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BOARD COMPOSITION AND FIRMS’ PERFORMANCE: EMPIRICAL EVIDENCE FROM NORDIC LISTED FIRMS

Master’s thesis

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Abstract

Board composition plays a significant role in corporate governance; the board is responsible for making strategic, tactical and operational decisions for the company on behalf of the shareholders and the stakeholders. This study examined the effect of some corporate board composition characteristics on the performance of listed firms in Nordic Countries (Finland, Sweden, Denmark and Norway) from 2012 to 2016.

Although each country in the Nordic region has its Corporate Governance Codes, Nordic corporate governance code also known as ‘Nordic Model’ provides some recommendations for Nordic countries. The suggestions in this model are similar to the individual corporate governance code of each country. The rule stipulated that board should be independent of the company; hence, the majority of the Nordic listed corporations have entirely or predominantly non-executive boards. Further, there should be fair representation of gender diversity on board and members should have necessary skill and experience to perform efficiently.

The analysis was carried out on the sample of 552 firm-year observations. Starting with descriptive statistics of data, followed by Pearson’s correlation analysis and then OLS regression. The analysis was done by examining the impact of board composition characteristics, board size, gender diversity, board independence and board experience on firm performance (ROA) while controlling for variables of firm size, leverage, and liquidity. An additional test was performed by adding another control variable to examine the effect of industry type. The industry variable gets a value of one or zero for each classification. The regression result of the industry effect remained the same as the original OLS regression result. The coefficient retained the same positive or negative signs.

The OLS result shows a significant association between board size and firm performance. This implies that board size of Nordic listed firms has an impact on firm performance. However, the result of gender diversity reported no significant relationship between the percentage of female representation on board and firm performance. Regarding the impact of board independence on firm performance, the OLS result shows a positive association between board independence and firm performance. Concerning board experience, the result shows a significant positive association between board experience and firm performance. The results of this study are in line with previous studies.

This study has relevant implications for management, shareholders as well as academicians on corporate boards and corporate performance. The result will enable the Nordic listed firms' management and policymakers to make a better decision on issues regarding board composition. Also, both existing and potential shareholders can assess the board composition to make a better decision on their investment. Further, the result of this study provides evidence to corporate governance theories, thereby, indicating the needs for corporate governance regulators to gain more insight into board's functioning.

Keywords: ROA, firm performance, corporate governance, board composition characteristics

Additional information
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TABLE OF CONTENTS

1. INTRODUCTION ........................................................................................................7
1.1 Background of the Study .........................................................................................7
   1.1.1 Board Composition .........................................................................................7
   1.1.2 Prior Research ...............................................................................................7
1.2 Research Problem ..................................................................................................11
1.3 Purpose of the Study ...............................................................................................12
1.4 Research Approach .................................................................................................13
1.5 Outline of the Study ...............................................................................................13

2. THEORETICAL FRAMEWORK ...............................................................................15
2.1 Introduction ............................................................................................................15
2.2 Definition of Corporate Governance .....................................................................15
2.3 Corporate Governance Theories ..........................................................................16
   2.3.1 Agency Theory ..............................................................................................17
   2.3.2 Stewardship Theory .....................................................................................17
   2.3.3 Resource Dependency Theory .....................................................................20
2.4 Corporate Governance in Nordic Countries .......................................................21
   2.4.1 Finnish Corporate Governance ...................................................................23
   2.4.2 Swedish Corporate Governance ................................................................25
   2.4.3 Danish Corporate Governance ...................................................................27
   2.4.4 Norwegian Corporate Governance ...........................................................28

3. EMPIRICAL REVIEW ON BOARD COMPOSITION AND
   PERFORMANCE .......................................................................................................30
3.1 Introduction ............................................................................................................30
3.2 Board of Directors .................................................................................................30
   3.2.1 Role of Board of Directors ............................................................................31
3.3 Characteristics of Board Composition ..................................................................32
   3.3.1 Board Size ...................................................................................................32
   3.3.2 Gender diversity ..........................................................................................34
   3.2.3 Board Experience .......................................................................................36
   3.3.4 Board Independence ...................................................................................37
LIST OF TABLES

Table 1: Company Distribution .......................................................43

Table 2: Board Composition Characteristics and Performance Variables.........47

Table 3: Data Collection Procedure ................................................50

Table 4: Descriptive Statistics of Finnish Listed Firms...............................51

Table 5: Descriptive Statistics of Swedish Listed Firms..............................51

Table 6: Descriptive Statistics of Norwegian Listed Firms..........................52

Table 7: Descriptive Statistics of Danish Listed Firms..............................53

Table 8: Pearson’s Correlation Analysis ..............................................54

Table 9: OLS Regression Result ......................................................59

Table 10: OLS with Industry Effect ..................................................61

Table 11: Summary of Hypothesis Result ............................................62
1. INTRODUCTION

1.1 Background

Corporate governance has gained more attention from researchers due to the occurrence of several massive corporate scandals and failures of some big firms around the world (Such as; Parmalat, Enron, Ahold, Adelphia, Worldcom, among others). Corporate governance refers to the way by which firms are being administered, directed and controlled. According to Shah et al. (2011), corporate governance is the way by which shareholders, managers, creditors, employees, government, customers and the general public influence the management of the firm.

It provides set of rules and regulations for the stakeholders that affect the manager's decision and specifies the roles of stakeholders. These rules also structure the company objectives and provide means through which the firms achieved their goals. International organizations such as Organization for Economic Cooperation and Development (OECD) and International Corporate Governance Network have also developed guidelines for corporate governance.

The OECD guidance publication (2004) listed some principles that can result in good corporate governance practices. These are, protecting shareholder rights; legal and lawful duties toward all stakeholders; Corporations must respect the rights of shareholders and facilitate shareholders getting their rights; effective monitoring of managerial performance by the board of directors; clear and visible responsibilities to management and board of directors to ensure shareholders' confidence in the corporation.

Also, corporate governance has been described as a means of assurance to the shareholders that the managers are running the companies in their interest. It is a means by which investors assure themselves of getting a return on their investment and that managers do not steal or invest their capital in a bad project (Shleifer and Vishny, 1997). Further, corporate governance mechanism is the mechanism that protects the interest of shareholders and managers of the firm, with weak
organizational governance structures, managers get more personal benefits (Core et al., 1999). The mechanism aligns the firms' activities with interest of the supplier of finance and the society at large. Hence, a good corporate governance system is believed to increases firms' value.

Similarly, Denis and McConnell (2003) pointed out that appropriate utilization of firm's resources and effective corporate governance should guarantee shareholders value and improve investors' confidence. Corporate governance system results in better allocation of companies resources; it prevent confiscation of the funds by managers thereby ensures efficient management and better decision making.

1.1.1 Board Composition

Board composition plays a significant role in corporate governance; the board is responsible for making strategic, tactical and operational decisions for the company on behalf of the stakeholders and shareholders. As pointed out by Dalton et al. (1998), the board of directors enhances higher performance in the firm because of their independence from firm management. Besides, Byrd and Hickman (1992) opined that inside directors have valuable knowledge of the firm's operating policies and day-to-day activities, while outsiders contribute objectively and expertise gained from their experience in other business pursuits enhances their performances.

Board composition has also been linked to the reduction of agency problems, which occur as a result of the conflict of interest between the managers and the shareholders. Fama and Jensen (1983), argued that boards of directors can reduce agency costs by separating the management and control aspects of decision making, where control involves ratification and oversight of decisions made by management.

1.1.2 Prior Research

Researchers have used several indicators for board composition such as board size, board independence, transparency, CEO duality, ownership structure, board diversity, board tenure, board remuneration, among others, to study its impact on
firm performance in different countries. Yermack (1996) analyzed the effectiveness of the small board of directors on 452 large U.S. industrial corporations between the years 1984 and 1991. The result shows that companies with more modest board size exhibit better values for financial ratios, also, financial ratios for profitability and operating efficiency declined as board size increased.

In the study of Kiel and Nicholson (2003), they examined the relationship between board demographics and board performance for 384 largest publicly listed companies in Australia. Their result reveals a positive correlation between board size and firm value and a positive relationship between the proportion of inside directors and market-based firm performance measures.

Guest (2009) investigates the impact of board size on company performance for a large sample of UK listed firms during 1981-2002. The result shows that board size has a substantial adverse effect on companies' performance. In their paper, Yasser et al.(2011) study the relationship that exists between firm performance and corporate governance by using two proxies (ROE and Profit Margin) and four corporate governance mechanisms (board size, audit committee, board composition and Chairman (CEO) Duality) the result of the study reveal different relationships between them.

Abbasi et al. (2012), examined the relationship between corporate governance mechanisms and firm value for 82 companies listed in Tehran Stock Exchange, in the food sector, between the years 2002-2011. The study shows a positive relationship between the number of independent board members and firm performance.

Relevant to this research, is also the study of Victor Octavian Müller (2013), he studied the impact of 9 corporate governance characteristics of board composition, and the sample consisted of the constituents of FTSE100 between 2010 and 2011. This result shows that board independence and proportion of foreign directors in the total number of directors have a significant, substantial positive impact on firm performance.
In Nordic countries, Trond Randoy and Jim Nielsen (2002) examined the relationship between company performance, corporate governance and CEO compensation within Norway and Sweden. The result shows different relationships among them. Also, the study of Eisenberg et al., (1998) on the impact of board size on small and midsize firms in Finland from 1992 to 1994 shows a negative association between board size and ROA.

Conyon & Peck (1998) examines the effects of board size on corporate performance across some European economies including Denmark from 1990 to 1995. Evidence from their study shows a negative relationship in Denmark. Similar to this, Smith et al. (2006), the study on biggest Danish firms evidenced that the women representation on board has a significantly positive effect on firm financial performance. The research shows that female board members and female managers with higher educational qualification mainly accounted for the positive performance effects. Conversely, the study on Danish listed firms by Rose (2007) reveal a negative association between female board members and firms' performance.

This study examined the effect of some corporate board composition characteristics on the performance of listed firms in Nordic Countries (Finland, Sweden, Denmark and Norway) from 2012 to 2016. The motivation for this study is as a result of the renewed interest in corporate governance, which led to many countries issuing corporate governance regulations and principles. Majority of the corporate governance regulations focus on board structure with the assumption that compliance with the rules will enhance improved performance.

Although each country in the Nordic region has its Corporate Governance Codes, Nordic corporate governance code also known as ‘Nordic Model’ provides some recommendations for Nordic countries. The suggestions in this model are similar to the individual corporate governance code of each country. The rule stipulated that board should be independent of the company, there should be a separation between CEO and Chairman of the Board; hence, the majority of the Nordic listed corporations have entirely or predominantly non-executive boards. Further, there should be fair representation of gender diversity on board and members should have
necessary skill and experience to perform efficiently. (Nordic Corporate Governance, 2009).

Additionally, the model required at least two independent board members from major shareholders. Therefore, significant shareholders play an active role in the governance process in the Nordic region. The Nordic corporate governance codes and companies act protect minority shareholders vigorously to balance the power of significant shareholders. The Nordic companies must treat all shareholders equally. Each shareholder, regardless of the number or class of shares held, has the right to participate in the General Meeting and to vote on his or her shares. Shareholders who are not able to attend in person may exercise their proxy rights (ibid). Thus, the motivation for this study arises from the need to examine whether the implementation of Nordic corporate governance rules affects firms’ performance in the region.

