UNIVERSITY OF VAASA

FACULTY OF BUSINESS STUDIES

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CORPORATE SUSTAINABILITY AND FIRM FINANCIAL PERFORMANCE – The mediating effect of board gender diversity

Master's Degree Programme in Finance

VAASA 2016

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Year of Completion of Thesis: 2016 **Pages:** 75

ABSTRACT

The thesis investigates the relationship between corporate sustainability performance and firm financial performance. Firms are facing new business challenges as the ideology is shifting from shareholder maximization to satisfy the needs of multiple stakeholders. Therefore, sustainability practices should be included in business strategy to achieve financial competitive advantages as well. Furthermore, prior literature suggests that board of directors have an important role on firm success. Thus, one board component, gender diversity, is included in the empirical analysis.

In contrast to prior research, the thesis investigates the different dimensions of corporate sustainability performance separately, and not only the overall sustainability. Moreover, little research investigates what components affect the relationship between corporate sustainability and financial performance. The aim is to fill this gap in the literature. Using financial data of the S&P 1500 firms and ESG data provided by ASSET4, the study finds a significant positive relationship between corporate sustainability performance and profitability, as measured by ROA and ROE. In addition, the results suggest that female directors strengthen the positive relationship between corporate sustainability and profitability. In contrast, the results report a negative association of corporate sustainability performance with firm value, as measured by Tobin's Q. The relationship remains negative and statistically significant also after including board gender diversity variable.

The findings are consistent with several studies highlighting the importance of sustainability and nonfinancial performance. Furthermore, a more diverse board is able to respond to the variety of stakeholders' needs that will eventually give financial benefits as well. Further research is required to gain a better understanding of the circumstances and components that have an impact, positive or negative, on the relationship between firm nonfinancial and financial performance.

KEYWORDS: Corporate sustainability performance, firm financial performance, ESG, board gender diversity

1. INTRODUCTION

In the 1960s, most of the U.S. companies started to feel pressures to demonstrate social responsibility of their business. One driving force to consider social issues is "moral marketplace factor", meaning an increased importance of perceived corporate morality in decisions made by consumers, investors, and employees. (Kotler & Lee 2005: 8.) For example, investors want to choose funds or companies, which have good social and sustainability practices. In addition, a violation of human rights or environment can quickly lead consumers to boycott companies that are not socially responsible or act unethically.

In the early 1990s, the traditional approach of corporate social initiatives was redefined. In the traditional approach, the decisions related to social issues were mostly based on themes of the outside pressures. The aim was to do good to look good, and the social practices were more short-term decisions, while in the 21st century they are part of the long-term strategy. Prior to 1990s, corporate sustainability meant mainly charity and sponsorships, and little was done to establish quantifiable outcomes for the business or the social cause. Firms only wanted to look good and achieve better reputation as easy as possible, which was simple by writing a check. However, in the 1990s, decision-making began to reflect a growing desire for "doing well and doing good". Firms started to focus more on certain areas instead of attempting to do little in every area. Corporate sustainability started to be more systematic and the importance of evaluation increased as well. One explanation for a more critical thinking and sustainable strategic decisions is the increased pressures, which force firms to develop their sustainability practices all the time. (Kotler & Lee 2005: 8–10.)

Strategic decisions have never been easy because there are multiple things to take under consideration. However, strategic resource allocation is becoming even more complex as firms must take into account not only the financial outcome but also the broader set of societal expectations. The change in customers' expectations, environmental concerns and problems with excess capacity are having an emerging influence on strategic decision-making, which will affect stakeholders' expectations and firm's overall corporate social performance record. (Waddock & Graves 1997: 4.)

According to Setó-Pamies (2015), media, pressure by the stakeholders, and the size of organizations are all increasing the importance of sustainability practices. Sustainability practices are under closer scrutiny, and people are more interested in different aspects of

it. Thus, corporate sustainability is often separated into four pillars: environmental, social, corporate governance and economic. These pillars form the basis of an overall corporate sustainability, which summarizes the strengths in social responsibility principles. (Ribando & Bonne 2010: 1.) As said, economic performance can also be seen as one part of the overall sustainability performance, which clearly addresses that it is closely related to environmental, social and corporate governance (later ESG) factors.

The investigation of ESG factors has started at least in the early 1980s but in the recent decade it has gained more traction. The growing interest towards social responsibility in business is due to, for example, the issues related to climate change and the role of corporate governance in the failure of several large companies in association with the latest financial crisis. At first ESG was referred as Social Responsible Investing (SRI) but later it has transformed and comprises a much wider agenda. In short, companies with good ESG policies consider environmental issues by reducing carbon emissions and water usage, behave socially responsible towards their employees, partners and community, and in addition, establish corporate governance best practices for an independent, fairly compensated board that manages shareholders' rights. (Ribando & Bonne 2010: 1.) The increased interest towards sustainability shows that people value nonfinancial performance much more than in the past.

Furthermore, gender differences in the top-management level have been discussed and studied widely. However, the interest in how gender diversity affects, for example, firm performance and riskiness does not seem to stop. More recently, studies have also started to investigate the effect of board gender diversity on corporate sustainability mechanisms. New studies are published continuously and the literature review in this thesis introduces many of the latest studies published in the 21st century.

Promoting gender-equality has become a global issue, and increasing the proportion of females in the higher ladders of organizations is widely discussed. Still, on average, women hold only few seats in boardrooms. In the U.S., women's share of board seats of the S&P Composite 1500 firms was only 16% in 2014. 81% of these firms have at least one seat held by a woman but the progress to increase the proportion is slow. (EY 2015.) Since most of the U.S. students graduating as Bachelors or Masters are women, hiring female directors should be a growing concern for firms. In addition, women comprise almost half of the total workforce in the U.S. To stimulate the increase of female seats in corporate boards, "2020 Women on Boards" was launched in 2011. The idea behind the campaign is to increase the percentage of women on the U.S. company boards up to 20% or even greater by the year 2020. (2020 campaign 2011.) Similarly in Europe, EU justice

commissioner Viviane Reding challenged Europe's listed firms to sign a pledge to voluntarily increase the share of women on corporate boards to 30% by 2015 and to 40% by 2020 (EU 2011).

Europe succeeded in significantly increasing the share of women on corporate boards but did not fully reach the goal. In April 2015, women held on average 21.2% of the seats on the boards of the largest publicly listed companies in EU Member States. The achievement was driven by legislative initiatives and political pressure. The need of regulatory actions and gender quotas to increase firm performance has been argued a lot both in media and among researchers. (European Comission 2015.) A study by Adams & Ferreira (2009) does not give supporting evidence that gender quotas are related to better firm performance. The average effect of gender diversity on firm performance is negative, suggesting that regulatory initiatives should not be motivated by improvements in governance and firm performance. However, there is still little investigation of the effects of gender quotas on firm performance. Ahern & Dittmar (2012) find that a new law in Norway requiring 40% of the directors of Norwegian publicly traded firms to be women decreased the stock prices of the firms following the gender quota. In addition, the study finds a large decline in Tobin's Q over the following years after the law was announced in 2003. Thus, it may be questioned whether legal forces are the correct way to get more female board of directors.

Setó-Pamies (2015) points out that it is important to investigate the internal factors that drive firms to take sustainability practices as a more important strategic issue. Thus, the scope of this thesis is to study whether the presence of women on boards has an effect on sustainability practices because it is believed that female directors may play a key role in outperforming sustainability performance. In addition, prior studies show that female directors can have an impact on firms' financial success.

1.1 The purpose of the study

The purpose of the thesis is to analyze the relationship between corporate sustainability and firm financial performance. In addition, the empirical part focuses on one internal factor that may be a driving force for firms to put more effort into sustainability practices. Thus, the thesis investigates whether board gender diversity influences the relationship of sustainability and financial performance. According to existing literature, firms with more female directors may outperform their competitors not only in financial terms but also through firm's compliance with ethical and social principles.

Establishing and investigating this relationship should be important for several parties – academics, organizations and multiple stakeholders. The aim is to provide insights in how sustainability practices are not only philanthropic and that they have an economic perspective as well. Although the importance of gender diversity is widely accepted in academic and business world, the empirical results on the benefits of more gender diverse boards are inconclusive (Harjoto, Laksmana & Lee 2015). Moreover, most studies focus only on one part of firm performance and its association with board diversity. For example, many studies investigate either the relationship with financial performance or CSR in general. This thesis will make a difference and investigate both financial and sustainability performance. First, whether there is a positive link between corporate sustainability and financial performance, and second, whether gender diversity has a mediating effect on the relationship.

However, sustainability seems to be very complex, since yet there is no standardized definitions or measurements for it. The complexity also makes it difficult to compare the findings of existing literature. Montiel (2008) says that sustainability is a broad concept explored from several perspectives. It contributes, for example, to accounting, law and policy. It is understandable that it is challenging for firms and academics to take everything into account. However, selecting certain things may lead to personal prioritizing and explain why the findings differ. Because corporate sustainability performance is so wide, it is important to extend the analysis from the average corporate sustainability measure to the specific dimensions that are behind it. The dataset ASSET4 by Thomson Reuters makes it possible to investigate separately the relationship of each dimension of ESG on financial performance. However, also this study has to leave something for future research. For simplicity, the thesis focuses only on gender diversity. Other minorities and internal factors are left for further research although they may have an important role in explaining the increasing interest towards sustainability and its effects on financial performance.

With support from theoretical framework and existing research results, the thesis hypothesizes a positive relationship between corporate sustainability and financial performance, which is measured by ROA, ROE and Tobin's Q. Secondly, based on previous studies, a positive impact of gender board diversity on the relationship between these two components is hypothesized. Using a five-year panel data across 497 firms in the S&P 1500, the empirical analysis of the thesis finds that there is a positive association between corporate sustainability and profitability. Examining the overall corporate sustainability performance and each ESG factor separately, the results are statistically

significant. Moreover, board gender diversity positively affects the relation between sustainability score and ROA or ROE. By contrast, the relationship is negative for firm's market value, as measured by Tobin's Q and similar results are found when the board component is included in the analysis. Two robustness tests verify the results and suggest that it takes time to see the benefits of investing in sustainability practices.

1.2 The structure of the study

The thesis is divided into five parts. The study begins with an introduction to the topic. The purpose of the study is presented, as well as research problem and hypotheses are briefly defined. The second chapter focuses on defining corporate sustainability, introduces two main theories related to it, and discusses the difficulties with measuring sustainability practices. In addition, the chapter introduces ideas why gender diversity is an important issue in business world.

The next part is literature review based on the previous studies related to the relationship between corporate sustainability and firm financial performance. Later, previous findings including the board gender diversity component will be discussed. The hypotheses for the empirical part are defined in the end of the third chapter. The fourth chapter is the empirical analysis, which begins by describing the research methodology and introducing the variables. This will be followed by presenting the statistical tests to investigate the hypotheses. Finally, summary and conclusions of the findings will be discussed in chapter five.

2. BACKGROUND AND DEFINITIONS

Corporations are now facing a new challenge in business. Their role in society is reported in media almost every day, and it is impossible for any business, market area or industry to avoid the new demands and expectations of more responsible business behavior. (Crane, Matten & Spence 2013: 1.) Each person in the corporation is some way related to the new trend in which one must decide what social and ethical issues to support and, on the other hand, which ones to reject (Kotler & Lee 2005: 1). In addition, human mind makes it even more challenging since the demands of several stakeholders are not always rational nor constant.

In the last few years, "sustainability" and "sustainable development" have appeared almost in every company's website or official reports. The increasing interest towards corporate sustainability and sustainable strategies among both business and academic research world raises to question what actually is the definition for corporate sustainability and how it should be studied or measured. Montiel & Delgado-Ceballos (2014) analyze published research on corporate sustainability from almost 20 years and find that yet there is no clarity what it precisely means to business scholars. Scholars have used different approaches to define corporate sustainability, and the use of theoretical frameworks is a common way to conceptualize it. The article by Montiel & Delgado-Ceballos (2014) also reveals the problems in measuring sustainability.

Setó-Pamies (2015: 334) points out that the internal factors that drive firms to adopt corporate sustainability must be analyzed. Board diversity is one factor of corporate sustainability that has recently been under close scrutiny. Different groups of stakeholders expect firms to avoid discrimination, and therefore firms should have strategic aims to promote diversity in the workplace and society in general. Board diversity is a wide concept and therefore it may be challenging for some firms to take it into account. In this thesis, the focus is only on gender composition although previous studies have observed that some other minority groups may explain how sustainability is understood and put into practice. The observations about the importance of corporate sustainability and board gender diversity will be more deeply discussed in the following sections.

2.1 Corporate sustainability

"Sustainable development" was popularized by World Commission on Environment and Development in 1987, defined as *"a development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (World Commission on Environment and Development 1987: 43). However, previous studies have multiple ways to define and conceptualize corporate sustainability. For example, one approach focuses mainly on environmental issues whereas another approach is much broader including environmental, economic and social dimensions.

According to Montiel (2008), the terminology in academic research is confusing since different terms are used synonymously. Corporate social responsibility, corporate sustainability and corporate citizenship have all been used to describe the same firm practices. Thus, there are similarities in the constructs but researchers tend to ask different questions, for example, about corporate social responsibility and corporate sustainability. Corporate sustainability is a later concept that includes both environmental and social dimensions while historically corporate social responsibility has been investigating only social issues. However, these two terms share the same vision to balance economic responsibilities with social and environmental issues. Ambiguous definitions make top-level decisions harder and prevent managers and boards to identify goals for sustainability practices in their business. Ambiguity is even more problematic for academic research in which clear, well-defined, and widely agreed constructs and definitions are important to produce reproducible results.

To summarize, clear definition for corporate sustainability does yet not exist. Perhaps combining some elements of different constructs could create better definitions for organizations who are working to outperform in corporate sustainability and social responsibility. (Montiel 2008, Montiel & Delgado-Ceballos 2014). Due to the continuously increasing interest in environmental-friendly business practices and good corporate governance, corporate sustainability performance may be a better proxy for comparing firms in the 21st century.

2.2 Theoretical framework

Previous studies have established the relationship between corporate sustainability performance and financial performance. Corporate sustainability performance, however, may sometimes already include the financial dimensions of business (e.g. Hussain, Rigoni

& Orij 2016). In addition, the dimensions may vary between studies and ranking systems. For example, Hussain et al. (2016) investigate the relationship between corporate governance and triple bottom line performance of CSR, giving equal weight to economic, environmental and social dimensions. When looking at the variables used in the study, it seems that social dimension includes the corporate governance approach as well, which is separated as an own dimension in the empirical part of this thesis. As noted earlier, there are many different combinations to measure corporate social responsibility or corporate sustainability performance.

According to Hussain et al. (2016), there are two dominant perspectives, stakeholder theory and agency theory, to explain the relationship between corporate sustainability performance and firm financial performance. These two theories are compliments and neither can fully explain the relationship. The study reveals that social performance is important in enhancing financial performance, as well as the importance of board diversity in effective decision-making. Based on the existing corporate governance literature, Hussain et al. (2016) observe that both perspectives discourage the management's opportunistic behavior, and in many cases, the researches use several theories for hypothesizing the association between boards and sustainability performance. The results confirm that increased board diversity has positive effects on organizations.

There are also many other theories which are being used under this topic. Nevertheless, none of the frameworks can independently explain the relationship completely. Two main theoretical frameworks, agency theory and stakeholder theory, are discussed in the thesis. Both theories are connected to firm financial performance, hence suitable to theoretically explain how sustainability performance may increase profits.

