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Corporate Boards and Performance

Does board composition affect financial performance among Swedish firms?

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ABSTRACT

Corporate boards are a central part of corporate governance. In this thesis I study the effect of board characteristics on corporate performance. I examine the effect of board size, gender diversification, independency and CEO as board member on performance. The study covers all firms listed in Sweden (Large, Mid and Small Cap) during 2005-2014. The results show a negative relation between board size and performance. Gender diversification, CEO as board member and board independency do not show to have any relation to financial performance in the Swedish setting. The results are robust to performance measures and estimation models. The evidence is in line with the hypotheses of larger sized boards incurring communication and coordination difficulties resulting in inefficient working methods.

Keywords: Corporate Governance; Board of Directors; Board Size; Financial Performance; Tobin's Q; Board Composition; Gender; Diversity

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List of Content

1. Introduction.....	5
1.1 Background.....	5
1.2 Research Question	6
1.3 Contribution	7
1.4 Structure.....	7
2. Theoretical Framework.....	8
2.1 Corporate Governance	8
2.1.1 Definition of Corporate Governance	8
2.2 Agency Theory.....	9
2.3 Corporate Boards	10
3. The Swedish Institutional Setting	13
3.1 The Swedish Corporate Governance Code	13
3.1.1 Corporate Governance in Sweden	13
3.1.2 Companies Act and Annual Accounts Act	13
3.1.3 The Code Today.....	14
3.2 The Swedish Corporate Governance Model	15
3.3 Ownership Structure	16
4. Literature Review & Hypotheses.....	17
4.1 Board Size and Performance.....	17
4.2 Gender Diversification on Corporate Boards	19
4.3 Corporate Boards and CEO Duality	21
4.4 Independency of Corporate Boards and Performance	22
5. Methodology & Data	24
5.1 Sample Selection.....	24
5.2 Data Collection	25
5.3 Variable Description	25
5.4 Model Specification	28
5.5 Limitations	29
6. Empirical Results	30
6.1 Main Results	30
6.2 Results Including Employee Representatives.....	33

7. Analysis & Discussion	35
7.1 The Negative Effect of Board Size	35
7.2 Should Composition Across Corporate Boards Change?	36
7.3 The Insignificant Results of the CEO	39
8. Conclusion	41
9. Reference List	42

1. Introduction

1.1 Background

Corporate governance has risen to the ranks of debate in the last decades. The attention of this topic has, in part, come to light because of scandals relating to the functioning and monitoring of corporations (for example Enron and WorldCom). Arguments of states and corporations with sound corporate governance are to perform significantly better, compared to where poor corporate governance is present, are often expressed in this context (Gompers et al., 2003; see also Bhagat & Bolton, 2008; Andersson & Maher, 1999). One central part of corporate governance is the board of directors (Fama & Jensen, 1983; Baysinger & Butler; 1985). The discussion of the function and composition of corporate boards have thus been of interest both to researchers and the popular press in recent years. Focus of this debate has most recently been on the factor of gender diversification, as corporate boards have long been dominated by male directors (Dawson et al., 2014). In the past couple of decades the gender quota has slowly been shifting to an increased number of female board members. Work toward the aim of more gender equal boards continues and it has recently become a political question where legislation toward gender quotas are, or might be, forthcoming in west world countries (Dawson et al., 2014). Studies on board composition with respect to gender and performance seems to derive inconclusive results. A study by Catalyst in 2007 covering Fortune 500 firms present interesting results of positive effects on performance (Catalyst, 2007), whereas other studies present negative financial effects stemming from gender diversification on boards (Adams & Ferreira, 2009).

Interests in an understanding of the structure of corporate boards have led to an interesting debate over the size of boards. It is often argued that smaller sized boards are more effective in their work than larger sized boards. Arguments such as these are often based on ineffective working methods and communication difficulties that arise as boards increase in size. (Jensen, 1993; Yermack, 1996). Following the debate of board structure and board composition is often the discussion of independent versus dependent directors. The balance between the advising and monitoring function of corporate boards is often the resulting argument of the following board structure with respect to inside and outside directors. Research continues to be inconclusive how the presence of these two “types” of directors contribute to firms - positive effects of greater independency

(Rosenstein & Wyatt, 1990), versus no significant effect of additional independent directors (Hermalin & Weisbach, 1991). Enlarging the size of boards in order to add independent directors to boards have been seen and might lead to suboptimal results.

Research regarding CEO as board members have largely been focused on CEO duality, CEO as the chairman of the board of directors (Dalton & Rechner, 1991; Elsayed, 2007). Arguments of CEO as chairman or member of a board, where the CEO is supposed to monitor him or herself, is often made to discourage CEOs on corporate boards (D'Aveni & Finkelstein, 1994). On the other hand, the CEO can arguably contribute with extensive knowledge and be an imperative asset on the board of directors.

Since corporate boards are such an imperative part of corporate governance, and it is a timely debate, an investigation of board characteristics and what financial effects these could have on firms is an interesting topic to investigate. The evidence from especially the U.S. is quite extensive, as discussed above, however an analysis on the Swedish context can shed light on effects in a different setting. It is therefore interesting and meaningful to study the relationship between the board of directors and performance in Sweden. The Swedish setting differs from for example the U.S. as how corporate governance models are implemented and the structure of governance. The setting is also different with regards to the evolution and the current structure of corporate boards. Understanding the effects of the composition of corporate boards, in differing markets, is a platform for understanding corporate governance as a whole.

The aim of this study will be to investigate the relation between certain characteristics of the board of directors and corporate performance. The study will incorporate all listed companies on Nasdaq OMX Stockholm in Sweden (Large, Mid and Small Cap) between the years of 2005-2014. The main objective of the thesis is to derive results, from the Swedish market, indicating if and how board structure affects firm financial performance.

1.2 Research Question

Based on the background of corporate governance, corporate boards and performance, the research question of this thesis is stated as;

How does corporate board characteristics affect financial performance in Sweden?

1.3 Contribution

This study contributes to previous literature by focusing on the Swedish setting, instead of the well-researched U.S. market, which differ from the institutional setting in Sweden. Much of Previous literature on board characteristics and corporate performance often concentrate on one main board characteristic, such as board size. Instead, I contribute by incorporating a number of relevant variables to the structure of the board, and study how these relate to performance measures. The focus on the Swedish market and the forthcoming results might not be exclusive to Sweden, the resulting evidence could also be used for drawing links to other countries with a similar structure and governance as is present in Sweden.

Considering at the variables that are of interest in this thesis and the existing research in Sweden, there is quite extensive work on gender diversification on boards in Sweden, and Scandinavia. However, I contribute to the existing literature by testing the diversification effects on financial performance, and doing so by using extensive and recent data. This study will thus add a new perspective, corporate performance, which is not present in much research in the Swedish market, as well as delivering a comprehensive study of a number of important board composition factors and how they affect firm performance in Sweden.

A delimitation of this thesis is that it does not investigate non-financial effects of the incorporated board characteristics. Analysis of the included board characteristics on other measures than performance based, for example board meeting frequency or board meeting participation, is outside the scope of this thesis.

1.4 Structure

The structure of this thesis will be as follows. Chapter 2 will cover the theoretical framework of corporate governance and corporate boards. Chapter 3 presents the institutional setting of Sweden with respect to corporate governance. Chapter 4 contains a literature review relating to the aim of investigation in this thesis. Chapter 5 presents the data and methodology. Chapter 6 covers the main results of the thesis. Chapter 7 is an analysis and discussion of the results presented in chapter 6. Chapter 8 and 9 include conclusion and reference list respectively.

2. Theoretical Framework

2.1 Corporate Governance

The concept of corporate governance had its breakthrough in the late 1990s and the beginning of the 21st century (Padgett, 2012). The introduction of corporate governance was largely due to corporate scandals, such as where boards misused their imminent power.