1.2 Research Problem

Review of earlier literature reveals a large number of studies examining the effect of board composition on firm performance. However, there is no clear consensus whether specific board composition factors would affect firms' performance. This study aims to bridge the gap between the inconclusive results from earlier studies by using the main corporate board composition characteristics such as; Board size, Board Independence, Board Experience, and Gender diversity to explain the relationship between board composition and firm performance in Nordic countries. Therefore, the following research question will be answered:

**What is the relationship between board composition characteristics and firm performance?**

To answer the question above the following sub questions will be answered:

- What is the effect of board Board size on ROA of listed companies in Nordic countries?
• What is the effect of Board Independence on ROA of listed companies in Nordic countries?
• What is the effect of Board Experience, on ROA of listed companies in Nordic countries? and
• What is the effect of Gender diversity) on ROA of listed companies in Nordic countries?

1.3 Purpose of the Study

Most of prior literature on corporate governance and firm performance showed that board composition has a positive effect on firm's performance, although there are counter-arguments that board composition reveals no such evidence. For instance, Kiel and Nicholson (2003), reported a positive relationship between board size and firm value and a positive relationship between the proportion of inside directors and market-based firm performance measures while the study by Guest (2009), shows that board size has a substantial adverse effect on companies' performance. Hence, this thesis aims to contribute to the existing literature by verifying the unsettling issue among these studies.

In addition, this study aims to analyze the level of correlation between the selected board composition characteristics (Board size, Board Independence, Board Experience, and Gender diversity) and financial performance of listed companies in Nordic Countries. Hence, this study will identify the association among the selected variables by using appropriate statistical tools. The findings from this study will enable corporations in these countries to understand which aspect of board composition is of greater significance. Thus, they will be able to understand its implications and improve future firms' performance.

Most of the past literature (Kiel and Nicholson, 2003; Adams et al., 2010; Abbasi et al., 2012) showed Board composition has a positive effect on firm performance and enhance firm performance. Therefore, the result will be relevant to shareholders and stakeholders in general as well as academicians on corporate governance and corporate performance
1.4 Research Approach

For research purpose, both deductive and inductive reasoning are the conventional methods used to establish hypotheses. Deductive reasoning involves the development of a theoretical logic argument. It dominates research approach in the natural sciences, where laws present the basis of explanation, allow the anticipation of phenomena, predict their occurrence and therefore permit them to be controlled (Collis et al., 2015). Deductive reasoning involves proposition of a testable hypothesis; expressing the belief in operational terms; testing this working hypothesis and examining the results of the investigation. This effect will either confirm the theory or indicate further modification.

Inductive reasoning, on the other hand, is the direct opposite of deductive reasoning. It follows a bottom-up approach, begins with specific observation and concludes with broader theories. The process of inductive reasoning includes; identification of data and their patterns, formulation of the hypothesis, and finally developing general conclusions and assumptions. In an inductive approach, a small sample of the subject might be more appropriate than a large number as with deductive (Saunders, Lewis and Thornhill, 2009).

While the conclusion of deductive is correct, the outcome of inductive approach is probably based on the evidence available. This thesis applied the deductive method. First, I looked at the different literature and related theories then I formulated the hypotheses based on the assumptions. Collection of relevant data followed this and then testing whether the hypotheses are accepted or rejected.

1.5 Outline of the Study

The thesis is structured into six chapters. This chapter introduced the background of the study, the problem of study, the purpose of the study and research approach. Chapter two presents the theoretical framework on corporate governance and discussion about some theories of corporate governance. I also present corporate governance model in each country.
Chapter three presents the empirical review of board composition characteristics and firm performance and formulation of hypotheses. Chapter four discusses how data was collected and analyzed. It also outlined the methods used for data analysis and to test the hypothesis presented in chapter three.

Chapter five presents the analysis of findings. The results on the descriptive statistics of the main variables were reported (such as mean, maximum, minimum, and standard deviation). This section provided a clear understanding of the trends of the data used in the thesis. Besides, the results of univariate and regression analysis result were presented and compared with previous empirical studies. The last chapter draws conclusions and limitations of the research along with recommendations for future research.
2. THEORETICAL FRAMEWORK

2.1 Introduction

This chapter presents the theoretical framework of this thesis, starting with the definition of corporate governance and review of some corporate governance theories; agency theory, stewardship theory and resource dependency theory as mechanisms of corporate governance. This is followed by the review of corporate governance model in Nordic countries, specifically for each country of this study.

2.2 Definitions of Corporate Governance

The term corporate governance has gained a lot of attention recently due to increasing concern about fraudulent financial practices and reporting. The concept has become popular among different categories of people such as regulators, academics and professional bodies. Many researchers have defined corporate governance, and these definitions have been classified as either narrow or broad definition. The narrow definition of corporate governance focus directly on shareholders’ interest; it is based on protecting and maximizing the shareholders’ value while the broad definition of corporate governance extends the narrow definition by focusing on the stakeholder which includes; customers, suppliers, employee, government and the general public. The broad definition is based on protecting the interest of both shareholders and stakeholders.

Cadbury report (1992), describe corporate governance as the way by which firms are being directed and controlled. Consequently, Keasey et al. (1997) defined corporate governance as the structures, processes, cultures, and systems put in place for organizations to achieve their short and long-term objectives. In addition, Shleifer and Vishny (1997), described corporate governance as the ways in which investors assure themselves of return on their investment and that managers do not steal or invest their capital in a bad project. It is a means of assurance to the shareholders that the managers are running the companies in their interest. Therefore, it could also be referred to as a way of mitigating agency problems in the firms. The owners of
the business (principal) appoint managers (agent) to manage the operations in their interests; thus, agency problems occur as a result of the conflict of interest between the principal and the agents.

2.3 Corporate Governance Theories

This section reviews three major theoretical perspectives of corporate governance mechanism that are considered relevant for this thesis. The theories are agency theory, stewardship theory, and resource dependency theory. Agency theory deals with maximization of shareholders interest by reducing agency problems, it provides a powerful theoretical basis and testable hypotheses for explaining the relationships and suggesting solutions for the agency problems between shareholders and managers, how to mitigate agency conflicts and enhance shareholder returns, resulting in better firm performance (Fama and Jensen, 1983).

According to Liu and Fong (2010), the ability of management to devise and implement strategic decision-making is key to firm performance, and inconsistent with the provision of agency theory, managers are prone to act in their interests, potentially at the expense of the interests of shareholders/stakeholders, if their objectives are misaligned due to inadequate monitoring, bonding, and compensation. Corporate governance mechanism ensures the alignment of both managers’ and shareholders’ interests, thereby enables to improve their performance and maximize shareholders wealth.

In addition to agency theory, are stewardship and resource dependence theories. These theories provide an explanation about the responsibilities of boards of directors and how it affects firms’ performance. However, there is overlap between these theories and agency theory in some aspect. These theories will be discussed in the following sections.
2.3.1 Agency Theory

Agency theory presents a view of how managers perform or behave. Conflicts of interest arise in corporate relationships as a result of misalignment of the shareholders’ interest by the managers, here, the managers are assumed to be opportunistic. Therefore, agency theory view managers and shareholders relationship as a principal and agent relationship, where the owners are the principals and managers are the agents (Jensen and Meckling, 1976). Concerning the reward of the managers, the principals need to monitor and measure managerial effort level of the managers to reward them correctly. The core assumptions of agency theory are as follows:

• Managers are opportunistic (Jensen and Meckling, 1976);

• There is asymmetric distribution of information between managers and shareholders (Sappington, 1991); and

• Both principal and agent are rational.

Consequently, agency theory holds that the problem of asymmetry information results to agency cost. Agency costs comprise of bonding costs, monitoring costs and residual losses (Jensen and Meckling, 1976). Bonding costs can be classified as a financial or non-financial cost; they are the cost of setting up systems or structures to ensure alignment of managers and shareholders interest or cost of compensating the managers according to their performance. Monitoring costs are incurred to monitor managers’ activities. Residual losses occur due to the misalignment of interest and failure of bonding and monitoring costs. In other words, residual loss is the loss incurred when the cost of bonding and monitoring is more than the benefit to be derived.

In addition, asymmetric distribution of information also results in adverse selection and moral hazard problems. In support of this, Eisenhardt (1989), opined that principals face adverse selection problem due to their inability to correctly verify the skills the agent claims to possess at the time of contracting, therefore, they might not be able to select the best applicant. The moral hazard problem occurs when agents
are after their self-benefit or personal gains at the expense of principals’ interest. The sources of these problems are related to many factors such as availability of free cash flow, earning retention and shirking, value-destroying merger and acquisition, managers’ investment decisions (over or under investment) and empire building, (Hope and Thomas, 2008; Jensen, 1986; Shleifer and Vishny, 1986; Dhumale, 1998).

Moreover, Agency theory proposes that independent directors play an important role in monitoring and supervising executives, due to the assumption that they are independent and concerned with their own reputation; thus the independent directors can add value to firms as a result of the monitoring role (Fama and Jensen, 1983). In addition, Shleifer and Vishny, (1986), reported that existence of large and controlling shareholders helps to reduce agency problems because they have incentives and capacity to monitor the activities of the manager.

In conclusion, agency theory suggests that managers are less likely to work in the interest of the owners, thus it results to misalignment/divergence of shareholders interest and in order to reduce this problem the shareholders need to employ an internal corporate governance mechanism to monitor managers’ conducts and ensures the managers are performing their responsibilities to maximizing shareholders value and improve firm performance.

2.3.2 Stewardship Theory

Stewardship theory assumes managers possess sufficient self-motivation to act in the best interest of the shareholders. This theory suggests that a manager does not exhibit pure self-serving behaviour due to factors such as moral reasoning, reputational capital, and manager’s commitment to the firms’ value. Stewardship theory arises from psychology and sociology rather than the economics of agency theory.

Advocates of stewardship theory argue that managers under stewardship approach identified more with the firm and are more intrinsically motivated. According to Muth and Donaldson (1998), managers require some discretion to manage the
business for shareholders effectively. Therefore, financial gain is not necessarily the sole driver of managerial behaviour. However, this does not deny that managers may work mainly for financial gains. Stewardship theory holds that managers are more concerned about their reputation; therefore, the manager will protect the interest of the shareholders and perform efficiently thus, agency cost would be minimized. Donaldson and Davis, (1994), reported that stewards concern for their career progression enables them to act in support of shareholders interest, thereby reducing agency cost. Consequently, Clarke (2004), identifies the factors that enhance positive contributions of managers to the firm performance as psychological and socio-cultural factors. This means that managers perform better with greater job satisfaction, sense of belonging and empowerment.

Additionally, stewardship theory assumed that managers perform optimally in an environment where accomplishment of tasks and control are combined in a single process. As pointed out by Clarke (2004), an organization with collectivist orientation will enhance the loyalty of the manager towards the firm and efficient firm performance. Collectivism improves joint decision making and achieving group goals; therefore, the emphasis on collective rather individual has a more significant implication on longer term relationship and performance of the firms.

Regarding board structure, Donaldson and Davis (1991) opined that CEO duality would make leadership and control, particularly regarding decision making and strategy more consistent, which will contribute to improved performance. This theory holds that an insider-dominated board is more efficient due to the more in-depth knowledge of organizational operations, such as access to data and technical expertise (Muth and Donaldson, 1998). The inside directors are presumed to be more efficient because of their knowledge of the firm and daily encounter with the firm activities. Therefore, advocates of stewardship theory believe that board with a more substantial number of insider director will perform better than the board with a large number of independent directors because of their reduced ability to monitor the managers.
2.3.3 Resource Dependency Theory

Resource dependency theory is primarily concerned with access to resources by the firm such as capital and expertise. The perspective of this theory is less firm-centered and more materialistic. Pfeffer (1973) concur that boards of directors help companies to have greater access to resources or finance needed to improve firm performance. Particularly, this theory favours board with a higher number of independent directors because such composition has members with diverse expertise and greater knowledge and can also provide an external link for firms to get more resources for firms to improve their performance. In addition, they can improve access to resources by enhancing networking with the external business environment such as; customers, creditors, governments, other companies and suppliers (Kiel and Nicholson, 2003). This enhances cheaper access to resources and thus improves firm performance.