2.2.1 Agency theory

Agency theory is the most commonly used theoretical framework in finance and economics to understand the relation between board characteristics and firm performance (Carter, Simkins & Simpson 2003: 37). Agency theory explains the conflicts, which may occur between principals (shareholders) and agents (managers). The theory contends that information asymmetry, opportunistic behavior of agents and conflicts between the two parties are easier to handle with a more effective corporate governance. The prior literature of agency theory suggests that better mechanisms of corporate governance have positive effects on firm's legitimacy and financial performance. In addition, agency theory argues that it is important to monitor the management closely to minimize the principal-agent conflict and maximize stockholders' wealth. (Hussain et al. 2016.) Thus,

according to this paradigm, the key activity for board is to monitor the managers to protect shareholder rights, leading to better firm performance by reducing agency costs (Hillman & Dalziel 2003: 383).

Carter et al. (2003: 37) state that independence is a critical factor for boards to function at its best for stakeholders. It is argued that diversity increases board independence as people with different characteristics, such as gender or cultural background, ask questions which would not occur with directors with more similar backgrounds. According to Carter et al. (2003), agency theory is the most promising theoretical framework because it does not give a clear prediction of the role of board diversity on firm value. However, at the same time the corporate world has an intuitive belief that there is a positive relationship between board diversity and firm value. The general belief explains why researchers relate to this theory when observing the link between the boardroom, financial performance and sustainability practices.

Based on Hillman & Dalziel (2003), board has a key role in agency theory to explain the social and financial issues. Monitoring by board of directors can reduce agency costs inherently when ownership and control are separated, and this will improve firm performance. In addition, when board incentives are aligned with the interests of shareholders, monitoring becomes more effective, which also increases performance. However, according to previous findings, Hillman & Dalziel (2003) say that boards with close social relationships with the management may violate the performance of the board. Board dependence, meaning the level to which insiders and outsiders with ties to the CEO or organization dominate the board, will negatively affect monitoring of the board. Following agency theory, social relationships may make it difficult to adopt corporate sustainability if the board is missing the interest to take the multiple interests of customers, shareholders and other groups into account. Of course, this will affect the financial performance as well. On the other hand, close connections may bring additional incentives to provide resources. For example, family ties to the firm or directors who are suppliers or customers, are likely to benefit if the business performance is maximized.

2.2.2 Stakeholder theory

Stakeholder theory has been used to investigate the relationship between corporate governance and both financial and sustainability performance (Donaldson & Preston 1995). Based on stakeholder theory, firms must satisfy the demand of multiple stakeholders as an unavoidable cost of their business. Different ways to do this vary from cost minimizing to societal maximizing. Ruf, Muralidhar, Brown, Janney & Paul (2001)

suggest that by satisfying the demands of stakeholders or signaling willingness to co-operate with them, firms can lower the transaction costs that are related to contracts and monitoring between the firm and its stakeholders. Satisfying stakeholders' demands can also be seen as a strategic investment. Under the resource-based perspective, firms may achieve competitive advantage if they possess resources in their business, which stakeholders prefer valuable, imitable, and hard to substitute.

According to Crane et al. (2013: 88, 94), this theoretical approach can be seen as stakeholder management and it is a way to integrate social demands, as well as aiming at long-term value maximization. Following stakeholder theory, firms who align with sustainability practices must balance multiplicity of interests of all appropriate stakeholders, not only the stockholders. Donaldson & Preston (1995) agree that stakeholder management is the central theme in stakeholder theory. However, stakeholder theory has been used in many ways and in different contexts, and therefore it is necessary to clarify the main distinctions of the theory. Donaldson & Preston (1995) identify three different aspects of the theory: descriptive, normative and instrumental perspective. Every aspect is important in explaining the links between corporate sustainability and financial performance, as well as how gender diversity can affect this relationship.

First, the theory is descriptive, describing what the corporation is. The descriptive aspect also explains specific characteristics and behavior of corporations. Second, stakeholder theory's fundamental basis is normative, which concerns have dominated the classical statements of the theory from the beginning. Based on the normative view, stakeholder theory is used to interpret the functions of corporations and to identify moral or philosophical guidelines for the operations and management. What is important to remember is that the interests of all groups of stakeholders have essential value and power. The third, the instrumental aspect, is probably the most relevant to describe and explain the relationship between sustainability and financial performance. Instrumental stakeholder theory establishes a framework for examining the connections between practical stakeholder management and how well the corporate performance goals have been achieved. The scope in the aspect is that firms who follow stakeholder management will outperform others, for example, in profitability, growth and stability. (Donaldson & Preston 1995.)

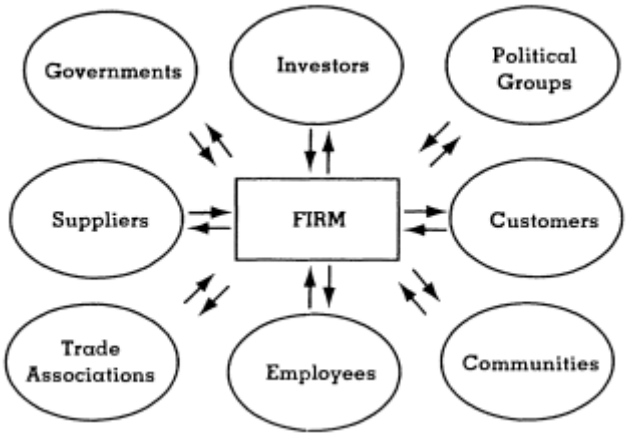

Figure 1. The stakeholder model of a firm (Donaldon & Preston 1995: 69).

Figure 1 by Donaldson & Preston (1995: 69) models well how all groups or persons with legitimate interests towards a firm are as important, and none of the interests or benefits is above another. Hence, the arrows between the firm and its stakeholders are double-sided. In addition, each group is represented equally. They all are the same size and shape, and have the same distance from the central box "firm".

According to the findings by Hussain et al. (2016), the claims concerning the importance of women on board are mainly drawn through stakeholder theory. On the basis of stakeholder theory, studies find that gender diversity of the board positively correlates with an increased orientation towards social practices. It is observed that women are more oriented towards social issues compared to their male colleagues. Women on board may force the board members to develop effective stakeholder management by facing a wider pool of customers' expectations. Female board of directors can enhance socially responsible behavior, which may lead to better decision-making and financial performance.

2.2.3 Modelling the link between sustainability and financial performance

Based on the existing literature, Brammer & Millington (2008) introduce four models to summarize the discussion about the relationship between corporate sustainability and financial performance. The models differ in three underlying assumptions. First, whether

there are positive financial benefits of good sustainability performance and second, whether these benefits derive from the absolute level of a firm's sustainability performance or alternatively, from its performance relative to its peers. The third assumption is whether any of the benefits are subject to diminishing returns.

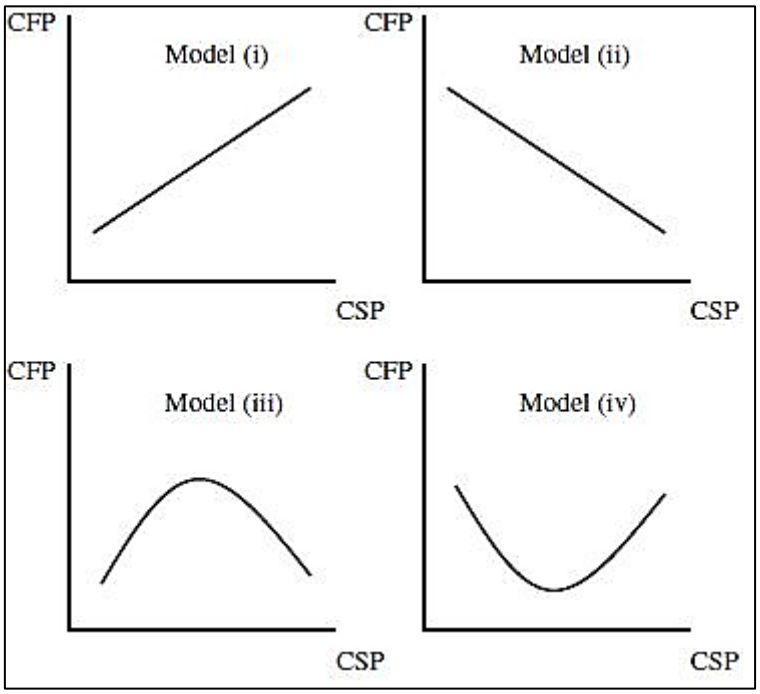

Figure 2. Models of the relationship between corporate financial performance (CFP) and sustainability performance (CSP). (Brammer & Millington 2008: 1328.)

Figure 2 presents graphically both linear and curvilinear relationships between a firm's financial and sustainability performance. In Model (i), there is a positive and monotonic relationship between the two variables, implying the underlying assumption that there are financial payoffs to a firm's sustainability performance, which are not subject to diminishing returns. According to Brammer & Millington (2008: 1328), existing research expects to find a positive link since good sustainability performance contributes to better financial performance by reducing costs or by increasing revenues. Additionally, previous studies find that better sustainability performance may reduce costs through wages and improved labor productivity. However, the opposite relationship is graphed in Model (ii). Negative association is based on the discussion that it does not pay off financially to "do good" in social and sustainability terms. It is argued that firms with higher sustainability performance do not gain any competitive advantages compared to their less sustainable

peers. In fact, socially unresponsive firms reap higher profits. Both models can be connected to the theories discussed earlier. Model (i) is consistent with stakeholder theory while Model (ii) is more related to agency theory, where the dominant critique of social performance emanates.

Moving to the third graph, Model (iii) presents a nonlinear relationship between financial and sustainability performance. The model describes that firms will gain financial benefits when they have better sustainability performance but at some point, they become subject to diminishing returns, and finally the profits are decreasing. Once again, stakeholders matter the most. If the sustainability concerns bear little or no relation to stakeholder relations, the improvements in sustainability performance lead to lower financial performance. Alternatively, in Model (iv), financial performance is at highest when sustainability performance is either extremely low or extremely high. Model (iv) interprets that improved sustainability practices bring additional direct costs, which first may bring competitive advantage but eventually the effect turns to be the opposite. There is evidence that consumers are not always able to pay more of products by more sustainable firms. Another explanation is that they simply may not want to spend more to "do good", supporting the idea why it is possible to make high profits without little sustainable behavior. Thus, sustainability performance has a key role in the implementation of firm strategies. (Brammer & Millington 2008: 1329.)

2.3 Measure of corporate sustainability

Since there is no standard definition for corporate sustainability, there is no standardized method to measure it either. A literature review by Montiel & Delgado-Ceballos (2014) summarizes different ways to measure corporate sustainability. Previous empirical studies use secondary sources, provided by external organizations, to quantify the level of companies' corporate sustainability. In other words, the measurement of corporate sustainability is "outsourced" because researchers use existing scales and indices to analyze and compare firms. Examples of the most widely applied indices are KLD and the Dow Jones Sustainability Index. Also ASSET4 ESG index, which is used in this thesis, is an example of a secondary source to quantify the dimensions of sustainability. Another, and perhaps more challenging, way to collect data is to create a new corporate sustainability construct by using primary data, for example, interviews or surveys. Of course, this method takes more time but it still seems to be very commonly in use. Montiel & Delgado-Ceballos (2014) reveal that out of 111 empirical studies, 29% use primary

sources whereas 26% use secondary sources. The remaining articles use particular cases or several different instruments. These studies are mainly published in specialized journals rather than in top academic management journals.

As well as in "outsourced" measurements, there are similarities in the systems that use primary data to operationalize different dimensions of corporate sustainability. However, both primary and secondary methods are associated with subjectivity because the aspects are considered differently in the indices and scales. For example, one aspect is included in one study but not in the other. (Montiel & Delgado-Ceballos 2014: 20.) On the other hand, subjectivity may have some positive implications, especially in primary data. Creating an own measurement gives more freedom and unlike secondary sustainability indices, they are not tied with any regulations or cultural standards. Thus, primary method may be a better way to investigate companies outside the U.S. since the secondary sources are usually created by using U.S. data.

Inconsistence in the previous studies is caused by different ways to determine and measure corporate sustainability. As well as there is no standardized definition for corporate sustainability, it is not standardized which dimensions should be included in it and how the dimensions are defined or constructed in a study. In addition, how to decide the weighting for each dimension? Some studies may put more weight on, for example, environmental issues whereas another research equally weights all dimensions. Studies may not find some dimension as important as the other dimensions, and therefore studying corporate sustainability is so complex. Moreover, it is also discussed whether different items inside the dimensions should be equally weighted. For example in the environmental dimensions, if one gives more weight on greenhouse gases than on water discharges, it can give different results. What is also notable is that firms' sustainability reporting is not standardized. (Montiel & Delgado-Ceballos 2014: 133.) Since firms, organizational culture and the personalities of management differ, one could assume that firms do not value each dimensions similarly. They probably do not take into account the same items inside different dimensions if they do not see them important in their business strategy. Therefore, the comparison of the existing literature is quite difficult when the preferences of both the management and researchers affect the outcome.

Montiel & Delgado-Ceballos (2014) envision that in the future nonfinancial performance, such as sustainability data, becomes so vital that it will be part of the core business. Through this process a standardized system to measure and report corporate sustainability would finally evolve. Although it is argued whether an exact conceptualizing and

standardizing is actually needed, it would definitely make the comparison of firms easier and academic research more reliable.

2.4 Measuring ESG factors

Investigating ESG factors is relatively new area, which has started approximately in the 1980s. In the last decade, ESG data has become more important for stakeholders, especially because of environmental issues related to global warming and the growing number of researches how corporate governance practices influence firm performance and investor behavior. The origins of ESG investigating are in social responsible investing, SRI, but today ESG has a much wider definition and it is used not only in investing purposes but in management as well. (Ribando & Bonne 2010: 1.)

As said earlier, it may be problematic that there is no clear definition for corporate sustainability and that the measurements vary across researches. Without a standardized way to measure the dimensions of sustainability causes inconsistent and mixed results in prior studies. Coleman (2011) states two major concerns to conclusive studies of the effects of financial performance on ESG practices. First, consistent with Montiel & Delgado-Ceballos (2014), is the methodological shortcoming because of miss-specific analytical models. The second difficulty is to obtain reliable measurements for environmental, social and governance dimensions since studies use different measures and they are not standard. For example, what is “good governance”? There is a wide diversity of definitions for the term and how to achieve it properly. ESG behavior makes management more complex, which might explain why smaller firms adopt the practices slowly.

Limitations for studying ESG activities are that they are qualitative and based on surveys or content analysis of firm documents. For example, KLD-index comprises companies based on industry codes or product categories as proxies for firm values, whereas Dow Jones Sustainability Index includes only firms that pass certain qualitative filters. Recognizing the trend of investigating ESG factors, ASSET4 is found to respond to the need of transparent ESG data. It has a leading role in providing objective, comparable and auditable nonfinancial information globally of publicly listed firms. Unlike KLD, ASSET4 does not eliminate firms in “sin” industries, which have involvement in, for example, tobacco, alcohol or defense. ESG data by ASSET4 is likely to focus on larger and more prominent firms. Thus, there is a lack of information of the S&P 600 index. However, Thomson Reuters believes that the database will expand averagely by 300

companies a year so hopefully in the near future also small-cap companies can be investigated by ASSET4 data. (Ribando & Bonne 2010, Thomson Reuters 2013.)

Ratings must present credible information. Larcker & Tayan (2011: 434) mention three key factors, which rating systems must provide to be useful and important for its users, for example, customers and investors. Although their focus is on corporate governance rating, the same factors can be related to corporate sustainability ratings, in which corporate governance has a significant role. The first key factor is objectivity, meaning that the ratings are based on data that any outside individual can similarly evaluate. Secondly, the ratings provider must avoid the conflicts of interest that would corrupt the judgment of the provider. Third, the ratings provider has to be able to demonstrate the prediction power of the ratings as well. This means that it has to describe both past and future outcomes of interest to the users. In addition, the authors highlight the importance of ratings system's integrity. Different ratings and indices shape consumer behavior and in addition, give important information to firms that affects decision-making in many areas of the organization.

