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How does board composition affect the boards' remuneration levels?

- Evidence from publicly listed Swedish companies

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Abstract

- Title:** How does board composition affect the board's remuneration level? – Evidence from publicly listed Swedish companies
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- Key words:** Corporate Governance, Board of directors, Compensation, Composition, Sweden, Large Cap
- Purpose:** The purpose of this study is to investigate the extent to which the composition of the board of directors determines directors' remuneration in Swedish listed companies.
- Methodology:** The method approach is quantitative and deductive since it is based on existing theories and previous research. A multiple linear regression model analyzes the panel data.
- Theoretical perspectives:** The theoretical framework consists of previous research on board compensation and theories such as agency theory, resource dependence theory, and stewardship theory.
- Empirical foundation:** The study uses publicly available data from a sample of 43 Swedish public companies listed on the Stockholm Stock Exchange, Nasdaq OMX Stockholm Large Cap, from year 2006 to 2013. Data are obtained from Datastream and annual reports.
- Conclusions:** The findings of the study suggest that board composition does have an impact on the compensation given to the board of directors. Female directors and independent directors show a positive relationship with board of directors' compensation. Independent directors show a positive relationship with chairman compensation.

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1. Introduction

Chapter 1 provides an introduction to the topic of the study. A brief background is presented, followed by a problem discussion and the purpose of the study. In the end of the chapter, limitations and target group are presented, together with an outline of the study.

1.1 Background

Different parts of a company require people with different knowledge and characters. To ensure that companies are run and managed as efficiently as possible, a board of directors is appointed. The board of directors functions as the highest internal corporate governance mechanism (Jensen, 1993). The board holds high authority in the companies and the general purpose of the boards of directors is to monitor corporate behavior of the management, advise the management, and to further protect the interests of shareholders (Brick, Palmon, & Wald, 2006).

Corporate governance and boards of directors have been debated during the 2000s and are today well-known topics in the business environment. During the past decade, a number of corporate scandals have been revealed, both internationally and nationally. At an international level, Enron's bankruptcy in 2001 and WorldCom's bankruptcy in 2002 received attention. In Sweden, ABB and Skandia are two companies that experienced corporate scandals during the 2000s. Common for the scandals were misbehavior and manipulation of accounting by the companies' board of directors and management (Clarke, 2007; Sevenius, 2007). These scandals have led to mistrust against corporate governance systems (Kim, Nofsinger, & Mohr, 2010). Corporate governance is an integrated and complicated system. It is essential with a proper governance framework and financial regulations to prevent these kinds of misbehavior and scandals. Many European countries have established corporate governance codes to enhance the public confidence for the financial market (Söderström et al., 2003). Sweden established the Swedish Code of Corporate Governance in 2005 as a result of this. Corporate board structure has undergone significant changes in the past decade. In an attempt to prevent further scandals and debacles, a majority of the codes require boards to contain a minimum number of non-executive directors. Non-executive directors represent an important corporate governance mechanism and have a main purpose of neutralizing agency conflicts between shareholders and management (Clarke, 2007). It has in Sweden also been discussed how large

boards should be and how boards can become more diversified (Söderström et al., 2003). A general consensus of the structure of the board of directors and their compensation is yet to be determined.

The compensation to boards of directors is a central topic for the public debate around corporate governance (Sevenius, 2007). Headlines as *“Increasingly remuneration to boards of directors”*, *“Million rain over the board”*, and *“The board of Volvo can receive a jackpot in the middle of the crisis”* are examples of controversial articles in the Swedish media. Dagens industri (2013) examined the 30 largest listed companies in Sweden, according to market value, and discovered that the boards’ fixed compensation has increased 70% over the last ten years. The compensation to board of directors should be reasonable and fair, but still there are significant differences in compensation levels among large companies in Sweden (Dagens industri, 2011). The levels of remuneration among Swedish boards have been highlighted in the media to a larger extent than the actual determinants of the compensation and reasons for differences in compensation levels.

1.2 Problem discussion

The work performed by boards is crucial for companies and is basically the core to the companies’ operations. As chairman and board member, you represent the owners of the company (Clarke, 2007). Boards of directors have equal responsibilities in companies and within the boards remain a collective responsibility. This may question the disparity in compensation levels. Previous research and media attention show that there is a distinct debate on board of directors’ compensation, while the causes of what determines their compensation levels are put aside.

There are laws and regulations in Sweden about board structure; for example, boards have to consist of a majority of non-executive directors and independent directors. Even though, the compositions of a board substantially differ between companies. The size of the board, gender distribution, nationality of the directors, and other characteristics of the board are chosen by the shareholders of the companies, who elects the board members in Sweden. Different board structures may work better for one company than for others. The owners are searching for a mix of skills and experiences, as well as other diversity components when electing new board members. Boards in Swedish companies are homogeneous in respect of gender, age,

education, social background, and nationality (SVT, 2015). Smaller boards, more independent directors, more female directors, and more international board members have been suggested (Söderström et al., 2003). A study made by SVT (2015) shows that only 11 of 90 directors have origin from outside Europe in Sweden's ten largest listed companies, according to market value. Diversity is one of the aspects of good corporate governance and diverse boards are more likely to generate innovative and creative thinking in the boardroom, allowing for better business solutions. Diversity further creates a better stakeholder representation and ensures sustainable performance. Diverse boards are crucial in today's compelling business in complex global markets (Smith, Smith, & Verner, 2006; Heidrick & Struggles, 2009). Would an enhanced diversity among Swedish boards increase the compensation to the board of directors?

Earlier, a specific amount of compensation was designated to the boards of directors as a group of individuals, and was then distributed within the board. Nowadays, the compensation is determined individually for each director (Swedish Code of Corporate Governance, 2010). Depending on the company, directors may receive an annual retainer, committee fees, meeting fees, and equity awards. Any compensation differences that exist for a given company in a given year typically results from having a chairman position, serving on different committees, or differences in meeting attendance. Since the board of directors work collectively with their tasks, there may occur problems with distinguishing what every individual director accomplish, and it is hard to observe the impact of their day-to-day work. It may therefore be a problem with determining the compensation to an individual board member. This results in most of the directors in a company receiving the same amount of remuneration within a board, and thus is not compensated for the unique characteristics a particular director brings to the board. This problem of distinguishing the individual director's day-to-day work may indicate that there are other factors influencing the compensation.

There are several international studies that examine other factors that affect boards' compensation levels. These studies examine, among other things, how ownership structure, firm size, and firm performance influence the compensation levels. Some studies are examining relationships between board characteristics and board compensation, with results indicating that variables regarding the composition of boards influence the boards' remuneration. However, there is no study in Sweden that examines how the composition of

the board affects board of directors' compensation. The composition of boards may be a factor that can influence the level of compensation within the Swedish settings as well.

1.3 Research question

Based on the problem discussion above, the board composition's impact on board of director's compensation in Swedish listed companies is of interest to examine. This, and the lack of previous research concerning boards' compensations determinants in Sweden, leads us to the following research question:

- *How does board composition affect board of directors' compensation in Swedish firms?*

1.4 Purpose

There is a growing attention to the relationship between corporate governance and compensation. The purpose of this study is to analyze whether there is any relationship between the composition of boards and their compensation in Swedish listed companies. In the study, hypotheses are formulated and tested after current Swedish conditions.

1.5 Scope and limitations

The focus of our research is Swedish public companies listed on Stockholm Stock Exchange, Nasdaq OMX Stockholm Large Cap, during the period of 2006-2013. The Swedish Code of Corporate Governance covers the whole period as it was introduced in 2005. The Code gives recommendations about corporate governance that limited companies are expected to follow. Large Cap companies are the only public listed companies that operate under the Code during the entire observation period. There are specific laws addressed to public limited companies, which are significant for this study. Relevant laws and regulations are specified in detail in chapter 2.

1.6 Target group

Target group of this study is mainly business students, professors, and people with an interest in finance and corporate governance.

1.7 Outline

Chapter 1 - Introduction

The introducing chapter presents the background of the subject and conducts a discussion about the identified problem, which leads to the purpose of the study. The limitations of the study are defined and a target group is specified. The chapter ends with this outline.

Chapter 2 - Regulatory framework

The second chapter presents Swedish laws and regulations that are of interest for this study. The Swedish Companies Act and the Swedish Code of Corporate Governance are presented.

Chapter 3 - Theoretical framework

This chapter consists of the study's applied theory. The term corporate governance is defined, followed by an introduction of different governance systems. Agency theory, resource dependence theory, and stewardship theory are the theories applied in this study and are presented in a separate section. Previous research in the subject is presented. Finally, hypotheses are formulated.

Chapter 4 - Methodology

The methodology chapter outlines the choice of methodological framework and approach. The sample selection process is presented and the chapter ends with a critical discussion about method and literature.

Chapter 5 - The regression method

The fifth chapter describes the choice of regression analysis. The five OLS (Ordinary Least Squares) assumptions are reviewed and a definition of the variables is outlined. The chapter helps understand how the method has been performed and what type of tests that has been executed.

Chapter 6 - Empirical findings

Chapter 6 presents the results of the performed validity tests and the results for the formulated hypotheses.

Chapter 7 - Analysis

The results presented in chapter 6, Empirical findings, are in chapter 7 analyzed. The chapter reconnects to chapter 3, Theoretical framework. All variables are analyzed and discussed.

Chapter 8 - Conclusion

The last chapter presents the study's conclusions and the research question is answered. The chapter also contains suggestions on different approaches for future research.

2. Regulatory framework

The chapter summarizes the Swedish laws and complementing regulations that affects the content of the study. How the composition of the board and the boards' compensation is affected by the Swedish conditions is discussed.

Corporate governance permeates the entire companies' operations. Corporate governance in Sweden is regulated by a combination of laws, regulations, and practices. The framework primarily contains of the Swedish Companies Act, the Swedish Annual Accounts Act, and the Swedish Code of Corporate Governance. Other rules that apply to a regulated market where companies' shares are traded are also included. The Swedish Companies Act and the Swedish Code of Corporate Governance lists a number of features that boards should fulfill in limited companies and recommendations about boards' remuneration and composition.

2.1 Swedish Companies Act

The Swedish Companies Act is a mandatory law for private and public limited companies. The law affects the companies' governance and has an aim of protecting the companies, the owners, and other stakeholders.

According to the Companies Act, limited companies shall have three decision-making bodies; the annual general meeting, the board, and the management. These bodies are in a hierarchical relationship to each other with the annual general meeting as the highest decision-making body. The general meeting is the body in which the owners have the possibility to directly exercise their rights to decide in the companies' affairs (Companies Act 7:1 §). The board of directors is elected by the owners at the annual general meeting and the boards' main tasks are to regularly control the companies' financial situations, be responsible for the organization, and manage the companies' interests (Companies Act 8:4; 8:8 §§). The boards also appoint a management that shall manage the current operations in accordance to the boards' guidelines and instructions (Companies Act 8:27; 8:29 §§). These three bodies, which are controlled by external auditors, make the Swedish basic system as follows:



Table 1. The Swedish model of corporate governance

Source: *Swedish Code of Corporate Governance (2010)*

A corporation in Sweden shall have a board with at least one member. If the corporation is publicly listed, the board has to consist of at least three members (Companies Act 8:1; 8:46 §§). The board of directors is appointed for one year at a time (Companies Act 8:13 §). If the board has more than one member, a chairman has to be appointed at the annual general meeting. The chairman has the overall responsibility of the board and ensures that the board fulfills its duties (Companies Act 8:17 §). In public limited companies, CEOs are not allowed to be chairman (Companies Act 8:49 §).

A limited company is obligated to have an auditing committee with a minimum of three non-executive directors (Companies Act 8:49a §). The main responsibilities of the auditing committee is to supervise the companies' financial reporting, supervising the internal control, and reviewing and observing the chosen auditor to ensure that the person is impartial to the company (Companies Act 8:49b §).

According to the Companies Act, compensation to the board shall be decided at the annual general meeting and be determined individually for each board member (Companies Act 8:23a §). There are no rules regarding compensation levels to boards of directors.

2.2 Swedish Code of Corporate Governance

The Swedish Code of Corporate Governance (hereafter referred to as the Code) was introduced in July 2005. The Code applies to all listed companies and is a complement to the Companies Act and other existing regulations in Sweden. The Code is a result of a Code Group that was formed in 2003 by the Commission on Business Confidence and business sector (Swedish Code of Corporate Governance, 2004). The Code was revised in 2008 and 2010. The changes in 2008 were mainly about including a broader range of companies. Before 2008, only companies listed on the A-list (Large Cap) were affected by the Code. After 2008, all listed companies were recommended to operate under the Swedish Code of Corporate Governance. The Code was again revised in 2010, where the focus was on CEO compensation, senior executives, boards of directors, and independent directors. The changes for compensation to executives were to ensure that the compensation was in line with the experiences and knowledge of the executives. Criteria for independent directors were clarified in the 2010 version. The criteria concerns statements in the annual reports, annual reports has to state whether a director of the board is independent in relation to the company and in relation to the main shareholders.

The Code is specifying a norm for good corporate governance and the recommendations are designed to provide guidance to companies. The norm is not mandatory, instead, it is based on the principle “*comply or explain*”. This means that companies can deviate from the Code as long as a reason for the divergence is stated. Good corporate governance means that companies should be managed as efficient as possible for the shareholders. The purpose of the Code is to strengthen the confidence of Swedish listed companies and to improve corporate governance (Swedish Code of Corporate Governance, 2010). The Code addresses, among other things, boards’ responsibilities, composition, and remuneration. The boards’ responsibilities includes appoint and dismiss the companies’ CEOs, to ensure that the companies complies with Swedish law, and establish goals and strategies for the companies.

The boards should have a size and composition that ensures its ability to manage the companies’ affairs and operations efficient. Boards shall aim to have an equal gender distribution, as well as exhibiting diversity and spread in directors’ qualifications, experiences, and backgrounds. The boards in Sweden mostly consist of non-executive directors. A majority of the directors shall be independent of the company and its management and at least two of the directors has to be independent of the companies’ major

shareholders. The Code allows for one member of the board to be a member of executive management of the company or a subsidiary, this seat is usually occupied by the CEO. The Nomination Committee nominates the directors to the annual general meeting. The Code recommends boards to constitute remuneration committees, in addition to auditing committees. The main responsibilities for the remuneration committees are to prepare the decisions made by the board regarding the remuneration and other terms of employment to executives of the companies, and follow up and evaluate the applied regulation about remuneration to management (Swedish Code of Corporate Governance, 2010).

According to the Swedish Code of Corporate Governance (2010), board remuneration is to be linked to predetermined and measurable performance criteria. The owners appoint a Nominating Committee who gives proposals of compensation for the boards' work. The Nomination Committee presents the proposals at the annual general meeting where the owners' approve or reject it. The annual general meeting also decides the structure of the compensation; if the compensation should be fixed, floating, or a combination of the two. Compensation to non-executive board members should not include share options and executive board members are not compensated for board work in Sweden (Swedish Code of Corporate Governance, 2010).

3. Theoretical framework

The following section presents theories and definitions about corporate governance and board of directors. Relevant prior research to our field of work is presented and hypotheses are formulated.

3.1 Corporate governance

Corporate governance can be defined by various approaches:

“The system by which companies are directed and controlled” (Cadbury, 1992).

“The relationship between various participants in determining the direction and performance of corporations” (Monks & Minow, 1995).

“The way power is exercised over corporate entities” (Tricker, 2004).

Corporate governance regulates the direction in which companies operates and aims, and is a collective term for describing, formulating, and judging the overarching governance of the companies (Blom, Kärreman, & Svensson, 2012). It is a wide area and the main purposes are to govern companies so that owners demand for return on invested capital is fulfilled and profit generation (Sevenius, 2007). Shareholders, boards of directors, auditors, and management all play an important part in corporate governance (Blom, Kärreman, & Svensson, 2012).

