to explain why poorly performing CEOs are still receiving bonuses. As an example see the recent case of Delta Engery's (a Dutch energy company) CEO receiving substantial bonuses while the company has serious financial and continuity problems. The managerial power hypothesis argues that there is no correlation between pay and performance, creating conflicts of interest and resulting in poor decision-making and excessive risk taking by executives. CEOs use their power and influence to inflate their compensation. Goergen and

Renneboog (2011) find that most of the existing literature supports the managerial power hypotheses in that CEOs are able to extract excess rents in the presence of weak corporate governance. Critics focus their attention on the board which is captured by the management as being responsible for excessive compensation practices. Boards which were appointed and dominated by the management and advised by management selected compensation consultants had little ability or incentive to negotiate effectively over compensation (Elson and Ferrere, 2013). CEO compensation can also favor managers in nonfinancial ways, CEOs prefer compensation to be decoupled from performance due to the fact that for a given amount of compensation, managers prefer to bear less risk (Bebchuk and Fried, 2004). The sensitivity of a CEO's total compensation to the performance of the company is commonly used as a measure for CEO risk. When this sensitivity is higher (lower), the more (less) the CEO's interests are aligned with the company's interests (Jensen and Meckling, 1976). As stated before, CEOs are risk averse and prefer less risk for a given level of compensation.
We expect CEOs to use their influence not only to increase their total level of compensation but also alter the structure of their compensation to be less sensitive to performance and therefore including less risk. The managerial power hypothesis predicts that this behavior by CEOs is stronger and more damaging in case of lacking corporate governance and thus depending on the company's governance and ownership structure. This excessive rent extracting can be prevented by ensuring there are effective corporate governance mechanisms in place. Often named measures of good corporate governance are having an independent the board of directors, separation of the roles of CEO and chairman (One-tier board) and disciplinary board turnover. These measures are intended to strengthen the board in their ability to control the CEO since the board decides on the CEO's compensation package. (Goergen and Renneboog, 2011). Other measures include the percentage of CEO stock ownership and the presence of institutional investors (Faulkender and Yang, 2012), which are generally seen as a way to prevent excessive rent extracting by aligning the interests of shareholder and the CEO (Bizjak et al, 2011). Another common used measure for the quality of corporate governance is the use of anti-takeover provisions as a proxy for managerial entrenchment (Albuquerque et al, 2012).

2.3 Compensation structures

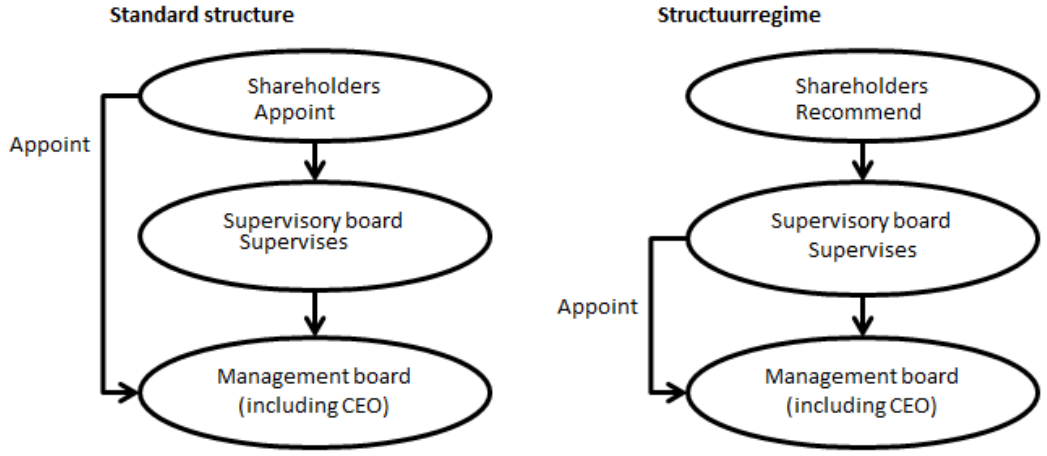
The level and structure of CEO compensation is an important tool in aligning conflicting CEO and shareholder interests without shifting to much risk to the CEO. Compensation packages consist of base salary, annual bonuses, stock awards, option grants, pension, benefits and perquisites. Other components of compensation are severance pay, golden parachutes and retirement plans. The different compensation components can be divided in compensation without risk and compensation at risk. Base salary, severance pay, benefits and perquisites are without risk for the CEO as they are

not performance related while the other components are dependent on performance and the well-being of the company. The compensation that includes a risk component can be divided in short term incentive pay, the annual bonus, and long term incentive pay; stock awards, option grants, pension and other forms of compensation. A mix of these compensation components is employed by companies to motivate the CEO and align the interest of the CEO with shareholders' interests. Long term (equity) compensation forces a CEO to focus on maximizing firm performance in the long term whereas short term compensation rewards a manager for this year's performance. There is an abundance of scientific literature on the effects of corporate governance on CEO compensation with mixed results (Core et al, 1999). One interesting study by Conyon and He (2011) finds that Chinese companies with more independent directors on the board show stronger pay-for-performance in their CEO compensation, indicating a better alignment of the interest of shareholder and the CEO. The same result is found in the United States by Mehran (1995) who argues that firms who employ a larger percentage of outside board members make greater use of equity-based compensation. An excessive focus on short term goals can lead to undesirable results such as CEOs manipulating accounting numbers and an excessive short term focus that harms the company in the long run. Next to the structure of CEO compensation depending on corporate governance and efficient contracting, the compensation structure of companies is driven by its economic characteristics such as complexity, CEO share ownership and prior accounting performance (Matolcsy and Wright 2011). Matolcsy and Wright (2011) find that, on average, companies are using efficient compensation structures. They find however that companies have a lower performance if compared to the market when they are using an incorrect compensation structure.

2.2.5 Compensation setting process

The prior listed indicators of corporate governance do not one-on-one apply to the Dutch business environment due to differences in regulation and business culture. Corporate governance in Netherlands in driven by the "Code Tabaksblat". This code applies to all companies with statutory residence in The Netherlands that are listed on the Dutch stock exchange (Tabaksblat). The application of this law aims at increasing the influence of the shareholders on the nomination of supervisory board members, approval of annual accounts and the executive compensation policy (Schnyder, 2012). However the abolishment of anti-takeover measures has not been included in the governance code, due to political resistance, and is a limiting factor on shareholder rights (Schnyder, 2012). This abolishment was considered to be a danger to the economy instead of being a control mechanism. Typically for large companies the "structuur regime" applies which transfers the election of the management- and supervisory board, including the yearly determination of the management board's compensation, to the supervisory board (Akkermans et al, 2007). Dutch companies mainly

apply a Two-tier board (in our sample only 5 companies have chosen to employ a one-tier board) with the supervisory board separated from the management board as opposed to the US system of the One-tier board. In theory there is more separation between the day to day management of the company (by the management board) and supervisory tasks performed by the supervisory board. As of the 1st of January 2013 companies that are subject to the structure regime are also able to opt for the One-tier board model, in which the board in composed of executive and non-executive directors. However, the One-tier board does not differ much from the Two-tier board is that the non-executive directors have powers similar to the Supervisory board and the executive directors have powers similar to the Management board. In the theoretical compensation setting process in The Netherlands, the supervisory board (often in conjunction with outside consultants) is responsible for determining the yearly CEO compensation package – the long term compensation policy needs approval from the Annual General Meeting – and is able to fire, hire and suspend the CEO if deemed necessary. The powers of the shareholders on yearly CEO compensation are transferred to the supervisory board, including the election of the supervisory board itself. The CEO should have no influence on this process but according to the managerial power hypothesis, the CEO can influence the process when the board of directors in not independent.



Because of the non-alignment of the interest of CEOs and owners (shareholders) there are two methods employed by the shareholders for aligning the interest and controlling CEO behavior. Compensation packages can be structured to include performance based compensation and therefore tie the level of compensation received by the CEO to the company's performance. However, because of the existing information asymmetry between the CEO and the shareholders, CEO performance and actions needs to be monitored by the Supervisory board. The supervisory board acts on behalf of the shareholders and is responsible for representing their interests. The set of rules and practices to align the divergent interests within a company is referred to as Corporate

Governance. The main indicators for the quality of corporate governance that are representative for Dutch companies are the strength and independence of the supervisory board (1) as the supervisory board is the empowered body to represent the interest of shareholders. Next also the presence of large shareholders (2), the percentage of stock ownership by the CEO (3) and the existence of anti-takeover measures (4) are important is quantifying the strength of corporate governance.

2.6 Compensation peer groups

2.6.1 Compensation benchmarking

In many firms the use of compensation peer groups is an important factor in determining CEO compensation, more than half (68%) of all companies listed on the three main Dutch stock indices disclose the use of peer groups in determining CEO compensation. These companies engage in benchmarking both the level of CEO's compensation package and the structure of this package. Compensation peer groups (also called Labor market peer groups) are constructed by companies to use as a reference point for the target compensation of high level executives serving on the Management Board. Companies take some measure, usually the median or above median (Target-pay percentiles), of the compensation component reported by the selected companies within the peer group and use this measure as a target level of compensation for their top-level executives (Bizjak et al, 2011). See for example the reference extracted from the Annual report of Randstad Holding NV regarding the benchmarking of Base salary.