Coleman (2011) agrees with Larcker & Tayan (2011) of the importance of objectiveness and reporting bias by the ratings provider or other body that may have interest in the results. According to Coleman (2011), measures of corporate ESG must represent behavior that most stakeholders consider to have significant impacts on firms. Moreover, every measure should quantify a signal, which clearly distinguishes between firms when comparing them on the perspective of ESG.

2.5 Board gender diversity

The directors of board are at the top level of firms' decision-making. Both the successes and failures depend largely on how the board is making the decisions. Therefore, it is important to ensure that the board consists of the most suitable persons for these positions. (Setó-Pamies 2015: 334.) Galbreath (2011) agrees with Setó-Pamies (2015) that boards have substantial power and responsibility in firms, and directors of the board have a significant impact on strategy, which subsequently affects firm performance. Carefully selected boards of directors serve two important roles in corporations. First, they are management advisors who provide strategic and operational directions. Focus is on decisions which balance risk and reward. Secondly, board directors are monitors of management by overseeing its performance, as well as legal and regulatory compliances, aiming at reducing the agency costs. The board forms a governing body to represent the

interests of shareholders and when it works effectively, it is capable to complete both advisory and oversight responsibilities. (Larcker & Tayan 2011: 67–68.)

According to Powell (2011: 222–223), several economic trends support the necessity to promote diversity, which should not be surprising since the educational attainment of female entrants compared to male entrants has risen dramatically in the last decades. Moreover, the majority of students who earn Bachelor's or Master's degree in the U.S. are women in all fields of studies, and many other countries are going to the same direction. The dramatic growth of highly educated women worldwide indicates that there are more and more women who are ready to enter the high-paying positions. In addition, the shift from a primarily manufacturing-based economy to a service-based economy emphasizes the importance of educational attainment and gender-equality. Genders are more equal in the new phase of economy since service jobs do not require physical strength the same way as manufacturing industries do. The change can already be seen in practice as service companies have more women in each level of the organization compared to manufacturing companies.

It is vital for any company to understand customers' perspective and needs. As the group of potential customers becomes wider, a more diverse organization can better relate with them and get competitive advantage. Different types of customers arise a need for different types of employees who customers contact. Customers are more likely to purchase from a provider whose attributes match their own. Diversity helps organizations to be successful and more profitable and this should be considered on each organization level. (Powell 2011: 222–223.)

As the world becomes more and more global and equal for everyone, firms have started to seek diversity to management level as well. Although this study focuses on gender diversity, the definition of diversity is more extensive. Sex is only one personal characteristic, which may influence the experiences of individuals at work. Other dimensions of diversity are, for example, age and ethnic background. These are called primary dimensions, which the individual cannot change. Secondary dimensions of diversity, on the other hand, are changeable. For example, marital status and education are defined as secondary dimensions and an individual can have an impact on them in the personal life. Sex is probably the best known diversity characteristic and research usually separates it from other dimensions of diversity. However, excluding other characteristics leads to assume that gender differences do not vary among age or ethnics. (Powell 2011: 5–6.) One possible explanation why studies mostly focus on one or two characteristics at a time is to keep the study simple and easier to draw clear and reliable conclusions. Thus,

this study also investigates only gender diversity of the board and leaves other minorities for further research.

Diversity of personal perspective may have influence on board deliberation or decision-making. According to Larcker & Tayan (2011: 158), the arguments for increase the proportion of female directors of the board are similar with the diversity arguments in general. If the board consists only of the other gender, it eliminates a significant portion of qualified talent. Therefore, it is reasonable to promote gender diversity to increase the differences in the candidate pool. Furthermore, female directors can enhance better boardroom dynamics and reduce social similarities. Gender diversity may also enhance decision-making as men and women consider risk and reward differently. However, external pressures to increase the board diversity can cause risks. Risk occurs if companies recruit underqualified directors solely to respond to the outsiders' demand for higher female board representation. This argument is consistent with the arguments of the necessity of gender quotas. As a conclusion, boards may benefit of gender diversity but forcing them to do promote it may cause disadvantages, for example, by reducing the financial performance. (Adams & Ferreira 2009.)

One problem with increasing the boardroom diversity, in this case more gender-balanced, is that directors are not consistent with the value of it. A survey by Gryosberg & Bell (2010) finds that 90 percent of female directors think that women can bring special attributes to the board, while only about 50 percent of their male counterparts believe in it. Responses from almost 400 male and female corporate directors show that women have more faith in the benefits of diversity in the boardroom. More women directors compared to men think that board diversity has a positive impact to rebuild trust in the board, especially after the financial crisis. In addition, 51 percent of women respondents strongly believe that three or more women on any board improve the board effectiveness, whereas 12 percent of male directors agree with this. Both genders, however, agree with diversity quotas. Majority of the respondents, male and female, do not support the requirements of diversity quotas. Top-management is still very male-dominated and only one percent of men support the idea of gender quotas. These results can explain something about why it is still so challenging for women to get seats if the management level does not have similar thoughts of the benefits. If male directors do not see gender diversity beneficial enough, it may slow potential women to access the boardroom.

3. LITERATURE REVIEW

Sustainability practices and corporate social responsibility in general are essential for firms to survive in the 21st century. According to Galbreath (2011), sustainability scholars suggest that the ability to adopt sustainability into corporation determines how well it will succeed. Firms who fail to integrate sustainability into organization's strategy and into relationships with stakeholders are more likely to go down. In addition, continuously growing stream of research has studied the relation between women as board of directors and firm financial performance (Adams & Ferreira 2009, Carter et al. 2003).

As said earlier, board of directors play an ultimate role within corporations' decision-making and strategic issues. It is their responsibility to have a general view of the current situation and the board has a significant influence on firm strategy. Thus, determining the right board of directors must be done wisely. Generally, gender diverse board composition has been one of the most significant governance issues. For example, a study by Carter et al. (2003) finds a positive association between board diversity and firm value. In addition, board diversity has been found to have positive influence on, for instance, attendance behavior and board effectiveness (Adams & Ferreira 2009).

Financial performance will always remain a prominent responsibility of corporate oversight as well as governance. Nevertheless, the new way of thinking suggests that boards must adapt their activities and decisions to society's aspirations, such as environmental, social and corporate governance issues. Main reason for the change is that demands of different types of stakeholders vary more these days. For example, capital providers – the important stakeholders, still keep economic growth as the most important factor to sustainability performance. However, the internal stakeholders such as employees prefer more the social issues. (Galbreath 2011: 22.)

In addition, there is a growing belief in business world that gender diversity may increase firm quality not only financially but in other ways as well. It is a critical factor in improving leadership and management but diversity is also vital in improving environmental, social and corporate performance, thus, sustainability. Since previous research suggests that there is a link between sustainability performance and financial performance, the literature review introduces three dimensions of sustainability and economic factors as well. Moreover, it is discussed how board gender composition is related to firm performance.

This chapter provides an overview of the existing empirical results to explain the complex association between corporate sustainability performance and financial performance. Later, gender diverse board composition is added into discussion. The chapter introduces previous findings about how gender diversity on the boardroom affects firm performance, in both sustainability and financial terms. The hypotheses for the empirical part of this thesis are based on the literature review and will be stated in the end of the chapter.

3.1 Corporate sustainability and financial performance

Prior research has been trying to explain the relationship between firm sustainability performance and financial performance both theoretically and empirically. However, the results are rather mixed. Several prior studies under the topic mention in their introductions Friedman's (1970) article of a negative association between corporate sustainability and financial performance. Written quite provocatively, Friedman (1970) argues that business itself cannot even have responsibilities because only people can have them. Therefore, Friedman (1970) thinks it is not correct to say "social responsibilities of business" since it is either the corporation or its executives and directors who are responsible. In his opinion, the social responsibility of a manager is solely to maximize the profits of the owners. Furthermore, socially responsible behavior occurs additional costs, which of course, will reduce the wealth of shareholders. Social and administrative costs are not serving the purpose of maximizing shareholder value and therefore in Friedman's opinion, firms should not highlight corporate sustainability practices in their business. According to Waddock & Graves (1997), those who argue of the negative relation between social responsibility and financial performance think that the incurring costs could be avoided without the special interest in sustainability practices. Alternatively, the costs should be borne by others than corporations, for example, by individuals or government.

The findings by Brammer & Millington (2008) are quite interesting and partly consistent with Friedman (1970) that better social performance is not an absolute necessity for firms to gain financial advantages. Exploring a specific component of sustainability performance, corporate charitable giving, and its relation to firm's financial performance, the study finds a positive association. However, firms with either unusually high or unusually low sustainability performance outperform other firms. Thus, accordance with Friedman (1970), it is possible for a firm to have great financial performance although it does not invest in sustainability practices at all.

The observed time horizon plays an important role in interpreting the findings by Brammer & Millington (2008). Those with unconventional poor sustainability performers are doing well financially in a short-run, whereas firms with unusually high sustainability performance are performing well when observing longer time horizons, which is five years in the study. Furthermore, the dependence of time horizon is consistent with stakeholder theory that firms aligning more sustainability practices aim at long-term stakeholder value maximization (Crane et al. 2013). Interestingly, firms with unexpectedly good sustainability performance are not outperforming their competitors in the short-run. They may even do worse compared to less sustainable firms in the market. Brammer & Millington (2008) suggest that it takes time to see the benefits of better social behavior on the balance sheet. Investing in sustainability will ultimately pay off in financial terms but it requires patience. Therefore, the longitudinal aspect should also be taken into account in the overall strategy.

Barnett & Salomon (2012) are supporting Brammer & Millington (2008) that also firms with very low sustainability performance score can achieve high financial performance. The study uses over 1200 firms tracked by KLD in 1998–2006 to test the effects of corporate social performance on financial performance. Consistent with Model (iv) discussed earlier (Brammer & Millington 2008: 1328), Barnett & Salomon (2012) find a U-shaped relationship between sustainability and financial performance. Thus, firms with poor sustainability performance outperform firms with moderate sustainability performance. However, the curvilinear line is not symmetrical. The study finds that firms with the highest sustainability performance are also doing best in financial terms. To say, they perform better compared to their peers with poor sustainability performance and high financial performance. The results suggest that stakeholder influence capacity explains the findings, meaning that some firms are more credible for stakeholders, and they reward these firms for their social responsibility behavior. Thus, the level of stakeholder influence capacity determines whether it pays to be good and invest in sustainability practices.

Barnett & Salomon (2012) state that it is not so straightforward whether a good corporate social performance is a necessity for financial performance. They suggest that both positions, high and low sustainability performance, might be good over some range. According to their findings, it is highly depended on how well firms can capitalize on their social responsibility efforts. The suggestion also explains why the line first goes down but eventually is upward. The inherent costs of corporate sustainability performance form the initial downward of the slope. Sustainable behavior is an

investment, which offers negative returns but when investing adequate in it, the curve evens out and turns upward. Firms are able to gain and profit of sustainability performance as the level of stakeholder influence capacity increases. With better stakeholder relationships firms are able to transform social responsibility into profit, which explains the upward sloping line for the firms with higher sustainability performance.

Based on stakeholder theory, Ruf et al. (2001) hypothesize to find a positive association between increased corporate sustainability performance and financial performance. Consistent with Brammer & Millington (2008), time explains the results. Although stakeholder theory is good at explaining the complexity between sustainability and financial performance, it does not take their timing differences into account. The study finds both immediate and long-term financial benefits when corporate sustainability improves. Thus, positive changes in corporate sustainability performance can increase firm's financial performance as well. However, the study reminds that the ethics of the organization matter as well. Some firms may invest to sustainability to benefit financially but others may have a more philanthropic approach and invest in sustainability practices regardless of the changes in financial performance.

Waddock & Graves (1997) also find a positive link between corporate social performance and financial performance when social performance is both dependent and independent variable. By investigating the S&P 500 firms, the study results that corporate social performance depends on a firm's financial stage. That is, firms with strong financial performance have available resources to use and these firms may choose to spend them on "doing good by doing well", resulting in improved corporate social performance. In addition, the study finds a simultaneous relationship that financial performance depends on good social performance as well. Thus, it is suggested that performing well in the social area may link to good management practices.

Unlike most studies, Waddock & Graves (1997) say that their study uses a certain weighting scheme for corporate sustainability index. Constructing an appropriate weighting scheme is based on experts of corporate sustainability performance who have shown that at any given time, certain attributes are more important than others are. More weight is given to issues, which present critical stakeholders such as employees, customers, and community, while less directly stakeholder-related categories have smaller weights in the index. The data is from 1990, and Waddock & Graves (1997) say that some issues would already have lost their weight by the year of study publication, implying that the current circumstances and opinions of stakeholders matter a lot.

However, rapid changes cause problems to compare the empirical studies over time and one could question whether special weighting schemes are useful. In addition, most studies do not say whether they have specific weights for each of the dimensions or issues inside a certain dimension. Comparison of the research results is thus quite complex because of the changing attitudes of stakeholders and unawareness of their weights.

3.1.1 The effect of ESG on investing decisions

Kappou & Oikonomou (2006) investigate the financial effects by observing one social stock index, MSCI KLD 400. The purpose of the study is to find how additions to and deletions from the index will affect the stock returns. The index consists of stocks of firms that pass the criteria of social responsibility and are available for ESG investors for benchmarking. Firms involved with, for example, gambling, drugs or firearms are excluded from the index. By investigating abnormal returns, trading volumes and earnings per share of the 400 firms in the index, the study finds a unique "social index effect". A social index effect simply means that unethical transgressions are penalized more heavily than good responsibility performance is rewarded. The study finds that addition to the index does not lead to material changes in a stock's market price but a deletion is accompanied by negative cumulative abnormal returns. Unethical behavior also affects stocks' trading volumes. Trading volume is significantly increased on the deletion date, while the operational performance of the deleted firms deteriorates after they were deleted from the social index.

Asymmetry of the social index effect is consistent with utility theory, which is one theory under behavioral finance. Utility theory includes loss aversion, meaning that losses and disadvantages have a sharper impact on preferences than gains and advantages. A deletion from the social index signals that the firm has been involved in some kind of social or environmental transgression and causes negative financial effects. Meanwhile, addition to the index only shows that the firm is a strong social performer. Consistent with utility theory, studies also find that people are likely to react more intensely to negative rather than positive new information. Therefore, the difference is greater for deletions than additions. (Kappou & Oikonomou 2006.)

Kappou & Oikonomou (2006) argue that the conclusions drawn from the study are important for managers and executives in financial matters. They must sustain the relationship with their key stakeholders over time if they want to benefit of investing in sustainability practices. The exit from the social index makes it harder for the firm to refinance itself through the equity market. Thus, it is important not only promote but also

maintain the high level of corporate sustainability or some stakeholders will abandon the company.

3.1.2 Does it pay to do good?

Previous studies are inconclusive whether corporate sustainability is positively linked to better financial performance. However, based on previous research and real-life examples, Kotler & Lee (2005) list bottom-line benefits of corporate social responsibility and sustainable business. Out of a wide range of benefits, they mention six things what better corporate sustainability performance can give to organizations. First, it can increase sales and market share. In addition, it seems that political situation and involvement in social causes affect brand preferences. People want to buy products and support brands, which share the customer values and take action to social issues. As an example, these attitudes strengthened extraordinarily after the happenings of 9/11. Thus, firms must be aware of the latest happenings and political climate in their market area.

