Corporate Sustainability and Financial Performance -
The influence of board diversity in a Swedish context

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ABSTRACT

Keywords: *corporate sustainability performance, financial performance, board diversity, index construction*

Purpose: The aim of this thesis is to analyse the relationship between corporate sustainability performance and financial performance in a new contextual setting, i.e. Sweden. Furthermore, the thesis contributes by creating a sustainability index as well as investigating the impact of board diversity on the relationship.

Theoretical framework and hypotheses: With support from instrumental stakeholder theory and previous empirical findings, a positive relationship between sustainability performance and financial performance is hypothesised. Furthermore, with support from previous studies on the effect of board diversity on sustainability and financial performance, the second and final hypothesis predicts a positive impact of board diversity components on the relationship between the two components.

Methodology: This thesis takes on a deductive approach in which a multivariate regression method is used. The final sample constitutes of 1,015 observations of firms listed on the NASDAQ OMX Stockholm during 2009-2013.

Findings: The results indicate a positive relationship between corporate sustainability and financial performance. However, the findings of a robustness test suggest a more complex relationship. Instead of a complete positive relationship, there are indications that the positive relationship is only true for low and moderate sustainability performers. Lastly, only educational board diversity was found to have an impact on the relationship between sustainability and firm profitability.

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1. INTRODUCTION

The first chapter problematizes the issue of corporate sustainability and financial performance beginning with a discussion on the dilemma of short-termism and long-termism. This is followed by a discussion of the inconsistencies and lacks in previous research. The section is ended with the aim of the thesis.

1.1. Does it really pay to be good?

Considering corporate social responsibility (CSR) as an automatic loss of profit - makes CSR "…as meaningful as cotton candy. The more you try to bite into it the faster it dissolves" (Reich, 2008:6). From an historical point of view, corporate sustainability has been viewed upon by businesses as predominantly a cost or an obligation that slows down efficiency and hinders development of profitable growth. However, over the past fifty years, business leaders have begun to perceive corporate sustainability as an opportunity rather than as a necessity – gradually redefining the way that businesses interpret and create value (Berthon, Abood & Lacy, 2010; Ludema, Laszlo & Lynch, 2012). This development has been driven and encouraged by higher expectations and requirements from various stakeholders concerning the level of transparency of corporations' operational activities (Fischer & Sawczyn, 2013). Furthermore, the rise of different corporate sustainability reporting standards (e.g. Global Reporting Initiative, GRI) and stricter public regulations (e.g. Directive 2014/95/EU[1]) are placing additional pressure on corporations to develop or expand their sustainability practices.

However, the short-termism prevalent in many businesses create potential barriers for corporations to invest in more long-term sustainability practices (Bansal & DesJardine, 2014). For example, the market's expectations on quarterly reports may pressure top management to smooth earnings to secure stock prices and as a result possibly sacrificing sustainable value creation (Bansal & DesJardine, 2014). Consequently, leading to potential trade-offs between being sustainable from a long-term perspective or profit seeking from a short-term perspective. However, due to improvements in technology and communication, it is becoming increasingly difficult to 'get away' with more questionable unethical corporate behaviours - at least for extended periods of time. Furthermore, since the level of global sustainability reporting is rapidly growing (KPMG, 2013), it is becoming easier to compare corporations' choice of sustainability practices and their level of transparency.

[1] The recently decided European Union directive stating that certain large corporations and groups need to disclose non-financial and diversity information (European Commission, Directive 2014/95/EU).

Nevertheless, despite these benefits, there has been an extensive criticism aimed at sustainability reporting, such as it being too costly and complex, debateable in regards of its return on investment, or that the reports are simply used as a tool for 'greenwashing' or corporate magic - that is, deprived of any true intentions of actually contributing to society at large (KPMG, 2013). To eliminate such beliefs, as well as motivating sustainability practices into becoming an established part of corporations' strategies, more evidence is needed showing that corporate sustainability behaviour could be beneficial also from an economic perspective – as opposed to only being philanthropic. Thus, reducing the trade-offs and potentially creating shared value for the corporation as well as relevant stakeholders from a long-term perspective. However, does it really pay to be good? Or does increased focus on corporate sustainability practices result in financial drawbacks?