In the U.K. the process toward corporate governance started already in the beginning of the 90's with the presentation of the Cadbury report. The introduced model was in form of comply-or-explain and not of legislative nature. In the US the Sarbanes-Oxley act of 2003 was the country's first powerful step toward a more sound corporate governance climate. The regulation came to be applicable to primarily the NYSE and NASDAQ and is of legislative nature instead of corporate codes of conduct. (The Swedish Corporate Governance Board, 2015)

In Europe, the European commission has introduced recommendations on corporate governance, for member countries of the European Union. The recommendations are implemented in order to improve corporate governance models of the member states and to strive toward similar guidelines on corporate governance across the European Union. (The Swedish Corporate Governance Board, 2015)

2.1.1 Definition of Corporate Governance

The definition of corporate governance is not easily narrowed down, since the subject of corporate governance stretches across a wide setting. One definition as first stated by the Cadbury Committee (1992, p.14) is “the system by which companies are directed and controlled”. The OECD defines corporate governance as “Involves a set of relationships between a company’s management, its board, its shareholders and other stakeholders”, and further ”provides the structure of through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined” (Organization for Economic Co-Operation and Development, 2004, p.11). In the aspect of good, or sound, corporate governance the OECD implies that “good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interest of the company and its shareholders and

should facilitate effective monitoring” (Organization for Economic Co-Operation and Development, 2004, p.11).

2.2 Agency Theory

The definition of corporate governance differs in some aspects but the core attributes of corporate governance remains. As the definition(s) in Section 2.1.1 imply, the key to corporate governance is to align the interest of all stakeholders. Specifically, it is a way in which to alleviate the possible difficulties between suppliers of finance and managers, known in this context as the agency problem (or principal-agent problem). The principal-agent problem is focused on the problem of the separation of ownership and control in corporations (Jensen, 1993). In this context, the shareholders are defined as principals and corporate managers as the agents. Fama and Jensen (1983, p.301) states it as where one is “concerned with the survival of organizations in which important decision agents do not bear substantial share of the wealth effects of their decisions”. Problems can then arise because the interests of the principals and agents do not align. Mainly the assumption is that the corporate management, the agent, has a self-interest and does not act in the best interest of the owners, the principals (Tirole, 2006). To alleviate agency problems, corporate governance mechanisms work toward aligning incentives of the principal and agent, and to develop the function of monitoring of the agents. This brings us to one of the functions of the board of directors, to function as a monitoring unit of company managers on the behalf of shareholders.

Regarding the monitoring and information system of corporate boards, Eisenhardt (1989) concludes that compensation of executives is more likely to be based on knowledge of executive information rather than business performance, “when boards provide richer information” (Eisenhardt, 1989, p.65). Further, managers who conduct thought-out actions with a probability of outcome failure would then be rewarded. Further, when the information system of boards is efficient, i.e. they provide “rich information”, it is more common that executives will engage in behavior in line with shareholders’ interest. Compensation benefits which arguably benefits executives in a larger extent than shareholders are one factor that is not as likely to be present when boards fulfill their roles within agency theory and make up an efficient information system. (Eisenhardt, 1989) Relating to the theory of corporate governance, corporate boards are thus argued to be one of the cornerstones of corporate governance.

2.3 Corporate Boards

The functions of the corporate board are foremost as a monitoring unit and to advise and direct the company on a long-term perspective. The board of directors holds a significant role with respect to corporate strategy and business decisions (Tirole, 2006). Criticism of the effectiveness of board of directors has often come in the form of their actual monitoring power. Arguments often point out that the relation between directors and the CEO is skewed and it is actually the CEO controlling the board instead of the opposite (Tirole, 2006).

Fama and Jensen (1983) concludes that in-house managers naturally would be the most influential board members if boards are to be composed of experts, since in-house managers hold valuable information specific to the company's activities. Corporate board also includes independent directors and according to Fama and Jensen (1983) outside directors are used in situations that involve severe agency problems between internal managers and residual claimant, also outside board members act as buffers in disagreements among in-house management. Further, outside directors are incentivized to carry out their duties and do not interfere with managers to expropriate residual claimants, due to the effective separation of top-level decision management and control. There exists a balance between the fraction of inside and outside directors to compose the boards, thus also a balance between the monitoring and advising function in corporations according to Fama and Jensen (1983).

To evaluate or recognize good and efficient work of corporate boards, one want to remember the boards' function. The general duties of the board of directors can be specified as; business strategy development, forming executive management, work as a monitor and risk management (Conger et al., 2000). To perform efficiently Conger et al. (2000) argue that the board needs a set of factors; power, motivation, information, knowledge and time. Power in the form of authority is needed to act as a governing unit and oversee the executive management. Motivation is needed in form of incentives to align the interest of the board with other stakeholder, agency problems can also occur due to divergence of interest of the board with respect to other stakeholders. The work of the board is dependent on the information they obtain. This is also argued by Jensen (1993), who states that in the typical large organization, serious information problems limit the effectiveness of the board members. Knowledge and experience is vital for the board of director to serve as an advising function and support strategic decisions on knowledgeable grounds. In the complex corporate

environment knowledge and diversity of knowledge is needed on the board. Conger et al. (2000, p.140) states that the board should consist of “members whose skill and backgrounds are diverse and complement one another”. Time to have frequent meetings, as a complete board, is needed for efficient and sound decision-making.

It is vital to understand the importance of both the advisory function the board of directors inherit and the monitoring role on behalf of the shareholders, in order to grasp that there can be tension in-between those functions. To advise, the board is in need of relevant information and knowledge of the business (Padgett, 2012). Outsiders might not understand the complete nature of the business and the possible issues that it incurs. According to Adams and Ferreira (2007, p.221) insiders “have access to better information or they have a better understanding of the business environment and the actions taken by the CEO”. According to Linck et al. (2008) there are advantages of having a smaller board, as a large board with additional independent directors would focus on what the actual problem is, instead of solving it. Adams and Ferreira (2007) also points out that there might be limitations of information shared between managers and the board due to differing interests. Due to CEOs’ dislike for monitoring, they retain information in order to lower the quality and efficiency of the boards’ advising and monitoring. Thus, independent boards can be sub-optimal as the information used to advice and monitor can be misleading. The definition of independent directors can differ between countries, but generally an independent director does not have any business relation with the company, shareholders or directors. Independent directors are mainly incorporated into the board of directors with hopes of improved monitoring and new perspectives (Padgett, 2012). Because of this it is proposed that a higher fraction of independent directors on a board will lead to better performance. The effect of incorporating additional independent directors can be dependent on the previous level of independence of the board. The positive gains from adding an outside director to a board is larger the less independent the board is at the time of addition (Padgett, 2012). The business environment is also a factor to consider in structure of corporate boards with respect to independence. In certain environments it might be beneficial to have a larger fraction of independent directors if the need of an efficient monitoring function is greater (Padgett, 2012). Theoretically, adding independent directors might be a positive link with performance, on the other hand there is theoretically a link between larger board size and board inefficiency. Communication difficulties between an increasing numbers of individuals are one of the reasons large boards can become inefficient in their duties.

The most recent structural change and challenge of corporate board have faced is the one with regards to gender diversification. Arguments of sound corporate governance are more often inclusive of a balance between the gender dispersion on corporate board, both due to ethical and economical reasoning (Brammer et al., 2007). Ethical arguments are more focused on the immoral action of women being excluded from respective business positions due to gender (or ethnicity) instead of ability. Those arguments spur corporate boards to increase the number of female directors to achieve a fair distribution in resemblance of the society. Economic arguments are more often in the form of added value, direct and indirect, from both financial performance and additional ability and competence that women appear to contribute with on corporate boards. For example, female directors appear to improve board meeting presence and efficiency as well as improved relationships with stakeholders and might be more representative of the society where the business is present.(Brammer et al., 2007)

In this chapter the main framework for corporate governance, to comprehend the setting of this thesis, is stated. The definition and role of corporate governance, the underlying agency theory and the function of corporate boards are presented to the reader. Following, in Chapter 3, the institutional setting with respect to corporate governance and the board of directors in Sweden will be presented.

3. The Swedish Institutional Setting

3.1 The Swedish Corporate Governance Code

3.1.1 Corporate Governance in Sweden

The definition of corporate governance by the Swedish corporate governance board is "a question of ensuring that companies are run as sustainably, responsibly and efficiently as possible on behalf of their shareholders"(The Swedish Corporate Governance Board, 2014, p.1). In Sweden, the aim of the code is to improve confidence of listed companies. The Swedish Corporate Governance Code was presented in a first round in 2004, and was implemented in July 2005 after changes made to the original proposal of the code. Following the first implementation of the Code in 2005, two revised codes have been implemented into the system (The Swedish Corporate Governance Board, 2015). The secondary revised code, which is the current code applicable today, was implemented in 2010. Following, some instructions have also been issued, most recently in 2014 where an instruction mainly promoting board gender equality was issued.