Pearce and Zahra (1992) argued that the presence of the outside directors would result in improving the efficient organization strategies by providing the firm with new viewpoints and perspectives, which will ultimately improve the financial performance. In addition, they opined that board diversification would enable the firm to survive by benefiting from the exchange of the company resources with its environment. Similarly, Pfeffer and Salancik (1978) reported that background of independent board members and board diversity are essential elements in managing company’s access to finance from external business environment.

The resource dependence theory identifies methods by which firms gain access to financial resources. As pointed out by Mizruchi and Stearns (1988), financial institution representatives should be appointed to the board. Similarly, Stearns and Mizruchi (1993), study provide evidence that there is a significant relationship between firms borrowing strategy and financial representative identities. For the board to use external linkages to improve the firm performance, Hermalin and Weishbach (1988), suggest that experienced independent directors should replace inside directors when the firm performance deteriorate. Apparently, firms often wish
to appoint financial directors on the board if the prices of the stock drop or the firms’ performance worsen (Kaplan and Minton, 1994)

In conclusion, this theory holds that the operational environment of the firm is reflected in its board composition and organizational structure (Mizruchi and Stearns, 1988; Hermalin and Weishbach, 1988; Pfeffer, 1972). The theory required that directors should be selected based on their ability to facilitate access to resources needed for the company to perform efficiently.

2.4 Corporate Governance in Nordic Countries

Corporate governance system in Nordic countries resembles that of the industrialized world and meets the highest international standards; however, it differs in some respects from the Anglo-Saxon and European Continental models (Nordic Corporate Governance, 2009). Although the corporate governance systems are relatively similar for each country, they have slightly different board systems. Depending on how the boards are organized in a firm, the board systems can be classified into a one-tier or a two-tier board system.

The one-tier system combines the two boards into one, and strongly emphasizing outsider and insider members; while in the two-tier system, the management board and the board of directors are kept separate. The governance structure in Finland, Sweden and Norway, composed of the executive committee, which usually consists of the CEO, and the board of directors. The Danish system, on the other hand, has two separate bodies, which are the executive board and the supervisory board.

Regarding agency theory, the Nordic model required that board should be independent of the company and there should be a separation between CEO and Chairman of the Board; hence, the majority of the Nordic listed companies have entirely or predominantly non-executive boards. Agency theory in Nordic context addresses how board composition characteristics of Nordic listed firms might help to align the interest of owners with the managers. Bøhren and Strøm (2006), emphasize
how board effectiveness is a product of incentive alignment, information access, and board diversity.

Agency theory is relevant to Nordic listed companies because of conflicts of interest, which can easily arise in connection with interlocking board membership (Oxelheim and Randøy, 2003). According to Trond Randøy et al. (2006), the companies may be experiencing conflict of interest due to many outside directors sitting on several boards, which might make it difficult to achieve a well-functioning domestic labour market. Consequently, to mitigate conflict of interest, agency theory proposes that there should be adequate incentive to motive the executive directors and a high degree of board independence (Cotter & Shivdasani, 1997) for effective monitoring of the managers.

Stewardship theory is also essential in explaining how top management behaves, the theory holds that the leadership role assigned to managers enables them to act in the interest of the shareholders (Zahra et al. 2008). In Nordic context, the boards of Nordic listed firm are responsible for the administration and appropriate organization of the firms' operations. The boards appoint and discharge the managing director, approve the strategic objectives and the principles of risk management for the company, and ensure proper operation and supervision of the management system (Nordic Corporate Governance, 2009).

Also, the board of directors ensures that the company has established the corporate values applied to its operations. The boards of Nordic listed companies are compelled to promote the best interest of the company and all its shareholders (ibid). Therefore, the boards of Nordic listed firms are assigned to the overall leadership of the firms. Additionally, supporters of stewardship theory argued that the leadership decision is ordered such that reorganizational and collectivistic decisions have higher utility than self-serving behaviour and individualistic (Donaldson & Davis 1991).

Proponent of resource dependency theory argued that the presence of the independent directors would result in improving the efficient organization strategies by providing the firm with new viewpoints and perspectives, which will ultimately
improve the financial performance (Pearce and Zahra, 1992). In Nordic context, board committees have become important in many countries including Finland, Denmark, Norway, and Sweden. The study of Ahern and Dittmar (2010), reported that companies choose boards to maximize firm performance. They addressed some politically incorrect findings, namely that the Norwegian quota law has resulted in a significantly negative impact on company performance. For further illustration, Nordic corporate governance system requires that the board should comprise of members who enhance the efficient performance of the board and achieve the organizational goals.

There is a reason to believe that Nordic firms will benefit from the increased board diversity because it indicates that the quality of the board’s strategic decisions increases which is also the theoretical underpinning in the resource dependent view. As pointed out by Goodsterin et al. (1994), board members with a highly diverse background can provide link with the companies stakeholders, such as consumers and communities, which can be used to penetrate competitive markets and achieved the organizational goal.

2.4.1 Finnish Corporate Governance

The Finnish Corporate Governance Code is a collection of recommendations on good corporate governance for listed companies, and these recommendations supplement the obligations outlined in the legislation. The purpose of Finnish Governance Code is to maintain and promote high quality and international comparability of corporate governance practices applied by Finnish listed companies. In addition, the objective is to harmonize the procedures of listed companies and to promote openness with regard to corporate governance and remuneration, for investors, the objective is to increase the transparency of corporate governance and the ability of shareholders to evaluate the practices applied by individual companies. The Finnish Corporate Governance Code applies to all businesses that are listed on Nasdaq Helsinki Ltd1 (Helsinki Stock Exchange) and uses the term ‘company’ to refer to a listed company as the majority of the recommendations are directed to the listed company as the parent company of a
group. The Finnish Corporate Governance Code uses the term ‘publish’ to refer to the provision of information specifically by means of stock exchange releases while for the other ways of disseminating information which required detailed explanation, the Code uses the terms ‘report’, ‘disclose’, and ‘make available’ (Finnish Corporate Governance Code, 2015).

The Finnish corporate governance model can be described as a flexible and an efficient model. The model promotes strong ownership role; however, it is balanced by the qualified majority requirements, principle of equal treatment, minority shareholders’ right and clear division of responsibilities among company’s management. Therefore, good corporate governance of Finnish listed companies comprises of the combination of laws and decrees issued, as well as self-regulation by the firms and other best practices. Finnish listed companies are also bound by the EU-level regulations, Rules of the Helsinki Stock Exchange, as well as the regulations and guidelines issued by the Financial Supervisory Authority (ibid).

Finnish corporate governance code recommends that the board should consist of three to ten directors and consist exclusively of independent directors for the majority of Finnish listed companies. Also, the boards of directors are appointed by the general meeting, and the board size depends on the provisions of the company’s articles of association and the general meeting’s decisions. The boards are responsible for the administration of the company and the appropriate organization of its operations. They appoint and discharge the managing director, approve the strategic objectives and the principles of risk management for the company, and ensure proper operation and supervision of the management system. The board of directors also ensures that the company has established the corporate values applied to its operations. The board of directors must promote the best interest of the company and all its shareholders; therefore, a director does not represent the interests of the parties who have proposed his or her election as a director (ibid).

The boards of directors of Finnish listed companies mainly consist of non-executive directors. A non-executive director is a person with no employment or service contract with the company. However, the managing director is a member of the
board of directors of some companies. The composition of the company’s board of directors shall reflect the requirements set by the company’s operations and development stage. A person elected as a director must have the competence required for the position. In addition, the directors should have sufficient and versatile expertise as well as mutually complementary experience and knowledge of the industry. The board size of Finnish companies is such that enable the board of directors to see to its duties efficiently. Concerning gender diversity, both genders are represented on the board of directors. This is one element of diverse board composition. According to Finnish Corporate Governance, the board of directors shall evaluate the independence of the directors and majority of the directors are supposed to be independent of the company. At least two of the independent directors shall also be independent of the significant shareholders of the company (ibid).

2.4.2 Swedish Corporate Governance

The Swedish Corporate Governance Code serves as a complement to legislation and other statutory regulations. The code specifies a set of norms for good corporate governance at a higher level of ambition than the statutory provision. Although this norm is not mandatory, the Companies are required to provide deviation report, describe their solution and explain their reason for deviation. Presently, there are two regulated markets in Sweden, Nasdaq Stockholm and NGM Equity and the Code apply to all of these companies. The Code may also be used voluntarily by other listed and non-listed companies (The Swedish Corporate Governance Code, 2016).

The Swedish corporate governance framework is distinguished from that of many other countries by several features, mainly concerning its long tradition of self-regulation, the structure of corporate governance, and concentrated ownership dispersion. Swedish corporate governance is regulated by generally accepted practices and written rules. The framework includes the Swedish Companies Act and the Swedish Annual Accounts Act. The Swedish Companies Act stipulates companies to have three decision-making bodies in a hierarchical relationship to one another: the shareholders’ meeting, the board of directors and the chief executive
The Swedish Corporate Governance Board is charged with monitoring and analysis of the application of the code in practice and ensures whether the introduction of any modifications or changes deemed necessary and appropriate. Three years after the introduction of the code, the board reviewed the code’s application to cover all companies listed on regulated stock markets in Sweden. On 1 July 2008, the revised code became effective and applied to all Swedish companies listed on the OMX Nordic Exchange Stockholm and NGM Equity, around 300 companies. The board must provide norms for corporate governance of Swedish listed companies, though the board does not have a supervisory role with regard individual companies’ application of the code. It is the responsibility of the respective stock exchanges on which the companies' shares are listed, hence the actors on the capital markets have to determine to what extent a company's application or non-application of the rules is satisfactory in an investor perspective (ibid).

The board should consist of a minimum of three members, one of whom is to be appointed as Chairman. The chair has particular responsibility for leading the work of the board and making sure whether it fulfills all its legal obligations. It should be specified the board’s ways of working in written Rules of Procedure. The Boards of Swedish listed companies are composed entirely or predominantly of independent directors. As stated in the code the majority of the board members must be independent of the firm and its management (ibid).

According to Swedish Corporate Governance Code, the board should have a composition that enables it to perform efficiently and achieve the organizational goals thus; the board composition should be appropriate to the firms’ operations,
development phases, and relevant circumstances. The board composition should fulfil the following conditions; board members must have diversity of qualifications, experience, background and equal gender distribution. No more than one board member is expected to hold executive position in the management of the company or a subsidiary; the majority of the directors should be independent of the company, and the independence is determined by full assessment of all factors that may question the directors’ objectivity and integrity; also, at least two independent board members must be independent of the company’s major shareholders (ibid).

2.4.3 Danish Corporate Governance

The Danish Corporate Governance Code enhances value creation and as well contributes to the achievement of long-term goals by companies. These code aims to promote confidence in corporations through the provision of timely information as well as transparency. The underlying philosophy is that it should be attractive to invest in companies. Therefore, the target groups for the recommendations are Danish companies with shares admitted to trading on a regulated market, that is, the publicly traded companies. However, the recommendations or parts thereof may also motivate non-listed companies (Recommendation on Corporate Governance, 2014).