In addition, social responsibility strengthens market positioning. A marketing strategy that contains a larger amount of social content has been observed to have a more positive effect on brand judgements and feelings compared to otherwise similar but containing less social content. In this context, social content is defined as activities in the marketing initiative, which are trying to make tangible improvements to social welfare. Moreover, corporate image increases and this can be a highly valuable asset in times of crisis. Firms with good social reputation are given more free rein by government entities. (Kotler & Lee 2005: 13–16.) A positive reputation gives flexibility and new strategical opportunities, which ultimately can have a positive effect on financial performance as well. Kappou & Oikonomou (2006) also state that a damaged reputational capital will increase the cost of equity, both short- and long-term.

By doing good firms will also attract the best candidates to work for them. Participation in social initiatives positively influences employees, citizens and executives. If a firm shares the same values with its employees, they will be more motivated and probably have longer contracts. In addition, surveys have found that MBA graduates are looking for the right corporate culture and would also accept a lower salary in order to work for a more socially responsible company. (Kotler & Lee 2005: 16.) By recruiting the best employees who are willing to do good and want to success can positively affect profitability. Retaining employees decreases HR costs and makes it easier to put long-term strategy into practice. The evaluation of the pros and cons is also much more simple

and reliable when the same employees have been implementing strategic decisions for a longer period of time.

Thus, operating costs can be reduced through better sustainability performance. In addition to decreased recruiting costs, environmental initiatives to reduce waste and conserve water and electricity can save remarkable amounts in operating costs. As an example, it is found that a firm's sustainability program focusing on environmental dimension can lead to energy savings of millions of dollars per year in the operating costs. Furthermore, it is argued that corporate sustainability can even increase stock values due to ability to attract new investors and reduce exposure risk if the firm or management is in crisis. Research has found that firms that address ethical, social, and environmental responsibilities have an access to capital, which otherwise might not be possible to get. By contrast, unethical business behavior and sustainable scandals can lower stock prices for a minimum of six months. (Kotler & Lee 2005: 17–18.) Empirical results by Kappou & Oikonomou (2006) give evidence that a deletion from MSCI KLD 400 social index has a strong effect on long-term financial performance. Negative performance accumulates to -14 percent in six months after the firm got excluded from the social index.

All of the introduced benefits will also affect profitability and firms' financial performance. With a larger market share a company will reach more customers who are interested in purchasing their products or services because sustainability is taken into account. If policy makers also favor socially responsible firms, it should be obvious that firms will benefit of investing more in sustainable business practices. Firms who do not understand that these practices are becoming more and more important for all stakeholders cannot survive in today's business world. For example, climate change is such a big global concern that it is impossible for any firm or industry to totally ignore it in their business. Unethical behavior will quickly cause competitive disadvantages and firm reputation is much easier to lose than to earn back.

3.2 Board gender diversity composition

According to Rao & Tilt (2015), board gender diversity is rapidly becoming one of the most interesting board components for practitioners and academics. Unfortunately, most studies only investigate firm financial performance. However, it seems that the components affecting the nonfinancial performance are slowly starting to get more attention.

A study supported by KPMG (McElhaney & Mobasseri 2012) identifies the relationship between female corporate directors and ESG factors. The study investigates over 1 500 firms to get a better understanding of how women can make a difference on corporate sustainability activity. The study gives evidence that as the number of women on corporate board increases, the firm is more likely to adopt more sustainability practices. For example, firms with more female board of directors are more likely to invest in renewable power generation and developing products to help customers manage risks related to climate change. They also tend to take care of many social issues, such as employment benefits or performance incentives and a proactive management of human capital development. More gender diverse boards are defined as firms with stronger governance structure, and have higher levels of disclosure and transparency. Overall, the study links female boards of directors with higher management quality as measured by ESG trends. It also addresses that higher financial returns are a result of better business practices where gender diversity has a vital role. The researchers also asked experiences on boards with ESG performance. Qualitative interviews with both male and female directors confirm that women promote corporate sustainability.

Harjoto et al. (2015) also investigate the impact of board diversity on firms' CSR performance. Using a panel data of almost 1 500 U.S. firms, the study finds a positive relationship between board diversity and CSR performance. CSR performance is defined as a proxy for management performance to respond the interest of multiple stakeholders. Two out of three CSR factors have a positive relationship with diversity. The overall measure of board diversity has a positive impact on the areas of environment and corporate governance. However, in the social area, meaning employee and human rights, the study does not find a significant relationship although it is still positive. More specifically, gender diversity is statistically and significantly related to CSR activities; increasing the strengths and reducing the concerns of CSR. The findings are consistent with stakeholder theory that a more diverse board serves better broader groups of stakeholders and is therefore more effective in satisfying their demands.

A study by Bear, Rahman & Post (2010) investigates the role of CSR on firm reputation and includes board gender composition in the investigation. The study gives evidence that women on boards enhance the improvements in CSR practices, which positively affect firm reputation. The results show at a level of five percent a statistically significant effect for the number of women on board on corporate reputation. A better corporate image, in turn, has a positive impact on financial performance, institutional investments, as well as on share price. The study suggests that an increase of seats held by women has a positive

impact on CSR rating. These board changes may give signals to investors that indicate improved reputation and financial performance.

However, only one woman is not enough to make a difference. Among many other researchers, Bear et al. (2010) also say that minority group members, often considered tokens, usually find it hard to make their voice heard and have enough power on the board. Thus, the findings indicate that as the percent of women on board increases, so does the firm's CSR. As the board dynamics move further from tokenism and towards normality, the contributions female directors can bring on the board will be considered better.

Consistent with Harjoto et al. (2015), Galbreath (2011) finds that there is no significant relationship between gender diversity and each dimension of corporate sustainability. Using a sample of listed firms in Australia, the study confirms a statistically significant and positive relationship between women on boards and economic growth when it is measured by return on assets (ROA) and market-to-book ratio. The results also find a positive link between women directors and social responsiveness, which includes human resources, product safety, and quality and community involvement. Alternatively, the study does not find a statistical association between gender diversity and environmental dimension. Galbreath (2011) agrees with Bear et al. (2010) that women are likely to face difficulties in decision-making process that can inhibit their influence on sustainability performance. In addition to tokenism, Galbreath (2011) suggests that sex-based biases and stereotyping by men on the board might restrict female directors' power on certain aspects, thus explaining the findings of his study of the insignificant relationship with environmental issues.

Previous findings of the relation of diverse boards to financial performance are not as consistent as the findings of the relation to sustainability performance. Investigating a panel data of the S&P 500, Adams & Ferreira (2009) argue that the overall effect of gender board diversity on firm financial performance is negative. However, they do find that women directors can also bring financial advantages. For example, by allocating more effort on monitoring the agency costs may be reduced. Still, the financial measurements, Tobin's Q and ROA, are negative and statistically significant. Therefore, the study cannot support the positive association between board gender diversity and financial performance. The study also states that legislation and widely discussed obligatory gender quotas do not bring the expected financial benefits to firms or society in general. Boards should not add women only with the expectation that the presence of a female director automatically improves financial performance.

Alternatively, Carter et al. (2003) give empirical evidence that female boards of directors are related to improved financial performance. After controlling for size, industry, and other corporate governance measures, the results show a statistically significant positive relationship between board gender diversity and firm financial value in Fortune 1000 firms. Firms with more female directors differ from those with no women on board. The boards with high female representation are larger, have more minorities and fewer insiders on the board. Based on their findings, firms with higher female representation are more valuable, as measured by Tobin's Q. Consistent with Carter et al. (2003), Isidro & Sobral (2015) find that women in the boardroom positively affect firm financial performance. However, female presentation does not have a direct positive effect on Tobin's Q. Although some studies find that, in general, board gender diversity may not be positively and significantly associated with firm performance, none of the studies discussed find that it would only have negative effects on firm performance and organization itself.

3.2.1 Generating the benefits of board gender diversity

Although hiring more women and having them at all levels of managerial positions could lead to higher profits, firms that are more profitable may be more attractive employers and get the best female talent for work. In addition, profitable firms may feel freer to try something new by selecting women for jobs which are used to be male-intensive. On the other hand, profitable firms usually achieve great performance by doing smart organizational decisions and one of these may be promoting gender diversity. (Powell 2011: 223.) However, existing literature finds that female directors can have indirect effects to the board.

Most of the arguments supporting board gender diversity are based on the idea that the presence of female directors improves firm value. However, the empirical evidence provides mixed conclusions between women on the board and firm financial performance. Luckily, the research develops and the importance of indirect effects of women on board is continuously growing. The relationship is not unambiguous and straightforward, and therefore a closer scrutiny of the indirect effects is necessary. Figure 3 presents well the idea by Isidro & Sobral (2015) of the direct and indirect effects. The indirect valuation of women on the board arises from improvements in financial performance, as well as improvements in nonfinancial aspects of the businesses. Although the study does not find that women directly have a positive impact on Tobin's Q, the effect is indirect through greater ethical and social compliance.

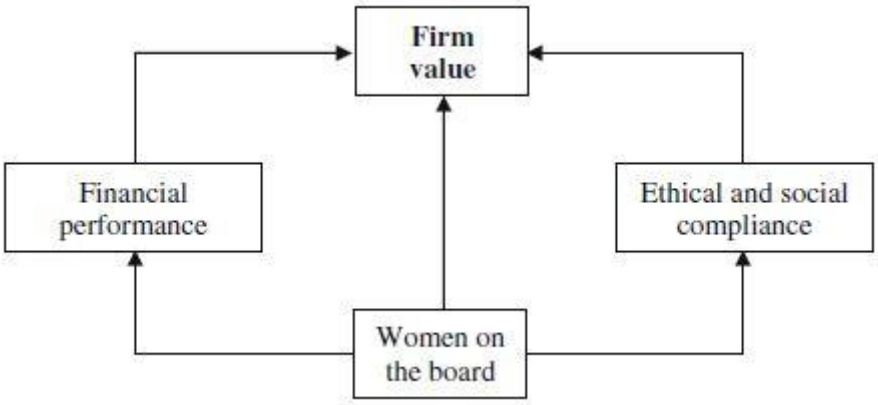

Figure 3. The effects of board gender diversity on firm performance (Isidro & Sobral 2015: 7).

As a conclusion, women may bring positive aspects to corporate decisions, which are related to sustainability practices. On the other hand, these decisions are highly related to firm's strategy. It is important to find the best compromises and think "out of the box" to succeed. Rao & Tilt (2015) highlight the improved decision-making what gender diversity may bring to boardrooms. With more similar perspectives, a homogeneous board is more likely unable to challenge the management's thinking. In the long run the lack of different opinions may weaken the quality of the debate.

Generating the benefits of board gender diversity requires the support of the whole organization. The existing literature finds some drawbacks but the majority of studies suggest that gender diverse boards outperform homogeneous groups. To conclude from Powell (2011) and Rao & Tilt (2015), organizational environment, perhaps even the whole industry, must be supportive and appropriate to realize the benefits of diversity in the management level. Based on existing literature, organizational culture and attitudes towards women as leaders define whether a company can make the most of the benefits that gender diversity can bring on the board and to the whole business.

3.2.2 Barriers for board gender diversity

One explanation for the popularity of promoting gender diversity may be that it appears to satisfy both societal and corporate governance objectives. It has both direct and indirect

effects on the management, boardroom and the whole organization. However, for some firms it may be problematic to increase gender diversity and the pressure towards it may only lead to a situation where current female directors hold more directorships. Forcing firms to increase diversity may lead to appointments of unexperienced directors, which probably will not increase firms' corporate sustainability performance nor financial performance. On the other hand, it is difficult to gain experience of the directorship if nobody ever gives the chance to gain that experience. (Adams & Kirchmaier 2015: 2–3.)

Interestingly, Adams & Kirchmaier (2015) find that the female labor force participation is linked positively and significantly to director participation. A one standard deviation increase in full-time economic participation increases non-executive director participation by 2.6 percent. Moreover, a one standard deviation change in full-time employment increases executive participation by 0.7 percent, which is relatively large compared to its mean, 4 percent. It is notable that the findings are relevant only for full-time participation; part-time and unemployed female workers do not bring positive and statistically significant benefits into director participation. The study suggests that encouraging women to work full-time may be important for generating possibilities for women to climb up to the top corporate positions. Full-time employment is related to better skills and experience, ultimately leading to greater firm performance. In this case, the differences in cultures around the world affect female representation in the boardrooms. If the culture does not support women working full-time, it is difficult to gain experience and give evidence to management and board of female talent.

To sum up, several studies find that a more gender diverse board is associated with better sustainability performance and its different dimensions. These benefits must also affect firm reputation and financial performance. However, personal characteristics, organizational and geographical culture, timing, and other firm characteristics are tied to strategic decisions and thereby to sustainability and financial performance. Because multiple things affect the mediation of female directors on firm performance, the studies find mixed evidence. Nevertheless, according to Powell (2011: 222), a more diverse organization understands better the needs of different types of customers.

3.3 Hypotheses

Taken together, the preceding discussion supports the idea that corporate sustainability performance and firm financial performance are related to each other. Furthermore, several studies suggest that the relationship is positive. Although there is a wide range of

techniques to investigate ethical behavior and corporate sustainability, the findings generally indicate a significant positive effect on firm financial performance. Thus, the principal hypothesis tested in the empirical analysis is stated as follows:

H1: There is a positive relationship between corporate sustainability performance and firm financial performance.

An addition to the first hypothesis is that it is important to investigate different areas of sustainability. Therefore, the study assumes that a positive link exists between each individual ESG factor and firm financial performance.

Later, the thesis assumes that diversity brings competitive advantages and makes boards more innovative and efficient. If firms are willing to put more effort to promote women on boards, different personal characteristics and knowledge will positively affect firm performance as well. For these reasons, the second hypothesis is presented as follows:

H2: Board gender diversity has a positive mediating effect on the relationship between corporate sustainability performance and firm financial performance.

4. EMPIRICAL ANALYSIS

By this chapter, the study will introduce the data description and the variables that are used in order to investigate the hypothesis of the thesis. Later, the empirical results will be presented by tables and figures of the relationship between corporate sustainability and financial performance. In addition, the regression results report whether board gender diversity has an impact on the relationship.

4.1 Data and variables

The data that is used to study the financial and ESG factors and board composition are obtained from ASSET4 database, which is provided by a secondary source Thomson Reuters. ASSET4 employs more than 120 analysts who compile systematic ESG information on more than 4 600 companies worldwide (in 2013). Data is collected on over 500 separate data points from several original resources, for example firm reports, websites and CSR reports. The scoring scale is 0–100, indicating how the firm performs compared to the entire ASSET4 universe based on the selected indicator. In total there are over 200 key indicators which are divided in three the dimensions. (Thomson Reuters 2013.)

The empirical part of the thesis consists of a balanced panel dataset of publicly listed firms in the S&P Composite 1 500 index, which includes all firms in the S&P 500 (the S&P LargeCap), the S&P 400 (the S&P MidCap) and the S&P 600 (the S&P SmallCap) indices. The selected time period is 2010–2014 since there was no ESG data available for most firms before 2010. In addition, the time period is chosen to exclude the burst of financial crises and moreover, the aim is to investigate the most recent effects of gender diversity of the boardroom. The variables are chosen based on existing literature. Next, each variable will be defined and discussed briefly.

4.1.1 Dependent variables

Financial performance is measured by using two accounting-based variables, return on assets (ROA) and return on equity (ROE), and one market-based variable Tobin's Q, measured as a firm's market value to its book value of assets. Waddock & Graves (1997) find a positive and statistically significant relationship between corporate sustainability performance and ROA at the level of five percent. The relation with ROE has a positive

sign as well but the results are not statistically significant. In addition, using ROE as a measure of profitability, Ruf et al. (2001) find a positive and significant relationship with changes in sustainability performance and changes in ROE only on long-term performance.