Base salary
In line with the relevant size and profile of Randstad compared to the other companies included in the international labor market peer group, base salaries of the Executive Board members are set at between the median and 75% percentile level.

Source: Randstad Holding NV – annual report 2014

By tying their compensation to the selected peer group, companies make sure that the compensation level is competitive with the market level of compensation and allowing the company to be able to attract and retain their top executives, peer groups provide information to the Supervisory board for determining the competitive compensation level. One of the most obvious and researched problems with the use of peer groups for determining CEO compensation is that the process can be used to increase the pay level of the CEO by adjusting the selected peer group and/or the selected percentiles. This can lead to remarkable results such as two-thirds of the largest 1000 US corporations reporting beating the performance of their industry peers over the last five fiscal years (Murphy, 1995) and the vast majority of firms using peer groups setting compensation at or above the fiftieth percentile of the peer group (Bizjak et al, 2008). Because companies use compensation peer groups to stay competitive in the labor market, companies that are in the lower scale of the peer group distribution will upgrade the compensation of their high-level executives. This practice itself leads to an upward

movement in CEO compensation. Wages are set by supply and demand in the labor market and benchmarking is nothing else than looking at market prices (Holstrom and Kaplan, 2003). The practice of benchmarking has transferred a considerable amount of power from the Supervisory Board to the market. Elson and Ferrere (2013) argue that Supervisory boards are captured by the market and as such, they are forced to participate as "price takers" in the market for managerial labor.

2.6.2 Peer group selection

Previous research found the important elements that companies examine when selecting and evaluating the composition of the compensation peer group. Companies tend to select their peer group based on similar size and activity in the same industry. 62% of the selected peer group is from the same industry and 36% of these companies have revenues between 50% and 200% of those of the sample firms (Bizjak et al, 2011). Because size and industry have previously been shown to predict compensation, and theoretically the outside opportunity for a CEO would likely be a CEO position in a firm of similar size in the same industry, it is not surprising to see that the elements firm size and industry group are important elements to examine when evaluating and selecting the compensation peer group (Faulkender and Yang, 2010). Other elements found by Faulkender and Yang are CEO responsibilities (whether the CEO doubles as the chairman of the board of directors) and the index the firm is trading on (similar visibility). Firms tend to include peers that have similar-market to book ratios, similar accounting performance, similar credit ratings and similar geographic or product diversity (Bizjak et al, 2008). Bizjak et al (2011) find evidence for systematic biases in the composition of peer groups that are consistent with peer groups being constructed in such a way that it inflates CEO compensation. The source of this bias comes from targeting pay above the 50^{th} percentile and benchmarking the compensation against firms that are considerably larger. All else equal, companies are more likely to select larger and better performing peers compared to potential peer companies that are smaller and have worse relative performance. One of the main problems with CEOs inflating their compensation is the fact that compensation across different companies is now connected. When one company raises CEO compensation this has an upward effect throughout other companies who use this compensation in benchmarking their own CEO compensation. This process leads to structural and systematic effects that spread through the entire connected network (Elson and Ferrere, 2013). Compensation peer groups are easily manipulated in their composition given the lack of subjective criteria for peer inclusion (Elson and Ferrere, 2013). As discussed before, the practice of above median targeting of CEO compensation, relative to their peer group, leads to a rise in CEO compensation (leap-frogging). A potential mitigating factor is the use of dedicated peer groups in determining CEO compensation, one industry-specific peer group for determining the

CEO's compensation (and the labor market competition) and a broader compensation peer group for assessing the performance of the company and management. By using multiple peer groups, companies can exercise less discretion in selecting the compensation peer group.

2.6.3. Effects of corporate governance

The choice of the definitive compensation peer group is often a joint decision between the Board of Directors, the Remuneration Committee, which is a part of the Supervisory Board, and outside compensation consultants. The peer group is normally based on the company's long term Remuneration policy but peers can be, and frequently are, added or dropped on a yearly basis. This joint decision allows for potential influence and conflicts of interest between the different actors and creates biases in the peer group selection and benchmarking process (Bizjak et al, 2011). Therefore, the process is directly linked to the corporate governance characteristics of the specific company and the outcome is dependend on the strength of the corporate governance processes in place. Faulkender and Yang (2010) find four indicators of Corporate Governance that have a significant role in explaining companies selecting highly paid peers, (1) the CEO has longer tenure, (2) the companies compensation peer group is smaller, (3) the CEO doubles as the chairman of the board of directors and (4) the directors are busier as they are serving on multiple boards. Bizjak, Lemmon and Nguyen (2011) also find that CEO tenure has a significant effect on peer group biases, largely resulting in benchmarking above the 50th percentile of compensation and benchmarking against larger companies.

2.6.4 Peer group disclosure

The SEC identifies the concept of "benchmarking" as a subject for disclosure. "Information will be needed on the benchmark for any material element of an executive's compensation, including the component companies (peer group) used for the benchmark. In The Netherlands, the code "Tabaksblat" prescribes that as subject for disclosure is: "The composition of the group of companies whose compensation policies are being used in determining the level and structure of director compensation". Disclosure affects both the composition of executive compensation and the level (how much) of executive compensation by attracting public scrutiny (Iacobussi, 1998). Increased disclosure helps the shareholders to assess the structure of CEO compensation and asses to what extend the CEO's interests are aligned with their interests. With the disclosure of the compensation peer groups the shareholders gain access to more information on current market levels and structures of compensation and strengthens their analysis. The Supervisory Board including the compensation committee, who is in charge of the yearly compensation setting process, cares about their reputation and will put more emphasis on the opinion of shareholders in the pay setting

process. Shareholders care about the alignment of CEO compensation with their interests and this alignment is enhanced when CEO compensation is based on performance (Iacobussi, 1998). Bizjak et al (2011) found that increased disclosure has reduced the biases created in compiling the compensation peer group. Companies are now subject to scrutiny regarding their choice of peers and are acting less opportunistically. However, disclosed information on compensation of peer CEOs may help justify a CEO's demand for higher pay (Faulkender and Yang, 2010) and companies can choose to select highly paid peers to justify greater CEO compensation (Cadman and Carter, 2014). At its release in 2004, a critic on the code "Tabaksblat" was that increased disclosure would make it easier for CEOs to request a higher compensation due to the fact the they have full information on the compensation received by their peers and would not want to stay behind.

Companies engage in compensation peer group benchmarking to stay competitive in the labor market, peers are selected based on similarities in size, industry, visibility etc. These compensation peer groups are easily manipulated, most importantly by companies selecting bigger and better performing companies in their peer group and second, compensation is being targeted above the 50^{th} percentile of the selected compensation peer group. The composition of the peer group and the resulting biases, are dependent on the strength of the Corporate Governance processes in place. Powerful CEOs and captured boards will be inclined to include larger and higher paying companies in the peer group to obtain a higher level of compensation. Peers with different compensation structures, including less compensation at risk, can be included in the benchmarking process to justify a less risky compensation package for the CEO and create a bias in the optimal contract between the shareholders and the CEO. Based on the standard economic theory regarding corporate governance and agency theory, biases are expected to be found in the selected compensation peer groups that can help to explain the seemingly ever increasing CEO compensation. The compensation peer group provides companies with a seemingly legitimate, but freely adjustable, measure of the market level of compensation.

3. Literature review

The overwhelming majority of the existing academic literature on the effect of compensation peer groups on CEO compensation is exclusively based on companies in the United States who are subject to their specific business and governance characteristics. The results found is these studies however give a mixed picture on the practice of compensation benchmarking due to competing views on the economic importance of compensation benchmarking (Bizjak et al, 2011). On the one hand, compensation peer groups are an important and effective way for determining competitive wages (Holstrom and Kaplan, 2003). On the other hand, the general critic on compensation benchmarking is

that compensation peer groups are being opportunistically chosen and targeted in a way that inflates CEO compensation.

3.1. Prior research

In the existing literature, researchers employ a set of conflicting explanations on the effect of compensation peer groups on CEO compensation. One the one hand, the conclusion is that compensation peer groups are selected opportunistically to inflate or justify the CEO's compensation package. On the other hand, the relationship has been found to reflect compensation for CEO talent and peers are selected to reflect the market for CEO talent. This chapter will discuss the most important and relevant prior research by leading authors on the subject of compensation peer groups and their relationship with CEO compensation and corporate governance.

There are valid economic reasons for using compensation benchmarking in determining the compensation of CEOs and high level managers in general. Firms compete in the market for managerial talent and it is hard to set CEO compensation without reference to the prevalent supply and demand conditions in the managerial labor market (Elson and Ferrere, 2013). If the CEO's skills are valuable to outside organizations, benchmarking the compensation to the market level of compensation is a necessary means of retention. Holmstrom and Kaplan (2003) argue that "it is hard to see how pay levels can be set in a fair and efficient way without benchmarking". A common practice of the compensation committee is to benchmark compensation levels against companies with whom the firm competes for talent (Bizjak et al, 2008) and therefore tie compensation directly to the CEO's perceived outside opportunities. Others argue that using market data in determining the level and structure of CEO compensation is based on the false assumption that the role of CEO's and other executives are comparable across different companies. "Sometimes is does not matter what the other guy is doing," the most important aspect should be what compensation makes sense for a specific company based on the circumstances the company is in (Morgenson, 2006). Elson and Ferrere (2013) conclude that the practice of benchmarking executive compensation contributed to the problem of increasing pay in the United States, driven by the false belief that CEO's are interchangeable between similar organizations.