Today’s concepts of corporate governance were developed in the United States of America in the mid-1980s as a reaction to self-serving managers and dissatisfied owners. Corporate governance did not receive attention in Europe until the early 1990s, in conjunction with a number of company scandals (Swedish Code of Corporate Governance, 2004). Since then, the concepts has developed rapidly and today the term corporate governance is widely familiar to people active in the business environment (Kim, Nofsinger, & Mohr, 2010; Sevenius, 2007). As mentioned before, many countries have today implemented corporate governance codes. The codes for corporate governance create a base for what good corporate governance is. Good corporate governance proposes that companies should be managed as efficiently as

possible and contributes to increased dynamics in the economy, stability on the financial market, and socio-economic growth (Sevenius, 2007).

An important part of the corporate governance system is the board of directors, whose main objective is to represent the owners of the company and to permeate the company's operations. The board performs controlling and monitoring of the management on behalf of the shareholders, offers expertise in strategic advices to the management, allocates resources, and hires, fires, and evaluates the top management. With their large responsibilities, the board of directors is important for a well-functioning company (Hillman & Dalziel, 2003; Kim, Nofsinger & Mohr, 2010; Adams, Hermalin & Weisbach, 2010). The board is in many ways the interface between owners and company, society and business (Sevenius, 2007).

3.2 Different corporate governance systems

Systems of corporate governance vary between countries and changes over time. The ownership structure, regulatory environment, and capital markets are key components that differ in corporate governance systems (Weimer & Pape 1999; Braendle & Noll, 2006). Industrialized countries can roughly be divided into two main systems; the market-oriented system and the network-oriented system. Weimer and Pape (1999) classify four types of corporate governance systems within these two systems; the Anglo-Saxon system (United States of America, United Kingdom, Canada, and Australia), the Germanic system (Germany, the Netherlands, Switzerland, Austria, Sweden, Norway, Finland, and Denmark), the Latin system (France, Italy, Spain, and Belgium), and the Japanese system (Japan). Anglo-Saxon countries belong to the market-oriented system while the other countries follow the network-oriented system.

The Anglo-Saxon system has developed out of market-based economies, such as the U.S. and U.K. Anglo-Saxon boards are considered to be of one-tier structure, which are comprised of a mixture of executive management and non-executive directors. The system is characterized by short-term relationships and strong protection for shareholders. The Anglo-Saxon system is also distinguished by dispersed ownership, which has lead to evidence of agency problems (Weimer & Pape, 1999). Shareholders' influence is strongly institutionalized in the countries following the Anglo-Saxon system (Weimer & Pape, 1999). In terms of compensation to

directors, they are commonly paid in a mixture of cash and company shares in attempt to align the interests of the directors with the wide dispersion of shareholders (Clarke, 2007).

Several European countries adapt the Germanic system, which is more relationship oriented and has a more long-term view on economic relations than the Anglo-Saxon system. The Germanic governance board system is two-tiered, consisting of a management board of executive directors that runs the company, and a supervisory board of non-executive directors that is responsible for monitoring the managers. The Germanic system is characterized by high level of ownership concentration. This usually gives the shareholders more incentives to influence decision-making in the company since they own a large part and are exposed to more risk than small shareholders. The corporation is considered an economic entity, establishing integration of shareholders, employees, management, suppliers, and customers, rather than mechanism for creating shareholder value as in the Anglo-Saxon system (Weimer & Pape, 1999). Compensation to directors in the Germanic system is usually not based on performance to the same extent as in the Anglo-Saxon countries (Clarke, 2007).

The governance system in Sweden originates from the Germanic system, but it has characteristics from other systems (Heidrick & Struggles, 2009). The system applied by Sweden is often classified as an efficient shareholder controlling system (Gilson, 2006). Sweden has a one-tier board structure where executive directors (only one is allowed) sit in the non-executive board and employees are reserved positions in the board (Heidrick & Struggles, 2009; Randøy & Nielsen, 2002). Regarding compensation, Sweden compensates their directors like the Germanic system and the remuneration in general consist of a fixed figure (Heidrick & Struggles, 2009).

3.3 Corporate governance theories

Corporate governance is usually linked to the economic theory that is called agency theory. The theory has historically formed the basis for the design of compensation packages to executives (Sevenius, 2007). To provide a wide perspective of how board composition can affect the boards' compensation levels, the agency theory, the resource dependence theory, and the stewardship theory together with previous research will be discussed. These three theories cover the three main functions of the board (Hahn & Lasfer, 2010). The

compensation to the boards of directors is treated in the theories and are therefore of relevance for this study.

3.3.1 Agency theory

The agency theory is based on the relationship between agents and principals. The theory highlights the agency problems that can arise from the separation of ownership and control. The problems can occur in any situation where there is a principal-agent relation; a principal, who wants to have an action performed, and an agent, who is expected to act in the principal's interest and perform the action (Fama, 1980). In the basic model, the owners are the principal and the management is the agent (Crespí-Cladera & Gispert, 2003). The relationship is comparable with a contract between the parties, where the owners permit the management to operate the company on their behalf (Kim, Nofsinger, & Mohr, 2010; Berk & DeMarzo, 2014). The extent of the agency problem depends on how closely aligned the interests between the principal and the agent are. In an agency perspective, the parties are assumed to be rational and will try to maximize their own wealth. This problem results in agency costs for the firm and companies has to handle these agency problems to make the organizations efficient (Blom, Kärreman, & Svensson, 2012; Berk & DeMarzo, 2014).

In the agency theory, the role of the board is to monitor and control the management on behalf of the owners. By effective monitoring and incentives, the board of directors can help reduce the agency problems and align the interest of shareholders and management (Zahra & Pearce, 1989; Hillman & Dalziel, 2003; Kim, Nofsinger & Mohr, 2010). Although, there is no reason to presume that boards always will act in the best interest of the owners either, as there is no reason to presume that managers will. The relation between the owners and boards can also be considered a principal-agent relation. In this relation, the owners are the principal and the board is the agent (Bebchuk & Fried, 2003). Sufficient incentives in form of performance-oriented compensation structures are necessary to reduce information asymmetry¹, which is the main cause of the principal-agent problem. Agency theory has become the theoretical framework for research about director compensation, since one of the solutions to the agency problem is located in the formulation of incentive instruments. Satisfying compensation schemes to the agents is sufficient to reduce agency problems (Crespí-Cladera & Gispert,

¹ One party has more or better information than the other (Ogden, Jen, & O'Connor, 2003)

2003). It is important to have incentives for the board that manage effective control and encourage the board to do a successful job (Fama, 1980).

3.3.2 Resource dependence theory

The resource dependence theory is an organization theory, where focus is on the borders between the organization and its surrounding (Kärreman, 1999). The theory highlights boards' potential to create relations and serve as resource distributors (Blom, Kärreman, & Svensson, 2012; Hillman & Dalziel, 2003). This role refers to boards' ability to bring resources to the firm and be an intermediary between the companies and their business environment (Lynall, Golden, & Hillman, 2003). According to Pfeffer and Salancik (1978), the board provides four types of resources to the company; advice and counsel, legitimacy, channels for communication information between the company and external organizations, and assistance in obtaining resources or commitments from important elements outside the company.

Composition of the board is in the resource dependence theory focused on how external and independent directors can contribute useful knowledge and networks to companies. The directors bring resources to the firms and the more resources boards can contribute with, the higher compensation the members of the boards should have (Hillman & Dalziel, 2003). The theory highlights the importance of the board is composed and how each director may bring different resources to the board. The level of resource contribution of a board will be a key determinant of compensation and a diversified board may result in higher compensation (Lynall, Golden, & Hillman, 2003).

3.3.3 Stewardship theory

The stewardship theory presumes, in contrary to the agency theory's assumptions of diverging interests and self-serving behavior, a natural motivation for individuals to act in the best interest of the organizations. Therefore, only limited monitoring and controlling by the boards is necessary. Collective behavior has higher utility than those of self-serving nature and motivation for managers to act in the shareholders' interests could appear from the need for performing and doing a good job, to be appreciated for the work they do, or to get respect from their superiors (Kärreman, 1999). The main points of the stewardship theory consider the advisory and strategic role of the board (Hahn & Lasfer, 2010). The theory implies that

boards should be composed of mostly of insiders. Insider directors can bring appropriate competence and knowledge to the board. Board composition is linked to management composition and should reflect the support the management will need (Blom, Kärreman & Svensson, 2012).

The governance form in Sweden is based on norms of collective responsibility and voluntary compliance. The governance system focus on creating a tight coalition of all represented stakeholders and is therefore aligned with the basic assumptions of the stewardship theory (Lubatkin, Lane, Collin, & Very, 2006). According to the stewardship theory, compensation of directors will not be needed for incentives and motivation because a person will do their best independently of the compensation (Davis, Schoorman, & Donaldson, 1997). Since pay is not believed to drive motivation, compensation levels should have a straight level with addition only for the individual's knowledge and experience.

3.4 Compensation

Board compensation represents an internal and important corporate governance component, aimed to provide the boards with the right incentives to act in the best interests of the owners. The level of remuneration should contribute to boards of directors doing their utmost with the tasks they are assigned, the remuneration should be reasonable relative to the assignment. With insufficient incentives, the monitoring and advising functions of the boards are jeopardized (Menozzi, Erbetta, Fraquelli, & Vannino, 2014). Compensation of the board can be seen as a signal to the external business environment about how the owners' value the work performed by the board.

The boards' remuneration in Sweden is a pre-determined annual cash amount approved by the annual general meeting. The compensation should be decided individually for each director. The chairman of the board, who has more responsibility than the other directors of the board, usually has higher remuneration (Blom, Kärreman, & Svensson, 2012). The structure of the compensation can look different from company to company. The compensation can be said to have three parts; fixed remuneration, variable remuneration, and a part that is about prestige and reputation. The variable part is usually based on attendance at meetings, however, it is not common in Sweden to have a variable portion. It is not common to compensate the boards of directors with stocks, options, warrants, or other derivatives in Sweden. All different parts

have their benefits and drawbacks in terms of motivation for each director of the board (Bryan, Hwang, Klein, & Lilien, 2000).

3.5 Previous research

Previous research has examined board compensation in relation to different factors. The following previous empirical studies are found most relevant for our study:

Crespí-Cladera and Gispert (2003) examine total board compensation on the Spanish market. The study is based on 113 large Spanish listed companies during the period 1990-1995. The study focuses on the impact of two components of the company governance structure, ownership structure and firm leverage, regarding the relationship between pay and performance. The authors examine how explanatory variables, such as firm performance, firm size, and industry, have an effect on board compensation. Their results suggest a positive relationship between board compensation and firm performance, and between board compensation and firm size. A negative relationship between board compensation and industry performance is found. The governance structure of companies is relevant when explaining the compensation-performance relationship and ownership structure explains part of this relationship, while firm leverage is not significant in explaining the compensation-performance relationship.

Ryan and Wiggins (2004) examine the relationship between level and structure of board compensation and board independence. The study consists of a sample of 1018 U.S. firms during the years 1995-1997. The study examines four different characteristics of board independence; board size, board composition, CEO entrenchment, and CEO/chair duality. Boards lose independence as the board size, insiders in the board, and CEO's tenure increases. Firms are less likely to increase equity-based incentives, or replace cash with equity when the CEO is entrenched or when insiders make up a larger percentage of the board. Firms with more outsiders in their boards award directors with a larger percentage of equity-based compensation. Their findings show a negative relationship between board size and total board compensation, and a positive relationship between board compensation and firm size. The independence of the board and the power of the CEO will influence the structure of director compensation.

Brick, Palmon, and Wald (2006) examine CEO compensation and board member compensation, both separately and the relationship there between, controlling for firm characteristics, CEO characteristics, and governance variables. The study considers between 1163-1441 observations in the U.S. during the time period 1992-2001. Their results indicate that total board compensation is positively related to firm characteristics as firm size, intangible assets, and firm volatility. Their results further suggest that if the CEO is the chairman of the board, board members receive higher compensation. In terms of governance variables, busy directors are found to have a significant positive effect on director compensation. The results suggest a highly significant positive relationship between CEO compensation and board compensation.

Fernandes (2008) analyzes firm performance and board structure in relation to board compensation. The sample consists of 51 companies listed on the Portuguese Stock Exchange during a time period of three years, from 2002 to 2004. The study includes control variables such as accounting performance, firm size, risk, and book-to-market equity ratio for firm characteristics, and board size and independent directors for board structure. The only significant relationship found is the negative link between risk and average compensation per board member. Their conclusion is that more non-executive board members is related to higher board compensation, but a company with zero non-executive board members actually has better alignment between managers' and shareholders' interests.

Barontini and Bozzi (2009) observe the relationship between ownership structure, board compensation, and future firm performance within the Italian setting. The authors examine 215 firms on Milan Stock Exchange over the period 1995-2002. The study focuses on four main corporate governance characteristics; degree of ownership concentration, wedge between voting and cash flow rights, type of ownership, and presence of shareholders' agreements. The results of their study show a positive correlation between two of the characteristics and board compensation; the type of ownership and the presence of shareholders' agreements. The wedge and high ownership concentration were negatively correlated with board compensation. Firm size has a positive impact on board compensation and future performance is negatively related to compensation.

Andreas, Rapp, and Wolff (2010) examine the level and structure of director compensation in Germany. The study considers a time period of four years, 2005 to 2008. The study compares

directors' compensation to four types of determinants; firm characteristics, corporate performance, ownership structure, and board characteristics. Their results show a significant support that director compensation is related to corporate performance, ownership structure, and board characteristics. Their findings show that compensation to board of directors is structured in a way that provides incentives to monitor management, especially in firms with otherwise weak governance mechanisms.

Menzio et al. (2014) investigate the relationship between board compensation and governance mechanism on SOEs (state-owned companies) on the Italian market. The authors examine the impact board composition, firm characteristics, and firm performance has on board compensation. The study analyzes the dependent variable, per capita board compensation, during the years 1994-2004 and observe 106 Italian publicly companies. Their results show that per capita board compensation is negatively related to board size and positively related to firm size. Independent directors are found to have a positive impact on board compensation, but only in correspondence with high firm performance. The authors could not find any significant link between board compensation and firm performance, or between board compensation and ownership structure. The authors' findings conclude that board size and firm size appear to be the most important determinants of compensation given to board of directors.

3.5.1 Summary of previous research

All previous research presented below are of relevance for this study. Previous research shows the importance of the subject and how different governance and board characteristics have an impact on the compensation of board members. None of the previous research is within the Swedish settings. The results from previous research gives an indication of how to formulate our hypotheses and it is of interest to compare our results with the ones from other settings.