The management structure in Denmark comprises of two governing bodies, which are the supreme and the central governing body. Supreme governing body has two groups; one - board of director with an executive board and a board of director and two - supervisory board in companies with an executive board and a supervisory board. The central governing body also composes of two groups; one – board of directors with an executive board and a board of director and two - the executive board in companies with an executive board and a supervisory board. Danish listed companies are free to choose from the two management’s structures although for all the management models the executive board of the company is in charge of the day-to-day management. This is common to both management structures (ibid).

The boards of directors of Danish listed firms are responsible for the overall and strategic management of the company to ensure improved performance and value
creation. They must present the strategic goals of the firms and ensure availability of necessary resources to achieve the objectives. The resources can be in the form of financial resources, competencies and appropriate organization of the activities of the company. The board of Danish listed firms have the power to retain or dismiss the executive directors; also, they ensure that remuneration of the executive directors reflects the long term value creation of the companies and the results otherwise achieved by the executive directors. Danish boards are responsible for the protection of shareholders interest with consideration for other stakeholders (ibid).

The board composition of Danish listed companies should be such that enable the board member to execute its strategic, managerial and supervisory tasks. It is essential that the members of the board of directors always act independently of special interests. The corporate governance code requires that the board member should have the necessary skill, there should be diversity in the board to improve quality of their work and at least half of the directors should be independent. This will enable the board member to act objectively and independent of special interest (ibid).

2.4.4 Norwegian Corporate Governance

The objective of Norwegian Corporate Governance Code is to regulate the division of responsibilities among the executive management, the board of directors and the shareholders. This corporate governance code is more than the requirement of the legislation for Norway listed companies. Similar to the Danish governance code, the codes also serve as a complement to the existing statutory regulations. The Code of Practice is expected to strengthen the confidence of shareholders, the capital market and other interested parties about the performance of Norwegian listed companies. Also, it is required for companies by the Norwegian Accounting Act to provide a report on their policies and practices for corporate governance. This mainly relates to companies whose shares are listed on regulated markets in Norway. (The Norwegian Code of Practice for Corporate Governance, 2012).
According to the code of practice, the board of directors should not include executive personnel. However, the company should explain and implement significant adjustments to the organization if the board does include executive personnel. The Board Chairman is elected at the general meeting as long as the Public Companies Act does not require that the Chairman must be appointed either by the board of directors or by the corporate assembly. Regarding the term of office for members, the code requires that the board of directors should not be longer than two years at a time in a board. Also, the annual governance report should provide information about the expertise of the members of the board of directors, and information on their record of attendance at board meetings. In addition, members of the board of directors should be encouraged to own shares in the company. Similar to other countries above the boards of directors are responsible for overall and strategic management of the companies and should evaluate their performances annually (ibid).

Norwegian board composition should be determined such that it represents a broad cross-section of the company’s shareholders. The composition of the board should ensure that board member can perform their roles efficiently as a collegiate body. The board should be able to attend to the common interests of all shareholders and meets the company’s need for expertise, capacity, and diversity. The composition of the Norwegian board of directors should ensure that board members can operate independently of any special interests. Consequently, the majority of the elected board members should be independent of the company’s executive personnel and material business contacts and at least two of the members of the board of directors, who are independent, should be independent of the company’s main shareholders (ibid).
3. EMPIRICAL REVIEW ON BOARD COMPOSITION AND FIRM PERFORMANCE

3.1 Introduction

Corporate governance mechanisms have been explored by many studies, particularly regarding board composition and how the alignment of the shareholders’ and the managers’ interests improve firm performance. Mitigating agency problems results in the alignment of shareholders and managers’ interests thereby enhancing the firms' value maximization and increase better performance. Thus, this chapter presents the theoretical and empirical review on the selected characteristics of board composition and firm performance.

3.2 Board of Directors

The board members play an essential role in controlling moral hazard by the managers and ensuring the alignment of interest of company with the interest of shareholders. Board of directors can be defined as a body entrusted with the power to make economic decisions affecting the well-being of investors' capital, employees' security, communities' economic health, and executives' power and perquisites (Banks, 2004). As indicated by Brennan (2006), the boards of directors can mitigate agency cost through active monitoring of the managers.

From agency cost perspective, Ho (2005), opined that the board of directors plays an essential role in mitigating agency cost and ensures the alignment of interest of shareholders and the fulfillment of companies' obligations towards those shareholders. Similarly, Fama and Jensen (1983), identify board of directors as the body, which oversees managers' performance and ratifies their decisions to ensure that executives are working in the interests of shareholders. Therefore, the board of directors needs to be collectively responsible for achieving their objective.

Fama and Jensen (1983) in their study identified the process of the board of directors' involvement in the corporation in four steps. First, the board plan and propose how the companies' resources will be utilized. The second step is making decision initiatives that need to be implemented. The third step is applying those
initiatives, and finally monitoring the implementation process and taking the corrective action when there is any deviation from the decision implementation. For the board to be successful, all members must be active and participate in the decision-making process.

According to Hermalin and Weisbach (1988), the major conflict within the boardroom is between the directors and the CEOs, since the latter have the incentive to control the board to maintain their positions and to increase their interests and benefits. However, they also suggested that if the boards of the director were independent, this would motivate the directors to monitor the CEO behaviours. In addition, Fama and Jensen (1983), proposed that the majority of board members should be non-executive directors, who are supposed to act independently and as mediators in disagreements among top executives and search for the replacements of the internal managers.

3.2.1 Role of Board of Directors

The fundamental role of the board is monitoring the functions of managers to minimize conflict of interest that arises from the principal-agent relationship. Mainly, principals are the owners, agents are the managers and the board of directors acts as the monitoring mechanism. The agency problem occurs as a result of the divergence of interest by the managers, that is, the managers pursue their interest rather than the interest of the shareholders, therefore, the shareholders appoint the board of directors to oversee the activities of the manager. Jensen and Meckling (1976), assert that misalignment of interest and the need to manage agents causes the firm to incur agency costs, which include monitoring cost, bonding cost, and residual losses.

Boards of directors are responsible for ensuring perfect organizational management to ensure perfection (Strebel, 2004). They have to provide the executive team with strategies that will enable them to achieve both organization's short-term and long-term objectives. Other responsibilities of the boards include; making decision on merger and acquisition, responding to takeover bids and takeover defence.
Also, the board played an essential role in appointment and replacement of the CEO. Hermalin and Weisbach (1998), suggested that the board of directors’ role is to decide if it is better for the firm to keep its CEO or to replace him/her. They further argued that an indicator for the board to take this decision could be provided by the firm performance, for example, share price, return on assets, and market value.

3.3 Characteristics of Board Composition

Researchers have used several indicators for board composition such as board size, board independence, transparency, CEO duality, ownership structure, board diversity, board tenure, board remuneration, among others, to study its impact on firm performance for different countries. The following paragraphs review empirical studies on board composition characteristics for this thesis and firm performance measures; each board composition characteristics is followed by the hypotheses that are developed from the discussion.

3.3.1 Board Size

Board size is the total number of directors on corporate board. The average size of board varies among companies and across countries. According to Carter and Lorsch (2004), the average board size in Europe is around thirteen. The agency model suggests that as board size becomes large, the agency problem related to free rider cost increases, therefore, the board becomes more symbolic and less a part of the management process (Hermalin and Weisbach, 1998). Thus, larger boards were found to be characterized by the decreased ability of directors to criticize top managers and to analyze and discuss firm performance seriously (Lipton and Lorsch, 1992).

The reduced ability of the large board to monitor managers results in managers pursuing personal interest rather than shareholders' interest. Large boards are less efficient and more likely to face high costs to monitor managers' performance (Jensen, 1993). Therefore, small boards are perceived to be more active and flexible. However, this should not eliminate the fact that companies can also benefit from
substantial board size. Large board size can enhance firm performance by providing more excellent qualified recommendations and establishing external links for the firm to have access to resources.

There have been mixed results regarding the relationship between board size and firm performance; some works of literature assert that there is no relationship while some reported a positive or negative relationship between board size and firm performance. The study of Yermack (1996), analyzed the effectiveness of the small board of directors in large U.S. industrial corporations. The result shows that companies with lower board size exhibit better values for financial ratios, also, financial ratios for profitability and operating efficiency declined as board size increased. The study revealed that the incremental cost would increase as board size increases, and the company with small board will have higher market value.

A similar result was found from the study of Eisenberg et al., (1998), on small and medium-sized Finnish companies. The result shows a negative relationship between the board size and the firm profitability measured by return on assets (ROA). Guest (2009), examined the impact of board size on company performance for a large sample of UK listed firms during 1981-2002. The result confirms that board size has a substantial adverse effect on companies' performance. Also, Conyon & Peck (1998), found a negative relationship between board size and firm performance.

Conversely, other researchers reported that there is a positive relationship between board size and firm performance. Evidence from Haniffa and Hudaib (2006), shows a positive relationship between the board size and the firm performance as measured by ROA. This result is in contrast with their prior finding of a negative relationship between board size and the firm performance measured by Tobin's Q. Particularly, they found that more extensive knowledge base inherent in larger boards facilitates better business decisions to reduce agency problem.

Result from Sanda et al., (2005), shows a positive correlation between board size and firm performance measured by return on equity (ROE). They provide evidence that large boards have better access than smaller ones to the external environment by
offering better chances to have a vast resource for finance and raw materials. This report is in line with resource dependence theory that large boards provide greater access to their firm external environment, which facilitate and secure critical resources and reduces uncertainties (Pearce and Zahra, 1991).

Similarly, Kiel and Nicholson (2003), found a positive relationship between board size and firm performance measured by Tobin's Q. They argued that larger board size is more likely to be more watchful for agency problem because a more significant number of experts will add value in assessing the managements' activities. Also, Miller (2003) and Dalton et al. (1999) argued that larger board size is better than small board size in improving firm performance. They say that in small boards the dominant position of the CEO enable him to override the decisions made by the board members by following their interests leading to increasing the agency and correspondingly undermining the performance of the firm (Miller, 2003).

Finally, Ho and Williams (2003); Mangena and Chamisa (2008); and Topak (2011), reported that there is no relationship between the board size and firm performance. Based on the evidence above, there is no consensus as to whether larger or smaller boards are better to monitor the firm performance. Therefore, the following hypothesis is developed:

\[ H1: \text{There is a significant association between board size and firm performance} \]

### 3.3.2 Gender Diversity

Gender diversity implies a fair representation of men and women on board of directors. Over a decade now, there has been focus on women representations on board and top executive positions in many countries due to the low ratio of women representation in board in the past. According to Marinova et al. (2010), increased firm performance is a result of board gender composition, which implies a higher number of women on the board and top executive positions.
In Nordic countries, there has been a high record of women representation on board of directors, mainly, Finland has a high number of female board members, and there are regulations on the proportion of women directors in Norway. Although the political implications of gender diversity vary extensively across Nordic countries, in Norway the equity argument has become law. The Norwegian public firms are required to have a 40% minimum of female on board since 2006. If an individual company does not meet this requirement within due time, this will result to forced deregistration of such firm. For Swedish listed companies, a similar law was proposed, and in 2016 the percentage women on Swedish board increased by 3.2%.