1.2. Inconsistencies in previous research

The issue of whether there is a trade-off between corporations' investments in corporate sustainability and profitability has been heavily debated. Yet, despite approximately fifty years of previous research (Margolis & Walsh, 2003), there are still inconsistencies in the results. While many previous empirical studies have reached the conclusion that there is a positive relationship between corporate sustainability performance and financial performance (e.g. Orlitzky, Schmidt, & Rynes, 2003), there has also been several studies resulting in negative (e.g. Wright & Ferris, 1997; Brammer, Brooks, & Pavelin, 2006), neutral/non-significant findings (e.g. McWilliams & Siegel, 2001), or mixed relationships (Hillman & Keim, 2001; Barnett & Salomon, 2012) as well as various causal directions (e.g. Scholtens, 2008). The reason behind these contradictory results could be explained by the inconsistencies or vagueness in the construct of the measurements aimed at capturing sustainability and financial performance (van Beurden & Gössling, 2008; Callan & Thomas, 2009).

According to Callan and Thomas (2009), there is therefore need for more research concerning the relationship between sustainability performance and financial performance. This, to be able to determine the level of generalization that is possible between various empirical studies. There is also, to a certain degree, need for updated research, since several previous studies could be considered as dated, due to the fast development of sustainability practices and the surrounding context in recent years (Callan & Thomas, 2009). Furthermore, previous research has focused almost exclusively on U.S. firms (Surroca, Tribó, & Waddock, 2010). Thus, more research should be conducted on non-U.S. companies to be able to establish whether there are any differences between nations; where societal or cultural traditions may differ in regards to how corporations should respond to environmental and social concerns (Callan & Thomas, 2009).

Previous research has also suggested that there is a need for greater analysis of the components that may affect the level of sustainability practices as well as its effect on financial performance. More specifically, while it is important to establish whether there is a relationship between sustainability performance and financial performance, it is also vital to determine what components may potentially impact this relationship. Since the board is responsible for the creation of long-term objectives for the firm and as it also manages the relationship with various external stakeholders (Pfeffer, 1972); board composition could be considered as a potential factor contributing to the focus (or lack thereof) on sustainability practices. A more diverse group of board directors, with different knowledge base and priorities, may be able to better respond to multiple stakeholder interests, thus affecting the potential success of sustainability practices (Harjoto, Laksmana, & Lee, 2014). However, despite an expanding focus on diversity in boards, there is a lack of evidence on how a diverse board composition may influence management decision making (Harjoto et al., 2014). Moreover, it is only recently that the academic community has started to pay closer attention to the relationship between board composition and corporate sustainability performance (Walls, Berrone & Phan, 2012; Harjoto et al., 2014) as well as financial performance (Ayuso, Rodríguez, García-Castro, & Ariño, 2014).

1.3. Aim

The aim of this thesis is to analyse and clarify the relationship between corporate sustainability and financial performance. Establishing and examining the relationship between corporate social performance and financial performance should be of interest for both academics and corporations as well as different corporate stakeholders (e.g. investors and NGOs). More specifically, this thesis contributes to previous research by developing a sustainability measure, which takes into consideration the multidimensional aspects of stakeholder activities. Additionally, the study contributes by further investigating the relationship between corporate sustainability performance and financial performance by examining the effects of a diverse board composition. Moreover, by focusing on the Swedish context, this study also adds to existing studies by considering a different cultural tradition and regulatory environment.

2. CLARIFICATION OF CONCEPTS

The following chapter provides a discussion of concepts and clarifies the similarities and differences between terms often used to describe social, environmental, and governmental activities of corporations.

One of the most commonly used and acknowledged definitions of sustainable development is a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", which was presented by the World Commission on Environment and Development in the commonly referred 'Brundtland report' in 1987 (World Commission on Environment Development, 1987:43). With regards to this, business sustainability can be expressed as the ability of firms to meet their "short-term financial needs without compromising their (or 'others') ability to meet their future needs" (Bansal & DesJardine, 2014:71).