The Swedish Corporate Governance Code applies to all companies on Nasdaq OMX Stockholm as well as NGM equity. Corporate governance in Sweden also takes form through the Swedish Companies Act as well as the Swedish Annual Accounts Act, which are legislative in nature. The Code of the Swedish Corporate Governance Board is an additional set of guidelines for corporations to comply with. The code is in addition and stricter than the legislation of the Swedish Companies Act and the Annual Accounts Act in place. As opposed to in some countries, such as the U.S., the code of the Swedish Corporate Governance board is not legislative, instead it is guidelines in the form of "comply or explain". The regulations of the Nasdaq OMX Stockholm also contribute to a more efficient corporate governance structure in Sweden (The Swedish Corporate Governance Board, 2015).

3.1.2 Companies Act and Annual Accounts Act

As previously mentioned, the Swedish Corporate Governance code consist of comply or explain type of rules, and serves as a complements to the Swedish Companies Act (2005:551) and the Annual Accounts Act (1987:1245) in the process toward sound corporate governance in Sweden. For the purpose of this thesis, we will not go further into the Swedish Annual Accounts Act as it

is not directly related to the discussion of corporate governance focused on here. On the other hand worth mentioning, the Swedish Companies Act includes legislations directly relating to the topic of discussion. Specifically, the Companies Act includes rules regarding the board of directors, for example the selection, function and composition of corporate boards. Also, as a supplement to the Companies Act there is the Board Representation (Private Sector Employees) Act which includes regulation regarding the inclusion and selection of Employee representatives on Swedish corporate boards (Institute of Directors, 2009).

3.1.3 The Code Today

Today's code in Sweden, the revised code of 2010 plus complementing instructions from 2010 and onward, includes guidelines stretching across the spectrum of the function of corporations. The Swedish corporate governance code contains guidelines for; the shareholders' meeting, appointment and remuneration of the board and statutory auditor, the tasks of the board of directors, the size and composition of the board, the tasks of directors, the chair of the board, board procedures, evaluation of the board of directors and the chief executive officer, as well as remuneration of the board and executive management (The Swedish Corporate Governance Board, 2010). This means that the code includes guidelines within areas of the Swedish Companies Act, but with differing content (often degree of sophistication). To give an example, the Companies Act specifies the size of the board of directors as one or several directors. On the other hand the corporate governance code suggests a board consists of at least three directors.

The code constitutes an extensive regulatory (comply or explain) framework, and it is not within the scope of this thesis to go into detail on the specific guidelines in the Swedish corporate governance code. Instead, to get a better understanding, we will summarize the most important guidelines relating to the central topic of the thesis.

The corporate board is the head of the organization and management of the company. The board, structure and directives, is influenced and determined by the shareholders meeting. The objective of corporate boards in Sweden should be to "Manage the company's affairs in the interests of the company and all shareholders" according to the Swedish Corporate Governance Board (2010, p.16). The primary tasks of the board of directors, as advised by the Swedish corporate governance board, are (The Swedish Corporate Governance Board 2010, p.16);

- *“Establishing the overall operational goals and strategy of the company.*
- *Appointing, evaluating and, if necessary, dismissing the chief executive officer.*
- *Ensuring that there is an effective system for follow-up and control of the company’s operations.*
- *Ensuring that there is a satisfactory process for monitoring the company’s compliance with laws and other regulations relevant to the company’s operations.*
- *Defining necessary guidelines to govern the company’s ethical conduct*
- *Ensuring that the company’s external communications are characterized by openness, and that they are accurate, reliable and relevant.”*

As mentioned, the corporate governance code advises a board of directors to consist of at least three directors. The code also suggests that a maximum of one board member can be in the company’s executive management. As advised, the majority of board members should be independent of the company and also their executive management. The code recommends that at least two directors of independence should also be independent with respect to the company’s major shareholders. Corporations should strive to have a gender equal board of directors. (The Swedish Corporate Governance Board, 2010)(The Swedish Corporate Governance Board, 2014)

3.2 The Swedish Corporate Governance Model

Corporate governance models are often regarded to as one-tier or two-tier models. In the One-tier board, the board of directors consists of both executive and non-executive directors. Together they form one board. In a Two-tier board, there exist two board of directors. The first is an executive board (or management board) which manages the business, the day-to-day operations. The second board is a non-executive board (supervisory board) which instead supervises the executive board and its operations. Employees and shareholder elect the non-executive board. Two-tier boards are mainly used in order to visibly separate management and the non-executive board. The Swedish model is a one-tier system but differs in some aspects from both the conceptual models of the one-tier and the two-tier model, for example regarding the role of the auditor and the ownership role (Institute of Directors, 2009). The Swedish model is a kind of hierarchical structure where the shareholders and the shareholders’ meeting almost always serve as the top ranking authority. Inferior to decisions of the shareholder’s meeting serves the board of directors. Subordinate to the board of directors sits the CEO. The Swedish legislation allows the CEO to serve as a director on

the board, but not as chairman of the board (Institute of Directors, 2009) (The Swedish Corporate Governance Board, 2010).

3.3 Ownership Structure

In Sweden the ownership structure is in the form of a very active model. This stems from the ownership often being concentrated to a few large investors, also often seen in continental Europe, as opposed to a very diverse ownership of corporations often seen in other countries such as the UK (Institute of Directors, 2009). As majority of ownership is narrowed to few investors, the ownership is often seen as very active with respect to governance and focused on long-term responsibility. Due to the ownership often being centered to few investors, the protection of minority shareholder rights is strong. Multiple share classes is used by multiple companies on the Stockholm Stock exchange. In Sweden, this structure can be argued to serve as a buffer to lower the risk of institutional investors increasing ownership with short-term perspectives (Institute of Directors, 2009).

4. Literature Review & Hypotheses

4.1 Board Size and Performance

An early study by Yermack (1996) studies the relation between firm value and the size of corporate boards. It includes 452 U.S. corporations in a panel data set during the time period 1984-1991. Yermack presents results of a negative impact of board size on market valuation, specified by Tobin's Q^2 . The author concludes that the greatest cost increase occurs as board size progress from small to medium sized. When board size can be identified as large, the negative impact of board size is reduced. Yermack thus argues that the relationship between board size and performance measures is convex, the effect of an additional board member on performance is dependent on board size. The results are controlled for variables such as past company performance and company size. Yermack evaluates if there is any effect of previous firm performance on board size, and present results denoting that this is not the case. In the aftermath of poor performance the turnover of directors might be increased, but board size is regardless quite stable. Also, Yermack observes that financial ratios of companies with smaller boards are more favorable to those with larger boards.

The findings of Yermack (1996) are close in line with the result derived by Coles et al. (2008) who present results of a U-shaped relationship between corporate board size and Tobin's Q by studying the U.S. market from 1992 to 2001. Thus, the authors imply that either very small or very large boards are optimal. Coles et al. takes a different approach by defining complex versus simple firms. Complex firms are in the study defined as being larger sized, operating in multiple industries or have high leverage – thus, firms that are argued to require additional advising. The effect of board size on performance is different for the two types of firms, which results in the U-shaped relation between size and performance. The study concludes that in complex firms the performance measure increases with board size, and the opposite is true for simple firms. It is also argued that the relationship is driven by the number of outside directors.

Guest (2009) investigates the board size on performance in the UK. The results of this study are derived from 2746 firms during 1981-2002. The approach of Guest closely resembles the one used

² Tobin's Q is a financial ratio defined by the total market value of a firm divided by the total asset value of a firm. See Chapter 5.3 for further description.

by Yermack, with a few different controls differing in their approach. Guest also finds a strong negative impact of corporate board size on performance, defined by company return on assets. Throughout the study, Guest also uses the performance measures Tobin's Q and share returns for robustness. He concludes that the negative effect of board size is robust to all performance measures. Further, Guest presents evidence in line with the assumption that the negative impact on performance stem from failure of the advisory function, as opposed to the function of monitor, in the UK. This, due to boards much weaker roles as monitors compared to advisors. The results of Guest are highly indicative of a smaller sized board with respect to performance and board efficiency, the optimal size is below ten according to his analysis. The exact number of members in an optimal sized board is inconclusive since the performance measures indicate differing results, but all measures point to a board of less than ten. Guest also investigates the impact of inside and outside directors. The result is indicative of a negative robust impact of the number of outside board members on performance. As for insiders, there is similarly a negative effect, however, it is not significant across measures.