Previous studies have also investigated the association between market-based Tobin's Q and board diversity (e.g. Adams & Ferreira 2009, Carter et al. 2003), and the findings suggest that board characteristics may have an impact on financial performance. Thus, to find the possible link between financial performance and sustainability performance and whether more gender diverse boards outperform competitors in these two areas, *ROA*, *ROE* and *Tobin's Q* are taken into consideration.

4.1.2 Independent variables

The overall corporate sustainability performance (*CSP*) is measured by using equal-weighted rating score. The equal-weighted rating is based on the information provided by ASSET4's economic, environmental, social and corporate governance indicators, and all dimensions of sustainability are equally weighted. General sustainability performance score gives a balanced view of firm performance in these four areas. (Thomson Reuters 2011.)

Environmental score (*ENV*) measures a firm's impact on living and non-living natural systems, which includes water, air, land and complete ecosystems. The score implies how well a firm uses management practices to avoid environmental risks, as well as how to adopt environmental opportunities to gain long-term shareholder maximization. The pool of environmental indicators is large. It includes, for example, how well a firm monitors or reports environmental issues, the total amount of environmental research and development costs, and whether a firm has targets to achieve to be more ecological or environmentally-friendly. (Thomson Reuters 2011.)

The social pillar (*SOCIAL*) measures how well a firm generates trust and loyalty with its workforce and customers, as well as society in general through the best management practices. Social score reflects reputation and health of a firm's license to operate. These aspects have a key role in creating long-term shareholder value. Indicators under social pillar are, for example, whether a firm has a service or product quality policy, how it takes human rights into consideration and diversity issues. In addition, monitoring and reporting are taken into account in social indicators. (Thomson Reuters 2011.)

Corporate governance score (*CORGOV*) measures the systems and processes, which provide that the members of the board and executives act in the best interests of a firm's long-term shareholders. The score indicates a firm's capacity to direct and control its rights and responsibilities through the creation of incentives, checks and balances. Examples of datatypes related to corporate governance pillar are board of directors and the functions of it, shareholder rights and compensation policies. The purpose of all indicators is to compare how firms generate long-term shareholder value through using the best management practices. (Thomson Reuters 2011.)

Later, to observe the effects of board gender composition on firm performance, three distinct independent variables are used to measure gender diversity. *Gender diversity* is the percentage of female board members. The second variable is a dichotomous variable, *1 female director*, which takes value 1 if the board has at least one seat served by a female director in a given year and 0 otherwise. *3 or more females* is a dummy variable that is 1 for firms with at least three females on the board and 0 otherwise. The independent variables are based on prior studies related to financial and sustainability performance.

4.1.3 Control variables

The study includes four control variables, which may have an influence on firm performance. The variables are chosen based on previous studies investigating the relationship between both corporate sustainability and firm financial performance. Based on studies by Waddock & Graves (1997) and Setó-Pamies (2015), firm size, board size, risk and industry will be considered as control variables in the study.

Firm size is taken into account in most previous studies as a control variable. Many studies focusing on either financial performance (e.g. Adams & Ferreira 2009) or sustainability performance (e.g. Setó-Pamies 2015) also use firm size as a control. In addition, it is found to have a potential effect when investigating both corporate sustainability and financial performance simultaneously. Studies suggest that smaller firms may invest less in socially responsible behavior compared to larger firms because as they grow and get older, they will attract more attention from external constituents and they are more willing to respond the demands of stakeholders. (Waddock & Graves 1997.) To conclude, larger firms are expected to behave more responsibly (Coleman 2011). Based on previous studies, firm size is measured as a logarithm of total assets. Transformation to logarithm is being used to avoid the problems of lack of normality in the distribution of the variable (Setó-Pamies 2015: 340).

Debt ratio is operationalized as a proxy for management's risk tolerance. Based on existing studies, Waddock & Graves (1997) state that firm's attitudes towards risk activities can elicit savings, incur future and present costs or affect the market position by building or destroying it. A higher debt ratio gives a picture of firm's risks and financial position compared to competitors. On the other hand, all firms must bear risk to some extent and sometimes taking risks, for example by increasing debt, may ultimately make a firm more profitable and valuable. (Brealey, Myers & Allen 2011: 344.) Debt ratio is calculated as the ratio of total debt to total assets.

Board size has been under scrutiny in many studies related to firm's financial and sustainability performance. For example, Adams & Ferreira (2009) find that the board is larger in firms with more female board of directors. One could point to the increase in the proportion of women as the cause of an increase in board size but Adams & Ferreira (2009) still think it is important to control for board size. The results report related a negative relationship between board size and Tobin's Q and ROA. Thus, it is not surprising that the study finds a negative average effect of gender diversity on firm performance. Benson, Davidson III, Wang & Worrell (2011) admit that there is a debate regarding the effect of board's size on boardroom decisions. Nevertheless, a common belief is that smaller boards outperform larger boards. Moreover, Benson et al. (2011) observe more effective board monitoring in smaller boards. As a proxy for board size, this thesis uses the natural logarithm of total number of directors on the board.

Industry is controlled as a dummy variable. According to Ruf et al. (2001), prior studies give evidence that financial performance varies by industry. Moreover, it is important to control industry since Ruf et al. (2001) say that firms in a specific industry must satisfy same type of stakeholders and respond to their demands better than competitors. It could be concluded that stakeholders and their expectations vary between industries and this may cause differences in financial and sustainability performance. Setó-Pamies (2015) and Waddock & Graves (1997) agree that industry type may exert some influence on sustainability behavior. Without controlling for different industries, the main effects of the overall differences in sustainability performance may be blurred. Industry dummies are based on two-digit SIC codes.

The study targets nonfinancial, nonfarm firms. Thus, firms involved in finance, insurance, and real estate industry (SIC code 60–69) are excluded from the sample. Using only nonfinancial firms in the empirical tests is typical in the existing studies. The main reason for the selection is the difference in the capital structure between financial and nonfinancial firms. Financial firms tend to have unusually high leverage. The meaning of

high leverage is not the same as for nonfinancial firms, where it indicates financial distress. Moreover, it has a large weight on the market, and due to the differences in regulations, many researchers find it useful to exclude the financial sector. (Viale, Kolari & Fraser 2009: 464.) Since this study controls variables of financial performance and debt, the financial industry is ignored. In addition, firms in agriculture, forestry, and fishing industry (SIC code 01–09) and public administration (SIC code 90–99) are deleted. Also farming industry and public administration have special regulations and governance benefits, and therefore these firms are excluded from the investigation in regard to avoid industry biases.

The final sample consists of 2 485 observations (497 firms) from five industries. Figure 4 presents the distribution by five industries of the sample. Most of the firms are in manufacturing (46%). The diversity between the other industries is rather equal, which increases the reliability. To avoid the dummy variable trap, the last industry category, *Services* (SIC code 70–89), is excluded from the regression analysis.

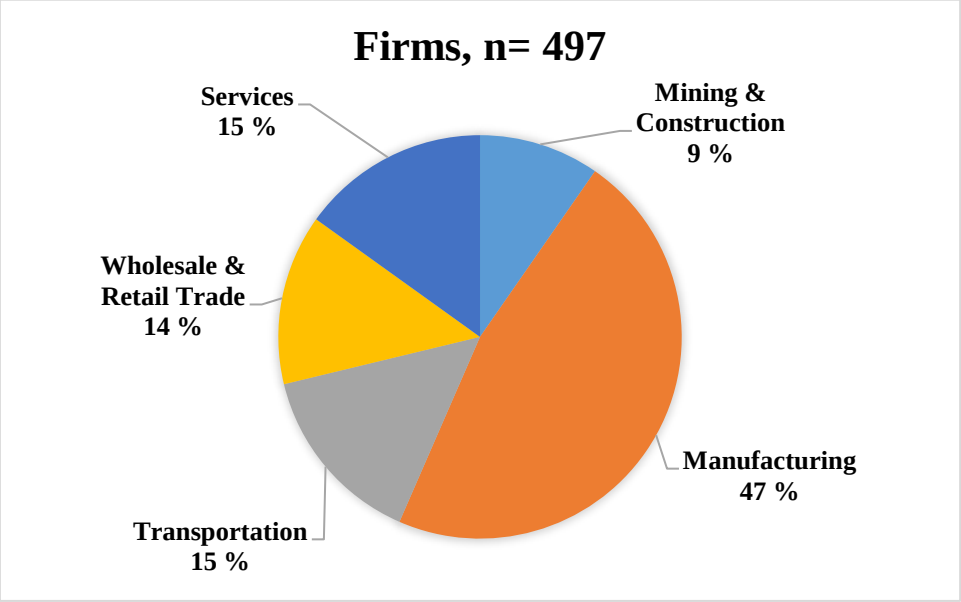

Figure 4. Sample distribution by industry.

4.2 Descriptive statistics

Table 1 presents the average score of corporate sustainability over time. The average score increases monotonically during 2010–2014. The average score of corporate

sustainability performance increases from 60.96 to 63.12, which is a 2.16 percentage point difference. The mean for all observations is 61.24 in the given time period.

Table 1. Average corporate sustainability performance over the observed time period.

	2010	**2011**	**2012**	**2013**	**2014**
CSP	60.96	61.70	58.94	61.49	63.12

Table 2 shows the descriptive statistics for the selected variables. Financial variables (*ROA, ROE* and *Tobin's Q*) demonstrate that the firms have relatively good ROA with a mean of 7.88%. In general, the firms also have a good ratio of ROE. The mean for firm value, *Tobin's Q*, is 0.96. This means that, in general, the observed firms are in equilibrium. On the other hand, the minimum values for the financial variables are negative, indicating that some firms are struggling with financial performance. Financial problems may be driven by the global financial crisis which has been a current issue in the observed time period. In addition, *Debt ratio* has a mean of 0.24, maximum of 0.86 and minimum of 0.00. A low debt ratio indicates low financial risks. However, a suitable debt ratio varies between industries and even between firms within a same industry, which may explain the large difference between the minimum and maximum values.

Sustainability variables (*CSP, ENV, SOCIAL* and *CORGOV*) exhibit considerable variation from minimum to maximum values. The biggest difference between minimum and maximum is in the social dimension where the smallest observed score is 4.42 and maximum 97.29. The average size of the firms in the sample is 15.86. On average, the board is made-up of 10 directors. However, the maximum is 18, indicating that there are significantly larger boards as well.

The descriptive statistics also show that female directors are underrepresented in the boardroom, as only about 15 percent of the seats are held by women. The number of women on the board is relatively small. On average 85 percent of the firms have at least one female director but then, only 10 percent have three or more seats held by women.

Table 2. Descriptive statistics.

Variable	Mean	Median	Max.	Min.	Std.dev.	No. of obs.
ROA	7.88	7.20	48.55	-40.32	6.58	2485
ROE	17.36	14.79	654.08	-509.83	31.93	2485
Tobin's Q	0.96	1.00	1.12	-2.22	0.12	2485
CSP	61.24	63.44	97.10	6.13	27.17	2485
ENV	51.33	50.87	95.06	8.68	32.02	2485
SOCIAL	53.57	52.88	97.29	4.42	27.26	2485
CORGOV	76.14	78.94	96.96	11.73	14.19	2485
Firm size	15.86	15.74	20.44	12.32	1.29	2485
Board size	10.29	10.00	18.00	5.00	2.09	2485
Debt ratio	0.24	0.24	0.86	0.00	0.15	2485
Gender diversity	15.31	14.29	66.67	0.00	10.09	2485
1 female director	0.85	1.00	1.00	0.00	0.36	2485
3 or more females	0.10	0.00	1.00	0.00	0.29	2485

4.3 Correlations

Table 3 provides pairwise correlations between firm financial performance and corporate sustainability performance. Also the correlations related to board gender diversity are reported in the table. For brevity, correlation coefficients for industries are excluded from the correlation matrix. As it can be seen from the table, every dependent variable, *ROA*, *ROE*, and *Tobin's Q*, is highly correlated with two or more variables of sustainability performance. *ROA* correlates positively and significantly with *ROE*, the overall corporate sustainability performance and the social dimension. A significant negative correlation is observed with *Firm size*, *Board size* and *Debt ratio*. *ROE* has a positive and significant correlation with three out of four sustainability variables, and with two variables of gender diversity. The positive pairwise correlations support the hypothesis that financial performance is positively influenced by corporate sustainability performance and gender diversity may affect this relationship as well. The last dependent variable, *Tobin's Q*, is statistically significantly correlated with all four sustainability variables and *Debt ratio*. However, the correlation with each sustainability variable is negative. As a conclusion, there is an inverse relationship between corporate sustainability performance and firm's market value.

Not surprisingly, ESG factors are strongly positively correlated with the overall corporate sustainability performance (0.688–0.902). One could argue that if the scoring of one

dimension increases, it positively affects the other dimensions and the total sustainability score as well. Regarding the sustainability variables, it can be observed from Table 3 that *CSP*, *ENV*, *SOCIAL* and *CORGOV* are significantly positively correlated with all three variables measuring board gender diversity. In addition, the variables for board gender diversity show a positive correlation with *Firm size*, *Board size* and *Debt ratio*, indicating that female directors are more likely to serve in larger firms and boards. A positive correlation with debt ratio may indicate that firms promote gender diversity when they are facing financial difficulties although a higher debt ratio is not always a bad thing. Based on previous findings, women consider risk differently (e.g. Adams & Ferreira 2009). Thus, the firm may think to benefit of a more heterogeneous thinking in difficult times.

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Table 3. Correlation matrix.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROA	1.000												
(2) ROE	0.529 *	1.000											
(3) Q	-0.033	0.011	1.000										
(4) CSP	0.067 *	0.095 *	-0.082 *	1.000									
(5) ENV	0.005	0.060 *	-0.087 *	0.902 *	1.000								
(6) SOCIAL	0.043 *	0.078 *	-0.075 *	0.902 *	0.801 *	1.000							
(7) CORGOV	-0.013	0.023	-0.075 *	0.688 *	0.558 *	0.553 *	1.000						
(8) Firm size	-0.143 *	-0.004	-0.035	0.490 *	0.494 *	0.471 *	0.329 *	1.000					
(9) Board size	-0.072 *	0.028	0.016	0.411 *	0.418 *	0.382 *	0.267 *	0.513 *	1.000				
(10) Debt ratio	-0.274 *	0.002	0.080 *	0.040	0.079 *	0.051 *	0.076 *	0.237 *	0.212 *	1.000			
(11) Gender diversity	-0.017	0.057 *	-0.040	0.313 *	0.302 *	0.331 *	0.226 *	0.244 *	0.274 *	0.095 *	1.000		
(12) 1 female director	-0.028	0.028	-0.047	0.289 *	0.272 *	0.285 *	0.212 *	0.221 *	0.373 *	0.096 *	0.643 *	1.000	
(13) 3 or more females	-0.006	0.054 *	-0.012	0.222 *	0.223 *	0.244 *	0.155 *	0.254 *	0.333 *	0.104 *	0.534 *	0.138 *	1.000

* Denotes statistical significance at the 0.01 level.

4.4 Regression results

The empirical analysis will be continued by examining the association between corporate sustainability performance and financial performance in an ordinary least squares (OLS) multivariate setting. To measure the linear relationship between the independent variables (corporate sustainability performance) and dependent variables (firm financial performance), the following regression model is constructed:

(1) $Financial\ performance_{i,t} = \alpha + \beta_{1\text{-}4}\ (corporate\ sustainability\ performance)_{i,t} + \beta_{5\text{-}7}(control\ variables)_{i,t} + \beta_{8\text{-}11}\ (industry\ effects)_{i,t} + \varepsilon_{i,t}$

where the dependent variable is one of the three alternative firm financial performance measures, that is, *ROA*, *ROE* or *Tobin's Q*, for firm *i* at time *t*. Regressions will be run four times for each dependent variable, meaning that *CSP*, *ENV*, *SOCIAL* and *CORGOV* are investigated separately. In each of the alternative regressions, the control variables, *Firm size*, *Board size* and *Debt ratio*, are included. In addition, to control for industry effects, four industry dummies are included in the regressions. The fifth industry category (*Services*), is excluded from the regression to avoid the dummy variable trap. Throughout the regressions, White's test for heteroscedasticity is being used.