However, there is confusion regarding the terminology set to describe business activities aimed at stakeholders and society at large - a confusion that encompasses both academic literature as well as corporate reporting. For instance, corporate social responsibility (CSR), corporate citizenship, and sustainability have all been used synonymously to describe the same business practices. However, in many cases these phrases include different aspects of stakeholder activities, such as social, environmental, and/or economic and governmental factors. (Bansal & DesJardine, 2014)

Corporate social responsibility (CSR) has long been a popular phrase to describe business activities aimed at stakeholder-interests. However, despite numerous attempts, no consensus has been reached regarding its definition and what the term actually encompasses. For instance, a common division is to only attribute it with social factors, thus disregarding other aspects, such as the environmental impact. This has contributed to criticism against the use of the term, which also extends to its main focus on philanthropic responsibility. Instead, *sustainability* (a successor to 'sustainable development') is rapidly becoming more popular in strategic management. Yet, as with corporate social responsibility, its meaning is often considered as vague and ambiguous, e.g. in some instances it is only associated with environmental issues (Bansal & DesJardine, 2014; White, 2013). However, sustainability and CSR is often conceptualized by the 'triple bottom line' approach (Elkington, 1998), which includes environmental, social, and economic/governmental impact of corporations (Hart, Milstein, & Caggiano, 2003; Bansal, 2005).

A major difference between sustainability and CSR (as well as corporate citizenship and triple bottom line) is their relation to time. According to Bansal and DesJardine (2014), a sustainable business is one "that manage inter-temporal trade-offs in strategic decision making, so that both

the short and long-term is considered" (Bansal & DesJardine, 2014:71). Thus, companies need to decide between either investing less to secure smaller profits faster and investing more to receive greater profits in the future (Laverty, 1996). Corporate social responsibility on the other hand does not automatically necessitate trade-offs, but is instead often related to ideas, such as 'shared value' and 'win-win'-situations. In these situations businesses and society is believed to gain instant and simultaneous value from a corporation's actions (Porter & Kramer, 2006). Therefore, since sustainability - in comparison with its related terms - to a greater extent considers the complexity of balancing short- and long-term decisions, the following thesis will hereafter use the term sustainability (including environmental, social, and governmental factors) when referring to business stakeholder activities.

3. THEORETICAL FRAMEWORK AND HYPOTHESES

The following chapter will provide an overview of the theoretical underpinnings and the empirical evidence aimed at disentangling the complex relationship between corporate sustainability and financial performance. This discussion will lead up to the first hypothesis - followed by a reflection of the causality between the two components. Lastly, the section will present theoretical and empirical background of the impact of a diverse board composition and its effect on the relationship between sustainability performance and financial performance, leading to the second and final hypothesis.

3.1. Corporate sustainability performance and financial performance

Prior research has, both theoretically and empirically, tried to establish the relationship between corporate sustainability performance and financial performance. However, so far the results have been either inconclusive or inconsistent. As a result, roughly dividing previous research into two main camps supporting either a positive or negative relationship.

3.1.1. Negative relationship

The most referred to proponent of a negative relationship between corporate sustainability performance and financial performance is Milton Friedman. Friedman (1970) argues that corporations engaging in sustainability activities incur more costs, thus reducing their net financial performance (Friedman, 1970). Since these additional costs and administrative burdens may affect the corporation's bottom line negatively it may potentially lead to competitive disadvantages for the firm (Friedman, 1970; McWilliams & Siegel, 1997; Jensen, 2001; Barnett & Salomon, 2006). Therefore, a focus on corporate sustainability challenges the traditional main objective of corporations, which is to maximize shareholder value. More specifically, according to this view, it is believed that any manager who makes investments that is not beneficial for

employees, shareholders or its customers, is believed to abuse the firm's resources (Friedman, 1970). Instead, the cost of social issues and inequality are perceived as problems that may best be solved by others, for instance the government (Waddock & Graves, 1997) and that corporations, thus, should do no more than to abide the law (Friedman, 1970). Jensen (2001), however, has suggested a more nuanced view on value maximization, in which companies should satisfy the needs of their stakeholders as long as the cost of doing so does not distort shareholder value.

3.1.2. Positive relationship

Proponents of a positive relationship on the other hand often derive their arguments from stakeholder theory. According to stakeholder theory, corporations are responsible to a variety of stakeholders - with their potential of having positive and/or negative impact on the society in which they operate. Often referred to as the father of stakeholder theory (Laplume, Sonpar, & Litz, 2008), Freeman (1984) proposed that a firm's stakeholders are "any group or individual who can affect or is affected by the achievement of the organisation's objectives" (Freeman, 1984:46). Thus, due to this potential impact, it is believed that corporations should take consideration not only to the interests of their shareholders, but to all their constituents (Laplume et al., 2008).