Another study investigating board size and performance in Europe is by Conyon and Peck (1998). The authors find a general negative impact on performance, return on equity and Tobin's Q, by investigating a sample of firms from the Netherlands, Italy, United Kingdom, France and Denmark. Conyon and Peck use the approach of a generalized method of moment estimator, as opposed to previous research where OLS is most frequently used for estimation. Also, the authors conclude that the possible benefits of enlarging board size because of additional monitoring are outweighed by the costs of inefficiency, miscommunication and information asymmetry.

The negative relation between board size and performance is well documented, but there is some evidence of opposing results such as those derived by Beiner et al. (2006). Beiner et al. (2006) study the impact of corporate governance, mainly a Corporate Governance Index (CGI) on firm performance, Tobin's Q, and include board size as one variable of investigation. The authors cover the Swiss market between 1998 to 2002 and use a three-stage least squares estimation to obtain the results. The results of the study concludes a positive relationship between corporate governance and corporate performance, as anticipated, but interestingly the results also indicate that board size and corporate performance have a positive relation. Thus, the hypothesis of a negative relation

between board size and corporate performance is well supported by previous literature, but some opposing evidence is present.

On the grounds of above discussion, I expect to find evidence of a negative relation between size of the board of directors and financial performance. Since “the board is to have a size and composition that enables it to manage the company’s affairs efficiently and with integrity” (The Swedish Corporate Governance Board, 2010, p.17) a larger board than necessary one would expect to perform inefficiently and thus affect performance negatively. However, I do not expect larger boards to always be suboptimal, corporations with a large number of business segments might well benefit from a larger sized board if it is able to operate efficiently. To conclude, I expect the general relationship between board size and performance measures to be negative and therefore the first hypothesis is stated as below.

H1: Board size will have a negative effect on corporate performance.

4.2 Gender Diversification on Corporate Boards

A study of how gender is a factor in the set-up of corporate boards is made by Farrell and Hersch (2005). The study includes roughly 300 firms from the Fortune 1000 list between 1990 and 1999. The authors argue that the decision to add a female director to the board does not stem from performance based arguments, instead it is a matter of diversification. The result that boards are not gender neutral, is an occurrence both due to both internal firm perceptions as well as a result of firms answering to outside pressure to add women directors in aim of diversified boards. The authors conclude that well performing firms in general have a larger fraction of women on their boards. However, a relation between an additional women to the board and performance is not found. There are no significant market reactions to this corporate action according to Farrell and Hersch.

According to Adams and Ferreira (2009) gender diversity has a negative impact on corporate financial performance. In line with Farrell and Hersch (2005), they argue that even though gender diversity on boards is beneficial in several ways, it is not a factor that will have a positive relationship with performance measures. While there might be some positive relation between gender diversity and performance in the first stages of analysis, these results diminish when the authors control for omitted variables and causality problems. The authors point out that since

women on corporate boards tend to take on a monitoring role, the increased gender diversity on boards might lead to monitoring problems, and thus poorer performance. However, even though the results indicate that gender diversification on boards does not add firm value, the authors still point out that a gender diverse board can be value creating through other channels of corporate governance.

Further, Carter et al. (2010) use company return on assets and Tobin's Q as proxy for performance and use fixed effects regression to analyze a potential relation between the number of female board members (as well as ethnic diversity) and firm performance. The resulting evidence support that of Farrell and Hersch (2005) and Adams and Ferreira (2009), as they present results of no significant relation between the number of women directors on corporate boards and performance in the U.S..

Interestingly, Campbell and Mínguez-Vera (2008) find opposing evidence on the relation between board gender diversity and performance in their study on corporate boards in Spain. The results are generated using panel data and Tobin's Q as approximation for performance. The authors conclude that the positive relation between the fraction of women on boards and performance is a one-way relationship, where gender diversity affects performance and not the other way around.

As for the Scandinavian market, one study is conducted by Randøy et al. (2006) who investigate general diversity factors on corporate boards for the 500 largest firms in Sweden, Norway and Denmark. According to the authors, board diversification is not related to performance, either positive or negative. Thus, they argue that adding another female director to the board is not value decreasing, but if it means enlarging board size then this action could arguable be value destroying.

The evidence relating to gender diversifications on boards and performance seems to be inconclusive. As is concluded, a higher number of female directors is often value adding to a firm, however, the effect on financial performance differs between studies. For this study covering the Swedish market, I expect to find some positive relation between gender diversification and corporate performance, which would be in line with the results of Mínguez-Vera (2008). Anticipation of a positive relation stems from the appearance of arguments toward increased gender diversification and following well performing boards. The Swedish corporate governance code includes guidelines for gender equality and thus the anticipation is that this will bring some

positive effect, which could be financial. Based on the approach taken in this study my expectation is formulated as in the second hypothesis stated below.

H2: Gender will have a positive effect on corporate performance.

4.3 Corporate Boards and CEO Duality

Previous literature relating to CEO on corporate boards focus on CEO duality, which is not allowed in Sweden. The effect of CEO duality, simultaneously serving as CEO and chairman of the board, seems to be inconclusive from studies on the U.S.. Baliga et al. (1996) and Elsayed (2007) concludes that CEO duality in general does not affect firm performance. Although some deviations are indicated from their results, for example Elsayed (2007) concludes that CEO duality might affect performance across certain industries. Also, the author suggests that when firms are subgrouped based on corporate performance, there is a significant positive impact between CEO duality and performance measures in the sub-groups with low performance. Used to derive the results of Elsayed (2007) are data on Egyptian public firms over the time period 2000-2004, and covers 92 firms over 19 industrial sectors. Least absolute value estimation techniques are used in the study. Baliga et al. (1996) takes a different approach in reaching the same main conclusion as Elsayed (2007). Baliga et al. (1996) instead study the announcement effects of firms changing their CEO duality status, using Fortune 500 firms from 1980 to 1991. The authors use a Single Index Market Model to estimate the announcement period excess returns. The concluding results are that the market is indifferent to CEO duality and that there is only very weak evidence of any long-term performance effects of CEO duality.

In contrast, Dalton and Rechner (1991) find that independent chairs, i.e. no CEO duality, have a positive relation with performance. This conclusion is also supported by the results of Bhagat and Bolton (2008). Bhagat and Bolton (2008) study the relation of corporate governance and performance, using several measures of corporate governance where CEO duality is one of them, in the U.S. from 1990 to 2004. Based on estimations using OLS, two-stage least squares and three-stage least squares, the authors conclude that a separation of CEO and the chair is positively related with performance (Tobin's Q and return on assets). Dalton and Rechner (1991) derive their results by using 141 Fortune 500 companies with a non-changing CEO duality status between 1978 and 1983. Using a multivariate analysis of variance, the results indicate that the sub-group of firms

with no CEO duality consistently outperformed the sub-group of firms where CEO duality was present.

Since most literature is centered on board duality, it is difficult to draw any parallels and expectations toward the Swedish market. The discussion is also made difficult since there are both documented positive and negative factors of having the CEO serve on the board of directors. Since the CEO is allowed to serve on the board in Sweden and with the relatively strong corporate governance structure that is present in Sweden, I do not expect CEO serving on corporate board to have negative effects on performance. Instead I expect the additional knowledge stemming from having the CEO on the board to have a positive relation with firm performance. Based on these expectations the third hypothesis is stated as below.

H3: CEO on boards will have a positive effect on corporate performance.

4.4 Independency of Corporate Boards and Performance

A study by Hermalin and Weisbach (1991) aims to measure the differences in firm performance with respect to board composition and ownership structure, the authors find no evidence of a relation between board composition, more specifically inside directors, and firm performance specified by Tobin's Q. The authors conclude that inside and outside directors are equally as good and/or bad to the company with respect to the shareholders. The conclusions are based on panel data including 142 firms on the New York Stock Exchange with estimations of pooled OLS.

Rosenstein and Wyatt (1990) take a different approach and study the wealth effects of managerial selection of an independent director to the board. An outside director is by the authors defined as one who is not "a present or former employee" and "whose only formal connection with the firm is his duties as a director" (Rosenstein & Wyatt, 1990, p.177-178). The study covers 1 251 outside director announcements on the U.S. market in 1981 to 1985, and the concluding results show that this type of appointment has positive share-price effects.