The inclusion of women on board is perceived to enable firms to improve performance and gain competitive advantages. Female members on board tend to bring a more collaborative approach to leadership, which enhances effective communication management on the board (Konrad and Kramer, 2006). As pointed out by Burke (2003), having women on board will reduce the likelihood of more corporate board crisis thus enhance efficient performance by the board. Also, Carter et al. (2003), reported a positive association between the percentage of women on board of directors and firm value.

Moreover, the result of Richard and Chadwick (2003), study shows to some extent, a supporting view that gender diversity enhances firm performance especially for firms that focus on growth. Similar to this, Smith et al. (2006), reported that female board member elected by the staff and female managers with a university education has a positive impact on firm performance. In addition, Erhardt et al. (2003), reported a positive association between gender diversity and firm performance. They explore the relationship between female board members and corporate performance by examining the connection between the demographic diversity of board members with firm financial performance using ROA and investment as the performance measure.

However, Dezso and Ross (2008), reported a negative relationship between female CEO and firm performance. Also, Bøhren and Strøm (2006), reported a negative relationship between female representation on board and financial performance.
Further, Rose (2007), study shows an insignificant relationship between female board representation and firm performance. Additionally, the result of Trond Randøy et al., (2006), indicates no effect of gender diversity on the corporate performance. They further suggest that increase in board size due the recruitment of a female member may be an indirect cost in terms of a value decrease. Due to the inconclusive results, I propose the following hypothesis.

*H2: There is a significant association between gender diversity and firm performance*

### 3.3.3 Board Experience

The corporate governance code of the four countries requires that the board member should have the necessary skill, and experience to improve quality of their work. In most literature, the average number of years each member has been a board member was often used as a proxy for board experience. Board experience is a less studied variable in the relationship between board composition characteristics and firm performance. However, board experience is beneficial when the task involves complex decision making. It is crucial to study board experience because it is an ideal measure to capture the trade-off between knowledge accumulation and independence. Longer board tenure increases firm-specific knowledge, thereby improving firm performance. On the contrary, Fracassi and Tate (2011), suggest that increased familiarity between the board member and executive management can threaten the objectivity and independence of the board member, which can decrease firm performance.

On the impact of board experience on firm performance, Coles et al. (2008), reported that firm with complex task requires insider representation with greater firm-specific knowledge as this affect the quality of their advice. Besides, board members with increased firm-specific-knowledge make better acquisition decisions Masulius et al. (2007), higher chance of engaging in innovation (Hirshleifer et al. 2012), and better disclosure of value-relevant information in the financial statement (Khan and Watts, 2009). Empirical evidence from Huang Sterling (2013), reveals that board
experience has a positive effect on firm performance, the report extended that firm value reaches the maximum level at a board tenure of nine years.

Consequently, Chamberlain (2010), and McIntyre et al. (2007), reported that there is a positive association between board experience and firm performance, but the effect is non-linear. Chamberlain (2010), further argued that the accumulated learning and power effects of long tenure enable board members to perform adequately. However, the study on commercial banks by Fiegener et al. (1996), shows a slightly different result when they found a significant and positive linear relationship between board experience and firm performance. Fiegener et al. (1996), hypothesized that it might take several years for board members to become effective and those senior directors tend to have a more significant influence on the board. They also proposed that senior directors are less susceptible to group pressure and more objective in their opinions and decisions, which makes them more efficient in their role as a director.

As pointed out by Kosnik (1990), longer tenure does not only improve firm performance but also enable the board members to develop a sense of comradeship and collectively they are better able to evaluate top management proposals effectively. Interestingly, there seems to be a positive relationship between board experience and firm performance. Although, most of the previous studies recommend that board member should serve over a long time to have adequate expertise that will improve firm performance. Based on earlier pieces of literature I proposed the following hypothesis:

\[ H3: \text{There is a significant association between board experience and firm performance} \]

3.3.4 Board Independence

The research on board composition has also focused on the relationship between board independence and firm performance. Board of directors is classified into two categories; (1) the executive, which are personnel such as managers and directors, and (2) the non-executive directors who are also referred to as independent directors.
Siegel and Shim (2006), defined executive directors as individuals on the board who is an employee of the firm. While independent directors are those directors that do not have any other material pecuniary relationship or transaction with the company, it’s promoter, management or its subsidiaries which can affect their independent judgment (Mallin 2006).

Arguments have been put forward to why outside directors are more reliable and efficient than inside directors, however, the combination of both inside and outside directors is advised by most national and international corporate governance codes for competent governance. According to Fama and Jensen (1983), and Shleifer & Vishny (1997), a higher proportion of independent directors on board indicates improved monitoring and consequently reduced agency problems.

Also, Hermalin and Weisbach (1991), suggest that independent directors are more effective in monitoring the management activities and function as disciplinarians of managers, but they found no significant relationship between the proportion of independent directors in the board and firm performance. Consequently, the supporter of stewardship theory believes that independent directors are less able to monitor managers than executive directors due to their lack of specialist knowledge of firms' internal operations, the executive directors have a better chance due to their daily involvement in the organization activities.

Independent directors in some board could be executive directors in other firms; therefore, this might result in their inability to monitor the management efficiently. The manager may exploit the opportunity of reduced monitoring to achieve his/her gain rather than fulfilling his/her obligations to the shareholders. Hermalin and Weisbach (1991), argued that independent directors are not efficient because they often lack information about the firm, some of the directors do not have the requisite skills for the job and majority of them are too busy in their companies to make an effective contribution. Independent directors are part-time workers; therefore, they have little firm-specific knowledge, which results in their inefficiency to improve firm performance (Higgs Report, 2003).
Agency theory suggests that non-executive directors' representation in the board improves firm performance; however, there have been mixed empirical results. Victor Octavian Müller (2013), investigate the impact of 9 corporate governance characteristics of board composition and the sample consisted of the constituents of FTSE100 between 2010 and 2011. The result shows that board independence and proportion of foreign directors in the total number of directors have a significant strong positive impact on firm performance.

Also, evidence from the study of Khan and Awan (2012), shows a significant positive relationship between independent directors and firm performance measured by ROA, ROE and Tobin's Q. They argue that the higher the percentage of outside directors the better the performance of the firm. These results establish the view of agency theory and resource dependence theory, which propose that independent directors are efficient in monitoring the management and serve as a disciplining device. Further, Abbasi et al. (2012), reported a positive relationship between the number of independent board members and firm performance.

Conversely, Agrawal and Knoeber (1996); Bozec (2005); and Yermack (1996), provided evidence of a negative relationship between independent board members and some performance measures. Similarly, Kiel and Nicholson (2003), reported a positive relationship between the proportion of inside directors and market-based firm performance measures.

Results from others such as; Hermalin and Weisbach, (1991), Kumar & Singh, (2012), and Bhagat & Black (1999), provide no evidence for the relationship between board independence and firm performance. From an agency perspective, the independent directors are essential for monitoring and safeguarding shareholders' interests to reduce the agency problems and improve firm performance. Thus, I formulate the following Hypothesis:

\[ H4: \text{There is a significant association between board independence and firm performance} \]
3.4 Measurement of Firm Performance

Corporate performance can be classified into three categories: operational performance, corporate efficiency, and financial performance. Operational performance is the combination of the financial and non-financial performance of the firm; corporate efficiency pertains to the non-financial performance of the company, and; financial performance reflects the commercial success of the company and its ability to maximize shareholders' wealth and firm's value. Corporate performance measures serve as a monitoring tool to the manager and shareholders (Eccles et al., 2012). It reveals the quality of work done by the management. Therefore, it enables the management to assess themselves and improve their performance.

Firm financial performance can be classified into two categories; which are the accounting-based measures and the market-based measures. The most used accounting-based financial performance measures are ROA (Yermack, 1996; Kiel and Nicholson, 2003), and ROE (Bhagat et al., 1999), while the most used market-based measure is Tobin's Q (Yermack, 1996; Kiel and Nicholson, 2003). Other measures are Return on Investment (ROI), Net Profit Margin, Net Sales, Capital Employed Efficiency, Human Capital Efficiency, Structural Capital Efficiency, and Share Returns.

Accounting based measures pertain to the current financial performance of the firms while market-based measures are concerned with investors' perceptions of the firms' future performance. Both measures have its advantages; however, each group has been criticized by different scholars, and there is no conclusion on which measure is the best. As identified by Haniffa and Hudaib (2006), each measure has its strength and weakness; therefore, there is no specific measure to be the best proxy for financial performance.

ROA measures the rate at which firms generate profit from the use of total asset while ROE indicates how much profit generated relative to equity. A higher proportion of these ratios imply the efficient use of total asset and investment by management. In contrast with Tobin’s Q, Demsetz and Lehn (1985) opined that
ROA and ROE consider the year to year fluctuations in business conditions better than stock market return. This is so because stock market return reveals anticipated changes in future earnings with little or no current volatility in the business conditions. ROA is directly related to managements' efficiency; therefore, a lower rate will denote management inefficiency. For this reason, ROA has been selected as a proxy for firm financial performance for this thesis. Besides, different studies such as Kiel and Nicholson (2003), Carter et al. (2003) and Erhardt et al. (2003) used the ROA in examining the effect of the corporate governance on firm performance.
4. DATA METHODOLOGY

4.1 Introduction

The research design is the procedure and structure of investigation to achieve the purpose of the research. The procedure is the overall program of the research. This chapter presents the process by which the data were collected and analyzed. The first part introduces the source of data, criteria for sample selection, measurements of variables and then the statistical tool that was used to analyze the data.

4.2 Population and Sample Selection

A population can be described as an entire group of individuals, events or objects having common characteristics that conform to a given specification. The population of interest for this thesis comprised of all listed companies in Nordic countries (that is; Finland, Norway, Sweden, and Denmark) which were listed in Helsinki Stock Exchange, Oslo Stock Exchange, Nasdaq Stockholm and Nasdaq Copenhagen respectively for the period of five years from 2012 – 2016. This thesis excluded Iceland due to unavailability of data on board composition characteristics for listed firms in the country.

The availability of data is the main factor for including any company, therefore, the sample consists of 121 companies for the period of five years (2012 – 2016). The choice of these years was based on the intention to obtain the latest data to make the research more relevant to the interested parties. I also exclude financial companies because they are subjected to regulations, which are different from those for other companies (Guest, 2009). Further, financial institutions are governed by separate acts and subject to varying forms of regulation when compared to other sectors. For example in Finland and Sweden, banks are regulated and managed by a financial regulatory body, Finanssvallvonta (FIN-FSA) and Finansinspektionen respectively. Same applies to Norway and Denmark with their different financial regulators.

As pointed out by Lim et al., (2007), financial firms have a highly geared capital structure, which can considerably influence their financial performance; therefore,
this can lead to confusion or affect data analysis. Besides, most of previous studies on corporate governance and corporate performance also omitted financial firms from their sample (Chen et al., 2008; Mangena & Chamisa, 2008; Guest, 2009). The distribution of firms based on their countries is presented in table 1 below.

Table 1: Company Distribution

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of firms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>27</td>
<td>22 %</td>
</tr>
<tr>
<td>Sweden</td>
<td>45</td>
<td>37 %</td>
</tr>
<tr>
<td>Norway</td>
<td>24</td>
<td>20 %</td>
</tr>
<tr>
<td>Denmark</td>
<td>25</td>
<td>21 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>121</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

4.3 Data Collection

There are several websites offering data, finding the right source can become an overwhelming task (Armstrong et al., 2009). For this thesis, I extract the data for both board composition characteristics and firm's performance measures from Oulu Business School Data Stream database. In addition, few data were obtained from financial statements. This study entirely used data, which can be described as secondary documentary data. This includes written and non-written materials for example database, journal, emails, minutes of meetings, reports transcripts of speeches and administrative and public records, books, journals, video recording, diaries, newspaper and magazine (Saunders, Lewis and Thornhill, 2011).