Stakeholder theory has thereafter moved into different directions. Donaldson and Preston (1995) propose that stakeholder theory can be sorted into three groups: descriptive, normative, and instrumental stakeholder theory. The *descriptive stakeholder theory* is concerned with how different stakeholders are attended to by the corporation whilst the *normative stakeholder theory* focuses on the moral and ethical arguments aimed at guiding stakeholder-oriented managers. Finally, the *instrumental stakeholder theory* is directed to investigating the consequences, i.e. the profit/wealth-enhancing possibilities, of considering a wide range of stakeholders in corporate strategy. Thus, making the latter most relevant to investigate and explain the linkage between corporate sustainability and financial performance.

According to instrumental stakeholder theory, if a corporation manages its relationships with stakeholders properly the firm can improve its financial performance over time (Donaldson & Preston, 1995; Freeman, 1984). Sustainability practices can therefore be motivated by self-interest and as means to increase profit and shareholder value (Harjoto et al., 2014). For instance, with better sustainability performance a firm may entice more resources (Cochran & Wood, 1984), increase market opportunities and pricing premiums (Fombrun, Gardberg, & Barnett, 2000) as well as attracting employees (Turban & Greening, 1997). Thus, managing stakeholder relations may result in competitive advantages (Barnett & Salomon, 2006; Porter & van der Linde, 1995).

Building upon stakeholder theory and agency theory (Hill & Jones, 1992), Jones (1995) proposes that instrumental stakeholder theory considers the firm as a 'nexus of contracts' (Jensen & Meckling, 1976) between the corporation and all its stakeholders. In this context, a firm that fosters a moral culture is believed to be able to curb opportunistic behaviour among its employees as well as gaining a positive reputation and relationship with its external and internal stakeholders (Jones, 1995). Therefore, resulting in minimised agency and transaction costs. Hence, instrumental stakeholder theory implies that profitability and sustainability are not mutually exclusive, but rather that a firm's ethical considerations may prove to be a competitive advantage (Jones, 1995). This is in accordance with Cornell and Shapiro (1987), who suggest that firm value is dependent on the ability to fulfil explicit and implicit contracts[2] with various stakeholders. Failure to do so may lead to damaged firm reputation as well as decreased financial performance.

3.1.3. Contradictory results in previous research

The relationship between corporate sustainability performance and financial performance has been analysed empirically in several previous studies. However, due to differences in methodology, the findings have either been inconclusive or contradictory, with studies supporting both a positive and negative relationship (Margolis & Walsh, 2003; Orlitzky, Smith, & Rynes, 2003). There have also been studies suggesting a more complex relationship between corporate sustainability and financial performance. For instance, according to Barnett and Salomon (2012), the success of sustainability activities on financial performance (measured in return on assets (ROA) and net income) depends on how "well firms are able to capitalize on their social responsibility efforts" (p. 1304). They base this reasoning upon the results from examining U.S. firms, which resulted in a positive relationship for low and high sustainability performers and a negative relationship for moderate sustainability performers between the two components; more specifically, an U-shaped relationship. Thus, social responsibility might be more profitable for some firms than for others (Barnett & Salomon, 2012). When investigating the relationship between corporate charitable giving and corporate financial performance (i.e. market-based), Brammer and Millington (2008) similarly find differences in companies with remarkably low respectively remarkably high sustainability performance. Firms with low sustainability performance achieved better financial results in the short-term, whereas firms with higher sustainability performance exceeded in the long-term.

[2] *Explicit* contracts refer to, for instance, investment contracts with shareholders or loan contracts with creditors. *Implicit* contracts refer to, for example, the promise of offering quality products and services to customers or to ensure a safe work environment for employees (Cornell & Shapiro, 1987).

However, relatively few studies document a completely negative relation between sustainability and financial performance (van Beurden & Gössling, 2008). For instance, Brammer et al. (2006) find a negative relationship between corporate responsibility and stock returns in the U.K. Their conclusion is that firms, which engage in stakeholder activities that focus on environment and community, have a lower stock return compared to their not equally ethical peers. A possible explanation for this is that shareholders in socially responsible firms are willing to accept lower stock returns; this due to moral or ethical considerations (Brammer et al., 2006).