Author(s)	Title / Publishing year	Country / Time period	Examining	Independent variables	Result
Crespí-Cladera, R. & Gispert, C.	Total board compensation, governance and performance of Spanish listed companies 2003	Spain 1990-1995	The impact of two components of the company governance structure (ownership structure and firm leverage) regarding the relationship between pay and performance	Firm size, Firm performance, Firm leverage, ROA, Shareholder return, Ownership structure	Positive relationship: Firm performance and board compensation, Firm size and board compensation. Ownership structure can partly describe relationship between pay and performance.
Ryan, H. E. & Wiggins, R. A.	Who is in whose pocket? Director compensation, board independence, and barriers to effective monitoring 2004	U.S. 1995-1997	Examines the relation between director compensation and board-of-director independence	Board size, CEO tenure, CEO duality, Firm size, Investment opportunities, Family-control, Firm performance	Shareholders' economic interests are best served with an independent board. Negative relation between board compensation and board size. Positive relation between board compensation and firm size.
Brick, I. E., Palmon, O. & Wald, J. K.	CEO compensation, director compensation, and firm performance: Evidence of cronyism? 2006	U.S. 1992-2001	Examines the relation between CEO compensation and director compensation and their separate relation to firm-, CEO- and governance characteristics	Many Firm-, CEO- and Governance variables. Examples: ROA, Sales, Stock volatility, CEO age, CEO gender, CEO duality, Board size	Director compensation is closely related to the effect of monitoring and value maximization. A positive relation could also be identified between CEO compensation and director compensation.
Fernandes, N.	EC: Board compensation and firm performance: The role of "independent" board members 2008	Portugal 2002-2004	Examines whether the governance structure of companies influences top executive pay	Accounting performance, Firm size, Risk, Book-to-market equity, Board size, Independent directors	More non-executive board members is related to higher board compensation, but a company with zero non-executive board members actually has better alignment between managers' and shareholders' interests. Negative relation between board compensation and risk.

Author(s)	Title / Publishing year	Country / Time period	Examining	Independent variables	Result
Barontini, R. & Bozzi, S.	Board compensation and ownership structure: empirical evidence for Italian listed companies 2009	Italy 1995-2002	Investigates the relationships between among corporate ownership, the level of board compensation and firm's future performance	Governance characteristics as for example ownership structure, ownership type. Firm characteristics as ROA, Stock market returns, Book value of total assets	Positive relation between ownership type and board compensation, the presence of shareholders' agreements and board compensation, and firm size and board compensation. Negative relation between future performance and board compensation.
Andreas, J. M., Rapp, M. S. & Wolff, M.	Determinants of director compensation in two-tier systems: evidence from German panel data 2010	Germany 2005-2008	Examines the level and structure of director compensation in Germany, which is considered to be a prototype of a large economy that has established a two-tier system	Many different exogenous variables. Ex: Firm size, Leverage, Risk, ROA, Ownership concentration, Board size, Chairman independence	They find significant support that director compensation is related to board characteristics, ownership structure and corporate performance. The results also show that director compensation is structured to give incentives to monitor management.
Menozi, A., Erbetta, F., Fraquelli, G. & Vannoni, D.	The determinants of board compensation in SOEs: an application to Italian local public utilities 2014	Italy 1994-2004	Investigates the determinants of board compensation for a sample of Italian state owned enterprises (SOE)	ROA, ROE, Total assets, Sales, Board size, Independent directors	A positive relationship was found between board compensation and firm size. Per capita board compensation is negatively related to board size. Independent directors influences board compensation in a positive direction, although only in correspondence with high firm performance.

Table 2. *Summary of previous research*

3.5.2 Criticism of previous research

All previous research has been conducted in other settings where laws and recommendations regarding governance can differ from Swedish conditions and policies. In other national settings it is allowed for the CEO to be chairman of the board. When the CEO is chairman of the board, a conflict could occur when trying to monitor the management. The board may then not be able to perform monitoring as efficient as it would if the CEO did not have such a significant part of the board. This may make it more difficult to comparing some of the results received in different settings where CEO duality is allowed.

Previous studies are conducted in earlier time periods than this study. The results and findings from these studies are though still applicable since no more recent studies have been find as relevant for this study. It is of interest to include all these studies to be able to compare the outcomes from different settings.

Earlier researchers have come up with different results regarding what determines the boards' compensation levels. Ryan and Wiggins (2004) and Brick, Palmon, and Wald (2006) are studies conducted in the U.S. settings, which differs from the settings in Europe. Legalization, market settings, ownership structure, and corporate governance are relevant factors that differ in the U.S. and Europe. As mentioned earlier, a number of European countries have established corporate governance codes, which is another difference between Europe and the U.S. The compensation structure looks different in Sweden, and other European settings where fixed remuneration is common, compared to the U.S., where performance-based incentives are a more common form of compensation (Clarke, 2007). Meeting based compensation is often included in compensation measures in previous research, though this is not common in Sweden. Different settings and time periods can be explanatory reasons for different results in previous studies. These aspects are important to consider when comparing previous result with the outcome of this study.

3.6 Board composition and development of hypotheses

Possible components of board composition that may affect compensation to the boards of directors are presented below. These components are the basis for the study's hypotheses. The formulation of hypotheses are supported by identified factors affecting board compensation in previous research, governance theories, and the potential effect a diversified

board may have on compensation levels. We include five independent variables regarding companies' board composition; board size, busy directors, female directors, independent directors, and international directors.

3.6.1 Board size

The boards' ability to control companies is, among other things, affected by the size of the boards. Menozzi et al. (2014) find in their study that board size is one of the most important elements affecting the compensation of boards. How many directors a board should consist of is a well-explored area with main aspect of effectiveness. Research find that smaller boards have many benefits relative to larger boards. Smaller boards are according to Jensen (1993), Yermack (1996), Ryan and Wiggins (2004), and Menozzi et al (2014), more effective at monitoring the management. Smaller boards reduce the risk of free-riding² since each director is forced to increase his/her performance. Larger boards are weaker, less capable of having discussions, and less effective at monitoring (Jensen, 1993; Yermack, 1996). Larger boards may also experience negative group dynamics and groupthink³, which can lead to poor information sharing and biased thinking (Sheffrin, 2007). That smaller boards are more effective and receive higher compensation is consistent with previous research. Ryan and Wiggins (2004) and Menozzi et al. (2014) find evidence of a negative relationship between compensation and board size, while Fernandes (2008) could not find any significant relationship between board compensation and board size.

With the support of theory and previous research, the following hypotheses examines:

Hypothesis 1a: *There is a negative relationship between board size and chairman compensation*

Hypothesis 1b: *There is a negative relationship between board size and average director compensation*

² Some individuals in a group reduce their contributions (Sheffrin, 2007)

³ Groupthink appears when the drive for achieving group consensus overrides the realistic appraisal of alternative course of action (Sheffrin, 2007)

3.6.2 Busy directors

Today, many directors serve on multiple boards at the same time, this is called “busy directors” (Kim, Nofsinger, & Mohr, 2010). Busy directors is an aspect of the effectiveness of the boards and is related to how much time the directors are able to spend on work in the boards. Positive aspects with busy directors are that they have a lot of knowledge and competence regarding board work and corporate governance (Adams, Hermalin, & Weisbach, 2010). Boards with busy directors will more easily monitor the impact from managers. Due to this, busy directors tend to give a signal of being more efficient and successful, which is appreciated by the shareholders (Di Pietra, Grambovas, Raonic, & Riccaboni, 2008). Satisfied shareholders should be more willing to enhance the compensation given to boards of directors. Busy directors will likely be able to bring more resources to the companies from earlier experiences than directors that only participate in one board. According to the resource dependence theory; compensation of directors is an increasing factor of the amount of resources the directors are able to bring to the company.

Brick, Palmon, and Wald (2006) and Ferris, Jagannathan, and Pritchard (2003) find a positive relationship between busy directors and the compensation given to the board. With the support of theory and previous research, the following hypotheses examines:

Hypothesis 2a: *There is a positive relationship between busy directors and chairman compensation*

Hypothesis 2b: *There is a positive relationship between busy directors and average director compensation*

3.6.3 Female directors

The percentage of female directors in Swedish boards has increased for the first time in two years. Last year, 2014, Swedish listed companies consisted of 25,8% female directors. The largest percentage of female directors is found among companies listed as Large Cap, the proportion of female directors is 30,1% in these companies (Ekelund, 2015). To reach more gender equal boards, the Swedish Corporate Governance Board has established guidelines and goals for the future. The proportion of female directors shall reach 35% by the year 2017, and 40% by 2020 (Swedish Corporate Governance Board, 2014).

In recent years, compensation differences between genders have been controversial. Research has shown that women receive generally lower salaries than men (Bertrand & Hallock, 2001; Elkinawy & Stater, 2011). In Sweden, during 2013, there was a remuneration difference of 13.4% between men and women (Medlingsinstitutet, 2013). In a study performed by Allbright (2013), it follows that women receive, on average, lower remuneration also for their board work compared to men in Sweden. According to the study, an explanation of this is that women are rarely elected into the boards representing the largest companies, where the remuneration is subsequent higher. Another factor that influences the remuneration of boards of directors is the type of industries in which the companies operates. Female directors tend to be part of boards representing companies in industries with lower compensation levels (Allbright, 2013). Smith, Smith, and Verner (2006) find that female directors on boards have a negative impact on firm performance. Crespí-Cladera and Gispert (2003) state that lower firm performance will result in lower compensation of directors. It is therefore reasonable to presume that more female directors will result in lower compensation levels. The study (Smith, Smith, & Verner, 2006) is conducted within the Danish settings, which is not too far away from the Swedish settings. Even though a diversified board can contribute with more resources and perspectives, which would result in higher compensation, this is not consistent from previous research. The results conducted from previous studies are contrary to the Stewardship theory, where the compensation should be determined by the amount of work, effort, and knowledge, and not by the gender of the board member.

Since few studies have examined female directors' influence on board compensation, the following hypotheses are based on the arguments that women have lower wages and that female directors have a negative impact on firm performance:

Hypothesis 3a: *There is a negative relationship between female directors and chairman compensation*

Hypothesis 3b: *There is a negative relationship between female directors and average director compensation*

3.6.4 Independent directors

Independent directors have become an integral part of boards in order to counteract inherent agency conflicts and align the interests of managers and shareholders. Independent directors are outside directors who are not currently employees of the company (also called non-executive directors) and are not involved in any economic relationships with the company, its executive directors, or its shareholders (Menozzi et al., 2014). Outside directors are often taken for being independent directors, yet not all outside directors qualify for independence (Menozzi et al., 2014; Adams, Hermalin, & Weisbach, 2010).

According to the agency theory, a board of directors should consist of a majority of independent directors since they provide a more effective surveillance of the management (Fama & Jensen, 1983). Independent directors are valuable to the board and are supposed to have more external information, be less biased, and thus more effective monitors than non-independent directors. Independent directors also result in more effective corporate governance (Adams, Hermalin, & Weisbach, 2010; Andreas, Rapp, & Wolff, 2010; Ryan & Wiggins, 2004). Independent directors usually serve on other boards as professionals, therefore they often have a lot of experience and are afraid of losing that reputation if they are not performing well (Nguyen and Nielsen, 2010).

There have been different results regarding the relationship between independent directors and compensation to boards of directors. Andreas, Rapp, and Wolff (2010) find that total compensation per director increases with more independent directors on the board. Ryan and Wiggins (2004) found that outsider-dominated boards receive a larger amount of cash compensation than boards with a minority of outside directors. Fernandes (2008) and Menozzi et al. (2014) did not identify any significant relationship between independent directors in the board and total board compensation. With the support of theory and previous research, the following hypotheses examine:

Hypothesis 4a: *There is a positive relationship between independent directors and chairman compensation*

Hypothesis 4b: *There is a positive relationship between independent directors and average director compensation*

3.6.5 International directors

International directors are a well-discussed subject but few studies have been done on international board of directors' influence over the boards' compensation.

Differing levels of executive compensation across countries are huge. For example, executives in the U.S. have significantly higher compensation than equivalent executives in many European countries (Elston & Goldberg, 2003; Oxelheim & Randøy, 2005). Heidrick and Struggles (2009) examine board compensation in the European settings and find that Sweden is one of the countries that offer the lowest compensation to boards of directors. This can lead to that directors from other countries, where the compensation levels are higher, will require higher compensation for board work than a Swedish board member.

A board with international members will have different experiences and cultural backgrounds and may bring different approaches and perspectives to the company (Sjöstrand & Petrelius, 2002). The international directors bring useful networks from the international market and remove barriers to trade and capital flows. The companies will symbolize an international profile on the market (Oxelheim & Randøy, 2003). Oxelheim and Randøy (2003) examine the effect of foreign (Anglo-American) board membership on firm performance in Norway and Sweden. The study indicates a higher firm value for firms that have Anglo-American board members. Randøy and Nielsen (2002) find a positive relationship between foreign board membership and CEO compensation, which means that foreign board membership, has influence on corporate governance outcomes. This study expects that international directors have a positive effect on board compensation since it increases the diversity within the board.

Hypothesis 5a: *There is a positive relationship between international directors and chairman compensation*

Hypothesis 5b: *There is a positive relationship between international directors and average director compensation*

3.7 Summary of hypotheses

Hypotheses	Supporting theory	Supporting research
Hypothesis 1 a: Larger boards decrease the compensation to the chairman b: Larger boards decrease the compensation to a director	Agency theory	Ryan & Wiggins, 2004 Menozzi et al., 2004
Hypothesis 2 a: A higher proportion of busy directors increase the compensation to the chairman b: A higher proportion of busy directors increase the compensation to a director	Resource dependence theory	Brick, Palmon, & Wald, 2006
Hypothesis 3 a: A higher proportion of female directors decrease the compensation to the chairman b: A higher proportion of female directors decrease the compensation to a director		Allbright, 2013 Elkinawy & Stater, 2011
Hypothesis 4 a: A higher proportion of independent directors increase the compensation to the chairman b: A higher proportion of independent directors increase the compensation to a director	Agency theory / Resource dependence theory	Andreas, Rapp, & Wolff, 2010 Ryan & Wiggins, 2004
Hypothesis 5 a: A higher proportion of international directors increase the compensation to the chairman b: A higher proportion of international directors increase the compensation to a director	Resource dependence theory	Oxelheim & Randøy, 2003 Randøy & Nielsen, 2002

Table 3. Summary of the study's hypotheses

3.8 Control variables

Compensation of boards may depend on other factors than those tested in the hypotheses. Therefore, a number of control variables will be included in the regressions. The control variables are expected to have a significant impact on the boards' compensation. The variables are used as control variables since these are not board-specific. Control variables are included to improve the analysis of the relationship between board composition and board compensation and to reduce the risk of inconsistent conclusions. The following control variables are applied:

Firm size

The majority of prior literature indicates that firm size is an important variable explaining board compensation. The complexity of the job, the skills required, the number of hierarchical structures, and the ability to pay, all indicate that larger firms are paying their directors more. Firm size in relation to compensation to directors overall is a well-explored area with clear results that shows that compensation will be higher if the company is larger. Crespi-Cladera

and Gispert (2003), Ryan and Wiggins (2004), and Menozzi et al. (2014) find that board remuneration is positively correlated with the size of the company. In line with previous research, a control for this variable occurs.

Firm performance

Compensation to executives should, according to the agency theory, be linked to firm performance and should work as an incentive to align the interests of directors and shareholders. There are evidences of both positive and negative relationships between board compensation and firm performance (Menozzi et al., 2014). Crespí-Cladera and Gispert (2003) find a positive relation between board remuneration and firm performance. In line with previous research, a control for this variable occurs.

Firm leverage

Debt may substitute as a monitoring device or increased debt may indicate that the company may require more monitoring because its equity is eroding. Crespí-Cladera and Gispert (2003) test the impact of firm leverage on board remuneration but could not confirm that leverage plays a significant role in establishing board remuneration policies. Brick, Palmon, and Wald (2006) on the other hand find that director compensation is positively related to leverage. Control for leverages' impact on board compensation is of interest.

Ownership concentration

The level of ownership concentration is expected to impact the agency costs of the company (Barontini & Bozzi, 2009). Sweden is a country with historically strong ownership commitment and has high ownership concentration (Sevenius, 2007). Sweden has many well-known ownership spheres, such as Wallenberg and Bonnier. Barontini and Bozzi (2009) associate high ownership concentration with lower board pay and find a negative relationship between ownership concentration and board compensation. To control for the impact of ownership concentration on board compensation is therefore of interest.