Couto et al. (2015) study the impact of gender diversification and independency on firm performance. The study covers 47 countries (including Sweden) during a one-year period of 2010 and the results are derived using an approach of generalized method of moments. The authors find that independent directors in general do not affect firm performance (Tobin's Q). However, if a

firm is highly diversified with respect to gender, independency on the board of directors will have a positive impact on firm performance. Additionally, the results indicate that boards with a higher fraction of female board members have significantly better firm performance. Couto et al. (2015) concludes that if there is a movement toward more gender diversified boards, then independent directors will matter with respect to corporate performance in these firms. As seen from selected literature, the implication of board independence is inconclusive with both significant and insignificant results derived in previous literature.

In accordance with some previous work and theory, I expect independent directors who are able to operate as a monitor does positively affect firm performance. In general I expect there to be a positive effect of a higher fraction of independent directors. As the function of corporate boards are both in nature of advising and monitoring there have to lie a balance therein, and in general I expect the independency to be an important factor on corporate board in order to operate efficiently and with integrity and thus improve performance. This concludes the fourth, and final, hypothesis drawn and it is stated as below.

H4: The fraction of independent directors will have a positive effect on corporate performance.

5. Methodology & Data

5.1 Sample Selection

This section describes which data is needed for collection to perform this study, and the method of which this will be approached. The time period of interest for the analysis, and for which the data will be collected, is from 2005 to 2014. The data set will include companies listed in Sweden (Large, Mid and Small Cap) during the time of interest. The data in this study is on an annual basis, data are both hand-collected and gathered from data sources.

To start off, data of the listed companies on Sweden's Large, Mid and Small Cap is gathered. Some companies are excluded from the dataset for various reasons. Companies listed on the Stockholm Stock Exchange which have their base in another country than Sweden, is excluded from the dataset. Financial companies are also excluded from the dataset. Only companies which have been listed for at least three consecutive years are included in the dataset. This is to be able to form a good panel data set used for econometric techniques, as well as limiting the data set to exclude isolated company observations. If there are missing data for a company for several years over the time period, those observations are dropped from the dataset. This yields an unbalanced panel containing a number of 2258 firm-year observations during the time period of ten years. A total of 280 companies are included in the dataset. A summary of the observations and the distribution of observations are summarized in Figure 1 and Figure 2 respectively.

Figure 1. Summary of Observations.

Initial Firm-Year Observations	2526
Deleted or Missing Observations	-268
<hr/>	
Firm-Year Observations	2258

Figure 2. Frequency Distribution of Observations.

Year	Frequency	Percent	Cumulative
2005	212	9,39	9,39
2006	222	9,83	19,22
2007	239	10,58	29,81
2008	235	10,41	41,21
2009	232	10,27	50,49
2010	230	10,19	60,67
2011	226	10,01	70,68
2012	225	9,96	80,65
2013	221	9,79	90,43
2014	216	9,57	100

5.2 Data Collection

Data on corporate board characteristics; board size, gender diversification within boards, CEO on boards, inside and outside directors and employee representatives is hand-collected from SIS Ägarservice, “Directors and Auditors in Sweden’s Listed Companies” (Fristedt et al. 2005-2014). As for performance measures; Tobin’s Q, Return On Assets and Share Return as well as other control variables; Market Capitalization, Segments, Research & Development, Volatility, Age and SIC Code, the data is gathered from Datastream.

5.3 Variable Description

The variables used, and their respective definitions, are summarized in Figure 3 at the end of this section. Summary statistics for the variables are presented in Figure 4, and the Pearson’s Correlation matrix presented in Figure 5. Board size is given by the number of board members at one point each year, elected by the shareholders. Since the data is collected through SIS, I use the given observation of board size from their data. Data on board size including employee representatives is also obtained. Gender is given by the fraction of female directors on the board of directors. The fraction of women on corporate boards are collected both for board size including and excluding employee representatives. Independent is the fraction of independent directors of boards, it is also collected for board size including and excluding employee representatives. The data on independent and dependent directors is not available through any one source for the year of 2005. Due to time constraints these observations are left out and for the analysis of this variable

a subsample for the remaining nine years is used. Data on CEO on board is collected as a binary variable, and takes on a value of 1 if the CEO is on the board of directors, and 0 otherwise.

Tobin's Q (alternatively Q Ratio) will serve as the primary dependent variable. Tobin's Q is defined as in equation (1) below;

$$Tobin's\ Q = \frac{Total\ Market\ Value\ of\ Firm}{Total\ Asset\ Value\ of\ Firm}$$

A ratio between 0 and 1 means that the firm's worth is less than the replacement cost of assets. A Tobin's Q above 1 indicates a company that is worth more than the replacement cost of assets.

In order to provide robust estimations with respect to performance measures I also use alternative performance measures for estimation. Return on assets and share return constitutes the alternative performance measures in the analysis.

Return on assets (ROA) is defined as given in equation (2) below;

$$Return\ on\ Assets = \frac{Net\ Income}{Total\ Assets}$$

This provides an estimation of the net income produced per one currency unit of assets. Return on Assets is seen as an indication of how well a company manages its assets for earnings generation.

Share Return is observed as the annual share return for each company, calculated from Datastream Return Index.

The model also includes various control variables, similar to earlier research (Yermack, 1996; Guest, 2009; Wintoki, 2007).

Market Capitalization is used as the natural logarithm of the market capitalization for each company on an annual basis. Volatility is the average annual price movement to a high and low from a mean price. Research and Development is defined as research and development expenses divided by total sales annually. Business segments is defined as for how many segments financial data is presented. Age is defined as the number of years annual financial data is available on DataStream. The natural logarithm of age is used in estimations. Since today's performance could be influenced by previous performance I also include a lagged variable for the return on assets (one lag) in the regression model.

Figure 3. Variable Definition.

Variable	Definition
Tobin's Q	Ratio of total market value of firm divided by total asset value of firm
ROA	Ratio of net income divided by total assets
Return	Annual share return
Board Size	Number of members on the board of directors, excluding employee representatives
Gender	Fraction of female directors on the board, excluding employee representatives
CEO	1=CEO is a member of the board, 0=CEO is not a member of the board
Independent	Fraction of independent directors on the board, excluding employee representatives
Market Cap (Log)	Logarithm of market capitalization
R&D	Research and development expense divided by sales
Volatility	Average annual price movement to a high and low from a mean price
Segments	Number of business segments for which financial data is presented
Age (Log)	Logarithm of number of years of financial data available on DataStream
Board Size Emp. Rep.	Number of members on the board of directors, including employee representatives
Female Emp. Rep.	Fraction of female directors on the board, including employee representatives
Independent Emp. Rep.	Fraction of independent directors on the board, including employee representatives
SIC	2-digit SIC Code

Figure 4. Summary Statistics of Variables.

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Tobin's Q	2160	1,78	1,25	0,66	7,13
ROA	2115	0,04	0,15	-0,52	0,3
Return	2172	0,18	0,52	-0,73	1,72
Board Size	2258	6,48	1,46	3	13
Gender (%)	2258	0,21	0,13	0	0,8
CEO	2258	0,46	0,5	0	1
Independent (%)	2046	0,54	0,28	0	1
Market Cap (Log)	2200	21,34	1,92	17,89	25,76
Market Cap	2200	11 107 906 114	27 770 628 718	58 644 244	154 259 178 189
R&D	2192	0,04	0,12	0	0,7
Volatility	2081	0,33	0,1	0,14	0,57
Segments	2254	3,84	2,19	1	8
Age (Log)	2242	2,46	0,56	1,1	3,47
Age	2242	13,56	7,19	3	32
Board Size Emp. Rep.	2258	7,33	2,14	3	15
Gender Emp. Rep.	2258	0,21	0,13	0	0,86
Independent Emp. Rep.	2046	0,49	0,27	0	1

Figure 5. Correlation of Variables.