Although economic theory suggests that compensation peer groups are providing an efficient and necessary input for the compensation process, research found biases and opportunistic behavior in the selection process (Holstrom and Kaplan, 2003). Even after controlling for characteristics that would capture the competitive forces of the market for CEO talent, both Faulkender and Yang (2010) and Bizjak et al (2011) find that, although compensation peer groups are selected to reflect the market for managerial talent, compensation peer groups are constructed in a way that results in an

upward bias in CEO compensation. These results are interpreted in current research as reflecting the self-serving behavior of companies in which highly paying peer groups are selected to justify higher CEO compensation (Albuquerque et al, 2012). Even after the SEC's increased disclosure requirement regarding the self-selected peer group, companies continued to select peer companies that are paying their CEO generously (Faulkender and Yang, 2012). Pittinsky and DiPrete (2013) confirm that the bias in peer group selecting tends to be towards larger companies with better paid CEOs, this bias tends to be larger for companies that pay their CEO well relative to the compensation predicted by the company's revenues, return on assets and industry. It is not only the peer group selection process that possibly can lead to biases in the perceived fairness of the level and structure of CEO compensation. Bizjak et al (2008) found that in the benchmarking process, companies rarely target their compensation below the median of the peer group. Companies jumping to the upper tail of their peer group compensation distribution, also infecting the pay distributions of others, account for a large percentage of the recent rise in CEO compensation in the United States (DiPrite et al, 2010).

Research finding evidence for the self-serving use of compensation peer groups

Author(s)	**Year**	**Country**	**Findings**
Bebchuck and Fried	2004	USA	Powerful CEO's and co-opted board choose peer firms opportunistically to inflate CEO compensation.
Bizjak et al	2008	USA	CEO's receiving compensation below the median of their compensation peer group receive larger salary increases than then counterparts in companies of similar size, both in percentage and absolute terms.
Faulkender and Yang	2010	USA	Companies appear to select peer with relatively high compensation to justify their own CEO compensation. This effect is stronger in the presence of weak corporate governance – CEO doubles as Chairman of the board, CEO has longer tenure and the directors are busier serving on multiple boards.
Bizjak et al	2011	USA	Compensation peer groups are constructed in a manner that biases compensation upward. This effect is larger in less visible companies. Little evidence that these biases are related to the company's corporate governance specifics.
Faulkender and Yang	2012	USA	Companies select as their peers those companies that are paying their CEO generously. Opportunistic peer group

			selection and the resulting bias became more severe after mandatory disclosure, particularly in companies with weak corporate governance.
Elson and Ferrere	2013	USA	The practice of benchmarking executive compensation has contributed significantly to the rise in executive compensation. Companies are over-reliant on the flawed peer group process, driven by the false believe that CEO's are interchangeable.
Pittinsky and DiPrete	2013	USA	Peer groups tend to be biased towards larger firms with better paid CEOs. Companies with better paid CEOs are more likely to be selected in the compensation peer group.

Before- mentioned research explains the benchmarking of compensation to higher paying peer companies as a self-serving strategy aiming at increasing CEO compensation with mixed evidence on the explanatory power of various measures regarding the strength of corporate governance . However, other researchers propose a different set of explanations. Gianetti (2011) argues that compensation peer groups inflating compensation is not necessarily due to the self-serving behavior of executives. Companies making larger use of benchmarking find it optimal to commit to high compensation and make outside offers less desirable for their CEO because these firms tend to have high growth opportunities and a long-term strategy. These companies have much to gain from retaining their CEO. Cadman and Carter (2014) demonstrate that opportunism seems more evident with a broad pool of possible peer companies than with the actual selected group of peers which might be a better reflection of the market for managerial labor. The design choices researchers make regarding the pool of potential peers influence the conclusions. When the actual (disclosed) selected peer companies are analyzed, researchers found less evidence for CEO compensation inflating practices, the peers are employed to play a role in rationalizing compensation practices, they do not necessarily have a causal impact on CEO compensation (Pittinsky and DiPrete, 2013)

Other research on the self-serving use of compensation peer groups

Author(s)	**Year**	**Country**	**Findings**
Gianetti	2011	USA	High growth companies make larger use of compensation benchmarking and find it optimal because of long term CEO retention.

Cadman and Carter	2014	USA	When the actual (disclosed) peer companies are analyzed, there is less evidence for CEO compensation inflating practices. Design choices of the possible pool of peer companies influence the conclusions. The selection of actual peers from a pool of potential peers is not an optimal reflection of the labor market.
Albuquerque et al	2012	USA	The relation between the selecting of highly paid peers and CEO compensation mostly represents compensation for CEO talent. The effect of peer groups on CEO compensation is more consistent with the managerial labor market than with a weak corporate governance and managerial power.
Pittinsky and DiPrete	2013	USA	There is a lack of a direct causal connection between benchmarks and executive compensation. Compensation peer groups are employed to rationalize a given compensation package but do not necessarily have a causal impact on the compensation package.

3.2. Composition of peer groups

Both Bizjak et al (2008) and Bizjak et al (2011) found that the level of CEO compensation relative to the level of the selected peer group has a significant effect on future changes in CEO compensation. However, a direct causal relationship between benchmarks (the selected peer group) and executive compensation is not always found in prior research. It may be the case that the compensation peer group only plays a role in rationalizing and defending the level of CEO compensation (Pittinsky and DiPrete, 2013). A particular peer group can be selected to justify a particular compensation result, when this is the case the resulting compensation peer group is merely a result instead of the outcome of the company's compensation practices. The causal relationship in its normative way is for firms to choose an appropriate compensation peer group, to adopt a policy to determine where in the peer group distribution the company should place itself, and then do some calculations in order to arrive at the right compensation levels for its top level executives (Pittinsky and DiPrete, 2013). Prior research on the composition of peer groups has found that companies across all studies select their peer as should be expected based on standard economic theory, they select peers based on their similarity to the selecting company in order to closely represent the market for managerial talent. Faulkender and Yang (2012) found that there is a persistent problem in the composition of

compensation peer groups. Even when companies do use industry and size matching of their selected peer group, as economic theory suggests, they still select the ones where CEO's are highly paid.

Author(s)	Year	Common elements in peer group selection
Bizjak et al.	2011	Peer groups contain companies that are similar in size, industry, accounting performance and market-to-book ratios, credit ratings and visibility.
Albuquerque et al	2012	Companies are more likely to choose peers that have similar size and are active in the same industry to capture similarity in exposure to economic shocks. Other common elements include, profitability, growth opportunities, visability, credit rating, and complexity
Faulkender and Yang	2010	Industry and size are an important determinant of peer group composition. The level of compensation at the potential peers also plays a significant role.

The hypotheses that will be tested are based on the prevailing theory that CEOs are using the compensation benchmarking process when they have been empowered by a lacking strength of corporate governance. Following Bizjak et al, 2011, compensation peer groups are expected to be constructed in a manner that biases compensation upward. In order to distinguish between the two prevailing theories of peers being opportunistically selected versus the selected peers reflecting a well functioned market for CEO talent, the variation will be measured across multiple measures of corporate governance (Faulkender and Yang, 2012).

4. Hypotheses

Based on the theories and concepts discussed before, the three following hypotheses are proposed regarding the relationship between compensation peer groups, corporate governance and CEO compensation. The hypotheses will be operationalized in chapter 5 and tested in chapter 6.

Previous research found the important elements that companies examine when selecting and evaluating the composition of the compensation peer group; companies follow standard economic theory and tend to select peers that are similar to reflect the market for managerial labor. Although economic theory suggests that compensation peer groups are providing an efficient and necessary input for the compensation process, research found biases and opportunistic behavior in the

selection process. It is expected that, although compensation peer groups are found to be constructed to reflect the market for managerial talent, compensation peer groups are constructed in a way that results in an upward bias in CEO compensation. The previous chapters have pointed out the main sources of peer group biases; benchmarking against considerably larger companies (1), selecting high-paying companies (2) and targeting the compensation above the median of the compensation peer group (3).

H1: Compensation peer groups are on average biased towards larger and better paying peers.

In order to make any statement regarding the composition of peer groups and the effects of the corporate governance structure on these peer groups, we will need to understand the effect of compensation peer groups on CEO compensation in Dutch companies. We start with a baseline estimation of CEO compensation by regressing the company characteristics that have been identified in prior research (Core, Holthausen, and Larcker, 1999) and (Faulkender and Yang, 2010) as having an explanatory effect on the observed differences in CEO compensation. Subsequently various components of CEO compensation within the peer group, the median base salary and median total compensation, are included in the regression equation. How much of the variation in CEO compensation across Dutch companies can be explained by the selected company characteristics and does the addition of peer compensation measures increase the explanatory power of the estimated model? Based on the results of previous research we will formulate the hypothesis to imply a positive relation between the peer group measures and CEO compensation.

H2: The level of compensation received by the CEO is positively related to the compensation received by the CEO's of the selected peer group.