CEO on the board

Brick, Palmon, and Wald (2006) find that compensation to the board is affected by whether or not the CEO is on the board. If the CEO is on the board, compensation to the board will be higher. When the CEO is one of the directors, the board will lose part of its independence and the control of the management will decrease.

4. Methodology

This chapter presents the methodological framework and approach used in this study. The chapter describes the selection procedure, data sample, and exclusions. The chapter concludes with a discussion and evaluation of the selected method and sources.

4.1 Methodological approach

The methodological approach in this study is of deductive character since the study is based on previous research and theories. A deductive approach is when literature, studies, and what is known from previous examinations, becomes hypotheses, which in turn affects the process of collecting data. The empirical results and analysis of the sample lead to either acceptance or rejection of the hypotheses. After this, consequences of the results tie together and compares to earlier research. The process can be summarized in six steps:

1) Theory → 2) Hypotheses → 3) Data collection → 4) Results → 5) Hypotheses are accepted or rejected → 6) Reformulation of the theory (Bryman & Bell, 2013).

Since we study the possible effects the composition of the board have on the board of directors' compensation, a quantitative method is preferred instead of a qualitative method. A quantitative method is used when analyzing a large sample of observations in form of hypotheses, and when the study focuses on specific factors as measurement and generalization (Bryman & Bell, 2013). The research question is analyzed by historical information. The data and the sample method are formulated by earlier theory and research. The quantitative method has in earlier research been the most frequently used and makes it possible for us to perform the needed statistical tests and regressions.

The ontological approach of the study is objectivism, meaning that the research relates to the social reality as an external and objective reality. We meet social phenomenon in form of external facts we cannot control (Bryman & Bell, 2013).

4.2 Data sample

The data sample consists of all companies traded on Stockholm Stock Exchange's (Nasdaq OMX Stockholm) list of Large Cap over a time period of eight years, from 2006 to 2013.

After exclusions, 43 companies remain in the sample. We selected to start with the year 2006 since the Swedish Code of Corporate Governance was introduced in the middle of 2005, and to end year 2013 since it is the last year with available annual reports of the companies. This gives us a total sample of 344 observations. Companies listed as Large Cap are of interest to observe since these companies act in accordance with the Swedish Code of Corporate Governance during the whole time period. The Code did not cover Small and Mid Cap until after 2008. This can have effects on the results, thereby, those lists are not included in this study. The chosen time period comprises the financial crisis, which began in 2008. The financial crisis may affect the compensation levels, which can have an impact on the result of this study. The sample of an observation period over eight years and across companies within various industries increases the probability of a relevant outcome.

4.2.1 Exclusions

All financial and utilities companies are excluded from the sample due to differences in accounting principles. Companies not present on the list of Large Cap the entire analyzed time period are excluded; Africa Oil, EnQuestPLC, and HEXPOL were listed as Large Cap after 2006. This can lead to potential survivor bias; however, removing only these three companies will not have any significant effect on the result of this study. Tieto Oyj is excluded from our study because of the difference in the compensation structure compared to the other companies in the sample. Keeping Tieto Oyj in the sample can lead to misleading results.

4.3 Data sample method

The study has been conducted by collecting data and information from the companies' annual reports for the observed years and from the database Datastream. The study covers only public information.

4.3.1 Selection procedure

The data collection begins with controlling for which companies have been registered on Large Cap during our selected time period. The collection of data is based on a comparative design, which simplifies the comparison between the results from this study and previous

research. To apply a comparative design, the information is collected and analyzed in the same way for all companies in the study (Bryman & Bell, 2013).

The variables are chosen based on findings in previous research and theories. Information about our independent variables; board size, busy directors, female directors, independent directors, and international directors are found in the companies' annual reports. Two of the control variables, CEO on the board and ownership concentration, are collected from annual reports as well. Firm size, firm performance, and firm leverage are gathered from the database Datastream. In cases where companies report remuneration in another currency than Swedish crowns, the amount is recalculated to Swedish crowns by the average annual exchange rate. Exchange rates are retrieved from the website of the Central Bank of Sweden.

When all data has been collected and organized, the necessary tests are performed. First, descriptive statistics are outlined to get an overview of the selected sample and then validity tests are conducted. A more detailed review of the results is presented in Chapter 6, Empirical findings. The impact of the independent variables on the chosen dependent variables is also presented in Chapter 6. An analysis of the results received is to be found in Chapter 7, Analysis.

4.3.2 Secondary data

The data of the study is classified as secondary since it is collected from annual reports and other already published information. To retrieve data about the chosen dependent and independent variables, the companies' annual reports are considered the most appropriate approach since there are no available databases for these components. Most of the data can be found in the corporate governance report in the annual report. It is stated in the Annual Accounts Act (1995:1554) that limited companies have to report information about the board of directors and their compensation.

Benefits of using secondary data from annual reports are that the data is of high quality with only a small risk for loss of data due to inaccessible data. Secondary data is more time efficient and less costly compared to primary data where the data is created by the researcher. The reliability of the information from secondary data is important to consider since someone

else has produced the information (Bryman & Bell, 2013). The secondary data in our study perceives reliable since an authorized auditor before publishing has revised the annual reports.

4.3.3 Literature

An extensive literature review has been conducted to gain a broad knowledge of previous research, which has facilitated the formulation of our hypotheses. The literatures mostly used are scientific articles, theory books, and Swedish legislation. Academic journals are collected online from Google Scholar and a database provided by Lund University, LUBsearch. Typical words searched for are: *board compensation, board remuneration, board of directors, corporate governance, board structure, and board composition.*

4.4 Source criticism

A detailed review of criticism of the literature and methods practiced to conduct the study are described below.

4.4.1 Literary criticism

The scientific articles used in the study are usually oriented in the business, management, and economic environment. The articles have been inspected before publishing and the sources are counted as solid. The fact that the authors can be biased is important to have in mind when reviewing these articles. We also understand the impossibility of covering all previous research, articles, and other type of literature, which may cause bias of the observed material, but with the time frame and availability, this is unavoidable. Some of the independent variables have been studied more than others in earlier research, which makes the information about the effect on board compensation more limited for some of our variables.

With help from academic business journals and a wide spectrum of books about corporate governance, and especially with a focus on board of directors and their compensation, a careful examination of valid literature has been conducted. A sample of literature from different decades has been examined to receive a broad picture of the explored area (Bryman & Bell, 2013).

4.4.2 Method criticism

The method is selected for the outcome to be as trustworthy as possible. Future studies should receive the same results when applying the same method. Criticism on the quantitative method is mainly based on the precision and correctness of the data used. Since an authorized auditor before publishing reviews the annual reports, the information is assumed to be reliable. The majority of the selected variables are examined in previous research, which indicate that valid results can be found when testing the formulated hypotheses. This makes a comparison between the results from this study and previous studies feasible.

To be able to perform the tests, a panel data set is used. This is applied since the study observes variables both cross-sectional and over time. One benefit with panel data is the possibility to detect variation both between the firms and between the years examined. This makes the results easier to explain and analyze.

4.5 Reliability, validity, and replicability

For a study to be credible, there are three key criteria that have to be fulfilled; reliability, validity, and replicability.

4.5.1 Reliability

Reliability aims to the degree of reliability in the study. The reliability increases if the study is conducted in a way that evokes trust. The aim is to be sure that the same results and conclusions had been reached if the same study had been made by someone else (Bryman & Bell, 2013). To increase the reliability, the study has been conducted impartially and the used material has been examined carefully and with criticism. Exclusions in our sample have been done only when we have find reasons to do so, this ensures that we will not lose reliability. Reliable sources, in form of annual reports that have been reviewed by authorized auditors, are used when collecting information and performing the tests. Although, it is important to be aware that there may be manipulation in the annual reports that are beneficial for the companies. The reliability can also be affected by the possibility that the companies can report data in different ways from one year to another, which can complicate the collection of data.

Regarding the above reasoning, the results are assumed to be the same if the study would be done again by someone else, which is a criterion that should be met in order for the study to be said having good reliability (Bryman & Bell, 2013).

4.5.2 Validity

A study should meet the criteria for validity to be considered to have high validity and relevance. The concept of validity refers to the measurement of the required data and involves an estimation of the study's findings and whether these are related or not. Validity can be divided into internal and external validity (Bryman & Bell, 2013).

Internal validity aims to ensure that the study measures what it is intended to measure. To fulfill the criteria for internal validity in this study, the variation in the independent variables should explain the variation in the dependent variable (Bryman & Bell, 2013). It is important to include variables that have large impact on the compensation to the boards. To reach high validity, control variables have been included in the study. These variables have shown an effect on board of directors' compensation in previous studies. Previous studies' variables and approaches have been examined and are used as a base for the method of this study and regression analysis, which also increases the validity of the study.

External validity refers to how well the results are valid and generalizable in other contexts. Since this study only covers companies listed on Stockholm Stock Exchange's Large Cap list, the results cannot be fully generalized to other companies. However, Large Cap companies and other publicly listed companies in Sweden operate under the same regulations which make our results generalizable to some extent on those companies as well.

4.5.3 Replicability

Replicability is described as a crucial factor when performing quantitative research. The methodology has to be well specified so that other researchers will be able to conduct the study and receive the same results (Bryman & Bell, 2013). Therefore, type of method, selection of data, and other approaches are presented in the study in a way that is easy to follow with no uncertainty.

5. The regression model

The chapter presents basic information about the regression method, chosen data structure, and validation tests. The study's regression model and its variables are presented.

5.1 Regression analysis

Multiple linear regression analysis is an appropriate approach since the study wants to find connections between different phenomena and variables. A multiple regression analyzes the relationship between a given variable (the dependent variable) and a set of other variables (the independent variables). The relationship is a way to explain movements in a variable by reference to movements in one or more other variables. Since the study involves more than one independent variable and wants to test how the dependent variable depends on several different independent variables at the same time, a multiple regression is used, instead of a simple regression (Brooks, 2008). Two multiple regressions will be run in order to empirically examine the research question of this study. Each regression includes a dependent variable, chairman compensation or average director compensation, and in each case includes the independent variables presented in section 3.7.

The data in the sample represents observations collected both cross-sectional and over time, where the cross-section refers to the width of the data (43 firms), while the time series data refers to the time period of the sample (between 2006 and 2013). A panel data regression is preferred as it allows to combine both data types and analyze the variations from a cross-sectional and time dimension (Bryman & Bell, 2013). The panel data analysis is then based on the data in the sample over the whole analyzed time period. Data with variation both cross-sectional and over time is more informative and generalizable than cross-sectional data collected at a single point in time, or time-series data for a single entity. Other benefits with panel data is that more complex problems can be managed, it helps mitigating the problem of multicollinearity, and results in a greater degree of explanation through increased degrees of freedom in the regression. Weakness with panel data is that it limits the analysis since it cannot be analyzed in the same way as if the data consist of pure cross-sectional data or time-series data (Brooks, 2008). However, benefits of using panel data weigh the disadvantages in our case. Our choice of a multiple panel data regression analysis is supported by the fact that it is a commonly used approach in financial research. It is a proven method that has been used

in previous studies, Crespí-Cladera and Gispert (2003), Brick, Palmon, and Wald (2006), Fernandes (2008), Barontini and Bozzi (2009), and Andreas, Rapp, and Wolff (2010), to analyze boards' compensation, which further supports our choice of regression model.

The regressions will be run through the econometrics software program EViews 8.

Regression formula:

$$Y_{it} = \alpha + \beta_1 x_{it} + \beta_2 x_{it} + \beta_3 x_{it} + \beta_4 x_{it} + \beta_5 x_{it} + \beta_6 x_{it} + \beta_7 x_{it} + \beta_8 x_{it} + \beta_9 x_{it} + \beta_{10} x_{it} + \varepsilon_{it}$$

5.1.1 Panel data analysis

The most straightforward way to use panel data is by estimating a pooled regression, in which only one regression is stimulated on all the data together. The equation is estimated with an OLS method and estimating a pooled regression does not require a lot of parameters (Brooks, 2008). Despite the simplicity of this type of regression, it has its limitations. A pooled regression assumes the average values of the variables to have a constant relationship to each other, and to be constant cross-sectional or over time (Brooks, 2008). The use of pooled regression on panel data is not recommended because it will miss out the benefits with panel data. Since the relationship between the variables in our study will most likely not remain constant it will be difficult to apply this type of approach.

According to Brooks (2008), there are two other recommended approaches to panel data; “fixed effects” models and “random effects” models. The two models are presented below:

5.1.1.1 Fixed effects model

When performing fixed effects model, variation is found in either the cross-section data or the time-series data. This indicates that the intercept differs and is varying cross-sectional or over time, while the other remains constant. A fixed effect model is conducted to control for residual values that may otherwise distort the values and dummy variables are created to be able to differ between time and cross-section units. The null hypothesis of fixed effect is that the intercept of the dummy variables has the same parameter. If the null hypothesis is rejected, the assumption about the same intercept cannot be used. If the values of cross-section/Period F and Chi-square in the model are significant, the null hypothesis is rejected

and fixed effect is an appropriate model. If they are not significant, the dummy variables are excluded from the regression and the assumption of having the same parameter for all dummy variables is true and OLS can be used (Brooks, 2008).

5.1.1.2 Random effects model

Random effects model is an alternative to the fixed effects model. The model is similar to the fixed effects model in some ways. There is a variation in the intercept terms of each cross-section unit, but constant over time. The model differs from fixed effects by the assumptions of the intercepts for the cross-sections units are arising from a common intercept, plus a random variable. The random variable, ε , measures the random deviation of each cross-section units intercept term from the “global” intercept term, α (Brooks, 2008). A difference when using random effects model is the absence of dummy variables. Instead, the random variable captures the variation (heterogeneity) in the cross-sectional dimension. Since no dummy variables are used in this model, there are fewer parameters to estimate. This saves degrees of freedom and produces a more efficient estimation than the fixed effects model. Although, the assumptions of the random effects model are stricter than of the fixed effects model and is only applicable when the error term is uncorrelated with all of the explanatory variables (Brooks, 2008). Random effects model is tested for with a Hausman test.

5.2 OLS assumptions

Ordinary Least Squares (OLS) is the most frequently used method in regression analysis. The method is used to estimate the regression model and investigate the linear relationship between the dependent and the independent variables. The use of multiple regression analysis requires a number of underlying assumptions for the model to be considered reliable. If the assumptions hold, the least square method will work. The estimators determined by OLS will then have desirable properties and the estimators can then be considered to be BLUE (Best Linear Unbiased Estimators). If the assumptions are violated, this can lead to biased coefficient estimates and incorrect inferences (Brooks, 2008).

5.2.1 Stationarity: $E(u_t) = 0$

This assumption implies that the residuals must have zero mean. Including an intercept in the regression eliminates this problem. There is no need to test for stationarity (Brooks, 2008).

5.2.2 Homoscedasticity: $\text{var}(\mathbf{u}_t) = \sigma^2 < \infty$

This assumption implies that the variance of the errors is constant, this is known as homoscedasticity. If the assumption doesn't hold and the errors do not have a constant variance, the standard errors could be wrong and the estimators may generate wrong conclusions, this is known as heteroscedasticity. Panel data should not contain any evidence of heteroscedasticity. A scatterplot, Breusch-Pagan-Godfrey test, or White's test can be conducted to detect heteroscedasticity (Brooks, 2008).

5.2.3 No Autocorrelation: $\text{cov}(\mathbf{u}_i, \mathbf{u}_j) = \mathbf{0}$ for $i \neq j$

Another important assumption is autocorrelation. The error terms should be linearly independent of one another and occur randomly over time. If there are patterns in the residuals, this is called autocorrelation. Autocorrelation generates inefficient coefficients and could lead to wrong inference. A Breusch-Godfrey or a Durbin-Watson test can be performed to test for autocorrelation. Tests for autocorrelation is mainly relevant to test for when using time series data and are difficult to implement on panel data (Brooks, 2008). Especially when the cross section units (143 companies) are larger than the time series (eight years). The dimension of the data is relatively short, which also makes it difficult to detect a trend over time. Therefore, testing for autocorrelation will be excluded in this study.