4.4 Variables and definition

Three groups of variables were used to examine the effect of board composition characteristics on firm performance; these are the dependent variable, independent variable, and the control variables.
4.3.1 Dependent Variables: Measure of Corporate Performance

Firms' performance can be measured using accounting indicators, financial indicators or both. For this study, I used accounting measure, hence the proxy is Return on Asset (ROA). As pointed out by Eccles et al. (2012), managers and shareholders use performance measure as a tool for monitoring and control to drive performance in achieving the objectives of the organizations.

ROA is the profitability ratio that shows the ability of firms to generate profits from their total asset. It includes all available assets that contribute to generating earnings by the corporations. Return on assets measures how profitable firm is relative to its total asset. It is calculated as net income of the company divided by total asset.

\[
\text{ROA} = \frac{\text{Net Income}_{it}}{\text{Total Asset}_{it}}
\]

4.3.2 Independent Variables: Measures of Board Composition

Several board composition characteristics can influence firms' financial performance. However, the board composition characteristics chosen for this study were Board Size, Board Experience, Board Independence and Gender Diversity. Data for these variables were collected from Datastream. The measurement of each board composition characteristic according to Datastream is stated below;

- Board Size for this research is the total number of directors on the board.
- Board Experience is the average number of years each board member has been on the board.
- Board Independence is the percentage of independent directors; it is calculated by dividing the number of independent directors by the total number of board members.
• Gender Diversity is the percentage of female board members. This is calculated by dividing the number of female directors by the total number of board members.

4.3.3 Control Variables

In this study, the control variables are firm size, leverage, and liquidity.

Firm size is a control variable that is commonly used in earlier studies on corporate governance and its effect on firm performance. Examples include; Carter et al. (2003); Campbell & Minguez-Vera, (2007), Koch and McGrath, (1996), Baysinger & Hoskisson (1989) and Erhardt et al., (2003). According to Koch and McGrath (1996), a large firm can operate on a larger scale of operations and organizational settings. Therefore, firm size is expected to have a positive effect on companies' performance. For this study firm size was measured by firms' total asset and in the dataset, the natural logarithm was used to minimize the effect of extreme values.

The second control variable is leverage. Leverage means the firm borrows money to maximize their profit opportunities. Leverage may have a positive or negative implication on firm performance. A positive impact might occur as a result of monitoring by debtors. Jensen (1986), argued that high debt ratio would restrain the managers from using free cash flows for non-profitable investments or other managerial opportunism.

In contrast, Myers (1977) argues that high amounts of leverage may affect the firm performance negatively according to the problem of underinvestment. This is because firms may not be able to raise new debt for any investment opportunity due to increasing leverage level. Leverage has been used as control variables by researchers (Ho and Williams, 2003; Jensen 1986; Myers, 1977; Ross, 1977; Agrawal and Knoeber, 1996). In the dataset, the natural logarithm was used to minimize the effect of extreme values.
Leverage is measured as total debt divided by equity, as presented in equation (ii) below;

\[
\text{Leverage} = \frac{\text{Total Debt}_{it}}{\text{Equity}_{it}} \quad (\text{ii})
\]

Lastly, liquidity as a control variable affects firm performance due to rising conflicts and lack of trust in bad economic situations. Liquidity has a significant impact on company survival due to its implications concerning changes in sales dynamics, growth, financial costs reduction as well as its implications on company risk level (Jose et al., 1996).

Additionally, Fang et al. (2009) argue that liquidity reduces managers' opportunistic behaviour and enhance trade by informed investors, thus improving investment decisions. Higher liquidity ratio indicates the ability of firms to meet their current and internal financial obligation as at when due and mitigate any external shocks. Hence, a positive relationship between liquidity and performance is more likely to be anticipated. It has also been used severally in previous studies.

Liquidity is calculated as current asset divided by current liabilities.

\[
\text{Liquidity} = \frac{\text{Current Assets}_{it}}{\text{Current liabilities}_{it}} \quad (\text{iii})
\]

In the dataset, the natural logarithm was used to minimize the effect of extreme values.
Table 2: Board Composition Characteristics and Firm Performance Variables

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>The annual net income divided by the book value of total asset</td>
</tr>
</tbody>
</table>

### Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Size</td>
<td>Number of directors on the board</td>
</tr>
<tr>
<td>Board Independence</td>
<td>Percentage of Independent directors</td>
</tr>
<tr>
<td>Board Experience</td>
<td>Average number of years each board member has been on the board</td>
</tr>
<tr>
<td>Gender Diversity</td>
<td>Percentage of female directors on the board</td>
</tr>
</tbody>
</table>

### Control Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Size</td>
<td>Size of the firm measure by logarithm of firms' total asset</td>
</tr>
<tr>
<td>Leverage</td>
<td>Total debt divided by shareholders’ equity</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Current asset divided by current liabilities</td>
</tr>
</tbody>
</table>

4.4 Design of Empirical Analysis

The methodology implemented in this thesis is based on quantitative analysis. The initial stage of the analysis was the univariate analysis, which involved descriptive statistic such as mean, standard deviation, maximum and minimum. The descriptive statistics helps to understand the general description and feature of the data used in this thesis and to identify any outliers or missing data. Further, some of the variables were transformed into natural logarithm values to reduce variations and to increase their validity to the model. The descriptive statistics was followed by using the Pearson's correlation between the independent variables and between the performance measures to examine the interrelationship between these variables to gain more understanding of the relationship. The variables were checked for potential multicollinearity problem by examining the correlation values of variables included in the analysis and exploring tolerance and Variance Inflation Factor (VIF) values.
• **Analytical Model**

This study used multiple linear regression models. The multiple linear regression models sought to establish the relationship between board composition characteristics and financial performance of the listed companies through regressing factors such as board size, board experience, board independence and gender diversity within the period of interest. The regression model is shown in equation (iv) below:

\[
Y_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2 GENDER_{it} + \beta_3 BIND_{it} + \beta_4 BEXP_{it} + \beta_5 \text{LOGFIRMSIZE}_{it} + \beta_6 \text{LOGLEV}_{it} + \beta_7 \text{LOGLIQU}_{it} + \varepsilon \\
\]

Where,

\(Y_{it}\) is ROA_{it} for the ith firm at time t. \(BSIZE_{it}\) is the board size. \(BIND_{it}\) is the percentage of independent directors for the ith firm at time t. \(BEXP_{it}\) is the average number of years each board members have spent for the ith firm at time t. \(GENDER_{it}\) is the percentage of female directors for the ith firm at time t. \(\text{LOGFIRMSIZE}_{it}\) is the firm size for the ith firm at time t. \(\text{LOGLEV}_{it}\) is the firm leverage for the ith firm at time t. \(\text{LOGLIQU}_{it}\) is the firm liquidity for the ith firm at time t. \(\beta_0\) is the intercept, \(\beta_i\) is the regression coefficient of ith variable and \(\varepsilon\) it is the composite error terms, and the subscript i represents the different firms while t represents the different years.

Multiple linear regression is conducted using SAS Statistical Software to test the proposed hypothesis, and the inferential statistical techniques were done at 95% confidence level (that is, \(\alpha = 0.05\))

• **Robustness Check**

Robustness check was conducted to examine the sensitivity of the results. The test examined the effect of different industries between the independent and the dependent variables. According to Haniffa and Cooke (2002); and Lim et al. (2007),
corporate governance practices are different among industries due to the differences in ownership, capital structure, the complexity of operations, and business lines. The industry sector classification was based on general industry classification codes on Datastream. The industry was classified into six groups: industrial sector, utility sector, the transportation sector, bank sector, insurance sector and other financial services; however, banks were excluded from this study. Dummy variables are used to investigate this effect. The dummy variable value is 1 if the firm is in the industry or 0 otherwise.
5. DATA ANALYSIS AND INTERPRETATION

5.1 Introduction

As discussed in chapter four, a model was constructed to test the effect of board composition characteristics on firms' profitability. Thus, this chapter presents the descriptive statistics of data, univariate and multiple Ordinary Least Square analysis for the relationship between the identified board composition characteristics and the measure of financial performance. This chapter also presents the additional test conducted to examine the influence of industry variable on firm performance.

As presented in table 3 below, initially, the data collected for this thesis was 605 firm-year observations, however, after removing outliers and missing variables, the total number of the observations reduced to 552 firm-year observations.

Table 3: Data Collection Procedure

<table>
<thead>
<tr>
<th></th>
<th>Firm-year observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial sample</td>
<td>605</td>
</tr>
<tr>
<td>(-) Missing data</td>
<td>53</td>
</tr>
<tr>
<td>Final data</td>
<td>552</td>
</tr>
</tbody>
</table>

5.2 Descriptive Statistics

This section provides the result of the descriptive statistics of the independent variables for each country. Particularly, mean, median, standard deviation, minimum, and maximum of the variables. I present the descriptive statistics of independent variables separately for each country, for ease of presentation and to make it easier for the reader to identify the description of each country.

Finland Descriptive Statistics

Descriptive statistics of Finnish listed firms as presented in Table 4 below shows that average number of directors on Finnish board is 8, with a minimum of 5 and
maximum of 12. This indicates that the firms complied with Nordic Corporate Governance Code, which suggests that the board of directors should have a minimum of three members. The mean percentage of women on board members shows a mean value of 17.57% and a close median value of 16.67%. The female representation is minimum is 20% while the maximum value is 45%. Average mean of board experience 5.02 which is also close to the median of 5.06. Board experience of Finnish board members ranges from the minimum of 5 years to the maximum of 10 years. The mean of board independence is 31.44% and standard deviation of 36.10%. The percentage of non-executive directors ranges from 50% to 91.7%.