Table 4 presents the estimates of four alternative versions of equation (1) for the overall corporate sustainability performance, *CSP*. The two first columns have the same the dependent variable, *ROA*. The first model is without year fixed effects and the second model is the same except with year fixed effects. The adjusted R^2 in columns (1) and (2) is almost identical, which means that the data does not distinguish when period fixed effect is added. Therefore, all the other panel regressions are reported only when year fixed effects are included. Industry-specific fixed effects are included in all models by creating dummy variables of the firms' SIC codes.

Table 4 shows that the adjusted R^2 is considerable greater for *ROA* than for the other two dependent variables. Thus, the explanatory power of the regression model is better for *ROA*. Moreover, as it can be seen from the table, there is a strong statistically significant relationship between the overall corporate sustainability performance and financial performance with the three dependent variables. However, when measuring firm value by *Tobin's Q*, the estimated coefficient is negative and more statistically significant

compared to the coefficients of financial profitability. Hence, the regressions support the hypothesis that firms with better corporate sustainability performance are associated with lower market value.

Surprisingly, *Firm size* is negatively and statistically significant at the level of 1% for *ROA* and *ROE* and at the level of 5% for *Tobin's Q.* The results indicate that larger firms do worse in financial terms. It could be thought that larger firms outperform in financial terms. However, Waddock & Graves (1997) find a negative size effect as well. Furthermore, *Board size* has a negative relationship with *ROA.* The coefficients for *ROE* and *Tobin's Q,* on the other hand, are positive while only *Tobin's Q* is statistically significant at the level of 1%. These findings indicate that increasing the number of board of directors positively affects firm value. A negative relationship between *Debt ratio* and *ROA* means that firms with more debt have lower *ROA*. Interestingly, the relationship with *Tobin's Q* is positive. As debt ratio increases by 1 percent, Tobin's Q increases by 6.9 basis points. All industry dummies are highly significant for *ROA* but positive only for *Manufacturing* and *Wholesale & Retail Trade*. For *ROE*, *Mining & Construction* and *Transportation & Public Utilities* have significant but negative coefficients, suggesting that these industries have a negative impact on *ROE* compared to other industry categories.

Table 4. Overall corporate sustainability performance and financial performance.

	ROA (1)	**ROA (2)**	**ROE**	**Tobin's Q**
Constant	19.844 ***	19.636 ***	24.473 ***	0.952 ***
	(7.98)	(8.20)	(2.58)	(37.12)
CSP	0.031 ***	0.030 ***	0.123 ***	-0.000 ***
	(4.39)	(4.19)	(3.30)	(-6.48)
Firm size	-0.681***	-0.667 ***	-1.078 ***	-0.003 **
	(-7.08)	(-7.10)	(-2.70)	(-2.24)
Board size	-0.483	-0.480	1.142	0.031 ***
	(-0.52)	(-0.52)	(0.170)	(15.44)
Debt ratio	-9.310 ***	-9.248 ***	7.424	0.069 ***
	(-9.87)	(-9.57)	(1.49)	(4.68)
Mining & Construction	-1.570 ***	-1.581 ***	-8.832 ***	-0.003
	(-7.91)	(-7.93)	(-5.71)	(-0.94)
Manufacturing	0.687 ***	0.690 ***	-0.535	-0.002
	(3.68)	(3.66)	(-0.55)	(-0.46)
Transportation & Public Utilities	-0.500 ***	-0.519 ***	-7.459 ***	-0.005
	(-3.29)	(-3.32)	(-3.41)	(-1.25)
Wholesale & Retail Trade	1.629 ***	1.631 ***	1.675	0.012 ***
	(8.81)	(8.86)	(1.61)	(7.65)

Table 4. *Continued*

	ROA (1)	ROA (2)	ROE	Tobin's Q
Period fixed effect	NO	YES	YES	YES
No. of obs.	2485	2485	2485	2485
Adj. R^2	11.3%	11.3%	2.0%	1.4%
F-stat.	40.55	27.38	5.13	3.84

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

Next, equation (1) is regressed the second time. The equation differs only by replacing *CSP* with *ENV*. Thus, Table 5 presents the estimates of three alternative versions of the relationship between financial performance and environmental dimension of sustainability performance. In the first column, the dependent variable in the regression is *ROA*, in the second *ROE*, and in the third, it is *Tobin's Q*. Consistent with the previous results, *ENV* is positive and statistically significant for *ROA* and *ROE*. Again, the coefficient is negative for *Tobin's Q* and is highly statistically significant. Similarly, *Firm size* has a negative coefficient but is significant only for *ROA* and *Tobin's Q*. Isidro & Sobral (2015) also find a negative association between firm size and financial performance, as measured by *ROA* and *Tobin's Q*. They explain the findings by saying that larger firms have activities that are more complex and it is more challenging for investors to monitor them, which increases costs.

The coefficient for *Debt ratio* is similar with the findings with *CSP*. Furthermore, larger boards seem to have better *ROA* and *ROE* but the coefficients are insignificant. In these regressions, the adjusted R^2 is 0.9 percentage lower for *ROA* than it is with the measures of the overall corporate sustainability performance. The difference in the adjusted R^2 between the two tables is not that remarkable for the other two dependent variables.

Table 5. Environmental dimension and financial performance.

	ROA	ROE	Tobin's Q
Constant	17.010 ***	16.005 **	0.934 ***
	(9.01)	(2.11)	(34.19)
ENV	0.009 **	0.048 **	-0.000 ***
	(2.16)	(2.18)	(-13.87)
Firm size	-0.486 ***	-0.468	-0.003 *
	(-6.40)	(-0.96)	(-1.74)
Board size	0.016	2.826	0.032 ***
	(0.02)	(0.44)	(14.72)

Table 5. *Continued*

	ROA	ROE	Tobin's Q
Debt ratio	-9.607 ***	6.098	0.071 ***
	(-9.46)	(1.22)	(4.89)
Mining & Construction	-1.706 ***	-9.287 ***	-0.003
	(-8.59)	(-5.82)	(-0.83)
Manufacturing	0.907 ***	0.107	0.001
	(4.89)	(0.12)	(0.18)
Transportation & Public Utilities	-0.569 ***	-7.663 ***	-0.004
	(-3.59)	(-3.43)	(-1.02)
Wholesale & Retail Trade	1.682 ***	1.862 *	0.011 ***
	(10.17)	(1.88)	(6.55)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	10.4%	1.4%	1.5%
F-stat.	25.06	3.93	4.15

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

Table 6 presents the estimates of the three alternative versions of equation (1) with social dimension of sustainability performance. Consistent with Tables 4 and 5, the first column has *ROA* as the dependent variable, in the second *ROE*, and in the third *Tobin's Q*. In line with the existing literature and the empirical analysis of this thesis, social dimension is also positively and significantly associated with *ROA* and *ROE*. Once again, the estimated coefficient for *Tobin's Q* is negative and even more significant than for environmental dimension (t-statistics -13.87 compared to -23.07). The table also reports similar coefficients with the previous tables for industry dummies.

Table 6. Social dimension and financial performance.

	ROA	ROE	Tobin's Q
Constant	18.160 ***	18.617 **	0.959 ***
	(7.26)	(2.11)	(31.27)
SOCIAL	0.021 ***	0.083 ***	-0.000 ***
	(7.15)	(2.79)	(-23.07)
Firm size	-0.573 ***	-0.706	-0.004 **
	(-4.67)	(-1.51)	(-2.21)
Board size	-0.162	2.411	0.029 ***
	(-0.19)	(0.37)	(10.12)
Debt ratio	-9.491 ***	6.452	0.072 ***
	(-9.71)	(1.28)	(5.10)

Table 6. *Continued*

	ROA	ROE	Tobin's Q
Mining & Construction	-1.614 ***	-8.963 ***	-0.004
	(-7.63)	(-5.97)	(-0.94)
Manufacturing	0.852 ***	0.111	-0.003
	(4.34)	(0.13)	(-0.74)
Transportation & Public Utilities	-0.505 ***	-7.399 ***	-0.005
	(-3.05)	(-3.49)	(-1.27)
Wholesale & Retail Trade	1.619 ***	1.623	0.012 ***
	(9.96)	(1.57)	(6.76)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	10.8%	1.6%	1.3%
F-stat.	26.02	4.37	3.67

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

Finally, the relationship between firm financial performance and the last ESG factor is reported. Table 7 shows separately the relationship between the financial variables and corporate governance dimension, *CORGOV*. Again, sustainability performance has a positive and significant coefficient for *ROA* and *ROE* and negative for *Tobin's Q*. Table 7 further shows that the coefficient estimates for *Firm size* and *Debt ratio*, as well as for industry categories, do not differ significantly from the regression results displayed earlier. The signs remain the same but some differences in the significance levels occur.

Table 7. Corporate governance dimension and financial performance.

	ROA	ROE	Tobin's Q
Constant	15.170 ***	6.495	1.012 ***
	(6.79)	(1.13)	(34.89)
CORGOV	0.009 ***	0.032 **	-0.001 ***
	(3.57)	(2.22)	(-5.83)
Firm size	-0.416 ***	-0.048	-0.005 ***
	(-3.80)	(-0.07)	(-2.77)
Board size	0.203	3.947	0.027 ***
	(0.23)	(0.65)	(8.19)
Debt ratio	-9.701 ***	5.596	0.075 ***
	(-9.76)	(1.08)	(5.19)

Table 7. *Continued*

	ROA	ROE	Tobin's Q
Mining & Construction	-1.734 ***	-9.461 ***	-0.002
	(-8.91)	(-6.10)	(-0.59)
Manufacturing	1.083 ***	1.062	-0.006
	(6.26)	(1.32)	(-1.61)
Transportation & Public Utilities	-0.559 ***	-7.625 ***	-0.005
	(-3.58)	(-3.44)	(-1.19)
Wholesale & Retail Trade	1.697 ***	1.939 **	0.011 ***
	(10.20)	(1.97)	(6.53)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	10.3%	1.3%	1.3%
F-stat.	24.84	3.67	3.79

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

When comparing all four tables, the results are consistent with each other. The results clearly support the hypothesis that corporate sustainability has a positive association with firm financial performance. The association is also statistically significant. However, this only accounts for profitability, whereas for firm value the effect is negative. Empirical analysis gives evidence that the negative effect on firm's market value is statistically stronger relative to the observed positive effect for profitability. Another observation is that *Board size* is only significant for *Tobin's Q* and the relationship is positive, except with environmental dimension. Larger boards seem to success compared to smaller boards. The coefficients for industry dummies are also similar for each sustainability dimension. The regression results show that *Mining & Construction* firms have a negative relationship with firm financial performance whereas *Wholesale & Retail trade* industry is the opposite.

4.4.1 The effect of board gender diversity

The empirical analysis so far supports Hypothesis 1. Next, it will be investigated whether a certain component affects the relationship between corporate sustainability and financial performance. Hypothesis 2 predicts that board gender diversity has positive effects on this relationship. In order to investigate the mediating effect of board gender diversity on the association between sustainability and financial performance, interaction terms for each corporate sustainability performance variable (*CSP*, *ENV*, *SOCIAL* and

CORGOV) and two variables measuring board gender diversity (*Gender diversity* and *3 or more women*) are computed. Thus, the following regression models are constructed:

(2) $Financial\ performance_{i,t} = \alpha + \beta_{1\text{-}4}\ (corporate\ sustainability\ performance)_{i,t} + \beta_5\ (Gender\ diversity)_{i,t} + \beta_6\ (corporate\ sustainability\ performance{*}Gender\ diversity)_{i,t} + \beta_{7\text{-}9}(control\ variables)_{i,t} + \beta_{10\text{-}13}\ (industry\ effects)_{i,t} + \varepsilon_{i,t}$

(3) $Financial\ performance_{i,t} = \alpha + \beta_{1\text{-}4}\ (corporate\ sustainability\ performance)_{i,t} + \beta_5\ (3\ or\ more\ women)_{i,t} + \beta_6\ (corporate\ sustainability\ performance{*}3\ or\ more\ women)_{i,t} + \beta_{7\text{-}9}\ (control\ variables)_{i,t} + \beta_{10\text{-}13}\ (industry\ effects)_{i,t} + \varepsilon_{i,t}$

The regressions are run four times with both equations since there are four different independent variables of corporate sustainability performance. Otherwise the equations remain constant. For the sake of brevity, one variable measuring board gender diversity is left out of the investigation. Furthermore, both Galbreath (2011) and Bear et al. (2010) say that tokenism may explain the difficulties female directors are facing in business life. It is found that as the number of women increases in the boardroom, it also increases the sustainability and social responsibility of the firm. Therefore, it is interesting to investigate the interaction of *3 or more women* with the relationship between corporate sustainability performance and firm financial performance.

The linear regression results for the second hypothesis are represented in Table 8. Here, the variable measuring corporate sustainability performance is the overall sustainability score, *CSP*. Columns 1–3 have different dependent variables. In panel A, the interaction term is constructed by multiplying the overall corporate sustainability performance score with the percentage of female directors on board. What is notable in Table 8 is that the overall sustainability variable alone is not statistically significant anymore. The interaction term is negative (p = -0.014) for *Tobin's Q* but positive for *ROA* and *ROE*, with estimated coefficients 0.001 (p = 0.000) and 0.002 (p = 0.475), respectively. These findings indicate that there is a statistically significant positive effect between *ROA* and the interaction term. The positive relationship between social responsibility and financial performance becomes stronger as the percentage of women increases on the board.

The three control variables are all negative for *ROA* but only *Firm size* and *Debt ratio* are significant. *Firm size* is negative and significant for *ROE* and *Tobin's Q* as well. The table represents that the results are similar with the regression results for equation 1. For

industry dummies, positive coefficients are found only for *Manufacturing* and *Wholesale & Retail Trade*. For all dependent variables, *Mining & Construction* and *Transportation & Public Utilities* are negative and statistically significant at the level of 1, 5 and 10 percent.

Table 8. The interaction of board gender diversity and overall corporate sustainability performance with firm financial performance.