5.2.4 Exogenous: $\text{cov}(\mathbf{u}_t, \mathbf{x}_t) = \mathbf{0}$

The fourth assumption implies that there cannot be any relationship between the error term and the independent variables, this is known as exogeneity. If the assumption is violated, the regressors are endogenous and the values are determined by the equation instead of outside the equation, which is desirable. The assumption can be tested for by a Hausman test (Brooks, 2008).

5.2.5 Normality: $\mathbf{u}_t \sim N(\mathbf{0}, \sigma^2)$

The assumption about normality is fulfilled when the residuals are normally distributed. Normality is determined by looking at the skewness and the kurtosis of the residuals. The normal distribution has zero skewness and a kurtosis of three. Normal distribution is tested

with a Jarque-Bera test. If the assumption about normality is violated, the problem can be corrected by increasing the sample or transforming variables (into natural logarithms) to remove outliers. The assumption is no requirement for the model to be effective, but the p-values can be misleading (Brooks, 2008).

5.2.6 Validity testing

According to Brooks (2008) there are a number of problems that also have to be controlled for the least squares method to work as a suitable model. The following test is necessary when using panel data:

5.2.6.1 Multicollinearity

Multicollinearity occurs when the independent variables are not independent of each other, but instead highly correlated with each other. Multicollinearity occurs if any of the variables have a correlation value greater than 0.8. If there is, the regression model should be reconsidered. A correlation matrix controls for multicollinearity. Multicollinearity can be treated in different ways: it can be ignored, increase the sample size, remove one of the collinear variables, or transform the highly correlated variables into a ratio (Brooks, 2008).

5.3 The regression model

Regression 1:

$$\begin{aligned} \mathbf{CHAIRMAN\ COMPENSATION}_{it} = & \alpha + \beta_1\mathbf{SIZE}_{it} + \beta_2\mathbf{BUSY}_{it} + \beta_3\mathbf{FEMALE}_{it} + \\ & \beta_4\mathbf{INDEPENDENT}_{it} + \beta_5\mathbf{INTERNATIONAL}_{it} + \beta_6\mathbf{FIRMSIZE}_{it} + \beta_7\mathbf{FIRMPERF}_{it} \\ & + \beta_8\mathbf{FIRMLEV}_{it} + \beta_9\mathbf{CEOBOARD}_{it} + \beta_{10}\mathbf{OWNERSHIP}_{it} + \varepsilon_{it} \end{aligned}$$

Regression 2:

$$\begin{aligned} \mathbf{DIRECTOR\ COMPENSATION}_{it} = & \alpha + \beta_1\mathbf{SIZE}_{it} + \beta_2\mathbf{BUSY}_{it} + \beta_3\mathbf{FEMALE}_{it} + \\ & \beta_4\mathbf{INDEPENDENT}_{it} + \beta_5\mathbf{INTERNATIONAL}_{it} + \beta_6\mathbf{FIRMSIZE}_{it} + \beta_7\mathbf{FIRMPERF}_{it} \\ & + \beta_8\mathbf{FIRMLEV}_{it} + \beta_9\mathbf{CEOBOARD}_{it} + \beta_{10}\mathbf{OWNERSHIP}_{it} + \varepsilon_{it} \end{aligned}$$

Where $i=1, \dots, N$ for each cross-section (firm), $t=1, \dots, T$ for each time period (2006-2013), α is the intercept. CHAIRMAN COMPENSATION, DIRECTOR COMPENSATION, $\beta_1\mathbf{SIZE}$,

and $\beta_1 FIRMSIZE$ are logarithms of their respective measures in order to reduce presence of extreme values and to adjust for the normality in the data.

SIZE = Board size

BUSY = Busy directors

FEMALE = Female directors

INDEPENDENT = Independent directors

INTERNATIONAL = International directors

FIRMSIZE = Firm size

FIRMPERF = Firm performance

FIRMLEV = Firm leverage

CEOBOARD = CEO on the board

OWNERSHIP = Ownership concentration

5.4 Definitions of variables

As earlier mentioned, the study focuses on examining if there is any relationship between board composition and board compensation. By multiple regression analysis, compensation is put in relation to earlier mentioned factors, and shows potential relationship between board compensation and board composition.

5.4.1 Dependent variable

The dependent variable (*y*) is the variable measured in a test and whose movements the regression seeks to explain. The dependent variable “depends” on the independent variable(s) (Brooks, 2008).

In order to evaluate the board composition’s impact on board compensation, we have divided the compensation data collected into two categories; chairman compensation and average director compensation. The compensation variable is separated because of the extensive difference of compensation to the chairman compared to other board members. The chairman receives higher compensation because of additional duties and responsibilities in the board. The compensation variables are composed of two elements; an annual retainer and committee pay. We have collected data on the individual remuneration for each chairman for company *i* for year *t*. In line with previous research on director compensation (Andreas, Rapp, & Wolff,

2010; Crespí-Cladera & Gispert, 2003), average director compensation for company i for year t is calculated by dividing total compensation paid to the board for company i for year t (excluding remuneration to the chairman) by the number of paid members (excluding the chairman) for company i for year t . The CEOs' are not compensated for their role in the board and are therefore not included in our calculation for average director compensation.

The firms in the sample use a fixed annual cash retainer as the basis for remuneration. Compensation can consist of either a fixed or variable portion, or a combination of these two. Prestige and reputation is another type of compensation for the board of directors, this is not treated in this study since it is hard to measure and compare to other compensation forms. The variable portion is usually based on attendance at meetings, this is not common in Sweden. Therefore, the study will focus on fixed cash compensation that consists of an annual retainer and committee pay. Some firms in the sample implement a mixture of cash and synthetic shares in their annual retainer, the value of the shares is included in the compensation variable. The study does not include other types of compensation, such as options, warrants, swaps, or other derivatives in the company since it is not common type of compensation for board of directors in Sweden. The data for this variable is retrieved from the companies' annual reports.

5.4.2 Independent variables

The independent variables (x) are explanatory variables, which are used to explain variation in the dependent variables. The independent variables are not affected by other measures (Brooks, 2008). Several variables are used to determine the dependent variables in this study. How the variables are measured is presented below. All independent variables are collected from the companies' annual reports.

5.4.2.1 Board size

Board size is measured, in accordance with Barontini and Bozzi (2009), as the number of directors on the board (executive and non-executive directors). If a director has resigned or acceded, the director is included if he/she had a seat in the board for at least six months of the observed year. Board member/director is referred only to such directors elected by the companies' shareholders. Employees' representatives and deputies are not included since they are not compensated for board work.

5.4.2.2 *Busy directors*

Busy directors are measured as relative percentage of directors that serve on three or more other boards relative to board size, which is in line with Brick, Palmon, and Wald (2006).

5.4.2.3 *Female directors*

This variable is defined as relative percentage of female directors in relation to board size.

5.4.2.4 *Independent directors*

Independent directors are defined as relative percentage of independent directors in relation to board size. In line with Menozzi et al. (2014), an independent director shall not have connections to either the company or major shareholders. According to the Swedish Code of Corporate Governance (2010) listed companies must clearly state if the company's directors are independent to the company and its shareholders or not.

5.4.2.5 *International directors*

This variable is measured as relative percentage directors that are non-Scandinavian in relation to board size.

5.4.3 *Control variables*

Control variables are defined in order to make the study more reliable and accurate. Control variables are constant and test the relative impact of the independent variables (Brooks, 2008). The control variables make it possible to control for firm-specific factors. The definition of control variables is explained in the following section.

5.4.3.1 *Firm size*

Firm size is measured, in accordance to Crespí-Cladera and Gispert (2003), as sales turnover. Firm size is collected from Datastream.

5.4.3.2 Firm performance

In line with Fernandes (2008), return on equity (ROE) is used as proxy for accounting performance. ROE states how much profit a company generates in terms of their invested capital. The variable is collected from Datastream.

5.4.3.3 Firm leverage

Leverage is defined as the ratio of total debt to total capital. The variable is collected from Datastream.

5.4.4 Dummy variables

Two of the control variables are dummy variables. A dummy variable is a binary variable, which takes the value of either one or zero, indicating the presence or the absence of a particular quality. The dummy variables are used as explanatory variables and can be interpreted as the average differences in the values of the dependent variable (Brooks, 2008). The variables are collected from the companies' annual reports.

5.4.4.1 Ownership concentration

In line with Barontini and Bozzi (2009), a dummy takes on the value of 1 if one owner has more than 20 % of the votes in the company, otherwise the variable takes on the value of 0.

5.4.4.2 CEO on the board

A dummy takes on the value of 1 if the CEO is on the board, otherwise 0.

5.5 Summary of variables

Dependent variables	Definition	Source of data
Chairman compensation	The compensation the chairman of the board receives	Annual reports
Average director compensation	Total director compensation divided by the number of directors in the board	Annual reports
Independent variables	Definition	Source of data
Board size	Number of directors on the board	Annual reports
Busy directors	The relative percentage of directors serving on three or more other boards	Annual reports
Female directors	The relative percentage of female directors in relation to board size	Annual reports
Independent directors	The relative percentage of independent directors in relation to board size	Annual reports
International directors	The relative percentage of international directors relative to board size	Annual reports
Control variables	Definition	Source of data
Firm size	Sales turnover	Datastream
Firm performance	Return on Equity	Datastream
Firm leverage	A ratio of total debt to total capital	Datastream
Ownership concentration	1 if one owner has 20 % or more of the votes in the company, otherwise 0	Annual reports
CEO on the board	1 if the CEO is a member of the board, otherwise 0	Annual reports

Table 4. *Summary of the study's variables*

6. Empirical findings

Section 6 presents the study's empirical data and results from the regression analysis. Descriptive statistics from the sample and results from validity tests are presented.

6.1 Descriptive statistics

The study includes observations from 43 Swedish companies listed on Stockholm Stock Exchange during a period of eight years, 2006 to 2013. Table 5 below presents a summary of the statistics of the sample for the variables included in the study. As stated before, the variables chairman compensation, average director compensation, board size, and firm size have been transformed into natural logarithms (ln) in our regression. The logarithms make the variables comparable to the other variables, which are ratios, and adjust for the normality in the data.

Compensation to a chairman in the sample is on average 1 232 992 SEK and average for a director of a board is 467 086 SEK. The maximum and minimum values show that the variables vary a lot in the sample, especially the dependent variables, which support the use of fixed effects model. Comparing the average compensation to chairman and the other directors of the board among different industries (Appendix 1), gives us an indication where the compensation is above, similar, and under the average. The technology industry and consumer goods industry are paying their board of directors the highest compensation in our sample. The industries with the lowest remuneration levels are oil & gas and consumer services. The overall comparison tells us that the differences are not extensive between industries. Many of the industries have an average compensation to chairman and the other directors of the board similar to the average compensations among companies on Large Cap.

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
In Chairman compensation	13.85468	13.91082	15.52037	12.46844	0.573220	330
Chairman compensation	1232992.	1100000.	5500602.	260000.0	822321.1	330
In Average director compensation	12.99184	13.05426	14.03401	11.77529	0.466743	330
Average director compensation	487160.8	467083.5	1244210.	130000.0	225188.2	330
In Board size	2.075190	2.079442	2.564949	1.609438	0.179189	330
Board size	8.093939	8.000000	13.00000	5.000000	1.454568	330
Busy directors	0.669875	0.667000	1.000000	0.200000	0.186270	330
Female directors	0.227339	0.250000	0.571429	0.000000	0.109908	330
Independent directors	0.626706	0.600000	1.000000	0.200000	0.193533	330
International directors	0.219943	0.125000	0.910000	0.000000	0.253744	330
CEO on the board	0.648485	1.000000	1.000000	0.000000	0.478168	330
Ownership concentration	0.757576	1.000000	1.000000	0.000000	0.429200	330
In Firm size	17.30491	17.34762	19.55327	13.40000	1.230134	330
Firm size	60677784	34196000	310367000	660000.0	66744980	330
Firm performance	0.264636	0.177000	14.25100	-0.296000	0.816448	330
Leverage	0.368722	0.379500	1.247000	0.000000	0.206064	330

Table 5. *Descriptive statistics*

6.2 Testing of various regression models

In appendix 2, the Hausman test is presented. Our first regression, where chairman compensation is the dependent variable, is statistically significant at a 5% level. This indicates that the random fixed model is not appropriate and the fixed effects specification is to be preferred. The second regression, with director compensation as dependent variable, shows a p-value of 0.2075, which is not statistically significant. The null hypotheses can't be rejected and random effects model is appropriate for this regression.

In order to determine which fixed effects to use, a Likelihood Ratio Test is conducted to determine any redundant fixed effect. The test verifies our observations and indicates that the pooled regression cannot be employed. The two fixed effects models, cross-section fixed and period fixed, are significant in both regressions (Appendix 3), indicating that fixed effect is appropriate in both dimension. When testing the models, a model using only period fixed effects is not qualitatively different from the initial pooled regression. The Schwarz criterion, which is a criterion for model selection, show that period fixed effects should not be included in the model since using only period fixed effects gives a higher Schwarz value than the value in the pooled model. When testing for only cross-sectional fixed effect, the Schwarz value is lower compared to the pooled regression, indicating to keep cross-sectional fixed effect in the regressions (Neath & Cavanaugh, 2011). Therefore a model with cross-section fixed effects is

to be utilized. Since it is of interest to compare the regression results, fixed effects model will be used for both regressions, even if random effect was appropriate for one regression.

6.3 Validity tests

As stated earlier, it is important to test for the assumptions underlying the regression model before making any interpretation of the results. A number of validity tests have been performed to make the regression results more reliable. The results are based on assumptions of OLS, presented in chapter 5. Since we have panel data, all assumptions are not necessary to test for. The tests performed are for heteroscedasticity, normality, and multicollinearity. The problem with stationarity is eliminated since a constant term is included in the regression equation, “C”.

6.3.1 Homoscedasticity

According to the second assumption of OLS, the variance of the residuals should remain constant. If the variance doesn't remain constant, heteroscedasticity exists among the residuals. R-square is deteriorated if the residuals are heteroscedastic and this makes it harder to find relationships between dependent and independent variables. This may affect the regression results.

6.3.1.1 Chairman compensation

A Breusch-Pagan-Godfrey (BPG) test is performed to test for heteroscedasticity, which can be found in appendix 4. The p-value is zero to three decimals (0.000531) and the null hypothesis about homoscedasticity is rejected. We have evidence of heteroscedasticity. The problem with heteroscedasticity is corrected in the specification for the regression, where “white diagonal” is chosen. This eliminates the problem with heteroscedasticity.

6.3.1.2 Director compensation

A BPG test has been conducted for regression 2 as well (Appendix 4). As in the previous test, the null hypothesis about homoscedasticity is rejected and we have heteroscedasticity in the model. The function “white diagonal” is chosen to eliminate the problem for heteroscedasticity.

6.3.2 Normality

To test for normality, a Jarque-Bera test is performed. This test is presented through a chart of bars, where the mean, median, skewness, and kurtosis are some of the values displayed. The normal distribution has a skewness of zero and a kurtosis of three. If the residuals are not normally distributed, the results can be inaccurate. The problem of non-normality can be caused from a small sample or outliers. To decrease the risk of non-normality, selected variables have been transformed into natural logarithms to eliminate the effect of outliers.