Table 4: Descriptive statistics of Finnish Listed Firms

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Size</td>
<td>7.99</td>
<td>8.00</td>
<td>1.58</td>
<td>5.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Gender Diversity</td>
<td>17.57</td>
<td>16.67</td>
<td>15.82</td>
<td>20.0</td>
<td>45.45</td>
</tr>
<tr>
<td>Board Experience</td>
<td>5.02</td>
<td>5.06</td>
<td>2.49</td>
<td>5.00</td>
<td>10.42</td>
</tr>
<tr>
<td>Board Independence</td>
<td>31.44</td>
<td>62.50</td>
<td>36.10</td>
<td>50.0</td>
<td>91.67</td>
</tr>
</tbody>
</table>

Sweden Descriptive Statistics

Result presented in Table 5 below show that approximately, average board size of Swedish listed firms is 10, which is almost the same value with the median value. Board size of Swedish listed companies ranges from minimum of 3 to 13. This description also reveals that the companies are fulfilling the requirements and the recommendations of Nordic Corporate Governance Codes. Regarding gender diversity the mean is 16.85%, standard deviation is 20.56% and the representation of women on Swedish board ranges from 0% to 67% approximately. Board experience results shows that the value of the mean and median is very close, 6.84 and 6.50 respectively. Further, the mean value of board independence is 38.89% with the median value of 46.15%, and it ranges from the minimum of 0% to 88.89%

Table 5: Descriptive statistics of Swedish Listed Firms

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Size</td>
<td>9.80</td>
<td>10.00</td>
<td>2.17</td>
<td>3.00</td>
<td>13.00</td>
</tr>
<tr>
<td>Gender Diversity</td>
<td>16.85</td>
<td>50.00</td>
<td>20.56</td>
<td>0</td>
<td>66.67</td>
</tr>
<tr>
<td>Board Experience</td>
<td>6.84</td>
<td>6.50</td>
<td>3.39</td>
<td>4.00</td>
<td>14.11</td>
</tr>
<tr>
<td>Board Independence</td>
<td>38.89</td>
<td>46.15</td>
<td>30.09</td>
<td>0</td>
<td>88.89</td>
</tr>
</tbody>
</table>
Norway Descriptive Statistics

Table 6 below presents the descriptive statistics of listed firms selected from Norway. The result shows that average board size is 8, with a minimum of 3 and maximum of 15. Corporate Governance Code in Nordic countries suggests that the board of directors should have a minimum of three members; therefore, this confirms that the Norwegian listed firms, on average have met the requirement of the Corporate Governance Code. Additionally, the minimum board size value is similar to the minimum of Swedish listed firms. The mean percentage of female board members shows an average of 16.85, median of 50% and standard deviation of 20.56. Gender diversity in Norway ranges from 0% to maximum of 67%. The maximum percentage reveals that the corporate boards of Norwegian listed firms have a moderate level of women on the board. The mean of board experience shows 4.83 is so close to the median of 4.82. Board experience ranges from minimum of 3 years experience to maximum of 23 years experience. Board independence reveals the mean value of 18.83%, which is not close to the median value of 50%. The reason for could be because of large difference between the minimum and maximum which range from 0% to 85.71%

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Size</td>
<td>8.40</td>
<td>9.0</td>
<td>2.27</td>
<td>3.00</td>
<td>13.00</td>
</tr>
<tr>
<td>Gender Diversity</td>
<td>16.85</td>
<td>50.0</td>
<td>20.56</td>
<td>0</td>
<td>66.67</td>
</tr>
<tr>
<td>Board Experience</td>
<td>4.83</td>
<td>4.82</td>
<td>39.93</td>
<td>3.00</td>
<td>22.92</td>
</tr>
<tr>
<td>Board Independence</td>
<td>18.83</td>
<td>50.00</td>
<td>28.18</td>
<td>0</td>
<td>85.71</td>
</tr>
</tbody>
</table>

Denmark Descriptive Statistics

As shown in Table 7 below, Danish board size range from 4 to 17 with an average number of 9 directors. Similar to other countries, this indicates compliance with Nordic corporate governance code on board size. Percentage of women on board ranges from 0% to 67% with the mean value of 15.27%. Surprisingly, the maximum value result for gender diversity is same with the maximum value for Norwegian and Swedish companies. In addition, the mean value of Danish board experience is 5.55
with median of 5.84. It ranges from the minimum of 4 years experience on board to maximum of approximately 13 years experience on board. Board independence shows a mean value of 30.73% and a close median value of 33.34%. The percentage of independent directors on Danish board ranges from 25.35% to 77.78%

**Table 7: Descriptive statistics of Danish Listed Firms**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Board Size</strong></td>
<td>9.53</td>
<td>9.00</td>
<td>2.42</td>
<td>4.00</td>
<td>17.00</td>
</tr>
<tr>
<td><strong>Gender Diversity</strong></td>
<td>15.27</td>
<td>11.11</td>
<td>15.97</td>
<td>0</td>
<td>66.67</td>
</tr>
<tr>
<td><strong>Board Experience</strong></td>
<td>5.55</td>
<td>5.84</td>
<td>2.93</td>
<td>4.00</td>
<td>12.83</td>
</tr>
<tr>
<td><strong>Board Independence</strong></td>
<td>30.73</td>
<td>33.38</td>
<td>25.35</td>
<td>0</td>
<td>77.78</td>
</tr>
</tbody>
</table>

5.3 Pearson’s Correlation Coefficient Analysis

Pearson's correlation analysis was conducted to determine whether there is high correlation coefficient between the independent variables. Table 8 below provides the result of the correlation analysis between dependent, independent and control variables. The results suggest board size, gender diversity, board experience, board independence, firm size, and liquidity are positively correlated with return on asset while leverage shows a positive correlation.

From table 8, the relationship between board size and gender diversity shows a low and insignificant relationship. Similar to this is the relationship between board size and board experience which shows a negative and insignificant result (-0.017, p-value > 0.05). However, the relationship between board size and board independence shows a negative correlation but statistically significant (p-value < 0.05). For control variables, there is a positive correlation between board size and firm size which can be explained by the expectation that the larger the company, the more expertise needed to direct the affairs of the company. Both leverage and liquidity show a negative correlation between board size and statistically insignificant (p-value >0.05)
### Table 8: Pearson Correlation Analysis

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>Bsize</th>
<th>Gender</th>
<th>Bexp</th>
<th>Bind</th>
<th>Firm_size</th>
<th>Leverage</th>
<th>Liquidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bsize</td>
<td>0.08305*</td>
<td>1</td>
<td>(0.0512)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.00084</td>
<td>0.04259</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bexp</td>
<td>0.12775*</td>
<td>-0.01609</td>
<td>-0.22542*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bind</td>
<td>0.07968</td>
<td>-0.24077*</td>
<td>-0.07719</td>
<td>-0.01432</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm_size</td>
<td>0.02933</td>
<td>0.47358*</td>
<td>0.12409*</td>
<td>-0.01767</td>
<td>-0.07759</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>-0.32640*</td>
<td>-0.02496</td>
<td>0.11212*</td>
<td>-0.06199</td>
<td>0.07103</td>
<td>0.12920*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>0.13685*</td>
<td>-0.01671</td>
<td>-0.06219</td>
<td>-0.03675*</td>
<td>-0.00942</td>
<td>-0.05918</td>
<td>-0.22764*</td>
<td>1</td>
</tr>
</tbody>
</table>

N is 552 firm-year observations from 2012 – 2016 *significant at 5%
In addition to the Pearson's correlation analysis, Variance Inflation Factor (VIF) and tolerance statistics test were conducted to check for dangerous multicollinearity problem. These two are commonly used to detect the existence of potential multicollinearity issues. VIF statistics with the value higher than ten indicates the presence of severe multicollinearity. For tolerance statistics, if the value is close to one this shows little multicollinearity, however, if the value is very close to zero, this may suggest the existence of multicollinearity problem. The result reveals that there is no severe multicollinearity problem between the explanatory variables. The variables have a VIF value below ten and tolerance statistics value of the variables is not close to zero. Therefore, multiple regression analysis has been carried out as a further step in this study.

5.4 Regression Analysis Result

This section provides results of the OLS test to assess the impact of board composition characteristics variables on firm performance. The general model, which has been used to test the hypotheses, was presented in chapter 4. Table 9 provides result generated from the analysis. The result shows that the F-statistic is positive and statistically significant at 0.01%. This finding suggests that the coefficients of the explanatory variables used in the model are jointly equal to zero, that is, the coefficient of the explanatory variables in the model can together explain the significant variation in ROA of the sampled companies. The adjusted R-squared is 14.07%, which implies that the explanatory variables can explain at least 14.07% of the variance in the sampled firms ROA.

- Board Composition Characteristics and Firm Performance

According to the first hypothesis, I expected that there is a significant relationship between board size and ROA. Similar to previous studies that board size has a substantial effect on firm performance, the result shows a significant association between board size (BSize) and ROA (1.96, p-value < 0.05). Thus, the first hypothesis is supported. This result is in line with previous results such as (Miller, 2003; Dalton et al., 1999; Kiel & Nicholson, 2003; Peace & Zahra, 1991; and Sanda
et al., 2005). Miller (2003) and Dalton et al. (1999), argued that large board size is better than small board size in improving firm performance. They proposes that in small boards the dominant position of the CEO enable him to override the decisions made by the board members by following their interests leading to increasing agency cost which undermines the performance of the firm (Miller, 2003).

Contrarily, large board size can suffer from lack of adequate communication which reduces its efficiency to respond to risk and challenges the company might face (Yermack, 1996). Similarly, Eisenberg et al., (1998) study on Finnish firms reported that increase in board size results to problems of coordination and communication, therefore, there is decreased ability of the board to control management, leading to increase in agency problem. This finding is inconsistent with previous studies such as Ho and Williams (2003); Mangena and Chamisa (2008); Topak M, (2011); Guest (2009); Eisenberg et al., (1998). Their studies reported an insignificant association with firm performance. Additionally, the result of significant relationship between board size and firm performance support the proposition of the Nordic corporate governance recommendation which requires the boards to compose of sufficient number of directors that’s is deemed fit to improve firm performance. Similarly, resource dependency theory favours board with a higher number of independent directors because such composition has members with diverse expertise and greater knowledge and can also provide an external link for firms to get more resources to improve their performance.

The second hypothesis predicted that there is a significant relationship between the percentage of women on board and firm performance. The result also shows that there is no significant relationship between gender diversity and ROA (1.78, p-value > 0.05) therefore, the hypothesis is rejected. Contrary to many previous studies, such as; Erhardt et al. (2003), Smith et al. (2006), Konrad and Kramer (2006), Burke (2003), and Carter et al. (2003), who argued that increased firm performance is a result of firm gender diversity. This result shows that percentage of women board member in Nordic firms does not influence firm performance. The reason for this
could be those female board members are not assigned to roles that are related to firm performance. The result confirms the result of (Rose, 2007) that there is no significant relationship between women on top management and firm performance.

Evidence from prior studies indicates that there is a definite association between board experience and firm performance. This leads to the formulation of hypothesis 3 that there is a positive relationship between board member experience and firm performance. As expected, the result reported a significant positive correlation between board experience and firm performance (3.23, p-value < 0.05) therefore, the hypothesis is accepted. This result conforms with the argument that board members with increased firm-specific-knowledge make better acquisition decisions (Masulius et al. 2007), higher chance of engaging in innovation (Hirshleifer et al. 2012) and better disclosure of value-relevant information in the financial statement (Khan and Watts, 2009).

From resource dependent perspective, it implies that board experience enables the director to facilitate access to the resource for improved firm performance. The theory holds that the operational environment of the firm is reflected in its board composition and organizational structure (Mizruchi and Stearns, 1988; Hermalin and Weishbach, 1988; Pfeffer, 1972). Also, the significant positive association implies that the recommendation of Nordic corporate governance code for the board to compose of experienced, skilled and committed independent directors has provided an excellent mechanism to reduce agency problems.

Theoretically, the expectation from independent directors is to be objective, therefore, they play a significant role to ensure that the executive directors are running the company in shareholders' interest. My fourth hypothesis predicted that percentage of the independent director would have a positive association with the firm performance. The result shows a positive and statistically significant relationship between board independence and firm performance (3.31, p-value < 0.05). The finding supports the view that independent board members can provide effective monitoring to reduce agency problem (Anderson & Reeb, 2004). The result is also in line with the recommendation of Nordic Corporate Governance Code. The
code required that board of Nordic listed firms should predominantly compose of non-executive directors in order for them to perform efficiently and act objectively; hence, the hypothesis is accepted in this case. This finding is also in line with other empirical results (Fama and Jensen, 1983; Shleifer & Vishny, 1997; Khan and Awan, 2012; and Abbasi et al., 2012).

The positive result indicates that the board members are more objective and transparent in disclosing information to the shareholders. This finding is also consistent with agency theory view that information asymmetry problem can be reduced when there are independent board members. In contrast, this result is inconsistent with some opinions, which argue that independent directors might cooperate with the executive directors for return on personal benefits, higher compensations, or re-elections and therefore this can affect firm performance negatively. The result is inconsistent with the findings of Guest (2009); and Yermack (1996), who found a negative relationship between the proportion of non-executive independent directors and ROA.