	Tobin's Q	ROA	Return	Size	Gender (%)	CEO	Ind.(%)	Mkt Cap (Log)	R&D	Volatility	Segments	Age (Log)	Size Emp	Gender Emp.	Ind. Emp.
Tobin's Q	1														
ROA	0,044	1													
Return	0,218	0,208	1												
Size	-0,020	0,167	0,064	1											
Gender (%)	0,080	0,103	0,050	0,118	1										
CEO	-0,056	0,105	0,094	0,361	-0,101	1									
Ind. (%)	0,045	-0,029	-0,030	0,019	0,233	-0,130	1								
Mkt Cap (Log)	0,158	0,356	0,207	0,657	0,201	0,308	0,117	1							
R&D	0,376	-0,450	-0,021	-0,090	-0,037	-0,077	0,074	-0,122	1						
Volatility	0,079	-0,390	-0,065	-0,353	-0,161	-0,175	-0,056	-0,459	0,302	1					
Segments	-0,028	0,201	0,025	0,169	0,048	0,144	-0,067	0,200	-0,202	-0,129	1				
Age (Log)	-0,081	0,072	-0,043	0,342	0,128	0,185	0,162	0,377	-0,044	-0,309	0,251	1			
Size Emp	-0,036	0,157	0,047	0,881	0,151	0,348	0,016	0,631	-0,092	-0,332	0,238	0,405	1		
Gender Emp	0,107	0,075	0,024	0,092	0,922	-0,124	0,200	0,171	-0,002	-0,122	0,042	0,112	0,140	1	
Ind. Emp.	0,050	-0,043	-0,026	-0,043	0,194	-0,150	0,963	0,047	0,081	-0,034	-0,114	0,088	-0,146	0,160	1

5.4 Model Specification

The resulting model is specified as;

Performance

$$\begin{aligned}
 &= \alpha + \beta_1 \text{Board Size} + \beta_2 \text{Gender} + \beta_3 \text{CEO} + \beta_4 \text{Independent} \\
 &+ \beta_5 \text{Market Capitalization} + \beta_6 \text{R\&D} + \beta_7 \text{Volatility} + \beta_8 \text{Age} \\
 &+ \beta_9 \text{Segments} + \beta_{10} \text{ROA}_{t-1} + \varepsilon
 \end{aligned}$$

Analysis will be made through OLS regression techniques as well as fixed-effects model for robustness. Both model estimations with OLS and Fixed-Effects includes year dummies. The Fixed-Effects model can be utilized for estimation since we have collected a panel dataset. The Fixed-effects estimation is applied in order to obtain robust results and deal with some of the omitted variable problems that might be present, the estimation technique control for omitted variables that does not change across time. The model for OLS estimation also includes industry dummies based on the SIC-codes (2-digit). Additionally, the data collected from DataStream used for estimation is Winsorized at the two percent level in order to control for outliers. Robust

standard errors clustered at firm level are used in all estimations. Observing Figure 5 one could be concerned with the correlation across some variables. In order to control for possible multicollinearity, I estimate the Variance Inflation Factor (VIF) for the regression model. The VIF results do not indicate high correlation across the variables, I thus proceed with the original model as is. All analysis is made through STATA software.

All actions taken regarding the dataset, variables and regression techniques are made in order to obtain robust estimation results.

5.5 Limitations

As for limitations, one of the main limitations in this thesis is related to endogeneity. Endogeneity is one of the main drawbacks within this study, expected to stem from omitted variables, as is the case in much of the corporate governance literature. Fixed-Effects estimation is used in order to partially control for these effects, however endogeneity problems are still important to mention as it is one of the main concerns with regards to the derived results and should thus be stated here. Also, there can be drawbacks of the fixed-effects model since some variables of interest might not change by a significant amount over time, and is thus not captured by the fixed-effects estimation.

6. Empirical Results

The primary section of the results is concentrated on the results of the estimation with Tobin's Q as performance measure, using OLS regressions techniques. The results concerning additional estimation techniques and performance measures are also presented. Last, the results derived using data inclusive of employee representatives will be presented.

6.1 Main Results

The main results are presented in Figure 6 below. The results are derived from the time period 2006 to 2014 in order to present results including the variable Independent (See Section 5.3). This is done since the results over the time period 2005 to 2014, excluding the variable Independent, conform and instead represent untabulated results. From the model estimating the effect of board characteristics on corporate performance, seen in the first column of Figure 6, one can observe a significant and negative relation between the size of the board and Tobin's Q. The coefficient estimate of an additional member on a corporate board is approximately -0,149. The interpretation is as follows; when a corporate board expands in size by one member, Tobin's Q will decrease by approximately 0,149. The other board characteristics of interest; the fraction of women on boards, if the CEO serves on the board of directors and the fraction of independent directors, are all statistically insignificant in the estimation. The coefficient estimates of the fraction of women and the fraction of independent directors appears to be positive. The coefficient of CEO serving on the board of directors is negative.

The control variables used in the estimation are of differing significance. Market capitalization, research and development and previous performance (first lag of return on assets) are all statistically significant control variables, with positive estimation coefficients, in the regression. Volatility and number of business segments appear to be insignificant.

Using the same variables but a fixed effects estimation approach, yields similar results as when using ordinary least squares estimation techniques. Results are shown in column 2 of Figure 6. The board size coefficient is still negative and statistically significant. The coefficient estimate for board size is about -0,104 which is close to -0,149 derived from previous estimation. Using the fixed effects approach, the remaining board characteristics are all statistically insignificant. As for

the control variables, market capitalization and volatility are the control variables which are statistically significant. Both market capitalization and volatility coefficient estimates are positive.

To summarize the primary results, the effect of board size on performance is negative. As for the remaining board characteristics, no relation can be found between these variables and corporate performance.

To obtain results robust to other performance measures, estimations of the effect on company return on assets and share returns are also conducted. Results derived using OLS are similar to the results using Tobin's Q as performance measure, and can be seen in column 3 in Figure 6. The coefficient estimate of board size is still negative and significant. The coefficient estimate is approximately -0,0107. Variables of the fraction of women, CEO on boards and the fraction of independent directors are all insignificant. All control variables except Age are significant when using return on assets as the dependent variable. Market capitalization, number of segments and the first lag of return on assets yield positive coefficient estimates. Negative coefficient estimates are observed for the remaining control variables. The results using return on assets as the dependent variable in the model and using fixed effects estimation yields insignificant coefficients across all board characteristic variables. The fixed effects results are presented in column 4 in Figure 6.

Following, the same method is considered when using stock return as performance measure. The results are presented in column 5 in Figure 6. The OLS results indicate a negative and significant relation between board size and return. The coefficient estimate obtained is approximately -0,0325 and significant at the one percent level. The dummy variable for CEO as members of corporate boards are in this model also significant. The estimated relationship is positive, with an observed coefficient estimate of about 0,045. This is interpreted as; if the CEO is a member of the board, share return increases by 0,045. The remaining two variables of interest are both positive but statistically insignificant. Using fixed effects regression techniques derives results as presented by column 6 in Figure 6. Regarding the variables of interest, only the variable specifying the fraction of independent directors on boards are statistically significant, at the 10% level. The relation between the fraction of independent directors and return is positive, the observed coefficient estimate is about 0,106.

Additional measures for female directors were also used to analyze the effects. Dummy variables for the number of women present on corporate boards, instead of fractions, is also used as a control

measure and represent untabulated results. However, the additional variable specifications did not change the results, the variables specifying women on boards were still statistically insignificant. Since the results did not appear to be a superior measure of the effect of female directors, the fraction of women on boards are consistently presented to be the primary measure of female directors.

Figure 6. Main Results.