The main goal for an optimal compensation contract is to align the interests of parties that are naturally incompatible. If we believe that companies are using optimal contracts to align the interests of the CEO and shareholders, we expect the structure of compensation contracts to be similar across companies that are perceived as similar by the selecting company and are therefore selected to be in the compensation peer group. The managerial power hypothesis predicts that excessive rent extracting behavior by the CEO is stronger and more damaging in case of lacking corporate governance and thus depending on the company's strength of corporate governance and ownership structure. The amount of risk included in the compensation package of the CEO will be dependent on the corporate governance characteristics of the specific company. A weaker corporate governance structure will lead to interests that are not properly aligned and the CEO shifting risk from his

compensation package away to the company. The compensation peer group is used to represent the standard market compensation package and will be used to quantify potential biases incorporated in the compensation structure of the selecting company's CEO.

H3: The amount of risk faced by the CEO, compared to the selected compensation peer group, is negatively related to the the strength of the corporate governance structure.

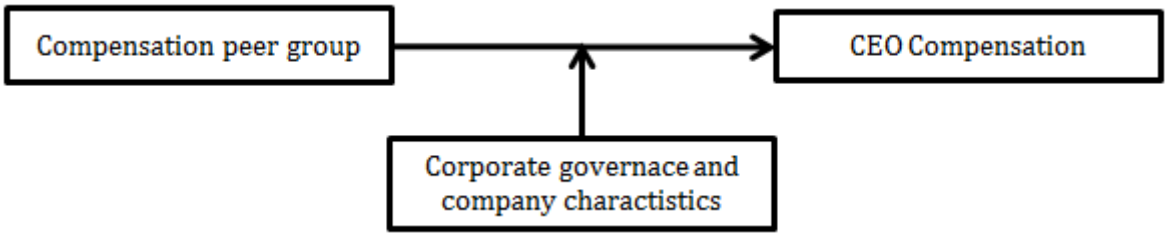
The results found for the formulated hypotheses will together provide enough evidence to answer the central research question. In de following chapter the hypotheses will be operationalized and transformed into statistical, testable, models, list the research design and the selected variables.

5. Data and Methods

5.1 Research design

The chosen method of research is quantitative in nature; data regarding company size and performance, CEO compensation, supervisory board and CEO characteristics is retrieved from scientific databases and annual reports. The data will be retrieved for companies listed on the Dutch stock exchanges that are reporting the use of compensation benchmarking in their 2014 annual report and are disclosing their actual peer companies. A key point in code "Tabaksblat" is the transparency in the determination and composition of the compensation of both the board of directors and the supervisory board. This research is made possible by a combination of this code (disclosure of the peers used) and the law regarding the disclosure of remuneration "openbaarmaking bezoldiging en aandelenbezit" which made the disclosure of the individual components of CEO compensation, for Dutch companies, mandatory since 2002. Throughout this paper it is assumed that companies select their peers based on the most recent information available, when selecting the compensation peer group for the year 2014 this will be the data from fiscal year 2013. The information that the Board of directors has on contemporary CEO compensation of their peers in setting the CEO compensation at the time of the compensation peer group selection is based on financial and compensation information the latest published annual report. This reasoning is also followed in the research done on the subject of peer groups by Faulkender and Yang (2010) and by Bizjak, Lemmon and Nguyen (2011).

The research question can be and conceptualized in the below model.



5.2 Models

In answering the first hypotheses an univariate analyses will be conducted to analyze the deviations in the characteristics of the selected compensation peer group when compared to the characteristics of the selecting companies. The available data used by the disclosing companies will be extracted and the differences in the means of financial measures regarding size, profitability and CEO compensation will be analyzed. Following the methodology of previous research, in creating the compensation peer group for the 2014 fiscal year, the disclosing companies will have used the data of the previous fiscal year, for this hypothesis we will therefore base our comparison on the 2013 fiscal year's data. When a statistically significant difference in the means of the selecting companies and the selected compensation peers has been identified, it can then be concluded that the compensation peer group selection process is biased. The measures that will be analyzed to capture the size effect are Total assets and Total sales and Market capitalization. The measure that will be analyzed to capture the performance effect is Earnings Before Interest and Taxes (EBIT) and the measures that will capture the compensation effect are CEO Base salary and CEO Total salary.

The second hypothesis will be tested by examining the relationship between the observed level of compensation received by the selecting company's CEO in the 2014 fiscal year and firm characteristics that have previously been shown to have an explanatory effect on CEO compensation. Different models will be estimated to understand the effect of the compensation received by the CEOs of the selected peers on the compensation of the selecting company's CEO. First a baseline model will be estimated to understand the variables that have an explanatory effect on CEO compensation. Afterward various components of peer group compensation will be incorporated in the model and after controlling for firm and corporate governance characteristics we will be able to isolate the peer compensation effect. Controls are necessary to capture the effect of both the strength of corporate governance and company specifics that have been found in previous research and economic theory to be associated with the level and structure of CEO compensation.

Total CEO compensation = B0 + B1PeerComp$_{(t-1)}$ + [B2Sales + B3Assets + B4EBIT + B5Cashflow + B6MTB + B7ROA + B8Volatility$_{(t-1)}$] + [B9MajorHolders$_{(t-1)}$ + B10Independence$_{(t-1)}$ + B11CEOTenure$_{(t-1)}$]

The term **[B2Sales + B3Assets + B4EBIT + B5Cashflow + B6MTB + B7ROA + B8Volatility$_{(t-1)}$]** contains the control variables for company specifics that have previously been shown to have an explanatory effect on CEO compensation. The term **[B9MajorHolders$_{(t-1)}$ + B10Independence$_{(t-1)}$ + B11CEOTenure$_{(t-1)}$]** will capture the effect of variations in the strength of corporate governance on CEO compensation. Taking the relatively small size of the sample into account; for several variables the natural logarithm will be used in order to overcome the skewness in the data, following the design of Faulkender and Yang J, 2010.

The third hypotheses will be tested by examining the relationship between the compensation structure of the CEO and governance characteristics. A model will be estimated to predict the sensitivity of CEO compensation to firm performance. Afterwards a measure for the risk faced by the CEOs within the selected compensation peer group will be added to the model in order to investigate potential biases, as measured by CEO risk. The variable Total CEO Risk is defined as the fraction of the total CEO compensation that is independent of the company's financial results and well-being. Note that we will only threat the base salary as risk-free compensation component. Total CEO risk is defined as: CEO Base salary/Total CEO compensation as reported.

Risk gap = B0 + [B1MajorHolders$_{(t-1)}$ + B2Independence$_{(t-1)}$ + B3CEOTenure$_{(t-1)}$] + [B4Sales + B5Assets + B6EBIT + B7Cashflow + B8MTB + B9ROA + B10Volatility$_{(t-1)}$]

The variable Risk gap is a construct representing the difference in risk contained in the compensation package of the selecting company compared to the selected peers average ratio of compensation at risk. Risk gap = Selecting company CEO risk – Average peer group CEO risk. The risk gap is being regressed on the various measures that have been found to be an indicator for the strength of corporate governance. The chosen control variables will capture the company attributes that are important in determining the optimal compensation structure, following the research of Matolcsy and Wright, 2011. Matolcsy and Wright (2011) found that, on average, companies are using efficient compensation. Following this reasoning we will also use this model to test the expectation that companies that have selected their peers based on their similarity are employing compensation contracts that contain comparable risk and incentives for their CEOs.

Below table lists the variables that are used across the regression models. The year behind the variable description shows to which fiscal year the variables relate in the regression. For various variables the lagged value is used.

Independent variable	**Total CEO compensation = as reported in the annual report and includes all components of compensation transformed to the natural logarithm (2014)**
Independent variable	**CEO Risk = Base salary / Total CEO compensation (2014)**
Independent variable	**Risk gap = Selecting company CEO risk – Average peer group CEO risk (2014)**
Measure for peer influence	**PeerComp = The median compensation received within the selected compensation peer group**
Company size indicators	**Sales = Annual revenue transformed to the natural logarithm (2014)**
	Assets = Total assets transformed to the natural logarithm (2014)
Company performance indicators	**EBIT = Earnings Before Interest and Taxes (2014)**
	ROA = Return on assets as measured by EBIT/Book value of assets (2014)
Company growth opportunities	**MTB = Total market capitalization / Book value of equity (2014)**
Company risk	**Volatility = As measured by the movement of the share price during the year. (Price High – Price Low) / Share price at year end (lagged variable - 2013)**
Cash availability	**Cashflow = Operating cashflow (2014)**
Corporate governance indicators	**Independence = Dummy variable that takes the value 1 if all Supervisory Board member are independent (2013)**
	CEOTenure = CEO Tenure as of the 1st of January 2014
	MajorHolders = The number of shareholders with holdings in the company of more than 3% (2013)

5.3 Data collection

To test the research question and corresponding hypotheses, I will make use of the available archival data which is retrieved from various databases. For retrieving the selected peer groups the annual

reports of the companies trading on the Dutch stock exchange, the AEX (Amsterdam Exchange Index), the AMX (Amsterdam Midcap Index) and the AScX (Amsterdam Smallcap Index) will be used. The data used for the analyses will consist of the companies that trade on the named indices (and disclose the use of compensation peer groups) together with the peer companies that are reported as being used for compensation benchmarking purposes. Companies are disclosing their selected peer group(s) and a corresponding analyses and discussion of the compensation benchmarking process, as required by "code Tabaksblat". The index composition used will be the composition as of the 31st of December 2014. The analyses will be limited to companies that are reporting the use of peer groups during the fiscal year 2014; those that do not make use of peer groups, or are not specifying the companies included in the peer group for their compensation, are dropped. For example in the 2014 annual report of Koninklijke Philps NV is it disclosed that "The Board of Management remuneration policy is benchmarked regularly against companies in the general industry" but no actual companies are disclosed. Furthermore, companies that are only employing benchmarking for the assessment of their Total Shareholder Return are also dropped. The peer group used for assessing the companies relative Total Shareholder Return does not represent the market in which the firm competes for managerial talent but is intended to reflect the market in which the company competes for investment.