6.3.2.1 Chairman compensation

The Jarque-Bera test in appendix 5 shows a skewness of -0.151, which is close to zero, and indicating that the distribution is symmetric about its mean value. The kurtosis has a value of 2.831, which is close to three, and indicating that our data has a leptokurtic distribution. The p-value is 0.438 and the hypothesis about normality cannot be rejected. We have normality.

6.3.2.2 Director compensation

Appendix 5 shows a normally distributed curve. The normality test has a skewness of -0.299 and kurtosis is 3.065. Both values are close to the desired values for normality. The p-value (0.077) clarifies significance at a 10% level; the null hypothesis about normality is rejected. Though, observing the staple of bars in appendix 5, the test shows a normally distributed curve with acceptable values of the skewness and kurtosis.

6.3.3 Multicollinearity

As stated in chapter 5, multicollinearity occurs if two or more independent variables are highly correlated with each other. According to Brooks (2008), the variables are highly correlated if the correlation between two or more independent variables is 0.8 or above. The correlation explains how well the linear association between the variables is and that movement in the variables is usually related to the extent of the correlation coefficient (Brooks, 2008). If multicollinearity exists, R-square can show abnormal results and the model will look better than it actually is.

To control for multicollinearity, a correlation matrix has been constructed (Appendix 6). The correlation coefficients presented in the table indicate that there are no independent variables

that have a value of 0.8 or above. Multicollinearity is not present in the data sample. The independent variables with highest correlation are board size and firm size, with a correlation of 0.57.

6.4 Regression results

Two regressions have been performed in this study, the impact of the observed variables on compensation to the chairman of the board and the impact of the observed variables on average compensation to other directors on the board.

Variable	Chairman compensation	Prob.	Average director compensation	Prob.
Board size	0.024610	0.7877	-0.052271	0.6007
Busy directors	-0.116278	0.1075	-0.058270	0.3988
Female directors	0.465671***	0.0056	0.543037***	0.0004
Independent directors	0.284173**	0.0172	0.159855	0.1767
International directors	0.394561**	0.0345	0.394994*	0.0572
CEO on the board	-0.016670	0.7667	-0.034714	0.5402
Ownership concentration	0.005081	0.9158	0.006946	0.8862
Firm size	0.199210***	0.0000	0.177005***	0.0003
Firm performance	-0.003259	0.6435	-0.002421	0.7887
Firm leverage	0.133742	0.2029	0.050854	0.6237
<i>R-squared</i>	<i>0.950508</i>		<i>0.923550</i>	
<i>Prop (F-statistic)</i>	<i>0.000000</i>		<i>0.000000</i>	

*** = Significant at 1% level

** = Significant at 5% level

* = Significant at 10% level

Table 6. *Regression results*

The correlation coefficient, R-square, is a measure of how well the regression model fits the data and how much of the variation in the dependent variable that is explained by the regression. R-square must have a value between 0 and 1, the value of 1 indicates that the model fits the data well and if the value is 0 the model fits the data poor (Brooks, 2008). The R-squared values are high for both regressions. The model succeeds to 95.05% explain the variation in chairman compensation and to 92.36% explain the variation in board member compensation. The high R-square values may be a result of not enough number of observations. Although, we have included all companies on Large Cap during the observed time period, with exclusions for financial companies. These values are higher than previous studies by Crespí-Cladera and Gispert (2003) and Barontini and Bozzi (2009), this may be

due to that the regressions includes different variables and have different time periods. These studies also have a larger number of observations, which can be an explanation.

6.4.1 Verification or rejection of hypotheses

The results for our five independent board variables; board size, busy directors, female directors, independent directors, and international directors, are presented below.

Hypothesis 1a: *There is a negative relationship between board size and chairman compensation.*

The size of the board of directors varies between 5 and 13 directors among the companies observed. A board has on average 8 board members. The result shows no statistically significant relationship between board size and chairman compensation, the hypothesis about a negative relationship between the two variables is rejected.

Hypothesis 1b: *There is a negative relationship between board size and average director compensation.*

The result of this test also shows an unidentified significant relationship between the size of the board and director compensation. The hypothesis is rejected and the level of compensation to directors is not related to board size.

Hypothesis 2a: *There is a positive relationship between busy directors and chairman compensation.*

Directors active in more than three boards are common among the included companies and on average, 67% of the boards have busy directors. The minimum ratio of busy directors in the sample is 20% and maximum is 100%. There is no statistically significant relationship find between busy directors and compensation to the chairman. The hypothesis is rejected.

Hypothesis 2b: *There is a positive relationship between busy directors and average director compensation.*

The p-value for hypothesis 2b is 0.3988 and is not statistically significant. The hypothesis is rejected and the variable busy directors cannot be said to have any impact on compensation to directors.

Hypothesis 3a: *There is a negative relationship between female directors and chairman compensation.*

Having a female director on the board is common in Sweden and 94.77% of the observed boards have at least one female director. The mean value for female directors in the board is 22.73%. A statistically significant relationship is found between female directors and chairman compensation and the null hypothesis cannot be rejected. The relationship is significant at a 1% level. Surprisingly, the relationship between female directors and chairman compensation is positive, which means that chairman compensation statistically will increase when the share of female directors increase in the board. Hypothesis 3a about a negative relationship is therefore rejected.

Hypothesis 3b: *There is a negative relationship between female directors and average director compensation.*

A significant relationship can be identified between female directors and compensation to directors. The relationship is significant at a 1% level. As for hypothesis 3a, the result shows a positive relationship between the two variables, instead of the predicted negative relationship. The average director compensation increases when the proportion of female directors on the board increases. Hypothesis 3b is rejected.

Hypothesis 4a: *There is a positive relationship between independent directors and chairman compensation.*

According to Swedish Code of Corporate Governance (2010), a majority of the board members, elected at the general council, shall be independent of the company and its management. A board in our sample has on average 63% independent directors. Independent directors show a positive statistically significant impact on chairman compensation at a 5% level. This indicates an increase in compensation to the chairman of the board when the number of independent directors increases.

Hypothesis 4b: *There is a positive relationship between independent directors and average director compensation.*

The relationship between average director compensation and independent directors shows a p-value of 0.1767 and no significant relationship can be stated. The hypothesis is rejected.

Hypothesis 5a: *There is a positive relationship between international directors and chairman compensation.*

In 41% of the boards included in the study had an international director for at least one year of the observed time period and a board consists on average of 22% international directors. It can be concluded from the results that international directors have positive significant impact on chairman compensation. The relationship is statistically significant at a 5% level.

Hypothesis 5b: *There is a positive relationship between international directors and average director compensation.*

We find a positive statistically significant relationship at a 10% level for hypothesis 5b.

The positive connection indicates that more international directors on the board, increases the average director compensation.

6.4.3 Control variables

Firm size: Firm size, measured as sales turnover, shows strong significant (1% level) positive impact on both dependent variables. Resulting in the conclusion that the larger the firm is (higher sales turnover), the higher compensation the chairman and other directors on the board will receive.

Firm performance: Firm performance, measured as ROE, shows no significant impact on either of the dependent variables in the regressions. Board compensation is not affected by the firm's profitability.

Firm leverage: No significant relationship between leverage of the firm and the dependent variables can be found.

Ownership concentration: The variable ownership concentration has no significant impact on either of the dependent variables.

CEO on the board: The results indicate no significant relationship between having the CEO on the board and the compensation to the board of directors. The compensation to any board member is indifferent to whether the CEO is a member of the board or not.

6.4.4 Summary of empirical findings

After running the regression 1, it turns out that the significant determinants of compensation to the chairman are female directors, independent directors, international directors, and the size of the firm. The correlations between chairman compensation and these variables are positive.

The results from regression 2 show a positive significant relationship between director compensation and female directors, international directors, and firm size. This result is almost consistent, except for independent directors, with the results from regression 1.

The constant variable is strongly significant for both equations, indicating that the average chairman compensation and board member compensation is different from zero. The F-statistic probability in the regressions shows that our models are strongly significant.

Hypotheses		Rejection of hypothesis	Expected relationship	Actual relationship
Hypothesis 1	a: Larger boards decrease the compensation to the chairman	Yes	Negative	Positive, not significant
	b: Larger boards decrease the compensation to a director	Yes	Negative	Negative, not significant
Hypothesis 2	a: A higher proportion of busy directors increase the compensation to the chairman	Yes	Positive	Negative, not significant
	b: A higher proportion of busy directors increase the compensation to a director	Yes	Positive	Negative, not significant
Hypothesis 3	a: A higher proportion of female directors decrease the compensation to the chairman	Yes	Negative	Positive
	b: A higher proportion of female directors decrease the compensation to a director	Yes	Negative	Positive
Hypothesis 4	a: A higher proportion of independent directors increase the compensation to the chairman	No	Positive	Positive
	b: A higher proportion of independent directors increase the compensation to a director	Yes	Positive	Positive, not significant
Hypothesis 5	a: A higher proportion of international directors increase the compensation to the chairman	No	Positive	Positive
	b: A higher proportion of international directors increase the compensation to a director	No	Positive	Positive

Table 7. *Summary of hypotheses and empirical findings*

7. Analysis

The following chapter analyzes the empirical findings in accordance to theory and a comparison with prior research is conducted.

7.1 Changes in board compensation from 2006 to 2013

Chairman and directors compensation show a positive trend during the study's time period, which can be found in appendix 7. The two compensation variables have moved equivalent during the years. The compensation increased the first years, up to 2009, when the compensation stalled or decreased for two years. An economic boom with high growth in Sweden at that time can explain the increase during the first years. In 2008, the financial crisis entered, which led to a sharp deterioration of the economic situation. The years 2009 and 2010 differ from the remaining years, which correspond to the global economic downturn during those years, which occurred as a result of the financial crisis. The economy in Sweden started to recover during 2010, which resulted in increased compensation levels again (Konjunkturinstitutet, 2011). The compensation levels have though not increased in the same rate from 2011 to 2013 as before the financial crisis. Between 2006 and 2008, the chairman compensation level increased by 14.45%, compared to the 8.01% increase after the financial crisis. Biggest annual increases were seen in 2011 when chairman and director compensation increased 8-9% compared to the previous year. The increase in compensation over the years is in line with previous research. Andreas, Rapp, and Wolff (2010) conducted their study of German companies during the period of 2005-2008 and find a steady increase in director compensation during those four years. Menozzi et al. (2014) study shows an increase in remuneration to board of directors in another European country, Italy, during 1994-2004. Even if these studies are performed during other time periods, it is of interest to observe the development of compensation levels to board of directors before our time period as well.

Most of the companies compensate their board of directors with a pre-determined annual cash retainer. According to the agency theory, this can result in an increased risk for agency conflicts between the owners and the board since the remuneration is less dependent on the companies' performance. It has though become more common in recent years among the companies in our sample to split the annual retainer in cash and synthetic shares to create a more long-term approach. The remuneration is then linked to the companies' long-term

development, according to the agency theory, which will benefit the company by increasing the motivation of the board to perform their work.

7.2 Analysis of regression results

The outcome of our results differs for some variables, compared to previous results that form the basis for our hypotheses. We can find statistically significant relationships in three out of five independent variables. These three are female directors, independent directors, and international directors. Female and international directors are positively related to both compensation variables, while independent directors show a statistically significant relationship in one regression. In regards of the control variables, firm size is the statistically significant variable find. Firm performance, firm leverage, CEO on the board, and ownership concentration is not find to have an impact on either compensation variables.

Why the results differ for some variables and conform for others compared to previous studies is discussed below, with a specific section for each of the independent variables and control variables. A possible reason for deviating results is our market and sample. No earlier research has been performed in the Swedish settings. Previous research we have compared with is conducted in Germany, Italy, Spain, Portugal, and United States of America. Different laws, ownership structures, and tolerance towards high compensation to board of directors are some factors that differ among the countries.

7.2.1 Board size

Similar to Fernandes (2008), board size shows no statistically significant impact on compensation to board of directors. A small or a large board does not have effect on the remuneration a chairman or a director of the board receives. The result is surprising since Menozzi et al. (2014) find, with support of previous research, that board size is one of the most important elements of determining the compensation to the board. Ryan and Wiggins (2004) and Menozzi et al. (2014) find evidence of a negative relationship between board size and remuneration, this is explained by the fact that smaller boards are more effective at monitoring and controlling a company and its management, and therefore perform a better work relative to larger boards. Larger boards are less effective monitors and thereby increase agency costs in the company, which is an important aspect of the agency theory. Ryan and Wiggins (2004) and Menozzi et al. (2014) are based on other settings than this study and

these studies are conducted on earlier time periods, which can be reasons for why we did not find any significant relationship between board size and compensation.

7.2.2 Busy directors

The hypotheses stated a positive relationship between busy directors and compensation to the chairman and an average director of the board. No significant relationships can be identified in the regressions. The outcome of the tests differs relative to previous studies (Brick, Palmon, & Wald, 2006; Ferris, Jagannathan, & Pritchard, 2003) where findings support the hypotheses of a positive significant relationship between busy directors and board compensation. Brick, Palmon, and Wald (2006) and Ferris, Jagannathan, and Pritchard (2003) are observing companies in the U.S. settings. The U.S. and Sweden have different corporate governance systems. The U.S. belongs to the Anglo-Saxon system and the Swedish governance system is more comparable to the Germanic system. The Anglo-Saxon system compensates the board of directors with company shares and the compensation is performance based to a greater extent than in the Germanic system. These different governance systems and compensation structures can be reasons why our expected outcomes of the hypotheses were not fulfilled. The time period used for the study also affects the results. Their studies have a time period between 1992 and 2001. This is almost a decade before the time period of our study. Another reason why the variable busy directors cannot explain the variation in the compensation can be that other variables observed have a stronger impact on the compensation.

Since no statistically significant relationship could be identified between busy directors and compensation given to the chairman or an average director, the perceived knowledge and experiences busy directors bring to the board is not as exceptional as believed. Their contribution to the board may still be of value, but not in terms of affecting the compensation levels. According to the resource dependence theory, the compensation should be based on the contribution every director brings to the board and busy directors bring corporate governance experiences. It can be that the value of the resources every director brings to the board is hard to measure and it can sometimes be hard to measuring the performance by the board of directors since the boards are not involved in the operating activities in the company. According to this result, the boards are not compensated in line with resource dependence theory.

7.2.3 Female directors

The third board composition variable, female directors, is found statistically significant, indicating that the level of chairman and director compensation is related to the share of female directors on the board. The reason for lack of studies around this area can be that the remuneration usually is the same among the board of directors, regardless of gender. The hypotheses about female directors are based on general studies and facts from differences in compensation levels between men and women generally. However, the expected hypotheses about negative relationships were not fulfilled, and instead, positive relationships are found. Our interpretation that women generally have lower pay than men is not applicable to the remuneration of boards in Sweden. The indication from the study performed by Allbright (2013) about women having a negative impact on board remuneration does not collaborate with our results. The remuneration levels may be more even across the boards than other institutions in the society. In most of the examined companies, all directors (except the chairman) are given the same base compensation even though the compensation should be determined individually, and having females on the board does not seem to affect this compensation setup negatively. A probable explanation for this is the shared responsibility among the board members and there should be equal compensation for equal work and responsibilities. The result can depend on the type of companies and industries female directors choose to operate in. Some industries pay more to the board of directors than others, even though the variation is not that large.

An increase of the portion of female directors in the board may mean a more diversified board compared to a board only consisting of men. According to Lynall, Golden, and Hillman (2003), a diversified board with varying experiences and expertise will enhance the work performed by the board. Our outcome is in line with the resource dependence perspective, level of resource contribution and diversified boards are motives for increasing compensation to the board. Female directors can contribute with other resources and perspectives than men and it is important to have a diversified board to provide a broader perspective.