VARIABLES	OLS Tobin's Q	FE Tobin's Q	OLS ROA	FE ROA	OLS Return	FE Return
Board Size	-0.149*** (0.0439)	-0.104*** (0.0312)	-0.0107*** (0.00298)	-0.00360 (0.00503)	-0.0325*** (0.00813)	-0.0154 (0.0134)
Gender	0.116 (0.455)	-0.0687 (0.285)	-6.09e-05 (0.0307)	-0.0189 (0.0458)	0.0428 (0.0727)	0.0436 (0.125)
CEO	-0.110 (0.118)	-0.121 (0.101)	-0.00225 (0.00722)	0.00700 (0.0137)	0.0450** (0.0217)	0.0400 (0.0435)
Independent	-0.0639 (0.152)	0.0260 (0.119)	-0.00493 (0.0137)	0.00604 (0.0206)	0.0259 (0.0369)	0.106* (0.0608)
Mkt Cap (Log)	0.266*** (0.0520)	0.614*** (0.0784)	0.0192*** (0.00314)	0.0546*** (0.00635)	0.0584*** (0.00817)	0.259*** (0.0251)
R&D	3.753*** (0.629)	-0.957 (0.848)	-0.227*** (0.0537)	-0.0387 (0.166)	0.257** (0.121)	-0.0858 (0.303)
Volatility	0.895 (0.631)	1.291* (0.751)	-0.208*** (0.0480)	0.0212 (0.0821)	0.425*** (0.135)	0.846** (0.347)
Age (Log)	-0.204* (0.117)	-0.334 (0.287)	-0.0108 (0.00850)	-0.0779*** (0.0292)	-0.0774*** (0.0205)	-0.0540 (0.109)
Segments	-0.0398 (0.0289)		0.00294* (0.00174)		-0.000592 (0.00488)	
ROA (Lag 1)	0.932* (0.490)	-0.237 (0.215)	0.401*** (0.0452)	0.00365 (0.0414)	0.780*** (0.0968)	0.730*** (0.130)
Constant	-2.198** (1.028)	-9.962*** (1.927)	-0.334*** (0.0608)	-0.936*** (0.151)	-0.520*** (0.165)	-5.231*** (0.609)
Industry Dummies	Yes	No	Yes	No	Yes	No
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.414	0.322	0.497	0.092	0.501	0.535
Number of id		274		274		270
Observations	1,757	1,757	1,705	1,705	1,759	1,759

Robust standard errors in parentheses

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

6.2 Results Including Employee Representatives

Presented in Figure 7 at the end of this section, are the obtained results from the same model as described in section 6.1, but using data including employee representatives. The results from OLS estimation with Tobin's Q as the dependent variable yield a negative and significant relation between board size and Tobin's Q. The coefficient estimate is approximately -0,181. The other board characteristic coefficients are not statistically significant, there appears to be no relation between those variables and Tobin's Q. With regards to significance, the fixed effects model yields similar results. Only board size is statistically significant with a negative coefficient estimate of approximately -0,101.

Using return on assets as the dependent variable and OLS regression techniques yields a negative and significant coefficient estimate of the regressor board size. The estimate is about -0,0098. The other regressors of interest yields statistically insignificant estimates. In the same model, using fixed effects estimation, all independent variables of interest; board size, fraction of female directors, CEO on board and fraction of independent directors yields insignificant coefficient estimates.

Presented in column 5 and 6 of Figure 7 are the results from the specified model using share return as the dependent variable with OLS and fixed effects estimations respectively. Using OLS to estimate the model yields statistically significant results for both board size and CEO on boards. The relation of board size and stock return is negative, and the coefficient obtained is approximately -0,0312. The dummy variable of CEO on board appears to have a positive relation to stock return where the estimated coefficient is approximately 0,0489. Both variables specifying the fraction of women and independent directors on boards are statistically insignificant. Using fixed effects to estimate the model yields statistically significant coefficient estimates only for the fraction of independent directors out of the explanatory variables of interest. The relation between fraction of outside directors and stock return is positive as the coefficient estimate is approximately 0,117.

Figure 7. Results Including Employee Representatives.

VARIABLES	OLS Tobin's Q	FE Tobin's Q	OLS ROA	FE ROA	OLS Return	FE Return
Board Size	-0.181*** (0.0403)	-0.101*** (0.0288)	-0.00979*** (0.00235)	-0.00473 (0.00454)	-0.0312*** (0.00633)	-0.0190 (0.0128)
Gender	0.308 (0.436)	-0.0698 (0.295)	0.00120 (0.0289)	-0.0195 (0.0445)	0.0518 (0.0708)	0.0215 (0.129)
CEO	-0.0664 (0.114)	-0.123 (0.101)	-0.00164 (0.00703)	0.00715 (0.0136)	0.0489** (0.0216)	0.0390 (0.0436)
Independent	-0.0516 (0.163)	-0.00669 (0.124)	-0.00896 (0.0147)	0.00452 (0.0232)	0.0287 (0.0387)	0.117* (0.0626)
Mkt Cap (Log)	0.310*** (0.0513)	0.611*** (0.0781)	0.0205*** (0.00315)	0.0546*** (0.00628)	0.0635*** (0.00776)	0.259*** (0.0250)
R&D	3.649*** (0.621)	-0.925 (0.846)	-0.231*** (0.0538)	-0.0382 (0.167)	0.239* (0.124)	-0.0875 (0.301)
Volatility	0.757 (0.608)	1.282* (0.756)	-0.213*** (0.0476)	0.0202 (0.0832)	0.411*** (0.135)	0.852** (0.347)
Age (Log)	-0.154 (0.115)	-0.310 (0.289)	-0.00816 (0.00846)	-0.0779*** (0.0292)	-0.0676*** (0.0202)	-0.0556 (0.109)
Segments	-0.0399 (0.0280)		0.00287* (0.00172)		-0.000873 (0.00473)	
ROA (Lag 1)	0.820* (0.471)	-0.231 (0.214)	0.398*** (0.0451)	0.00400 (0.0414)	0.769*** (0.0969)	0.730*** (0.130)
Constant	-2.935*** (1.015)	-9.867*** (1.919)	-0.366*** (0.0619)	-0.923*** (0.151)	-0.641*** (0.167)	-5.183*** (0.606)
Industry Dummies	Yes	No	Yes	No	Yes	No
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.436	0.323	0.499	0.093	0.504	0.535
Number of id		274		274		270
Observations	1,757	1,757	1,705	1,705	1,759	1,759

Robust standard errors in parentheses

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

7. Analysis & Discussion

The aim of this thesis is to investigate the effects of a number of board characteristics on financial performance. Throughout this thesis it has been outlined why and how the investigation was conducted, and the derived results have been presented. In this section of the thesis there is focus on analysis and discussion of the derived results, and what implications can be drawn from these results.

From the results described in the previous section, the concluding results are that the size of the board appears to have a negative relation with corporate performance. The results are consistent through several robustness checks. As for the other board characteristics where the aim was to observe a relation with firm performance, the general results indicate that there in fact is no relation between corporate performance and the other board characteristics included in the analysis. For some specific model and estimation technique there are some observed indications of relationships. However, as those results are not robust, the main result is that no clear relation could be found for corporate performance and the fraction of female directors, CEO on the board of directors as well as the fraction of independent directors.

7.1 The Negative Effect of Board Size

The first stated hypothesis, as stated in Chapter 4, is; *Board size will have a negative effect on corporate performance.* This hypothesis appears to be supported, as is indicated by the results in Chapter 6. Corporate boards does in fact seem to observe what could be coordination and communication difficulties resulting in inefficient working methods when boards increase in size.

Additional directors on corporate boards might thus be considered to be suboptimal. It is from the results derived in this thesis concluded that larger boards have a negative effect on financial performance, with its effects being robust across financial measures and estimations. Communicative and coordination difficulties thus seem to be present on Swedish corporate boards. Boards are in general too large for them to operate and manage its tasks efficiently as stated by the corporate governance code. The Swedish corporate governance code state guidance for corporate boards and their size, “The board is to have a size and composition that enables it to manage the company’s affairs efficiently and with integrity” (The Swedish Corporate Governance Board,

2010, p.17). Implicated by the results, above statement is not observed in Sweden today with regards to the financial effects. Overall, board size in Sweden is larger than needed for efficient working methods with respect to firm value.

Further, untabulated results conclude that the effect is consistent throughout the number of business segments. Beforehand, as the hypotheses developed, one could expect there to be evidence of larger sized board being efficient for companies with a larger amount of business segments. However, those expectations are not supported in the Swedish setting, the negative effect does not fade with increased number of segments. The negative effects are observed across segments, indicating inefficient board structure with regards to size across the spectrum of corporations in Sweden.

7.2 Should Composition Across Corporate Boards Change?

As the discussion with respect to gender equality on boards, as well as discussion of the dispersion of independent and dependent directors, there seem to be a “danger” in increasing the size of a board in order to include an additional female and/or independent director. The negative effects of increased board size outweigh the effects of additional diversification and independency.

To conclude, the hypothesis “*Board size will have a negative effect on corporate performance*” is supported by derived results in this thesis. Gender diversification and independency is not indicated to have an impact on corporate performance. Restructuring boards with arguments of diversification by adding additional members to corporate boards is thus concluded to be inefficient from a performance point of view in the context of analysis.