The data needed for this comparison will be retrieved from the WRDS databases. For market capitalization, share price information, CEO compensation and other financial data the Compustat – Capital IQ database (People Intelligence, Amadeus, Global and North America) is used. The Bureau van Dijk (BvD) database is used to extract stock data for non-US companies – market capitalization and share prices. The before mentioned databases are found to be non-complete for mainly European companies, the available data is less structured for non-US companies. In case certain companies within the selected peer groups are not included in the databases, the information is hand collected from the company's annual report and other disclosures, mainly the remuneration report and remuneration policy are not always included in the annual report.

For examining the compensation structures of the selecting company and its chosen compensation peers the total reported compensation will be used together with the CEO base salary. The variable Total Reported Compensation is a function of base salary + annual bonus + pension and other annual compensation + long term incentives + all other compensation. The base salary has been selected to reflect the risk-free component in CEO compensation due to its worldwide comparability and applicability. In the sample use it shows that the variable "Annual Bonus" cannot be used to compare European CEOs (of which approximately 85% received an annual bonus) with their North American counterparts (of which only 25% received an annual bonus) while every CEO in the sample receives a

base salary. Conyon et al (2011) argue that there is a difference in compensation structures between European and US executives, mainly caused by the more prevailing use of stock and option awards in the US. In the absence of these performance incentives, European CEOs might be rewarded through their bonus plans, making a comparison based on annual bonus not a viable option.

Adjustments are made for several dual-listed companies encountered – Unilever, Relx and BHP Billiton, these companies are trading as separate entities on different stock exchanges. For this research these companies are treated for the full amount of their underlying financials.

Data regarding various measures of the quality of corporate governance are retrieved from the disclosing company's annual reports for the 2013 fiscal year. CEO Tenure is based on the selected company's annual report and if necessary enriched with data retrieved from bestuursvoorzitter.nl, a website aimed at disclosing compensation and governance data for listed Dutch companies. Ownership and Supervisory Board data is collected from the annual reports and if necessary enriched with data retrieved from the website of the Autoriteit Financiele Markten (AFM). The selected corporate governance measures will be related to the chosen peer groups as of fiscal year 2014. Because companies selected their peer groups at the beginning of the fiscal year 2014, these measures will be based on the available fiscal year 2013 data.

5.4 Summary statistics

The sample consists of a total of 75 companies, out of which 51 companies are disclosing the fact that they are using compensation peer groups in setting the level and/or structure of their CEO's compensation. Out of these 51 companies, 31 companies are explicitly disclosing a list of companies that are selected in the compensation peer group used. Taking into account the average size of the disclosed peer groups we have a total of 429 unique (disclosing company vs peer company) sets, with a total of 215 unique peers. As can be seen in Table 1, the median selecting company has a number of 13 peers, with a maximum of 26 and a minimum of 4 selected peers. An interesting fact is that bigger companies (as measured by market capitalization) trading on the AEX index, are more frequent users of compensation peer groups. This is possibly related to a more competitive market for managerial labor in which larger companies operate.

Tabel 1: Sample statisctics

Number of analyzed companies					75
Number of companies disclosing peer based compensation					51
Number of companies explicitly disclosing peers used					31
Index	Included companies	Disclosing peer based compensation	Percentage of index	Disclosing peer companies	Percentage of index
AEX	25	24	96%	18	72%
AMX	25	20	80%	10	40%
AScX	25	7	28%	3	12%
Total	**75**	**51**	**68%**	**31**	**41%**

As expected, the selecting companies focus primarily on European companies when selecting their peer as can be seen in the geographical distribution of the selected peers. This reflects the fact that these companies are likely to be most comparable due to compensation culture and business environment. When companies find it difficult to find comparable peers in Europe, due to industry and size specifics, they tend to select their North American counterparts in the compensation peer group. Out of all the selected peers, 58 percent belong to the same industry category as measured by the Standard Industry Classification Code (SIC-code). This indicates that the variable Industry is an important factor for companies in determining the composition of their compensation peer group. The median selected peer has the likelihood of between 58% and 68% to be included in the same size group - between 50% smaller and 150% larger - depending on the selected financial indicators. The only exception here is regarding the CEO base salaries. The median base salary has a likelihood of 97% to be in the same size group of the selecting company. All financial data is based on the 2013 fiscal year, this was the most recent available when composing the compensation peer group.

Table 2: Details on disclosed peers

Size of the compensation peer group				
Mean	St. Dev	Median	Maximum	Minimum
13.84	4.73	13	26	4
Percentile distribution of peers				
10th	25th	50th	75th	90th
8	11	13	16	20
Gheographical distribution of peers				
The Netherlands			**184**	42.9%
Europe			**174**	40.6%
United Kingdom		*64*		
France		*35*		
Germany		*27*		
North America			**69**	16.1%
Others			**2**	0.5%
Total Peers			**429**	100%
Percentage of peers in size groups				
Same SIC industry catergory				57.8%
Total assets group				64.5%
Total sales group				67.7%
Market capitalization group				61.3%
EBIT group				58.1%
CEO Base Salary group				96.8%
CEO Total Salary group				67.7%

The below table provides information on the economic characteristics of the selecting companies versus the economic characteristics of the selected peers. Due to the relatively small size of the sample used and the specific characteristics of the selected companies there is a distortion in the data. Together Aegon NV (Insurances) and Royal Dutch Shell Plc (Oil and Manufacturing) make up for 72% percent out of the Total Assets and 65% out of the Total Sales of all selected companies – see graph 1 for more details. It has been decided to exclude both companies in answering Hypothesis 1 on companies selecting bigger and better paying peers in their compensation peer groups.

The below descriptive data of the disclosing companies and their selected peers is based on the available data of fiscal year 2013. The financial indicators regarding size, performance and CEO compensation are, on average, compared to the financial indicators retrieved for the selected peer group. The disclosing companies tend to select on average larger, more profitable and higher paying peer in their compensation peer group, this effect being more pronounced after the removal of the previously discussed outliers.

Table 3: Financial statistics

Characteristics	Selecting company	Selected peers average	Difference	
All selecting companies				
(in mln eur)			Absolute	Percentage
Total assets	27,454	35,920	8,466	31%
Total sales	18,715	14,014	-4,702	-25%
Market capitalization	14,753	14,572	-181	-1%
EBIT	1,367	1,505	137	10%
(in eur)				
CEO Base Salary	740,930	770,257	23,779	3%
CEO Total Salary	2,633,497	3,523,665	850,110	32%
Base salary/Total salary	0.39	0.37	-0.02	-5%
Corrected for Aegon and Royal Dutch Shell				
(in mln eur)				
Total assets	8,210	13,284	4,825	57%
Total sales	7,060	10,891	3,559	48%
Market capitalization	9,355	11,415	1,485	15%
EBIT	703	1,002	260	35%
(in eur)				
CEO Base Salary	714,851	745,046	22,016	3%
CEO Total Salary	2,545,276	3,340,638	795,363	31%
Base salary/Total salary	0.40	0.38	-0.02	-5%

Table 4 lists the overall statistics for the selected measures that will be used to assess the quality of corporate governance. The average ownership by major shareholders is 38.57% and there is an average of 5.06 major shareholders for each disclosing company. The supervisory board does on average hold a total of 7.19 members out of which 90% can be considered independent according to the Dutch governance code (Code Tabaksblat). The average CEO tenure is 5.48, given that the CEO Tenure is calculated as of the beginning of the 2014 fiscal year. All other governance measures are related to the 2013 annual report. This lagged data is used because the CEO compensation package will be determined before or the latest in the very beginning of the 2014 fiscal year.

Table 4: Governance statistics

All selecting companies	Average
Ownership statistics	
Major shareholders ownership %	38.57%
Major shareholders count	5.06
Supervisory board statitics	
Size of the Supervisory board	7.19
% of board members indendent	90.00%
CEO Tenure in years	5.48

6. Results

After defining the models and variables used, the methods for collecting the necessary data regarding the selected variables have been described. In the following chapter both the economic and statistical significance of the results found will be listed and explained. The chapter is divided according the three hypotheses and will conclude with a summary of the rejected and accepted hypotheses.

6.1 Peer group biases

In order to investigate possible biases in the peer group composition, the financial characteristics of the selecting companies and the selected peers will be compared. Since the selected peers are similar to the selecting company, as measured in size, performance, CEO compensation and industry, the biases is expected to result from targeting against larger, better performing and higher paying peers. This comparison is made by using the most recent financial data that will be publicly available when setting the compensation of the CEO for the 2014 fiscal year, which is the data retrieved from the selected peers 2013 annual reports. Following hypothesis one, characteristics regarding size (measured by assets, sales and market capitalization), profitability (measured by EBIT) and CEO compensation will be used to measure bias.