Instead, most previous empirical examinations have shown a positive relationship between corporate sustainability performance and financial performance (Margolis & Walsh, 2003; Orlitzky et al., 2003). One of the most cited studies on the topic is conducted by Waddock and Graves (1997). Using three measurements of firm performance, the authors conclude that high sustainability performance improves profitability measured as return on assets (ROA) and return on sales (ROS), but not as measured in return on equity (ROE).

In the first meta-analysis on the subject, Orlitzky et al. (2003) analysed 52 previous U.S. based studies to clarify the issue further. The authors find that, although the results are stronger for social responsibility activities than for environmental-related actions, there are indications of a reasonable positive relationship between sustainability performance and financial performance. They further argue that the results of the meta-analysis indicate that the level of certainty ascribed to the sustainability performance and financial performance relationship are greater than what is usually presumed by several business researchers. However, Margolis and Walsh (2003) argue that these forms of findings need to be considered with caution, since the underlying aggregated studies supporting this research are often based on limitations or flawed methodology (Wood & Jones, 1995; Griffin & Mahon, 1997; Rowley & Berman, 2000). Empirical studies based on more recent data have, however, also reached conclusions supporting a positive relationship between sustainability performance and financial performance. For instance, Ameer and Othman (2012) compared the financial performance of firms listed as top sustainability performers and firms ranked as low sustainability performers. They find that return on assets (ROA), profit before taxation, and cash flows from operations are higher in companies with superior sustainability performance in comparison with those with lower sustainability performance. However, the results are not equally strong across industries. For instance, sustainability performance has the strongest positive impact on firms within service industries (i.e. consumer discretionary and telecommunication). Similar industrial differences are presented by Lev, Petrovits, and Radhakrishnan (2010). The authors conclude that firms operating in retail or financial services

industries have the most to gain from sustainability performance (i.e. charitable giving) in terms of revenue growth.

With support from instrumental stakeholder theory and a majority of previous empirical findings, we hypothesize that:

Hypothesis 1: *Ceteris paribus,* there is a positive relationship between corporate sustainability performance and financial performance.

3.1.4. Causality

In relation to the discussion regarding the relationship between corporate sustainability performance and financial performance, the causality between the two components has also been greatly discussed and investigated both theoretically and empirically[3].

Proponents of a causal relationship where high levels of sustainability performance leads to higher financial performance often seeks theoretical support in the social impact hypothesis and/or the good management theory, both primarily derived from instrumental stakeholder theory (Orlitzky et al., 2003; Salzmann, Ionescu-Somers, & Steger, 2005). *Social impact hypothesis theory* highlights the importance of corresponding to more implicit stakeholder needs. More specifically, failing to properly satisfy less explicit demands of stakeholders might result in market shocks (e.g. product recalls or litigation), which may potentially affect the reputation of the corporation. This may in turn result in negative impact of its financial performance and affect the value of the firm (Cornell & Shapiro, 1987; Salzmann et al., 2005). It is further believed that the costs of sustainability activities are minimal in comparison to the possible benefits that are related with more ethical firm behaviour (Salzmann et al., 2005). Hence, the theory supports an increase in financial performance if the firm properly responds to various non-investor stakeholders' needs. Similarly, *good management theory* proposes that overall company performance will improve when the needs of various stakeholders are addressed (Waddock & Graves, 1997). For instance, a firm that seeks to form good relations with employees (e.g. by considering minorities and gender diversity) might establish "morale, productivity, and satisfaction" within its workforce and thus improve productivity (Waddock & Graves, 1997:307).

Turban and Greening (1997) provide empirical support for this notion, finding evidence that firms with high sustainability performance are more attractive as employers. More specifically, these firms receive more applicants, which could be considered as a competitive advantage. Further

[3] As a positive relationship has been hypothesised, the section will focus on positive causality, for a review of a negative causality see Preston and O'Bannon (1997) and Salzmann et al. (2005).

empirical support for the proposition that sustainability performance leads to greater financial performance is provided by Callan and Thomas (2009), who used accounting based measures of firm profitability. They find that both return on assets (ROA) and return on sales (ROS) are positively influenced by firms' sustainability performance.