The Swedish corporate governance code includes guidelines, regarding board composition, which states “The board is to have a composition appropriate to the company’s operations, phase of development and other relevant circumstances. The board members elected by the shareholders’ meeting are collectively to exhibit diversity and breadth of qualifications, experience and background. The company is to strive for equal gender distribution on the board” (The Swedish Corporate Governance Board, 2010, p.17). Thus, the guidance from the Swedish corporate governance board is interpreted as boards are to be composed from both a professional and ethical perspective.

Arguments regarding diversification and independency are from the results concluded to need to stem from changes in the board structure, not by additional board members. However, from the results derived with a performance perspective, it does not seem optimal to change the structure and thus increase the fraction of female or independent directors on corporate boards. Arguments on the Swedish market supporting increased gender diversification and independency cannot be financial, instead they would be from an ethical or a corporate perspective. As mentioned previously in this thesis, there are arguments of female directors improving the function of boards with regards to for example meeting frequency and board meeting representation. An analysis of these arguments are outside of the scope of this thesis, but what can be concluded is that argument to increase diversity and independency should not be based on financial arguments in Sweden.

As is concluded above, the hypothesis regarding gender diversification stated in the beginning of this thesis as “*Gender will have a positive effect on corporate performance*” is not supported by the results in Chapter 6. The reasoning behind the hypothesis was because of other studies indicative of this effect but also due to the debate arguing for increased gender diversification. The results indicate that board efficiency in Sweden is not a question of a diversified group of individuals with respect to, for example, gender and independency. Board efficiency stem from efficient working methods and expertise, independent of the gender composition of corporate boards.

If analyzing the results and relating the fraction of female directors in Sweden to the function of the corporate board, it is difficult to draw parallels between gender effects and the operative tasks of board of directors. The tasks of corporate boards, as stated by the Swedish corporate governance board, cannot directly be argued to be facilitated by additional female directors on boards, assuming that corporate boards in Sweden operate efficiently and perform well if the tasks stated by the Swedish corporate governance code are fulfilled efficiently. The board of directors should be chosen on ability to efficiently serve the company as to the tasks and responsibilities the position demands.

However, gender diversification on boards could still be argued, even though the results in this thesis does not provide any direct financial effects of an increasingly diversified board. Arguments could be made from an ethical or societal point of view. However, from derived results, it seems that ability and other characteristics produce a well operating board of directors in Sweden.

One factor that could affect the results derived in the Swedish setting of this thesis, is that Sweden have one of the most developed corporate governance structures around the world. As Sweden are in the forefront of gender equal boards, it might be the fact that board of directors and corporations have been , and are, enjoying beneficial effects from women serving on their boards but the effect is somewhat sated, explaining deviating results. Due to a well-functioning corporate governance structure in Sweden, this could also be one factor explaining the results with respect to independency and the lack of relation to performance. Independency might not be as much of importance in the Swedish setting as it would be elsewhere.

The hypothesis regarding board independency is “*The fraction of independent directors will have a positive effect on corporate performance*”, which thus is not supported by the derived results. As mentioned, the results might be an indication of the corporate governance structure and code implemented in Sweden today. Independency, as stated by the corporate governance board, implies a director to be independent of the company, its management and its major shareholders. At least two independent directors of this caliber should be appointed to corporate boards in Sweden as suggested by the code. The results of no evident relation between the fraction of independent directors and performance could be argued to stem from the structure of the code today. Both the definition of independence and the number of independent directors on corporate boards in general could be factors affecting the results. As the definition of independence is strong and the presence of at least two independent directors of this caliber on corporate boards, there appears to not be any apparent difficulties or inefficient working methods with respect to the monitoring and advising function of board of directors in the Swedish setting. There does not seem to be any financial advantages from increasing the number of independent directors above the guideline number of two directors of this type. It appears that the monitoring and advising functions is well balanced and is functional in the Swedish setting today. Presence of at least two independent directors appear to be sufficient in order to in part alleviate the agency problem. Arguments to increase independency, or gender, can ultimately result in inefficiencies if increasing the size of corporate boards in the Swedish setting.

Arguments of independent directors being uninformed, leading to inefficient working methods, are also diverted due to the results in this thesis, as results would otherwise indicate a significant negative impact on financial performance. Thus, in general one could argue that independent

directors in Sweden does not “suffer” from information disadvantages as have been argued in related theory, at least with respect to performance since there is no apparent negative impact of increased independency. Inside and outside directors thus seem to be as good, or bad, for corporate boards from a performance perspective. Even though these are the results from the Swedish setting, and the corporate governance structure present in Sweden today, other governance environments could arguably observe beneficial effects from increased board independence, as is also argued by (Padgett, 2012). If independent directors are incorporated in the hopes of improved monitoring and new perspectives, and those functions are already well functioning additional independency might be unnecessary and not improve performance, which could be indicated by the results derived.

7.3 The Insignificant Results of the CEO

The hypothesis stated with regards to the chief executive officer and corporate boards is “*CEO on boards will have a positive effect on corporate performance*”. This hypothesis is also not supported by the results in this thesis. Reasoning behind this hypothesis, information gains derived from CEOs on corporate boards, is not supported. The presence of CEOs on the board of directors does not impact corporate performance. One reasoning to this could be the information transparency already present between the CEO and the board in the studied setting. The does not appear to be any gains from CEOs and what could be their private information gains. The board of directors in the Swedish context appears to operate efficiently with or without the CEO as one of its members.

Further, the development of the hypothesis with respect to the CEO was in part based on the possible information advantages of a CEO on the board of directors. However, excluding the CEO from corporate boards instead gives the opportunity for another manager to serve on the board of directors. The resulting evidence might be a result of similar information gains by the board from either the firms CEO or other management representation.

Again, the results could possibly be a result of the strong corporate governance structure in Sweden and the working methods of the corporate boards and the CEO. Issues regarding the subordinating role of the CEO and the board does not seem to be present as to it affecting performance measures, working methods are indicated to be well functioning from the results in the Swedish context. Debatably, the role of the board and CEO, and the impact on performance, is also a result of the

CEO only being incorporated on the board of directors and not a setting where board duality is a fact. Board duality would probably derive deviating results than observed at the moment since apparent inefficiencies with respect to the role of the board and the CEO and their working methods.

Thus, to conclude, among the board characteristics investigated in this thesis only board size impacts firm performance. The effect of an increased board size affects corporate performance negatively. Arguments and analysis of the derived results indicate that the corporate governance structure in Sweden and the present code and the interpretation of this could be one of the main factors affecting the results. When an environment with very strong corporate governance structure is analyzed a comparison to results of other environments might differ as the board of directors is well operating in its current setting. In the Swedish setting, the corporate governance environment is strongly developed but exhibits some inefficiency with respect to board structure and financial performance, which appears to be in the need of improvement. At last, the concluding results indicate inefficiencies present with regards to board size; however, regarding the remaining characteristics and function of corporate boards in Sweden, the framework of the Swedish corporate governance code is efficient.

8. Conclusion

The aim of this thesis is to investigate the effects of size, gender diversification, independence and CEO inclusion of corporate boards on performance. The set model for analysis is a regression model incorporating control variables and several measures of corporate performance. Using a dataset of Swedish listed firms over a time period spanning from 2005 to 2014, we find that only board size affects corporate performance. Gender diversification, independency and CEO on board of directors does not have any significant relation to performance. The results are robust to performance measures, variable definition and regression techniques. The results of an increased board size impacting performance negatively indicate that board of directors in Sweden, in general, operate inefficiently. This is possibly stemming from coordination and communication difficulties of too large boards than necessary. The board size is larger than necessary for Swedish board to effectively manage their tasks and to serve its purpose with regards to the corporations. Results of no relation between performance and the remaining board characteristics of interest we argue to stem from the strong corporate governance structure present in the Swedish context. The environment of analysis is efficient as is and changes of structure of boards does not contribute to an improved function, at least with respect to performance. Other arguments to change the structure of boards as is today, such as ethical or company specific arguments, is outside the scope of this thesis but is something that could be interesting for further research on the Swedish setting.

To mention an extensions and example of future research relating to the investigated topic, it would be interesting to see a study investigating the possible effects of board structure on non-financial measures, in addition and side-by-side to the financial effects. This would present a more comprehensive view of the Swedish setting and not only the effect of board characteristics on financial measures, as there could be non-financial value for firms in restructuring boards with respect to size, gender, independency and CEOs.

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