The means of the financial characteristics are tested for a significant difference by using the paired two sample t-test. De results on the averages of the financial and compensation characteristics (median compensation statistics) can be found in Table 5a (5b). The differences in the means for Total assets (p-value 0,0167), Total sales (p-value 0,0300) and EBIT (p-value 0.0033) have been found to be statistically different from zero, indicating a bias in the peer group selecting process. The average disclosing company has a preference, when composing the compensation peer group, for larger and more profitable companies. The third measure of company size, market capitalization, has not been found to have means that significantly differ between the selecting company and the selected peer group.

When we look into the compensation characteristics we find that there is a statistically significant difference between the average Total Salary received by the CEO of the disclosing company and the average Total Salary received by the CEOs within the selected compensation peer group (p-value 0,0012). The disclosing companies seem to have a clear preference for higher paying peers to be selected in the compensation peer group. There is no bias found regarding the CEO Base Salaries, these are very similar across the disclosing companies and their selected peers, the difference on average being only EUR 807. On the one hand this result points to an optimal benchmarking process

where CEOs are earning comparable base salaries across the, as perceived by the selecting company, similar companies. In this case the selected peers reflect the market for managerial labor and the CEO's outside opportunities. On the other hand, this can be explained as an indicator that the compensation peers are merely selected in order to justify an already set level of Base Salary. We will explore these two conflicting points of view below in more detail by comparing the pay increases of CEOs that are receiving base salaries below the median of the peer group with the pay increases of CEOs that receive an above median level of compensation.

Table 5a: Analyses of peer group biases (29 oberservations)

Characteristics	**Selecting company**	**Selected peers average**	**Difference**	**p-value**
Financial indicators (in mln eur)				
Total assets	8,210	13,284	5,074	0.0167
Total sales	7,060	10,891	3,831	0.0300
Market capitalization	9,355	11,415	2,060	0.1680
EBIT	703	1,002	300	0.0033
(in eur)				
CEO Base Salary	714,851	743,308	28,457	0.3942
CEO Total Salary	2,490,516	3,329,002	838,486	0.0012

Although the total CEO compensation of the selected peers is on average considerably higher than the compensation received by the CEOs in the selecting company, this does not necessarily have a causal effect on compensation. Common practice in compensation benchmarking is using the median of the selected compensation peer group for benchmarking purposes. Companies aim their (components of) compensation to be at a certain relationship to the median of the compensation peer group. Not one of the companies in the sample states a benchmark targeted at the average of the peer group, all are using the median as a benchmark or are not disclosing the exact benchmark.

When the median 2013 compensation of the selected peer is taken into account, there are no significant differences found between the means of CEO Base salary (p- value 0.9825) and CEO Total salary (p-value 0.4028).

Table 5b: Analyses of peer group biases (29 oberservations)

Characteristics	**Selecting company**	**Selected peers median**	**Difference**	**p-value**
CEO Base Salary	714,851	715,658	807	0.9825
CEO Total Salary	2,490,516	2,672,314	181,798	0.4028

Compensation peer groups are on average biased towards larger and better performing peers**.** There is no statistical evidence found in the sample regarding a bias toward better paying peers, the medians of the selecting companies and the compensation peers are surprisingly similar. We need to keep in mind that we can still expect the selected compensation peer group to have an increasing effect on the level of CEO compensation of the selecting company due to the prevailing practice of above median targeting. When in this case the means are statically similar, the actual compensation is commonly being targeted to be above the market level of compensation. The market level of compensation, as perceived by the selecting company, is implied by the median of the selected compensation peer group. Next we find circumstantial evidence in the salary increases received by CEOs in 2014. When selecting the compensation peer groups to be used for the 2014 fiscal year's compensation a total of 20 (9) CEO were receiving a base salary below (above) the median of their selected compensation peer group. CEOs that were paid below the median receive on average a base salary increase of 9 percent while the CEOs paid above the median receive a considerably smaller increase of 4 percent. For the total reported compensation the effect is even more pronounced: CEOs earning below the median (14) receive an increase of 30 percent while CEOs earing below the median receive (15) a 9 percent increase.

The expectations when formulating hypothesis 1 were that the peer group are biased toward larger and better paying peer companies. The bias towards larger peer companies has been confirmed by testing the means of various company size indicators. The bias towards better paying peers has not been confirmed when testing the mean difference of Base salaries and Total compensation, the compensation of the selected peers is on average very similar to that of the selecting company. The increasing effect of the compensation within the peer group is mainly driven by the above-median targeting of compensation and CEOs receiving, on average, larger salary increases when paid below the median of the selected compensation peer groups.

6.2 Effects of peer group on compensation

Table 6 states the result of the regression analyses performed on the determinants of the Total CEO compensation of the disclosing companies. Three models are estimated to investigate the effect of compensation peer groups on CEO compensation in the selecting company. First the baseline model is estimated to investigate the variables that have an explanatory effect on the level of CEO compensation. This model will be extended with incorporating the peer group compensation. The measures chosen to represent peer compensation are the median base salary within the selected peer group (model 2) and the median total CEO compensation within the selected peer group. By using these 2 extreme measures, base salary being the most narrow measure and total

compensation being the most complete measure, we are able to capture the entire spectrum of a CEO's compensation package. All peer group compensation variables relate to the fiscal year 2013 compensation.

Table 6: Analyses of the peer group pay effect

Dependent variable	**LN-CEO Total as reported compensation (Model 1)**	**LN-CEO Total as reported compensation (Model 2)**	**LN-CEO Total as reported compensation (Model 3)**
Independent variables			
LN-Median base salary peers		**1.25082** (0.00585)**	
LN-Median total compensation peers			**0.47404** (0.00204)**
Control variables			
LN-Total sales	**0.13373* (0.05759)**	**0.25919** (0.02278)**	**0.24536** (0.02369)**
LN-Total assets	**0.20319** (0.02207)**	-0.16761 (0.18105)	-0.09502 (0.377)
EBIT	-0.00009 (0.38608)	-0.00007 (0.45302)	-0.00008 (0.39863)
Net cash flow	0.00005 (0.38551)	0.00004 (0.38584)	0.00005 (0.31761)
MTB	**0.08514** (0.02119)**	**0.07506** (0.0382)**	**0.06962** (0.04343)**
ROA	**0.06666** (0.00053)**	**0.07332** (0.00014)**	**0.06695** (0.00019)**
Share volatility	0.27283 (0.15257)	**0.30699* (0.08602)**	0.22574 (0.18144)
Shareholders +3% count	**-0.08611** (0.03844)**	-0.0544 (0.16232)	-0.05258 (0.15505)
Board independence	0.02085 (0.9055)	0.00237 (0.9883)	0.10368 (0.49434)
CEO Tenure	**0.06975** (0.00157)**	**0.05688** (0.00671)**	**0.0482** (0.01665)**
Intercept	10.99111** (0.00000)	-4.00641 (0.41833)	5.51654** (0.00277)
Adjusted R2	0.80	0.83	0.85

Notes for table 6 and 7

The stated values are the coefficients of the variables included in the regression with the corresponding p-values between brackets. Standard scientific practice will be followed in setting the significance level to 0.05. When the p-value of the coefficients is below 0.05 it can be conclude that the observed relationship is generated by the sample and is not due to random sampling error.
In order to support the economic understanding of the estimated models, also the coefficients with a significance level of below 0.10 will be treated as having explanatory power. These coefficients are weakly statistically significant and will be treated accordingly. These variables have no direct explanatory power in answering the hypotheses.
**Coefficient is significant at the 5 percent level * Coefficient is significant at the 10 percent level

Adjusted R2 is employed to asses the explanatory power of the regrossion models. One of the main advantages over ordinary R2 is the fact that the Adjusted R2 only increases if the newly added variable improves the model opposed to ordinary R2 which increases with every newly added variable.

The baseline estimation (Model 1) shows a statically significant explanatory effect of company size (as measured by Total sales and Total assets), company performance (as measured by MTB and ROA) and corporate governance (Major shareholders and CEO Tenure) on the observed level of CEO compensation. By having transformed both the dependent variable and several of the independent variables to their Natural logarithm a Log-Log regression has been created. In order to correctly interpret the regression coefficients we need the coefficient of the specific variable to be statistically significant (1), practically significant (2) and all other variables are assumed to remain constant (3).

The coefficients of the variables Total sales (0.13373) and Total assets (0.20319) are positive, consistent with our expectations and economic literature, indicating that CEOs in bigger companies (as measured by assets and sales) receive a higher level of compensation. Every 1 percent increase in the Total sales (Total assets) causes a 0.13 (0.20) percent increase in total CEO compensation. An increase in company performance, as measured by the Market to Book ratio and the Return on Assets, has a positive effect on the level of CEO compensation, consistent with the expectation that CEOs of better performing companies receive a higher level of compensation. A one unit increase in the MTB ratio (ROA ratio) has an increasing effect of 8.9 (6.9) percent on the total level of CEO compensation. Next to the financial characteristics that have been found to have an explanatory effect on the level of CEO compensation the model also show a significant effect of two indicators of corporate governance. The number of major shareholders has an explanatory effect on the observed level of CEO compensation; the presence of one extra major shareholder decreases CEO compensation with 8.2 percent. An opposite effect can be found in CEO tenure, one extra year of tenure for the CEO leads to an increase in CEO compensation of 7.2 percent. Both effects are in line with expectations and prevailing evidence found in the economic literature.