Previous research has also concluded in an opposite relationship, i.e. that higher financial performance leads to higher sustainability performance. This link is usually supported by *slack-resources theory* (also referred to as *the available funding hypothesis*), stating that greater corporate financial performance allows firms to allocate more resources towards sustainability enhancing activities (Waddock & Graves, 1997; Salzmann et al., 2005). Thus, if there are resources to spare within the organisation - corporations will be more willing to act in accordance with the normative rules associated with a corporate social citizen; resulting in periods of various funding towards sustainability projects (Allouche & Laroche, 2005). Hence, although a positive relationship between sustainability performance and financial performance is still supported - the slack resources theory suggests that the causal relationship goes from financial performance to sustainability performance instead (Preston & O'Bannon, 1997). Empirically this causal relationship has been supported by, for instance, Scholtens (2008), who investigate 289 U.S. corporations between 1991 and 2004, with financial performance measured in total stock returns. According to the findings, there are indications supporting that the causation mainly moves from financial to sustainability performance.

Finally, previous research has also suggested that there might be a 'virtuous cycle' between the two components (Waddock & Graves, 1997). When investigating the relationship between sustainability and financial performance further, Waddock & Graves (1997) discovered equally significant positive results were found for both directions of the relationship, i.e. both when sustainability performance was set as dependent of financial performance and the reverse condition. They, thus, conclude that the relationship between the two components is formed as a 'virtuous cycle'. That is, that good financial performance creates possibilities for investments in activities with a long-term strategic impact (i.e. sustainability activities) whereas at the same time, increased sustainability activities improves financial performance. Thus, indicating that if a positive relationship can be established the effects may move in both directions.

The above mentioned inconclusiveness of previous research investigating the relationship between corporate sustainability performance and financial performance calls for a deeper analysis of components that may potentially affect the relationship, for instance the level of board diversity.

3.2. Board diversity - sustainability performance and financial performance

The traditional monitoring role of the board of directors is based on a principal-agent theory of the firm (Hillman & Keim, 2003). Also known as the finance view of corporate governance (Letza, Sun, & Kirkbride, 2004), this perspective asserts that the primary goal of corporations, thus, the obligation of the board, is to create maximum shareholder value (Jensen & Meckling, 1976). This perspective has, however, been questioned as being too narrow and insufficient, as it fails to see how a wider group of stakeholders can influence firm performance (Letza et al., 2004). Instead, Pfeffer (1972) suggests that directors can be seen as an instrument with which the firm manages various external stakeholders. An optimal board structure - regarding size and capabilities of the directors - can facilitate stakeholder management. However, failure to do so could lead to decreased profitability (Pfeffer, 1972). Findings by Westphal and Fredrickson (2001) conclude that the board of directors plays an essential role in deciding the strategic direction of the firm. They argue that board members' prior experiences and background have a significant influence on organisational outcome.

Instrumental stakeholder theory, similarly, perceives effective management of stakeholder claims as vital for corporate success (Donaldson & Preston, 1995). As representatives of shareholders, the board of directors, thus, constitute an essential part in ensuring that the interests from a wide array of stakeholders are balanced with the overall strategy of the firm. However, depending on the background of the directors, the group dynamic and decision making environment may differ, therefore affecting how various stakeholder interests are handled or prioritised (Harjoto et al., 2014; Zhang, Zhu, & Ding, 2013). A more heterogeneous or diverse board of directors increases the mix of knowledge, previous experiences, preferences, and perspectives within the group. This could potentially result in an increased ability to recognize and respond to different stakeholder interests and improve sustainability performance (Harjoto et al., 2014). For instance, the level of educational background is believed to have an impact on the director's' reasoning and decision making process (Johnson, Schnatterly, & Hill 2013). Furthermore, according to Kim and Lim (2010), a higher level of academic major or age heterogeneity among independent outside board members in Korea are linked to positive effects on the valuation of the firm. Contrary to this, Rose (2007) fails to find significant influence of diverse director educational background on financial performance in Danish firms. Instead, the author concludes that any higher educational degree is sufficient for successfully managing the work as a director.

Furthermore, the influence of board gender diversity on board's decision making and financial performance has been greatly investigated (Johnson et al., 2013). For instance, Erhardt, Werbel, and Shrader (2003) investigate demographic diversity on boards and financial performance among

U.S. firms. According to the results, diversity (measured in gender and ethnicity) is positively related to financial performance (e.g. return on assets, ROA). Furthermore, Nielsen and Huse (2010) find that female directors have a different leadership style than men. Their findings of Norwegian firms imply that women bring important capabilities to the board by being more sensitive to multiple stakeholders' needs. This way, female directors influence the decision making of the board concerning firm strategy positively. However, previous studies have also reached different conclusions, i.e. negative relationships (e.g. Adams & Ferreira, 2009) or insignificant relationships (e.g. Rose, 2007) between gender diversity and financial performance.