Panel A: interaction term *CSP*Gender diversity*

	ROA	**ROE**	**Tobin's Q**
Constant	20.807 ***	27.176 ***	0.931 ***
	(8.58)	(3.92)	(30.88)
CSP	0.011	0.087	-0.000
	(0.96)	(1.03)	(-0.83)
Gender diversity	-0.104 ***	-0.064	0.000
	(-4.41)	(-0.50)	(1.04)
CSP*Gender diversity	0.001 ***	0.002	-1.55E-05 **
	(3.76)	(0.71)	(-2.46)
Firm size	-0.673 ***	-1.130 **	-0.003 **
	(-6.92)	(-2.51)	(-1.99)
Board size	-0.326	0.809	0.034 ***
	(-0.36)	(0.124)	(14.32)
Debt ratio	-9.290 ***	6.939	0.073 ***
	(-9.20)	(1.46)	(4.80)
Mining & Construction	-1.830 ***	-8.562 ***	-0.006 **
	(-8.19)	(-5.45)	(-2.25)
Manufacturing	0.622 ***	-0.436	-0.003
	(3.13)	(-0.41)	(-0.66)
Transportation & Public Utilities	-0.540 ***	-7.254 ***	-0.007 *
	(-3.42)	(-3.21)	(-1.73)
Wholesale & Retail Trade	1.675 ***	1.561	0.012 ***
	(8.99)	(1.59)	(7.66)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	11.6 %	1.9 %	1.5 %
F-stat.	24.34	4.50	3.75

Panel B: interaction term *CSP*3 or more women*

	ROA	**ROE**	**Tobin's Q**
Constant	20.434 ***	31.386 ***	0.918 ***
	(7.91)	(4.50)	(30.75)
CSP	0.013	0.084	-0.000
	(1.22)	(1.16)	(-1.10)
3 or more women	-0.919 ***	-0.201	0.003
	(-3.88)	(-0.18)	(0.72)
CSP*3 or more women	0.012 ***	0.019	-0.000 *
	(3.38)	(0.91)	(-1.81)

Table 8. *Continued*

	ROA	ROE	Tobin's Q
Firm size	-0.684 ***	-1.180***	-0.003 *
	(-6.79)	(-2.58)	(-1.83)
Board size	-0.164	-0.913	0.040 ***
	(-0.18)	(-0.14)	(12.49)
Debtratio	-9.284 ***	6.793	0.072 ***
	(-9.07)	(1.43)	(4.76)
Mining & Construction	-1.779 ***	-8.307 ***	-0.005 **
	(-7.65)	(-5.44)	(-2.04)
Manufacturing	0.622 ***	-0.434	-0.002
	(3.14)	(-0.43)	(-0.55)
Transportation & Public Utilities	-0.512 ***	-7.117 ***	-0.006 *
	(-3.15)	(-3.23)	(-1.64)
Wholesale & Retail Trade	1.675 ***	1.480	0.012 ***
	(9.00)	(1.45)	(7.67)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	11.6 %	2.0 %	1.5 %
F-stat.	24.18	4.63	3.70

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

In panel B, the interaction term is constructed of the dummy variable coded as 1 if the board has three or more female directors and 0 otherwise. Interestingly, in both panels the estimated coefficient for *CSP* is not statistically significant while still positive. The coefficients for board gender diversity is negative and statistically significant only for *ROA*. However, in Panel A and B, the coefficient estimates for the interaction terms are positive and significant for *ROA*. The estimated coefficient is 0.012 with a p-value of 0.001, suggesting that if the board has three of more female directors, it has a positive impact on the relationship between corporate sustainability performance and financial performance, as measured with *ROA*. However, the mediating effect on market value is also negative in Panel B, indicating that the presence of female directors dampens the relation of corporate sustainability performance on *Tobin's Q*. There are no big differences in the estimated coefficients for the control variables nor for industry dummies compared to Panel A. However, *Firm size* becomes statistically insignificant for *ROE*.

Next, the impact of board gender diversity on the relationship between environmental dimension and financial performance will be investigated. In Table 9, Panel A reports the regression results for equation 2 and Panel B for equation 3. Once again, there are three

dependent variables, *ROA, ROE* and *Tobin's Q*. Comparing the coefficients of environmental sustainability with table 5, the estimate of *ENV* is not positive for *ROA* anymore although this result is not statistically significant. However, it becomes insignificant for *ROE* as well but still has a positive sign. The coefficients for the interaction terms are similar with the previous table. In short, the panels report that a more gender diverse board has a significant positive effect on the relationship between environmental sustainability performance and *ROA*. The effect is the opposite for firm's market value but interestingly, it is statistically significant only in Panel A. The adjusted R^2 is significantly lower for *ROE* and *Tobin's Q*, implying that the explanatory power of the models is better when the dependent variable is *ROA*.

Table 9. The interaction of board gender diversity and environmental sustainability performance with firm financial performance.

Panel A: interaction with *Gender diversity*

	ROA	**ROE**	**Tobin's Q**
Constant	17.858 ***	18.745 ***	0.921 ***
	(8.91)	(3.30)	(30.84)
ENV	-0.008	0.009	-0.000 **
	(-0.97)	(0.15)	(-2.35)
Gender diversity	-0.068 ***	-0.019	0.000
	(-3.79)	(-0.24)	(0.28)
ENV*Gender diversity	0.001 ***	0.002	-0.000 **
	(3.49)	(0.94)	(-2.26)
Firm size	-0.495 ***	-0.540	-0.003
	(-6.24)	(-1.01)	(-1.55)
Board size	0.109	2.286	0.035 ***
	(0.13)	(0.37)	(13.44)
Debtratio	-9.636 ***	5.562	0.074 ***
	(-9.08)	(1.16)	(5.06)
Mining & Construction	-1.869 ***	-8.781 ***	-0.006 **
	(-8.56)	(-5.52)	(-2.10)
Manufacturing	0.871 ***	0.325	-0.000
	(4.54)	(0.33)	(-0.07)
Transportation & Public Utilities	-0.558 ***	-7.329 ***	-0.006
	(-3.46)	(-3.21)	(-1.48)
Wholesale & Retail Trade	1.763 ***	1.784 *	0.012 ***
	(10.84)	(1.79)	(6.03)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485

Table 9. *Continued*

	ROA	**ROE**	**Tobin's Q**
Adj. R^2	10.7%	1.4%	1.6%
F-stat.	22.16	3.58	3.93

Panel B: interaction with *3 or more women*

	ROA	**ROE**	**Tobin's Q**
Constant	17.963 ***	24.133 ***	0.908 ***
	(8.28)	(4.32)	(31.20)
ENV	-0.007	0.007	-0.000 ***
	(-0.80)	(0.14)	(-3.23)
3 or more women	-0.610 ***	0.216	-0.001
	(-3.10)	(0.29)	(-0.23)
ENV*3 or more women	0.010 ***	0.020	-6.64E-05
	(2.89)	(1.16)	(-1.55)
Firm size	-0.510 ***	-0.603	-0.002
	(-6.09)	(-1.10)	(-1.44)
Board size	0.117	0.103	0.041 ***
	(0.13)	(0.02)	(11.94)
Debtratio	-9.617 ***	5.496	0.073 ***
	(-9.05)	(1.14)	(5.04)
Mining & Construction	-1.829 ***	-8.557 ***	-0.005 *
	(-7.97)	(-5.55)	(-1.91)
Manufacturing	0.861 ***	0.303	0.000
	(4.54)	(0.33)	(0.04)
Transportation & Public Utilities	-0.528 ***	-7.183 ***	-0.006
	(-3.17)	(-3.21)	(-1.39)
Wholesale & Retail Trade	1.745 ***	1.676 *	0.012 ***
	(10.78)	(1.65)	(6.14)
Period fixed effect	YES	YES	YES
No. of obs.	2485	2485	2485
Adj. R^2	10.6%	1.5%	1.6%
F-stat.	22.13	3.76	3.85

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

The regression results for social and corporate governance dimensions are not represented in the thesis. The untabulated results show some differences in the estimated coefficients for the interaction terms compared to those reported in Table 9. For example, for *ROE*, the interaction term of *Gender diversity* and *CORGOV* is still positive but, in contrast to *ENV*, also significant at the level of 1 percent. For *ROA* and *Tobin's Q*, the estimates are

similar for all three dimensions of corporate sustainability performance; for *ROA* the estimates are positive and significant, and for *Tobin's Q* they are negative for all three ESG factors.

In Panel B, the results for the interaction of 3 or more women on the relationship between *SOCIAL* or *CORGOV* and financial performance are also in line with those presented for environmental dimension. For *ROA*, the estimated coefficients for the interaction variable remain positive and highly statistically significant. For *ROE*, the interaction term becomes significant for *CORGOV*. The coefficient for the interaction term is 0.066 (p = 0.000). Thus, three or more female directors improve the relationship between sustainability performance and profitability in the area of corporate governance. Not surprisingly, the effect remains negative for *Tobin's Q*. To summarize the results, there is statistically significant evidence that the relationship between corporate sustainability performance and firm financial performance is positively moderated by increasing the proportion of female board of directors but negative association occurs with firm's market value.

4.4.2 Robustness tests

Two robustness tests are conducted to increase the reliability of the empirical results. Following a study by Waddock & Graves (1997), it is tested whether better financial performance results in improved corporate sustainability performance. To further test the association between corporate sustainability performance and firm financial performance, Waddock & Graves (1997) use corporate sustainability performance first as the independent variable and later as the dependent variable. As a result, the findings suggest that corporate sustainability performance is both a predictor as well as a consequence of firm financial performance. Thus, following their study, Table 10 reports regression analyses using *CSP* as the dependent variable whereas *ROA, ROE* and *Tobin's Q* as the independent variable. In Model (1), the independent variable for financial performance is *ROA,* in Model (2) it is *ROE,* and finally in Model (3), *Tobin's Q*. A one-year lag is used for financial performance. After controlling for *Firm size, Board size, Debt ratio* and industry, the results support the positive relationship between corporate sustainability performance and profitability when it is measured by *ROA* and *ROE*. However, the association with firm value is negative and statistically significant. The coefficient for *Tobin's Q* is -11.002 (p = 0.036).

Table 10. The causality between corporate sustainability performance and firm financial performance.

	Model (1)	**Model (2)**	**Model (3)**
Constant	-148.734 ***	-145.319 ***	-134.382 ***
	(-20.37)	(-18.56)	(-13.35)
Financial performance	0.221 ***	0.035 *	-11.002 **
	(3.10)	(1.87)	(-2.10)
Firm size	9.201 ***	9.110 ***	9.032 ***
	(23.31)	(22.53)	(22.36)
Board size	25.478 ***	25.269 ***	25.870 ***
	(16.04)	(16.25)	(19.02)
Debtratio	-11.625 ***	-13.798 ***	-12.834 ***
	(-5.46)	(-7.11)	(-6.05)
Mining & Construction	-4.298 ***	-4.302 ***	-4.709 ***
	(-17.55)	(-12.72)	(-24.07)
Manufacturing	13.531 ***	13.753 ***	13.666 ***
	(40.91)	(47.76)	(42.08)
Transportation & Public Utilities	-1.340 **	-1.154 *	-1.569 ***
	(-2.48)	(-1.91)	(-3.11)
Wholesale & Retail Trade	2.011 ***	2.385 ***	2.507 ***
	(3.57)	(3.87)	(4.30)
Period fixed effect	YES	YES	YES
No. of obs.	1988	1988	1988
Adj. R^2	35.6%	35.5%	35.6%
F-stat.	100.98	100.59	100.96

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

The results in Table 10 are consistent with the findings reported by Waddock & Graves (1997). The relationship with sustainability performance remains positive for profitability and negative for firm value. More importantly, the results for the empirical analysis of the thesis remain robust. According to these findings, there is a causal relationship between the two variables, that is, good corporate sustainability performance depends on good profitability and vice versa. For firm value, as measured by *Tobin's Q*, the relationship seems to be negative in both ways. Comparing the t-statistics reported in Table 4 where financial performance is the dependent variable, the t-statistics are smaller. For example, in Table 4 the estimated coefficient for *CSP* on *Tobin's Q* is -6.48 but only -2.10 in Table 10 when sustainability performance is the dependent variable. Thus, the results are less statistically significant in Table 10.

Waddock & Graves (1997) also suggest a "virtuous circle" between the two variables, meaning that firms with better profitability are able to invest more in their long-term strategy. Expenditures on corporate sustainability performance may lead to pay better attention to stakeholders' interests and employees. Ultimately, the benefits will be positively reflected to the balance sheet as well.

The empirical analysis reports that a gender diversity enhances the positive relationship between corporate sustainability and profitability. The mediating effect of board gender diversity on profitability and all four sustainability variables is positive. As Tables 8 and 9 show, the effect is negative for firm value, as measured by *Tobin's Q*. But as Powell says (2011:223), among many other authors, correlation does not mean causality. Promoting gender diversity may improve profitability but also, more profitable firms may be better at attracting the best female candidates or additionally. Firms can afford experiments with selecting women directors, which could also explain the findings of larger boards in the existing literature. Thus, gender diversity increases by adding more seats on the board. However, success arises from smart decisions. It may be related to corporate sustainability or some parts of it, for example, an increase of board gender diversity.

Lagged variables are useful for investigating the causality. For example, Harjoto et al. (2015) use lagged variables for corporate social responsibility, as well as for gender diversity to test the reverse causality and multicollinearity between the components. Lagged variables are also practical to investigate the time effect of the benefits of corporate sustainability. Alternatively, since it takes time to see the results of investing in corporate sustainability, Galbreath (2011) uses a 3-year lagged measure to address the long-term nature. Isidro & Sobral (2015) also stress that the potential effects of gender diversity are unlikely to occur immediately. Moreover, board members must be in their roles for a while to have an impact on corporate sustainability and profitability (Bear 2010: 212). According to previous studies, the interaction term is computed by using three-year lagged variables.

Table 11. Lagged interaction effect on financial performance.

	ROA	**ROE**	**Tobin's Q**
Constant	12.420 ***	11.212 *	0.978 ***
	(436.43)	(1.91)	(97.49)
CSP (lagged)	-0.002	0.001	-0.000 ***
	(-0.75)	(0.08)	(-88.35)
Gender diversity (lagged)	-0.133 ***	-0.224 ***	0.000 ***
	(-641.62)	(-2.67)	(2.69)
CSP*Gender diversity	0.002 ***	0.006 ***	-1.55E-05 ***
	(15.48)	(9.05)	(-11.41)
Firm size	-0.431 ***	-1.379 ***	-0.007 ***
	(-6.61)	(-7.61)	(-258.98)
Board size	1.773 ***	11.007 ***	0.037 ***
	(3.04)	(5.81)	(11.75)
Debtratio	-6.940 ***	-2.922	0.074 ***
	(-7.25)	(-1.52)	(9.23)
Mining & Construction	-1.883 ***	-4.413 ***	0.001
	(-4.66)	(-4.24)	(1.34)
Manufacturing	0.464 ***	0.180 ***	0.004 ***
	(218.90)	(3.70)	(21.16)
Transportation & Public Utilities	-0.924 ***	-1.568	0.001 ***
	(-11.39)	(-0.84)	(4.56)
Wholesale & Retail Trade	1.484 ***	3.002 **	0.016 ***
	(23.29)	(2.49)	(11.50)
Period fixed effect	YES	YES	YES
No. of obs.	994	994	994
Adj. R^2	7.0%	2.0%	2.3%
F-stat.	7.82	2.85	3.10

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

Table 11 reports the regression results when *CSP* and *Gender diversity* are in lagged format. Comparing these results with Panel A in Table 8, the estimated coefficients for the interaction term are larger and more statistically significant when lags are used for the two variables. In Table 8, the coefficient for *ROA* is 0.001 with a t-statistic of 3.76 whereas in Table 11, it is 0.002 with a t-statistic of 15.48. In addition, the negative effect for *Tobin's Q* is also more significant in Table 11. Moreover, the positive impact of females becomes significant for *ROE* when the interaction term is lagged. Consistent with previous studies, the long-term nature is in key role in interpreting the impact of female directors on the relationship between corporate sustainability and financial performance. Isidro & Sobral (2015) say that delayed effect of female directorship is most critical for accounting-based measures, which are based on past events. Firm's market value, on the

other hand, indicates the future expectations and thus better reflects the effects in a timely manner. Therefore, it could be better to use lagged variables only for *ROA* and *ROE*.

Lagged predictors also affect the estimations of control variables. *Board size* becomes positive and is significant at a level of 1% for all financial performance variables. The table also reports that there are some changes in the significance levels and signs for the industry variables. For example, *Manufacturing* is statistically significant only for *ROA* when the interaction term is not lagged. However, it becomes significant also for *ROE* and *Tobin's Q*, and the coefficients change from negative to positive when a three-year lag is used for corporate sustainability performance and the percentage of women on board.

5. SUMMARY AND CONCLUSIONS

Due to globalization and growing interest towards ethical behavior, firms are facing new business challenges. To survive in the competition, organizations must consider a wide pool of needs and expectations from several sources. Therefore, the general thinking is shifting from a shareholder perspective to a stakeholder-based approach, which includes, for example, employees and customers. Firms are starting to realize that the sole purpose of business is not only to make money and deliver returns to shareholders but also be responsible and implement sustainability practices to their strategic decisions.