In model 2 we are interested in the effect of a change in the Median base salary within the selected peer group on Total CEO compensation and variable has been added to the baseline estimation. The coefficient (B1) of Median base salary peers is 1.49, representing the partial elasticity of Median base salary peers to Total CEO compensation. The coefficient can be interpreted as the percent change in Total CEO compensation given a percentage change in the Median Base salary of the selected peer group while holding all other variables constant. The coefficient can be stated as B1= %Δ Total CEO compensation**/**%Δ Median base salary peers which can be restated to: %Δ Total CEO compensation = 1.49 * %Δ Median base salary peers . In our model we find that an increase of 1 percent in the median base salary of the peer group causes an 1.49 percent increase in total CEO compensation. The control variables regarding company size (Total sales), company performance (MTB and ROA) and corporate governance (CEO tenure) retain their statically significant explanatory effect on the observed level of CEO compensation.

In the third model the effect of the Median total peer compensation on Total CEO compensation is being investigated. The coefficient of Median total compensation peers is significant and positive. In our model we find that an increase of 1 percent in the median total compensation of the peer group causes a 0.49 percent increase in total CEO compensation while holding all other variables constant. The control variables regarding company size (Total sales), company performance (MTB and ROA) and corporate governance (CEO tenure) retain their statically significant explanatory effect on the observed level of CEO compensation.

Hypotheses 2 states that the level of compensation received by the CEO is positively related to the received compensation of the CEO's in the compensation peer group. When controlling for the determinants of CEO compensation as per standard economic theory, this positive effect has been has been confirmed by the estimated models. Higher base salaries and total compensation within the selected compensation peer group correspond to the CEO's of the selecting companies receiving a higher total compensation. When adding the compensation components base salary and total CEO compensation to the baseline estimation, the explanatory power (as measured by the adjusted R2) of the baseline estimation increases from 0.80 to 0.83 for model 2 and to 0.85 for model 3. The explanatory power of our model with regards to the level of CEO compensation increases with the adding of the peer compensation components. Both variables have an additional explanatory effect on total CEO compensation when added to the baseline estimation; therefore hypothesis 2 will be accepted.

6.3 CEO risk and corporate governance

The third hypothesis aims at understanding the relationship between the structures of CEO compensation and corporate governance. The dependent variable CEO Risk is constructed to reflect the risk included in the CEO's compensation package. The variable is the fraction of CEO compensation that is not affected by firm performance and is measured by dividing the base salary by total reported compensation. A lower score implies more risk for the CEO and hence a bigger score implies less risk due to a larger portion of the compensation will consist of base salary.

In the baseline estimation (model 1) we find a statically significant effect of Total Assets, Return on Assets and CEO tenure on the observed CEO Risk. All three coefficients are negative indicating that an increase of each of the variables results in a higher amount of risk in the CEO's compensation package. The economical explanation for these coefficients may be found in our prior results that indicate that the level of CEO compensation increases with (among others) total assets, Return on Assets and CEO tenure. CEOs of better performing companies (as measured by ROA) are expected to receive more compensation in the form of bonuses and stock rewards, while the base salary remains

constant as it is not dependent on the company's performance. Seeing that base salaries do not show much variation between CEOs of the selecting companies and their selected peers we can assume that an increase in total compensation, while holding equal the base salary, inherently increase the risk included in the CEO's compensation package. An increase in the CEO tenure with one year increase the CEO risk with 0.013, which does not seem to be a substantial amount but we have to keep in mind that the average CEO risk is 0.39. A decrease of 0.013 would for the average CEO mean a 3 percent reduction of CEO risk ratio.

Table 7: Analyses of the peer group risk effect

Dependent variable	**CEO Risk (Model 1)**	**CEO Risk (Model 2)**	**CEO Risk Gap (Model 3)**
Independent variables			
Base salary/Total reported peers		**0.49734** (0.04451)**	
Shareholders +3% count	0.00961 (0.40127)	-0.00201 (0.86472)	-0.01312 (0.25714)
Board independence	-0.00473 (0.9256)	-0.00399 (0.93175)	-0.00493 (0.92271)
CEO Tenure	**-0.01272** (0.03162)**	-0.00571 (0.35513)	0.00118 (0.83249)
Control variables			
LN-Total sales	-0.00446 (0.81833)	0.02631 (0.26052)	**0.05792** (0.00686)**
LN-Total assets	**-0.04665* (0.06215)**	**-0.04767** (0.04088)**	**-0.04892* (0.05227)**
EBIT	0.00001 (0.71785)	-0.00001 (0.82432)	-0.00002 (0.56075)
Net cash flow	-0.00001 (0.74281)	0.00000 (0.82487)	0.00000 (0.83702)
MTB	-0.00336 (0.73548)	0.00458 (0.64428)	0.01282 (0.20825)
ROA	**-0.01792** (0.00101)**	**-0.01517** (0.00308)**	**-0.0127** (0.01339)**
Share volatility	-0.0066 (0.90198)	0.02429 (0.63774)	0.05231 (0.33651)
Intercept	0.97682** (0.00002)	0.52648* (0.06235)	0.07215 (0.69097)
Adjusted R2	0.58	0.64	0.36

Model 2 is estimated to understand the connection of the average CEO risk within the selected peer group with the CEO risk of the selecting company. The coefficient of Base salary / Total reported peers represent the average CEO risk within de selected peer group. This coefficient is highly significant, both economically and statistically and indicates a strong explanatory effect of the composition of the salary packages in the peer group on the compensation package of the selecting

company's CEO. An increase (decrease) of 1 unit of Base salary/Total reported peers has an increasing (decreasing) effect of 0.5 units on CEO risk. The change in the independent variable is highly related to changes in the dependent variable, indicating comparable compensation packages between the selecting companies and their peers. Both the coefficients of Total assets and Return on assets retain their economical and statistical significance.

In the third model the effect of various measures of the strength of corporate governance are being regressed on the CEO risk gap to investigate the expected decreasing effect that a lacking strength of corporate governance is expected to have on CEO risk. The Risk gap represents the difference in the risk faced by the CEO of the selecting company and the risk faced by the CEOs within the selected compensation peer group. A negative number of the variable represents more risk faced by the CEO of the selecting company compared to the average of the CEO. The lower bound of the Risk gap in our model is -0.26, representing a compensation package that consists of 12 percent base salary for the selecting CEO compared to on average 37 percent for the selected peers. On the other end of the spectrum we have an upper bound of 0.24, representing a compensation package for the selecting CEO of 69 percent base salary compared to an average of the peer group of 45 percent. The expectations regarding the effect on corporate governance on CEO risk are not confirmed in the estimated model.

Next to the coefficients of Total assets and Return on assets, who retain their economical and statistical significance, also the coefficient of Total Assets has a significant explanatory effect on the CEO risk gap. There is a mixed effect regarding the effect of company size on the CEO risk gap, indicating an increasing risk gap score with an increase in Total sales and a decreasing risk gap score with an increase in total assets. The coefficient of Return on assets retains its negative coefficient and is indicating that CEOs of better performing companies (as measured by Return on assets) have a compensation package that contains a larger amount of risk compared to their selected peers, this result can be linked to our results in hypotheses one and two which shows that the total level of CEO compensation increases with Return on assets. CEOs in better performing companies are expected to receive higher bonuses, stock rewards and stock options while the base salary remains constant. The economic explanation of this result is that an increase in total compensation, while holding constant the base salary, has an increasing effect on the selecting company's CEO risk.

6.4 Summary of results

The results regarding the formulated hypotheses are listed in below table.

Table 8: Results on hypotheses

Hypothesis	Result	Details
H1: Peer groups are on average biased towards larger and better paying peers	Accepted	Both the size and the compensation bias have been confirmed
H2: The level of CEO compensation is positively related to the compensation within the selected peer group	Accepted	Positive effects of peer group base salary and total compensation have been confirmed by the model
H3: The Risk gap is negatively related to the the strength of the corporate governance structure	Rejected	No evidence found across all selected governance measures

The results of hypotheses 1 and 2 confirm the expectations, as formulated in the hypotheses and prior research on the subject. Prior research by Pittinsky and DiPrete (2013) found that peer groups tend to be biased towards larger firms with better paid CEOs. Both Faulkender and Yang (2010) and Bizjak et al (2011) found that, although compensation peer groups are selected to reflect the market for managerial talent, compensation peer groups are constructed in a way that results in an upward bias of CEO compensation. An increasing effect of the selected peer group on CEO compensation has been explored before in the North American market by Elson and Ferrere (2013) who found that the compensation benchmarking process leads to structural and systematic effects that spread through the entire connected network because the compensation of CEO is now connected through the peer group. Faulkender and Yang (2010) confirmed that the compensation bias in selecting the peer group appears to contribute to the ever increasing trend of CEO compensation over time. The strength of the corporate governance within the selecting companies (Hypothesis 3) has not been found to have the expected decreasing effect on the risk incorporated by the CEO's compensation package. This result is confirmed by Albuquerque et al (2012) who found that the effect of peer groups on CEO compensation is more consistent with the managerial labor market than with a weak corporate governance and managerial power.