7.2.4 Independent directors

A strong statistically positively significant relationship at a 5% level is found between independent directors and compensation to the chairman. This result is in line with Andreas, Rapp, and Wolff (2010), who also find a significant positive relationship between

independent directors and board compensation. The shareholders prefer independent directors since these directors have an objective view without any attachments to the company. Independent directors have become an integral part of boards in order to align the interest of owners and shareholders and to reduce agency conflicts in the company. As the results show, shareholders are willing to enhance the level of compensation to the chairman if there are more independent directors in the board acting on behalf of the shareholders.

A statistically significant relationship cannot be identified between independent directors and the compensation given to the other directors of the board. This outcome is in line with studies conducted by Menozzi et al. (2014) and Fernandes (2008). Menozzi et al. (2014) on the other hand could identify a positive relation between the two variables, but only in correspondence to when firm performance was increasing as well. The Swedish Code of Corporate Governance states that a majority of the board has to consist of independent directors. The agency theory also implies that the board of directors should consist of a majority of independent directors since these directors provide a more effective monitoring of the management. Considering it has been statutory for a long time in Sweden with independent directors in the board, this can imply that increasing the share of independent directors in the board will not result in any additional compensation to the board.

The outcome shows that the proportion of independent directors affects the compensation given to the chairman of the board, but not the compensation to the other directors in the board. These results show an indication of asymmetry in development of compensation to the board. The results are surprising since more independent directors are more effective monitors and inherent agency conflict. Less agency problems results in more satisfied shareholders, which motivate an increase to every director on the board, and not only to the chairman. The fact that the Swedish Code of Corporate Governance has clarified restrictions about definitions and number of independent directors during the years can be reason for the outcome. A majority of the board has to consist of independent directors nowadays, and this does not make independent directors unique to the same extent as earlier. It may be that independent directors had an effect on director compensation earlier but not anymore, when it has become more restricted and is more common. This is shown from our regression about director compensation. It is not shown in the other regression, where the relationship exists. But in some years, independent directors' impact on chairman compensation may not exist either.

7.2.5 International directors

The regression results show that international directors have a positive statistically significant impact on both chairman and director compensation. Previous research (Elston & Goldberg, 2003; Oxelheim & Randøy, 2005) has shown that compensation levels differ substantially across countries, for example; the U.S. has significantly higher compensation levels than Sweden. The result gives an indication of that having more international board members leads to higher compensation, which is not surprising. To be able to attract people from other countries, where compensation levels are higher, the company may have to increase the remuneration or offer something else in return. It is hard to say if the positive correlation depends on if international directors demand higher compensation to accept board appointments in Sweden, or if Swedish companies offer higher compensation levels to attract these people. It is assumed to be beneficial for the company to have foreign board members since it increases diversification and bring different perspectives to the board. Having an international board member removes barriers between Sweden and other countries, which is beneficial in a greater international society and the process of today's globalization. Looking at the sample, 62.8% of the companies represented have had international directors on the board during a majority of the observed time period. This seems like a low proportion of the companies, since most of them are internationally connected and should benefit from having international board members.

From a resource dependence perspective, international directors in the board can lead to a more international perspective. These directors enter with other types of knowledge and experiences, and can bring useful resources and networks to the company that Swedish board members cannot. This makes the board able to bring more resources to the firm and its management. Compensation is therefore higher in boards with more international directors. Even though the costs for the compensation increases, the costs can bring benefits for the company in form of example international experiences. Our result that international directors have a positive impact on the compensation is in line with the resource dependence theory.

7.2.6 Firm size

Corresponding with the majority of previous financial research, our result indicates that firm size has a significant and positive effect on chairman and director compensation in Sweden. This is consistent with previous research (Crespi-Cladera & Gispert, 2003; Ryan & Wiggins,

2004; Menozzi et al., 2014). Firm size is considered in this study as an important variable explaining the variation in board compensation. The positive link between firm size and board compensation supports the theory that larger firms require increased incentives for successful monitoring. This is consistent with the agency theory that the board needs incentives to perform the required duties and act in the best interest of the company. The designs of efficient contracts and linking board compensation to company size are ways to reduce agency costs, which arises from the separation of ownership and control. The work done by the board of directors in larger companies often requires a higher level of knowledge and expertise. A positive relationship between these variables is logical; the more complex and large the role of being a member of the board is, the larger amount of compensation is needed to be able to attract the most suitable and experienced directors.

7.2.7 Firm performance

The results of our regressions show that measure of accounting performance do not have any significant impact on chairman or director compensation. This is inconsistent with previous research that find a positive significant relationship between board compensation and firm performance (Crespí-Cladera & Gispert, 2003). Following agency theory, firm performance would have a positive effect on compensation due to the alignment with shareholders interest. This because, it seems logic that an increasing firm performance, and probably then a good yield for the shareholders, lead to a raise in the compensation to board of directors since the compensation is determined by the shareholders.

The differences in our outcome relative to other studies can depend on type of remuneration considered (fixed salary, variable salary, cash, stock, options) and chosen measure of firm performance. Menozzi et al. (2014), who measures performance as ROE, does not find any link between board compensation and firm performance. In Sweden, a board of directors is paid mainly by an annual cash retainer, which is not tied to the company's performance. It is not common in Sweden and the Germanic governance system to compensate the directors with performance-based incentives, and therefore firm performance is not a determinant of board compensation in Sweden. Our results suggest that Swedish directors are not paid in accordance to the agency theory to aligning the board with shareholders interest.

7.2.8 Firm leverage

Leverage does not have any significant effect on board compensation, and this is in line with Crespi-Cladera and Gispert (2003) who in their study did not find any significant result that leverage plays a role in establishing the boards' compensation. Brick, Palmon, and Wald (2006) on the other hand find that director compensation is positively related to leverage. A reason for a non-relationship might be that the work performed by the board of directors needs to be done, even if the company has troubles performing on the market. The work for the board of directors will stay intact, in good or bad times for the firm. It is then compelling to keep a stable compensation and not let other factors like leverage affect it.

7.2.9 Ownership concentration

The result shows no significant relationship between ownership concentration and directors' compensation levels. Previous research (Barontini & Bozzi, 2009) find evidence on the Italian market that ownership concentration has a negative effect on board compensation. The agency theory states that ownership concentration relates to compensation by the fact that boards in companies with high ownership concentration receive lower compensation than in companies with dispersed ownership. More monitoring of management is more necessary in companies with dispersed ownership, which results in higher agency costs. Like Italy, Sweden is a country with high ownership concentration and a negative relationship between ownership concentration and board compensation was expected. Of the companies observed, 77% have concentrated ownership. The high ownership concentration in Sweden, which should result in less monitoring necessary by the board and decreased compensation to the board of directors, does not seem like an affecting factor in our sample. Our result suggests that boards in Sweden are not compensated for their monitoring role in line with agency theory.

7.2.10 CEO on the board

In 74.4% of the observations, the CEO has been a member of the board for at least one year of the time period. Presence of the CEO on the board shows no significant results. This result is inconsistent with Brick, Palmon, and Wald (2006) who find a positive relationship in their study between having the CEO on the board and the boards' remuneration. Their study was conducted in other settings where the CEO is allowed to hold the position as chairman of the board. This can be an explainable reason for the difference in our result. In Sweden, the

ownership structure is highly concentrated, whereas the study performed by Brick, Palmon, and Wald (2006) is on the American market where the ownership is mainly dispersed. Dispersed ownership gives the CEO more power to influence the board of directors and can therefore impact on the compensation given to the CEO. Due to the positive relationship find in Brick, Palmon, and Wald (2006) between CEO compensation and board compensation, this will indirectly influence the compensation to the board of directors. In Sweden, the CEOs does not get any extra remuneration for board positions, which makes it harder to see any connection to how CEOs' presence in the boards enhance the average compensation to chairman or directors.

7.3 Limitations

The data in this study covers a time period from 2006 to 2013. Therefore, the results of the study are restricted to this time frame and it is possible that they are driven by events, such as the financial crisis that started 2008. Further, observing one country, in this case Sweden, limits the ability to generalize results to other countries. However, our findings may be generalizable to companies in countries that are similar to Sweden in terms of cultures, legislation, and governance system. Our findings provide useful insight into corporate governance and board of directors' issues

8. Conclusion

Conclusions of our results and analysis are presented in this last section. The study's research question is answered and the purpose is fulfilled. The chapter ends with suggestions for additional research.

8.1 Discussion and conclusion

Corporate governance and the board of directors have been debated due to governance failures and regulatory changes, which have increased research about the compensation to the board of directors. Board of directors and their compensation present an important corporate governance component and from a theoretical point of view, the composition of the board is an important mechanism of their compensation. The purpose of this study is to investigate if factors associated with the composition of the board affect the compensation given to the board of directors in Sweden. Five determinants of the board structure have been examined; board size, busy directors, female directors, independent directors, and international directors. Each board characteristic is considered to pursue a relevant role on the level of compensation paid to the board of directors. The characteristics are selected based on evidence from previous studies, theories, and diversification factors of having an impact on board compensation.

Using a data set covering the list of Large Cap on Stockholm Stock Exchange for the period 2006-2013, our descriptive statistics disclose that average compensation per chairman is 1 232 992 SEK and average compensation per director is 467 086 SEK (Table 5). The descriptive statistics shows an upward trend in board compensation. Chairman compensation has risen annually at a rate of 4.34% and average director compensation has risen at a comparable rate of 4.17%. In the study we discover that only some of the firms in our sample use share-based remuneration as a portion in the annual retainer.

After the required tests have been performed, we find significant support that board of directors' compensation is related to some board characteristics and company size. Female directors and international directors in the board positively influence the level of compensation given to the chairman and the other directors on the board. Independent directors are associated with higher compensation levels to the chairman of the board, and no

association can be found between independent directors and per director compensation. No relationship can be identified between the size of the board and the compensation. If a director is “busy”, it does not have an impact on board compensation either. The study finds that firm size positively influence the compensation levels. Firm performance, firm leverage, having the CEO on the board, or the company’s ownership concentration are not influencing factors in deciding board of directors’ compensation.

The outcome suggests that the chairman of a board in Sweden is compensated for having female, international, and independent directors in their boards and for having a large sales turnover. Meanwhile, an average director of a board in Sweden is rewarded for having female and international directors in their boards, and for having a large sales turnover. The results imply that the variables affecting the level of board compensation are variables that can be classified as diversification variables. More female directors and more international directors in the board increase the compensation to the entire board. The shareholders show their appreciation to a diversified board by a higher compensation level. These results are supported by the resource dependence theory, where the compensation is a factor of the amount of resources a director brings to the board and a diversified board. Busy directors however show a result that is not in line with this perspective on board compensation. Boards of directors are not compensated for the experiences and knowledge busy directors bring to the boards.

The governance form in Sweden is based on norms of collective responsibility and voluntary compliance, which is aligned with the basic assumptions of the stewardship theory. The result from our study is not in line with the stewardship perspective that compensation is not needed for incentives. A relationship between firm size and compensation speaks more towards the agency perspective. Our sample shows that some companies have started to pay their directors with synthetic shares during the recent years to create a more long-term perspective for the board work. If this trend, towards more performance-based compensation, continues, the agency theory will be a relevant predictor of board of directors’ compensation. Our results lead to the conclusion that a resource dependence perspective is relevant in determining board of directors’ compensation in Sweden.

Some of our result confirms results from previous research, but not all. Explanations for different results are the difference in time periods and the different countries where the studies

have been conducted. Different settings are based on different governance systems and regulations. During our time period, a financial crisis occurs, which influences the compensation levels to board of directors. This influence can affect the determinants of board compensation and the possible effect board structure has on board compensation. These factors are important to have in mind when comparing the results. Our findings contribute to prior research regarding determinants of the compensation level to board of directors in Sweden.

8.2 Additional research

Future research on this area can investigate other markets. Mid Cap or Small Cap can be of interest to see if the results will be the same. Another interesting extension would be to include more countries and compare these to each other, especially to compare countries with different corporate governance systems and compensation structures to examine if there are any “best ways” to pay the board of directors. In addition, a qualitative research structured by interviews with directors and managers can also be done. Other interesting areas for future research would be to examine other possible determinants of board of directors’ compensation, for example including an industry variable and investigating if the type of industry has impact on the compensation level, or CEO compensation to examine if there are a relationship between CEO compensation and the compensation given to the board of directors.

Since an enhancing pattern of synthetic shares among companies in our sample can be identified, a similar study like this will be interesting to conduct in the future. If the trend continues, it is of interest to examine the compensation structure among Swedish boards with a focus on the agency theory. The compensation would then mainly be determined by the work and effort accomplished by the board of directors and move away from today’s pre-determined cash retainer.

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Assa Abloy	Nibe Industrier
AstraZeneca	Oriflame SDB
Atlas Copco	Peab
Autoliv Inc	SAAB
Axfood	Sandvik
Axis Communications	SCA
BillerudKorsnäs	Scania
Boliden	Securitas
Elektrolux	Skanska
Elekta	SKF
Ericsson	SSAB
Getinge	Stora Enso Oyj
Hennes & Mauritz	Swedish Match
Hexagon	Swedish Orphan Biovitrum
Holmen	Tele2
Husqvarna	TeliaSonera
ICA Gruppen	Trelleborg
Lundin Petroleum	Volvo
Meda	

Appendix

Appendix 1 – Compensation levels among industries

Industry	Average chairman compensation (SEK)	Average director compensation (SEK)
Consumer goods	1 411 981	586 310
Consumer services	908 813	366 225
Health care	1 458 737	470 995
Industrials	1 112 272	450 845
Materials	1 009 569	414 111
Oil & gas	805 058	511 648
Technology	2 253 125	568 094
Telecom	1 184 137	627 323

Appendix 2 – Hausman test

Hausman test for regression 1, chairman compensation

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	22.938612	10	0.0110

Random effects model can be rejected as the Hausman test show a significant value (Prob. = 0.0110) at 5% level. The null hypothesis that the random effects model is a good estimator is therefore rejected.

Hausman test for regression 2, director compensation

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.298181	10	0.2075

Random effects model cannot be rejected as the Hausman test show a value of Prob. = 0.2075 at 5%. The null hypothesis that the random effects model is a good estimator is not rejected.

Appendix 3 –Fixed effects test

Fixed effects test for regression 1, chairman compensation

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	57.381668	(42,270)	0.0000
Cross-section Chi-square	757.403240	42	0.0000
Period F	17.811070	(7,270)	0.0000
Period Chi-square	125.283508	7	0.0000
Cross-Section/Period F	50.882821	(49,270)	0.0000
Cross-Section/Period Chi-square	767.495461	49	0.0000

The results of the test show a high significant value (0.0000). The specification shows that “fixed effects” is a suitable model for both cross-section and period.

Fixed effects test for regression 2, director compensation

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	50.249061	(42,279)	0.0000
Cross-section Chi-square	728.040174	42	0.0000
Period F	16.982296	(7,279)	0.0000
Period Chi-square	120.320862	7	0.0000
Cross-Section/Period F	44.749058	(49,279)	0.0000
Cross-Section/Period Chi-square	739.511962	49	0.0000

The result for regression 2 show, as well for regression 1, the highest level of significance (0.0000) in both cross section fixed and period fixed.