Two theories explain how sustainability is related to firm's financial success. Agency theory stresses the importance of board characteristics on firm performance. Thus, it is also important to investigate the internal factors that can affect both sustainability and financial performance. However, this does not mean that the relationship is always positive. Based on agency theory, close social relationships on the board and with both insiders and outsiders may violate board performance. However, family ties and personal interests may add incentives to be effective and lead to a win-win situation where firm performance increases through individual goals. Thus, it is possible to get personal benefits while maximizing business performance. The other main theoretical perspective is stakeholder theory. It can be seen as stakeholder management and enables to integrate social demands and long-term value maximization (Crane et al. 2013). Based on this argument, stakeholder theory seems to be a good theoretical approach to explain the new ideology that it is important to invest in social responsibility to maximize profits and outperform competitors in the long run.

Existing research also reports that there is an association between corporate sustainability performance and firm financial performance. However, the results are not straightforward. There are arguments both for and against whether the relationship is positive and whether corporate sustainability should be considered in business at all. Probably the best-known argument against corporate sustainability among academics is presented by Friedman (1970). His article states that investing in sustainability is not serving the main purpose of business, which is maximizing shareholder value. In this case, it is maybe good to notice that these arguments are rather old and the new generation has relatively different opinions about ethical issues and business life. Nevertheless, the more recent studies also suggest that it is possible to outperform in financial terms without investing in sustainability practices. The relationship is observed to be U-shaped,

implying that firms with either unexpectedly high or low sustainability performance outperform their competitors. (Brammer & Millington 2008.)

Although it is possible to survive without any focus on sustainability, the U-shape relationship also supports the positive association. Several studies find a positive link between corporate sustainability performance and financial performance. The findings report both immediate and long-term financial benefits when corporate sustainability performance increases. By contrast, sustainable scandals are observed to lead to negative cumulative abnormal returns. (Ruf et al. 2001, Kappou & Oikonomou 2006.) Existing literature suggests firms to patient since it takes time to find the core values and demands of stakeholder groups. Due to digitalization, unethical behavior will be soon in the news and it can damage firm reputation for a long time. It is not easy to earn stakeholders' trust and loyalty back, and losing it will ultimately negatively affect financial performance.

Moreover, both theory and empirical research agree that boards play a key role in firms' success. A growing body of literature investigates board composition and its effects on firm performance. Most studies focus on financial issues but lately studies have been paying more and more attention to how different characteristics of board affect corporate sustainability performance. In this thesis, the particular interest is to understand whether female boards of directors mediate with the relationship between sustainability and financial performance. For simplicity, this study focuses only on gender diversity. Other minorities and internal factors are left for further research although they may have an important role in explaining the increasing interest towards sustainable behavior and its effects on financial performance. The society in general is trying to promote gender-equality and some countries are forcing firms to promote female managers and directors through legislation. Thus, studies related to female leadership are important to many groups: academics, employees, students and management.

This thesis investigates the link between corporate sustainability and financial performance in the S&P 1500 firms. Employing a 5-year panel dataset for almost 500 firms, the results are in line with several prior studies. After controlling for firm size, board size, debt ratio and industry, the empirical analysis of the thesis observes a statistically significant positive relationship between corporate sustainability and profitability, as measured by *ROA* and *ROE*. The regression results are similar with the overall corporate sustainability score and with each ESG factor separately. The findings support the first hypothesis that sustainable behavior may bring financial advantages to organizations. However, corporate sustainability performance is negatively related to firm's market value, as measured by *Tobin's Q*. In addition, the negative relationship

between corporate sustainability performance and *Tobin's Q* is the most significant of the variables measuring financial performance. A strong negative association is observed for the overall corporate sustainability and each individual ESG factor. Robustness check confirms that the relationship is positive between corporate sustainability and profitability but negative for firm value.

To see whether a particular internal factor affects the relationship between sustainability performance and financial performance, board gender diversity composition is added in the analysis. The thesis hypothesizes a positive interaction between gender diversity and corporate sustainability performance on firm financial performance. An interaction term is created by multiplying a gender diversity variable with corporate sustainability variable. Based on existing literature, female board of directors may have a significant positive effect on sustainability and financial performance when investigating either one of them. The results of the OLS-regressions in the thesis support the positive linkage also when sustainability, financial performance and board gender diversity are investigated at the same time. The positive relationship with *ROA* increases when gender diversity is included, suggesting that a more heterogeneous board enhances the relationship between corporate sustainability and profitability. The observed positive mediating effect may be explained by different opinions, risk aversion and decision-making process when the board increases the number of female directors. Consistent with earlier findings, the effect is negative on firm value, as measured by Tobin's Q. However, the t-statistic for the interaction term (*CSP*Gender diversity*) is only -2.46 while being -6.48 for *CSP* when board gender diversity is not in the regression analysis (see Table 4). Thus, the negative effect is not that statistically significant anymore.

However, the presence of female board of directors is still low. In this study, the mean for gender diversity, as measured by the percentage of female board of directors, is only 15.3%. The effects of women on board are still difficult to investigate since women are clearly underrepresented in the boardroom. Promoting gender-equality may give important signals to investors and stakeholders, which can lead to improved social responsibility and financial outcomes (Setó-Pamies 2015). In this regard, it is important to promote female directorship in the society in general, forget stereotypes and encourage both genders to network, take responsibility and achieve their goals in both personal and professional life. The culture must be conducive to increase the presence of women in the management level.

There are some limitations recognized in this study. First, ASSET4 provides only little data of ESG factors for the S&P 600 firms. Thus, the data sample mostly consists of the

larger firms in the U.S. It is challenging to compare small and large firms because of lack of information of sustainability practices. Moreover, there is a reporting phenomenon that works against strong ESG companies. Because it is volunteer to report about sustainability, the firms that have something to hide are unlikely to do it. Therefore some weak ESG firms do not make the coverage list and pulls down the relative rankings of covered companies. (Thomson Reuters 2013.) Furthermore, it may be questioned whether a five-year time period is limited since it takes time to see how corporate sustainability performance affects firm financial performance. Using lagged variables is one way to prevent the problem and on the other hand, the availability of ESG data is even more limited prior to 2010. When more data is available in the future, a longer time period may give different results.

The idea by Montiel & Delgado-Ceballos (2014) of "sustainability balance sheets and statements" would be helpful in further research. It is easy to investigate the differences in financial performance by looking at firms' financial statements and a similar system for corporate sustainability would clarify and create boundaries for it. A balance sheet of nonfinancial performance would allow to objectively value firms and compare them between different industries as well. However, a standard measurement for nonfinancial performance will be difficult to design and complete. In addition, since corporate sustainability creates value in long-term, the update of the parameters is problematic. It will be challenging to find the best solution for corporate sustainability accountability but for both stakeholders and academic research it would surely pay off.

It is important to promote gender-equality also in the future and find new solutions how to speed up the process to increase the proportion of women directors on every management level. Women should be more encouraged and this should be emphasized in the education system as well. Also, the importance of networking can never be too highlighted. According to Adams & Ferreira (2009: 306), one explanation for the absence of women directors is their lack of social connections. The more male directors have informal social networks with potential women, the more likely women will be promoted. To conclude, women need to put more effort to create connections and openly show their potential for the current managers. It is not suggested to appoint directors based on social connections or friendships but a wide network will definitely open new professional possibilities.

To create financial advantages, it is vital to do a good background analysis since the effects will not be seen immediately. Firms should continually follow the media and sustainability trends. These trends may differ between industries and different market

areas so perhaps firms must take into account how to balance between them and where to concentrate. Strategy is highly important: a clear mission and vision must be put into practice throughout an organization. In addition, stakeholders' expectations may change over time. Therefore, firms have to listen them carefully, for example, by interviews or surveys. Benchmarking is an adequate way to survive in the competition as well, which leads back to developing "sustainability balance sheet".

The list is long and firms have to make decisions of their key themes and issues. Boards should also ask how ambitious they are and set their targets so that they are actually achievable. Measuring key indicators and reacting fast will help firms to benefit of the sustainability strategy and, hopefully, see some positive results on the balance sheet as well. Continuous development is the key to survive these days. One good idea would be to invite customers to discuss sustainability issues to get real and straight answers about their values. Transparency and closer relationships with stakeholders will definitely increase the firm reputation and create loyal customers for the company. Therefore, it would be interesting to study the level of loyalty and its impact on firm financial performance.

Since there are no standardized measures or definitions for corporate sustainability, its association with firm financial performance is still ambiguous. Although the empirical results of the thesis show a positive relationship between sustainability and profitability, the existing literature finds that the relationship may be curvilinear, meaning that firms with the worst sustainability scoring may be financially as good as those with the best scores. In addition, many studies do not separate the different dimensions of corporate sustainability performance. Thus, more investigation of ESG factors is required. The thesis also proposes that further research linking board composition, especially gender diversity, with the relationship between ESG factors and profitability would provide a deeper level of understanding of how promoting gender-equality affects firm's success. To extend the study, also other internal factors influencing both corporate sustainability performance as well as firm financial performance could be explored.

The increasing interest in the last decades has also changed the form of the practices and the prioritization of the currently important ones. Therefore, it would be interesting to study whether there are differences between the importance of different dimensions of sustainability performance during different time frames. For example, does environmental aspects play a more important role in the 21st century than in the beginning of the 20th century? In addition, observing how the last financial crisis affected reporting and did it affect the sustainability scores significantly would give interesting insights.

What is problematic is that little data is available, at least in ASSET4, prior to 2010. On the other hand, one could ask whether this already shows that the crisis and unstable economic situation made firms to report more of their corporate sustainability.

To summarize, it is generally suggested that corporate sustainability performance is positively related to profitability. However, there are also opposite findings, and it seems that time and circumstances of society, industry and organization have impact on the relationship. Therefore, there is no simple answer what is a reasonable level to focus on developing sustainable business behavior. Nevertheless, it is strongly recommended to take the demands of stakeholders as a part of long-term strategy. Firms must be transparent and also report about the negative happenings openly. To success, firms must attract the best employees and know how to keep them. Promotions should be based on experience and qualifications, not on gender. The empirical analysis and previous studies highlight the importance of community. To keep the best talent, firms must take into account employees' values and thereby bind them to the organization. There is continuously a stronger belief that running a successful business requires more than traditional financial terms. Thus, nonfinancial performance is important and can ultimately lead to financial competitive advantages.

APPENDIX 1.

Authors	Topic	Main findings
Adams & Ferreira (2009)	Impact of female board of directors on governance and firm performance.	Negative average effect of gender diversity on firm performance, no support for gender quotas. Female directors have positive effects on board behavior.
Adams & Kirchmaier (2015)	Observation of the barriers related to the underrepresentation of women in the director level.	Positive correlation between female labor force (full-time) and female director participation. Women face a lot of barriers which may prevent their career progression.
Ahern & Dittmar (2012)	The impact of gender quotas on firm valuation.	Negative effect between gender quotas and stock price. Decline in Tobin's Q for firms following gender quotas.
Barnett & Salomon (2012)	Address the shape of the relationship between sustainability and financial performance.	U-shaped relationship between corporate sustainability and financial performance. Stakeholder influence capacity determines whether to invest in sustainability practices.
Bear et al. (2010)	The effect of female board directors on CSR and firm reputation.	Relationship between more gender diverse board and increased firm reputation and financial performance. CSR positively mediates the relation of gender diversity and reputation.
Benson et al. (2011).	The relationship of stakeholder theory on firm value and corporate governance.	The effect of corporate governance varies between industries. Shareholder value maximization is achieved by taking care of stakeholders and managing their needs properly.
Brammer & Millington (2008)	Four theoretical models to represent the relationship between corporate sustainability and financial performance. The models are linked to stakeholder and agency theories.	The relationship can be liner or nonlinear. Study presents arguments for and against whether corporate sustainability is necessary to outperform financially.

Carter et al. (2003)	The relationship between gender board diversity and firm value (Tobin's Q).	Positive and significant relationship between more gender diverse boards and firm value.
Coleman (2011)	Do firms hurt financial benefits when damaging shareholder interests of ESG factors.	Poor ESG behavior is related to adverse financial performance. Causality between ESG behavior and financial performance is still ambiguous.
Donaldson & Preston (1995)	Examination of three dimensions of stakeholder theory (descriptive, instrumental and normative) and how they link to sustainability and financial performance.	Instrumental aspect makes a connection between the theory and better financial performance, whereas normative approach interprets the moral principles, thus sustainability.
EY (2015)	A survey of gender diversity on U.S. corporate boards.	Gradual increase in gender diversity in the last 10 years. Women bring different kind of experience to the board.
Harjoto et al. (2015)	The impact of board diversity on CSR performance.	Positive effect of board diversity on environmental and corporate governance factors, negative on social factors. The results are consistent with stakeholder theory.
Hillman & Dalziel (2003)	How board capital (e.g experience and network to other firms) and incentives affect monitoring and provisions of resources (e.g. legitimacy).	Board capital positively influences monitoring and provisions, which links to better firm performance. Sustainability is difficult to align if the board and different stakeholders do not share the same values and interests.
Hussain et al. (2016)	The relationship between corporate governance and corporate sustainability (economic, environmental and social) through theoretical framework.	No significant results between economic dimension and corporate governance. Gender diversity has a positive impact on environmental and social issues. In general, social performance enhances financial performance.
Isidro & Sobral (2015)	The effect of female board of directors on firm value, financial performance, and ethical and social compliance	Female directors positively related to financial performance as well as with ethical and social practices. Increasing board gender diversity indirectly increases firm value.

Kappou & Oikonomou (2016)	Financial effects of additions to and deletions from social index, MSCI KLD 400.	"Social index effect", in which the negative effect of deletion is much stronger than the positive effect of addition to the index. Deletion increases trading volumes of the deleted stocks but also deteriorates the operational performance of the deleted firms.
Galbreath (2011)	The relationship between female board of directors and corporate sustainability and financial performance.	Positive and significant relationship between female board of directors and economic and social dimensions. No statistically significant association with environmental dimension.
Gryosberg Boris & Bell (2010)	A global survey of governance practices, strategic priorities, board effectiveness and a comparison between male and female board of directors.	Women believe more in the positive effects of gender diversity of the board. Most respondents do not personally support gender quotas, although females see they may be an effective tool to increase diversity.
McElhaney & Mobasseri (2012)	The relationship between female board of directors and ESG.	A positive relationship between increased number of women on board and sustainability. More gender diverse boards associated with higher management quality, transparency and disclosure.
Montiel (2008)	Literature review of whether there are important differences between the definitions and measurements of corporate social responsibility (CSR) and corporate sustainability.	Multiple definitions in the previous literature and firm reports. Combining CSR and sustainability performance as one definition would serve wider group of firms and research.
Montiel & Delgado-Ceballos (2014)	Analysis of public research on corporate sustainability.	No standardized definitions or measurements for corporate sustainability. Studies use alternative terms, data is collected by using different methodologies, and the dimensions of sustainability may vary.
Ruf et al. (2001)	How a change in corporate sustainability performance affects financial performance.	Corporate sustainability performance has short-term benefits on growth in sales and long-term benefits on return on sales and ROE.

Setó-Pamies (2015)	The role of female directors on the development of CSR.	Gender diversity positively influences CSR. Firms that identify CSR are more likely to achieve financial and sustainability benefits.
Waddock & Graves (1997)	The relationship between corporate sustainability performance and financial performance, and are there strategic linkages between them.	A positive link between corporate social performance and financial performance but it is dependent on firm's financial stage. Firms with available resource can invest in sustainability and it may be related to good management.

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