7. Discussion

This research has investigated the effect of compensation peer groups on CEO compensation. Subject of the investigation are Dutch listed companies that are disclosing the use of compensation peer groups and are disclosing the actual peers used in the benchmarking process. The expectations regarding the biases in the peer group selection process and the effect on CEO compensation are formulated based on and standard economic theory and previous research on the subject. The expectations are translated into hypotheses which are subsequently tested against the collected data. The results are consistent with 2 out of 3 of the formulated hypotheses, one hypotheses has to be rejected due to the result be non-significant and deviating from our expectations. In the following chapter we will state the conclusions and the answer to the research question. Next we will state the

recommendations regarding policy implications and the possibilities for future research on the subject and finally we will conclude with the limitations encountered during the research.

7.1 Conclusion

This research aims at understanding the effect of compensation peer groups on CEO compensation and how is this relationship being influenced by the corporate governance structure. The results show the selected compensation peer group having an increasing effect on the level of compensation received by the CEO. No significant effect of corporate governance has been found, indicating that the peer group is an efficient representation of the market for managerial labor.

We find that on average the peer group selection process is biased toward bigger and better performing peers. Companies tend to select peer that generate more sales, employ more assets and have better performance as measured by earning before interest and taxes. On average, there is no statistical evidence found in the sample regarding a bias toward selecting better paying peers to be included in the peer group.

The compensation across the CEOs in our sample is surprisingly similar, possibly indicating that the compensation peer group is merely a result of the company's existing compensation practices and is not in itself a determinant of CEO compensation. While in the case of CEO compensation the means are statically similar if we look at the statistics at the moment the peer group is constructed, the actual 2014 compensation is commonly being targeted to be above the market level of compensation. The market level of compensation, as perceived by the selecting company, is implied by the median of the selected compensation peer group. Since the 2014 CEO compensation is commonly being targeted to be above the median, and hence above the market level of compensation, the compensation earned by the median CEO in the peer group has an increasing effect on the 2014 CEO compensation. Finally, consistent with the results found by Bizjak et al (2008), we find that CEOs who are paid below the median of their selected peer group (fiscal year 2013 salaries) receive on average a larger increase in both their base and total compensation for the 2014 fiscal year compared to their above median counterparts. This so called leap-frogging of CEOs confirms our expectations bases on similar results found by DiPrite et al (2010).

The evidence found for hypothesis 1 shows a that the peer group selection process is biased towards larger and more profitable peers. The biases towards better paying peers is largely indirect, driven by the practice of above-median targeting and CEOs leap-frogging across the distribution.

A model of CEO compensation has been estimated based on the determinants found in previous research and economic theory. The observed level of CEO compensation in our sample has been

found to be a function of company size (as measured by Total sales and Total assets), company performance (as measured by MTB and ROA) and corporate governance (Major shareholders and CEO Tenure). Consistent with our expectations and economic literature we find that CEOs in bigger companies (as measured by assets and sales) receive a higher level of total compensation. Besides the measures for company size, a positive effect of company performance , as measured by the Market to Book ratio and the Return on Assets, on the level of total CEO compensation has been found, indicating that an increase in company performance increases CEO compensation. In order to investigate the effects of corporate governance, three measures have been incorporated in the model. Throughout all estimated models the variable CEO tenure has been found to have a positive effect on the total level of CEO compensation, an increase in the CEO's tenure has an increasing effect on compensation. All explanatory variables are in line with the formulated expectations and economic literature, both in their economic are statistical significance.

When adding the median base salary and total compensation to baseline estimation we find an economically and statistically significant positive effect of the peer group on CEO compensation, the selected compensation peer group has an additional explanatory effect on the level of CEO compensation. The base salary and total compensation earned by the median CEO within the compensation peer group has an added explanatory effect on the observed level of compensation received by the CEO over 2014. An increase of 1 percent in the median base salary (median total salary) of the peer group causes a 1.49 (0.49) percent increase in total CEO compensation while holding constant all other determinants of CEO compensation. The change that the peer group does not have an influence on CEO compensation is smaller than 1 percent. The results found enable us to accept hypothesis 2, we are 99 percent sure that the peer group has an increasing effect on CEO compensation and can confirm our second hypothesis. This result has been found before in the US market by Faulkender and Yang (2010), Bizjak et al (2011) and Elson and Ferrere (2013).

For the third hypothesis we investigated the influence of corporate governance on the peer group benchmarking process. The methodology used in answering the second hypothesis has been applied. A baseline model has been estimated to investigate the determinants of CEO Risk. The variables Total assets, Return on assets and CEO tenure have an significant explanatory effect on the observed CEO Risk. CEOs of better performing companies (as measured by ROA) are expected to receive more compensation in the form of bonuses and stock rewards. Out of all 3 measures used regarding the strength of corporate governance only the variable CEO tenure has been found to have a significant effect on CEO risk – and only in the baseline estimation. When adding the peer group measures the significance of the variable CEO tenure disappears.

After incorporating the CEO risk within the peer group we find that CEOs of similar companies, as perceived by the selecting company, tend to have a similar amount of risk included in their compensation package. The risk faced by the selecting company's CEO is highly related to changes in the risk faced within the selected peer group, indicating comparable compensation packages between the selecting companies and their peers confirming the expectations that CEOs of comparable companies should have comparable compensation packages. Due to the similarity of the CEO compensation between the selecting companies and their selected peers we can regard the compensation peer groups as an efficient representation of the market for managerial labor. This result confirms the findings of Matolcsy and Wright (2011) who found that, on average, companies are using efficient compensation.

The expected relationship between the strength of corporate governance and the CEO risk gap has not been found to be both economically and statistically significant. CEOs are expected to negotiate their compensation package to include less risk in case of weaker corporate governance but this effect has not been confirmed by our sample.

Based on the conclusions formulated for the 3 hypotheses, the central research question can now be answered. Compensation peer groups employed by the disclosing listed Dutch companies are, although constructed to reflect the market for managerial labor, found to have an increasing effect on CEO compensation. There is no evidence found for an effect of corporate governance on the relationship between compensation peer groups and corporate governance.

7.2 Implications and future research

The existing literature on the compensation of CEOs in the Netherlands has been extended with a previously unexplored angle of research – the selected compensation peer group. The selected compensation peer group can be employed as a measure of the market level of compensation and therefore opening up possibilities for future research into CEO risk, incentives and the market for managerial labor. The compensation peer group has been found to have an added explanatory effect on the level of CEO compensation next to the variables that have been shown in previous research and standard economic theory to be of explanatory power. This finding increases the understanding of the determinants of CEO compensation, adding an extra variable that can be used by future researchers.

As recommendation for future research on the subject of compensation peer groups is to cover a longer timeframe when selecting the sample. When using a longer timeframe the researcher can investigate the pattern over time of the determinants of CEO pay raises. Besides the use of a longer

timeframe, a bigger sample can be obtained by selecting other European companies to be included the sample. This European sample can help to increase the sample and investigate the effect of the differences in business culture and CEO compensation that exist between European companies and their North American counterparts.

The lack of structured databases on the selected peers, compensation data and governance characteristics will remain a limiting factor when researching European companies. Data needs to be hand collected which is time consuming and mistakes can be easily made.

7.3 Limitations

The research performed is subject to a number of limitations. First and foremost the limiting factor in the research is the number of companies that make up the sample. The research aims at Dutch listed companies and can an interesting market to extend the literature on the subject, which at the moment almost exclusively has been aimed at the US market. However the amount of Dutch listed companies that are disclosing their peers is limited which restricts the available sample size. Furthermore the database regarding data on Dutch companies is limited, often the needed data has to be hand collected which increases the workload considerably and increases the risk of mistakes. Due to the difficultly and time investment involved in collecting the data it has been decided to focus only on the peer group disclosed in the 2014 annual reports. By focusing on only one year the sample size is being restricted and creates a difficulty to investigate CEO pay raises based on the targeted pay percentiles and the percentile in which the CEO's actual compensation was distributed.

Due to difference is business culture and practices between European and North American companies it is difficult to make an accurate comparison between the individual components of a CEO's compensation package. Because of these country specifics the research has been focused on comparing base salaries and total compensation of the selecting companies and their selected peers.

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CEO Tenure
https://www.bestuursvoorzitter.nl/

List of selecting companies

ENTITY_NAME
AKZO NOBEL NV
AMG ADVANCED METALLURGICAL
ARCADIS NV
ASML HOLDING NV
BESI-BE SEMICONDUCTOR INDS
BOSKALIS WESTMINSTER NV
CORIO NV
EXACT HOLDINGS NV
FUGRO NV
GEMALTO
GRONTMIJ NV
HEINEKEN NV
KONINKLIJKE AHOLD NV
KONINKLIJKE DSM NV
KONINKLIJKE KPN NV
NUTRECO NV
OCI NV
POSTNL NV
RANDSTAD HOLDINGS NV
RELX NV
SBM OFFSHORE NV
TKH GROUP NV
TNT EXPRESS NV
TOMTOM NV
UNILEVER NV
USG PEOPLE NV
VASTNED RETAIL NV
VOPAK (KONINKLIJKE) NV
WERELDHAVE NV