- **Control Variable result**

In respect to firm size, the result shows a statistically insignificant effect (0.79, p-values > 0.05), however there a positive relationship. This finding is in line with the theoretical prediction that there is a positive relationship between firm size and firm performance. This result supports the argument that large firm operate on a larger scale of operations and organizational settings (Baysinger & Hoskisson 1989; Koch & McGrath, 1996; and Carter et al., 2003). Therefore, they have more opportunities to improve financial performance and increase firm value. Another possible explanation for the positive association between firm size and firm performance is that large firms are more likely to comply with the recommendations of corporate governance codes.

Regarding leverage, there is a statistically significant relationship between leverage and firm performance but a negative relationship (-7.76, p-value < 0.05). This result shows that high debt level will decrease firm performance, in other words, the result
indicates that high leverage reduces firm performance. Chen and Jaggi (2001), reported that firm with high leverage indicates financial distress, which limits their ability to obtain a new loan from the bank. Higher levels of debt might limit firms’ ability to raise new credit, resulting in losing valuable investment opportunities.

Lastly, liquidity result shows an insignificant but positive relationship with firm performance (1.92 p-values > 0.05). Firms with higher liquidity ratio imply that the firm can face external economic shock and alleviate financial distress. They are characterized by higher opportunities to invest than companies with lower liquidity ratio.

**Table 9: OLS Regression Result**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Asset (ROA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>0.63107</td>
<td>4.20011</td>
<td>0.15</td>
</tr>
<tr>
<td>Bsize</td>
<td>0.33329</td>
<td>0.16981</td>
<td>1.96*</td>
</tr>
<tr>
<td>Gender</td>
<td>0.04715</td>
<td>0.02648</td>
<td>1.78</td>
</tr>
<tr>
<td>Bexp</td>
<td>0.42838</td>
<td>0.13268</td>
<td>3.23*</td>
</tr>
<tr>
<td>Bind</td>
<td>0.04015</td>
<td>0.01214</td>
<td>3.31*</td>
</tr>
<tr>
<td>Firm_size</td>
<td>0.23101</td>
<td>0.29268</td>
<td>0.79</td>
</tr>
<tr>
<td>Leverage</td>
<td>-2.14116</td>
<td>0.27605</td>
<td>-7.76*</td>
</tr>
<tr>
<td>Liquidity</td>
<td>1.08893</td>
<td>0.56674</td>
<td>1.92</td>
</tr>
<tr>
<td>N</td>
<td>552</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rsquared</td>
<td>0.1516</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.1407</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=552 firm-year observation. ROA is return on asset. BSize is board size, Gender is gender diversity, BInd is board independence, BExp is board experience. Firm size is the log of total asset. All variables used in this regression are winsorized at 1%. * denote statistical significance at 5%
5.5 Additional Test

Industry dummy variables were added to the regression model to check the robustness of the OLS model. As mentioned in chapter four, the industry is classified based on the general industrial code on the data stream. Table 10 below, present the regression result with the addition of industry variable. The adjusted R-squared is 16.39% which implies that the explanatory variables can explain at least 16.39% of the variance in the sampled firms ROA.

The dummy variables, together with the other independent variables were examined against ROA. Surprisingly, the result shows an insignificant relationship between industrial sector (ind1) and firm performance. Also, the relationship between utility sector (ind2) and firm performance is not statistically significant. Although there is positive correlation with utility sector, the p-values for the two sectors are greater than 0.05. The result of transportation (ind3) and insurance (ind4) shows a statistically significant negative relationship with firm performance (p-value < 0.05).

The positive sign of these sectors indicates that, on average, firms performed better compared with their counterparts in the other industries. On the other hand, the negative relationship suggests that companies in these sectors perform worse compared to their counterparts in other areas. Haniffa and Cooke (2002), and Lim et al. (2007) stated that corporate governance practices vary between industries due to the differences in the capital structure, the complexity of operations, ownership levels and line of business.

Moreover, the result shows a high similarity to the results generated from the original OLS analysis. The relationship between the variables and ROA remained the same with the original OLS results. Except for the relationship between board size and ROA that show an insignificant result but a positive association. Also, the coefficient of variables in the analysis retained similar positive or negative signs as in the original OLS regression result.
In a nutshell, the additional regression results are consistent with the original model, which implies that this data could be used for analysis of some awareness towards industry-specific conditions.

Table 10: OLS Result with Industry Effect

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Asset</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>3.75449</td>
<td>4.96140</td>
<td>0.76</td>
</tr>
<tr>
<td>BSize</td>
<td>0.29295</td>
<td>0.16924</td>
<td>1.73</td>
</tr>
<tr>
<td>Gender</td>
<td>0.04132</td>
<td>0.02704</td>
<td>1.53</td>
</tr>
<tr>
<td>Bexp</td>
<td>0.45183</td>
<td>0.13525</td>
<td>3.34*</td>
</tr>
<tr>
<td>Bind</td>
<td>0.02859</td>
<td>0.01231</td>
<td>2.32*</td>
</tr>
<tr>
<td>Firm_size</td>
<td>0.22034</td>
<td>0.31352</td>
<td>0.70</td>
</tr>
<tr>
<td>Leverage</td>
<td>-2.05027</td>
<td>0.28267</td>
<td>-7.25*</td>
</tr>
<tr>
<td>Liquidity</td>
<td>1.44974</td>
<td>0.61720</td>
<td>2.35*</td>
</tr>
<tr>
<td>IND_1</td>
<td>-2.36706</td>
<td>1.61277</td>
<td>-1.47</td>
</tr>
<tr>
<td>IND_2</td>
<td>1.32416</td>
<td>2.02779</td>
<td>0.65</td>
</tr>
<tr>
<td>IND_3</td>
<td>-5.97617</td>
<td>2.13975</td>
<td>-2.79*</td>
</tr>
<tr>
<td>IND_4</td>
<td>-4.54897</td>
<td>2.07478</td>
<td>-2.19*</td>
</tr>
<tr>
<td>N</td>
<td>552</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.1805</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.1639</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=552 firm-year observations. ROA is return on asset. BSize is board size, Gender is gender diversity, Bind is board independence, BExp is board experience. Firm_size is the log of total asset. IND_1 is industrial companies, takes a value of 1 and 0 if otherwise. IND_2 represent utility, takes a value of 1 and 0 if otherwise. IND_3 represent transportation, takes a value of 1 and 0 if otherwise. IND_4 represent Insurance companies, takes a value of 1 and 0 if otherwise. All variables used in this regression are winsorized at 1%. * denote statistical significance at 5%
5.6 Chapter Summary

This chapter provides the results and discussion of the univariate and multiple regression analysis to test the hypotheses formulated. The investigation started with a descriptive statistics to understand the features of the data and trends for the variables. The results of the descriptive statistics show compliance with the practices of corporate governance recommendations, in particular regarding balanced board of directors with the presence of independent directors. The Pearson's correlation analysis followed the descriptive statistics analysis then ordinary least square analysis was carried out to test the hypothesis.

Table 11: Summary of Hypotheses Result

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Expected Sign</th>
<th>Actual Sign</th>
<th>Significant</th>
<th>Accept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bsize</td>
<td>+/-</td>
<td>+</td>
<td>Yes</td>
<td>Accept</td>
</tr>
<tr>
<td>Gender</td>
<td>+/-</td>
<td>-</td>
<td>No</td>
<td>Reject</td>
</tr>
<tr>
<td>Bind</td>
<td>+</td>
<td>+</td>
<td>Yes</td>
<td>Accept</td>
</tr>
<tr>
<td>BExp</td>
<td>+</td>
<td>+</td>
<td>Yes</td>
<td>Accept</td>
</tr>
</tbody>
</table>

As it can be seen from the summary results presented in table 11, three of the hypotheses were rejected while the remaining two were accepted. The results of this thesis suggest that board size and percentage of women directors do not affect firm performance. However, board independence and experience have positive influence on firm performance.
6. CONCLUSION

This study examines the relationship between some board composition characteristics and firm performance. The analysis was carried out using different stages of regression, starting with descriptive statistics of data, followed by Pearson's correlation analysis and then OLS regression. This study was done by examining the impact of board composition characteristics viz., board size, gender diversity, board independence and board experience on firm performance while controlling for variables of firm size, leverage, and liquidity. An additional test was performed by introducing industry as a control variable to examine the sensitivity of the data analysis. For the regression model, industry variable gets a value of one or zero for each industry classification. The coefficient of variables in the analysis retained same positive or negative signs as in the original OLS regression result.

The result shows a significant association between board size and firm performance. This implies that board size has an impact on firm profitability. This finding is in line with the study of Sanda et al., (2005) who reported a significant positive relationship between board size and firm performance; they opined that large boards have better access than small ones to the external environment by offering better chances to have a vast resource for finance and raw materials. Also, this finding is in line with resource dependence theory that large boards provide greater access to their firm external environment, which facilitate and secure critical resources and reduces uncertainties (Pearce and Zahra, 1991).

Contrary to previous research, the result of gender diversity also reported no significant relationship between the percentage of female representation on board and firm performance. The reason for this could be that those female board members were not assigned roles that are related to firm performance. This finding conforms to the result of (Rose, 2007) that there is no significant relationship between women on top management and firm performance.

Concerning board experience, the result also shows a significant positive association between board experience and firm performance. This finding is consistent with the
study of Fiegener et al. (1996); Chamberlain (2010); Huang Sterling (2013), and McIntyre et al. (2007). The significant positive association implies that the recommendation of Nordic corporate governance code for the board to compose of experienced, skilled and committed independent directors has provided an excellent mechanism to reduce agency problems.

Regarding the impact of board independence on firm performance, the OLS result shows a positive association between board independence and firm performance. This finding supports the recommendations of Nordic Corporate Governance Code and individual countries Corporate Governance Code on the importance of independent directors in mitigating the agency problems. The significant positive relationship between board independence and firm performance is consistent with other findings such as Khan and Awan (2012), and Müller (2013). In a nutshell, I see that the findings of this study are in line with previous studies.

This study has relevant implications for management and shareholders. This thesis has shed some new light on the factors of board composition characteristics that affect performance. Hence, it will enable the firms' management and policymakers to make a better decision on issues regarding board composition. By improving their board composition, they will improve their firm performance. The findings of this study imply that both existing and potential shareholders can assess the board composition to make a better decision on their investment. Also, result of this study provide evidence to corporate governance theories, thereby, indicating the needs for corporate governance regulators to gain more insight into board's functioning

**Limitations of the Study**

As with other academic papers, this thesis is not void of constraints. The following are the limitations and suggestions for further research.

First, this study makes use of one accounting based performance measure. It would have been more informative to use both accounting based and market based measures. Second, this study makes use of four variables for board composition
characteristics, which are board size, gender diversity, board experience and board independence. There are other board characteristics such as expertise, competency, skills, and commitment. However, this thesis focuses on the quantifiable variable so that it will be easy to perform regression analysis. Future studies can examine the impact of board composition characteristics by using both accounting and market-based performance measure. Also, it would be interesting to include other variables of board characteristics in assessing its impact on corporate performance for future research.

Additionally, due to unavailability of data, this study has excluded Iceland, making it difficult to generalize results to all Nordic Countries. The effect can only be applied to Finland, Norway, Sweden, and Denmark. Iceland could be included in future research to have findings that are more robust.
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