Appendix 4 – Breusch-Pagan-Godfrey test for heteroscedasticity

Heteroscedasticity test for regression 1, chairman compensation

Dependent Variable: SQ_RESIDCHAIR
 Method: Panel Least Squares
 Date: 04/16/15 Time: 10:40
 Sample: 2006 2013
 Periods included: 8
 Cross-sections included: 43
 Total panel (unbalanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_BOARDSIZE	0.067415	0.061444	1.097183	0.2734
BUSY_DIRECTORS	0.004315	0.048609	0.088763	0.9293
FEMALE_DIRECTORS	-0.089299	0.083022	-1.075612	0.2829
INDEPENDENT_DIRECTORS	-0.095623	0.051237	-1.866307	0.0629
INTERNATIONAL_DIRECTORS	-0.022911	0.039717	-0.576849	0.5644
CEO_ON_THE_BOARD	-0.062480	0.022385	-2.791211	0.0056
OWNERSHIP_CONCENTRATION	-0.060237	0.021179	-2.844161	0.0047
LOG_FIRMSIZE	-0.003273	0.008571	-0.381926	0.7028
FIRM_VALUE	-0.022514	0.010814	-2.082061	0.0381
LEVERAGE	0.201969	0.043845	4.606454	0.0000
C	0.130276	0.138251	0.942319	0.3467
R-squared	0.092265	Mean dependent var		0.113512
Adjusted R-squared	0.063809	S.D. dependent var		0.153813
S.E. of regression	0.148825	Akaike info criterion		-0.939323
Sum squared resid	7.065517	Schwarz criterion		-0.812686
Log likelihood	165.9882	Hannan-Quinn criter.		-0.888809
F-statistic	3.242406	Durbin-Watson stat		0.621044
Prob(F-statistic)	0.000531			

The test show a significant value of 0.000531 and the null hypothesis about homoscedasticity is rejected. We have evidence of heteroscedasticity.

Heteroscedasticity test for regression 2, director compensation

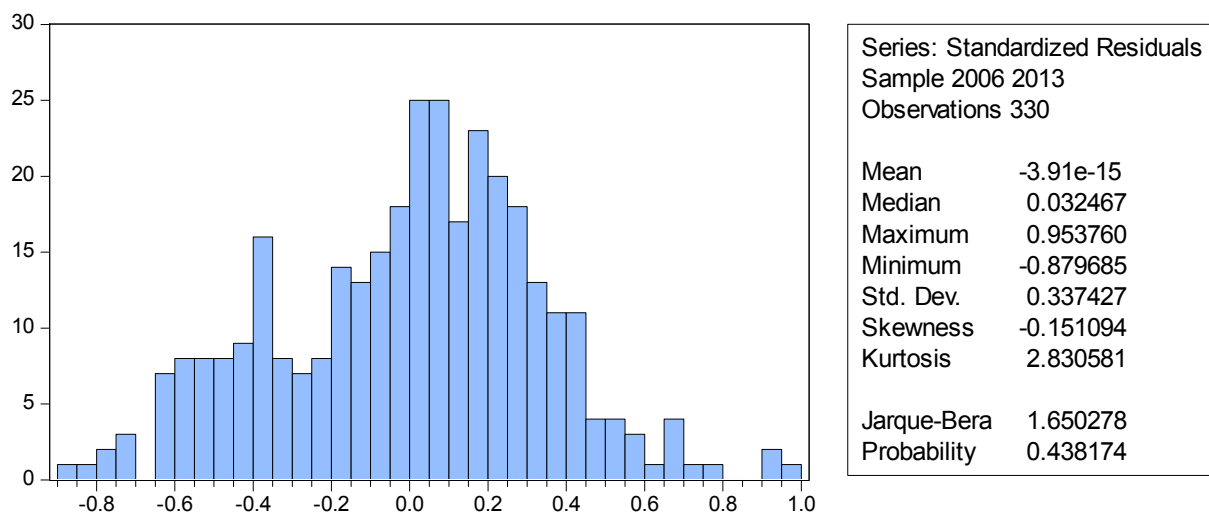
Dependent Variable: SQ_RESIDDIR
 Method: Panel Least Squares
 Date: 04/16/15 Time: 10:39
 Sample: 2006 2013
 Periods included: 8
 Cross-sections included: 43
 Total panel (unbalanced) observations: 339

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG_BOARDSIZE	-0.179415	0.056712	-3.163638	0.0017
BUSY_DIRECTORS	-0.046969	0.045089	-1.041700	0.2983
FEMALE_DIRECTORS	-0.223475	0.075935	-2.942981	0.0035
INDEPENDENT_DIRECTORS	0.072472	0.047376	1.529713	0.1271
INTERNATIONAL_DIRECTORS	0.034271	0.036623	0.935762	0.3501
CEO_ON_THE_BOARD	-0.012338	0.020382	-0.605311	0.5454
OWNERSHIP_CONCENTRATION	-0.017791	0.019657	-0.905111	0.3661
LOG_FIRMSIZE	0.015879	0.007804	2.034692	0.0427
FIRM_VALUE	-0.016029	0.010076	-1.590878	0.1126
LEVERAGE	0.138120	0.040251	3.431479	0.0007
C	0.204106	0.125284	1.629151	0.1042
R-squared	0.133463	Mean dependent var		0.102120
Adjusted R-squared	0.107044	S.D. dependent var		0.146968
S.E. of regression	0.138880	Akaike info criterion		-1.078509
Sum squared resid	6.326309	Schwarz criterion		-0.954362
Log likelihood	193.8073	Hannan-Quinn criter.		-1.029037
F-statistic	5.051809	Durbin-Watson stat		0.690488
Prob(F-statistic)	0.000001			

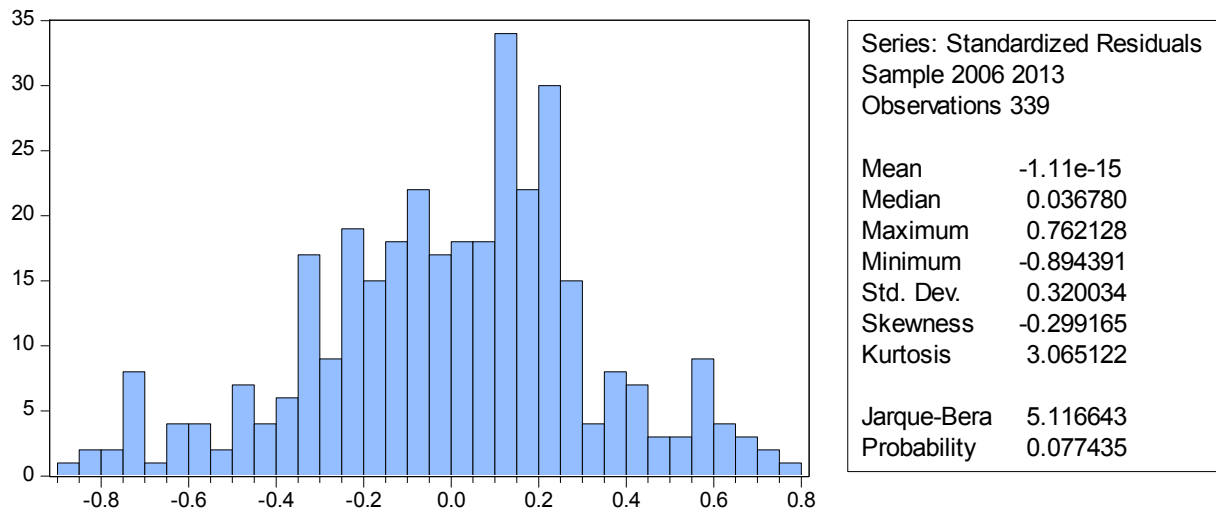
The test show a significant value of 0.000001 and the null hypothesis is rejected. We have tendency for heteroscedasticity in the data.

Appendix 5 – Jarque-Bera test for normality

Normality test for regression 1, chairman compensation



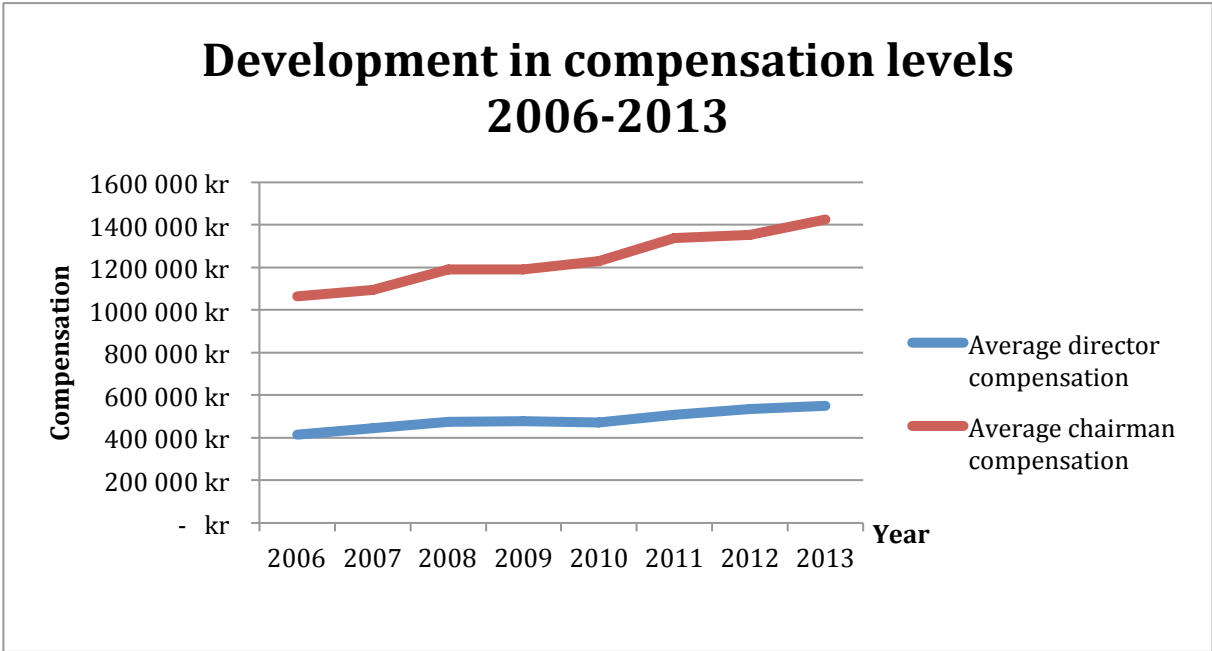
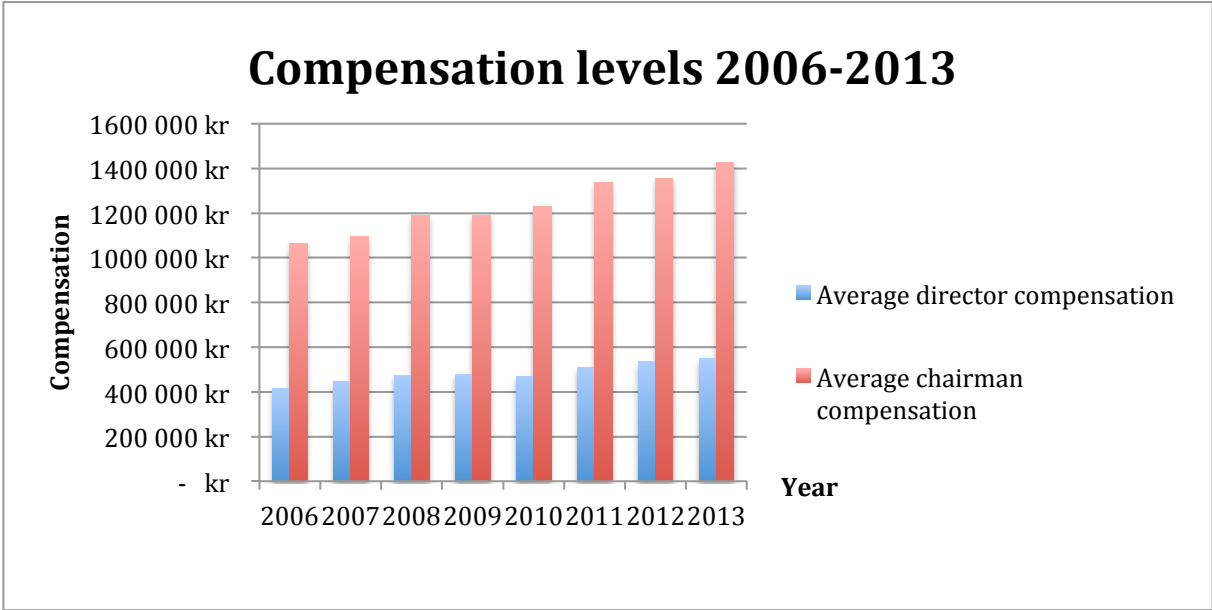
Normality test for regression 2, director compensation



Appendix 6 – Correlation matrix

Variables	SIZE	BUS Y	FEM ALE	INDEPEN DENT	INTERNAT IONAL	CEOBO ARD	OWNER SHIP	FIRM SIZE	FIRMP ERF	FIRMLEV
SIZE	1									
BUSY	0.0999 98	1								
FEMALE	- 0.0803 82	0.169 369	1							
INDEPEN DENT	0.0404 56	0.121 977	0.068 618	1						
INTERNA TIONAL	0.3161 41	0.220 527	0.154 751	0.296701	1					
CEOBOAR D	0.3431 40	0.036 946	0.245 665	-0.299861	-0.134048	1				
OWNERSH IP	- 0.1481 87	0.050 332	0.085 902	-0.321232	-0.207127	0.05885 3	1			
FIRMSIZE	0.5718 68	0.177 860	0.030 441	0.139258	0.271313	0.23564 6	- 0.104784	1		
FIRMPERF	- 0.0502 11	0.101 657	0.171 322	0.148473	0.054525	0.09060 1	- 0.188407	0.0485 39	1	
FIRMLEV	0.0208 831	- 0.138 005	0.073 004	0.074783	0.079453	0.24040 7	- 0.088763	0.1064 90	0.2265 25	1

Appendix 7 – Development in compensation



Diversified boards receives higher compensation

George Parker, Editor

A new empirical study from Lund University shows that the compensation to the board of directors in Sweden is determined by diversification among the board members. The results presented in the study will certainly raise questions about gender equality.

The boards' remuneration in Swedish listed companies has been debated recently and the public has questioned the compensation levels. During the last ten years, the compensation has increased by 70%. It is the levels of remuneration among Swedish boards that have been highlighted in the media rather than the actual determinants. As the basis for this, two students from the University of Lund in Sweden, Hjälmlund and Jantén, decided to examine possible determinants of the remuneration to board of directors. There are several studies in other international settings that examine determinants of the boards' compensation. The study from the University of Lund is the first study to examine if the composition of the board is a factor that has any impact on the compensation levels in the Swedish settings. The study examines 43 companies on Stockholm Stock Exchange during a time period of eight years, 2006-2013. The purpose of the study was to evaluate five different composition factors of the board and their influence on the compensation to board of directors. Some results were expected, but others appear surprising.

The researchers found three factors of the board composition affecting the compensation given to the board of directors. Independent, international, and female directors have impact on the level of compensation to the board. The compensation increases if the share of these directors increases. The authors of

the study expected a positive relationship between independent directors and board compensation, and international directors and board compensation. These hypotheses were based on previous research from other markets. The positive relation between female directors and board compensation though, was surprising. A Swedish study by Allbright in 2013 showed evidence of a lower compensation to female directors in Swedish boards. This implied a negative relationship between female directors and compensation. This was proven wrong by the study from the University of Lund. More women on the board, increases the average remuneration for all members of the board. This result may surely initiate to more debates about an equal gender distribution among board of directors.

The outcome suggests that diversified boards are more appreciated by the shareholders, who determine the boards' remuneration in Sweden. Female and international directors contribute with different knowledge, experiences, and other resources that give the boards broader perspectives that benefit the companies and its shareholders. International board members also contribute with useful networks and valuable insights about international, the company symbolizes an international profile on the market, which is beneficial for companies in today's globalization. Far from all companies in Sweden have international or female directors in their boards today. A continuing increase in diversification of Swedish boards is expected, but the change in the boardroom will take time. The question is, how much can the remuneration to board of directors continue to increase?