In the research context of corporate sustainability performance, investigating a large sample of international companies, Bear, Rahman, and Post (2010) conclude that board gender diversity has a positive impact on how firms choose to engage in sustainability activities. More specifically, they find that the number of women on the board is positively associated with improved sustainability performance. The authors suggest that these findings support that improved board gender diversity leads to a better ability of understanding stakeholder needs and, thus, to more effective stakeholder management. In studies of U.S. companies, the proportion of women on the board has also been found to be positively related to corporate charitable giving (Williams, 2003; Kabongo, Chang, & Li, 2013). Zhang et al. (2013) similarly discovered that female directors positively influence overall corporate sustainability performance. However, the authors argue that stakeholders vary between industries, and as a consequence firms therefore adapt their sustainability activities depending on industry belonging (Zhang et al., 2013). Findings by Benson, Davidson, and Wang (2011) support the proposition that industry belonging influences corporate governance mechanisms. The authors conclude that the board of directors' ability to effectively manage different stakeholders' interests differs between consumer-oriented and industrial-oriented firms.

Studies incorporating several aspects or dimensions of board diversity to examine corporate sustainability are rare (Harjoto et al., 2014). Instead, most research on board of directors has focused on board characteristics separately (Johnson et al., 2013). However, a newly conducted research performed by Harjoto et al. (2014), use a multidimensional measure of board diversity (including gender, ethnicity, age, director experience, tenure, director power, and expertise/education) to investigate its relationship with corporate sustainability performance among U.S. firms. The authors conclude that more diverse boards appear to more effectively meet the demands of various stakeholders than less diverse boards. More specifically, the authors state that gender, tenure, and expertise appear to be the driving forces of companies' chosen level of corporate sustainability. However, the authors also stress that group diversity could potentially

have a negative impact on board effectiveness, resulting in a negative influence on the board's ability in overseeing the sustainability activities in the company. For instance, different perspectives and priorities may lead to complicated decision making processes, i.e. creating difficulties in reaching consensus (Harjoto et al., 2014).

As each director brings different sets of human capital, e.g. knowledge, expertise and education (Hillman, Cannella, & Harris, 2002), a more diverse board brings together different perspectives and knowledge bases. Diversity therefore enhances the ability of recognizing different stakeholder needs and influencing sustainability decisions. A board composition that potentially enhances sustainability issues, thus, become important for stakeholder management, which – if handled properly – may lead to a competitive advantage and financial success for the company (Hillman & Keim, 2003). Therefore, as implied by instrumental stakeholder theory as well as previous empirical findings, the second and final hypothesis is:

Hypothesis 2: *Ceteris paribus,* board diversity components have a positive impact on the relationship between corporate sustainability performance and financial performance.

3.3. Summary of hypotheses

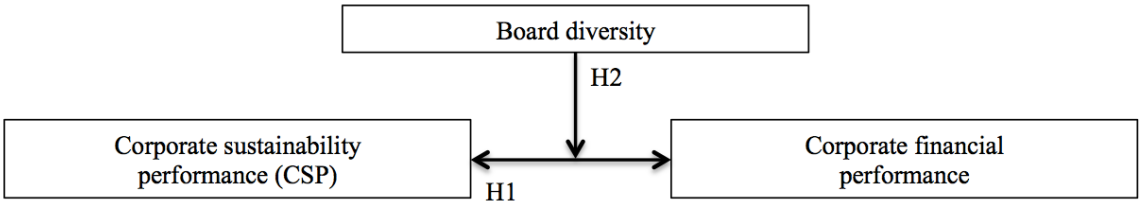

Figure 1. Summary of hypotheses

4. METHODOLOGY

The following chapter describes the methodology - beginning with a brief overall research design and the operationalization of the variables investigated in this thesis, i.e. corporate financial performance, corporate sustainability performance, and board diversity. This will be followed by a description of our control variables, sample and data collection, and, lastly, the statistical tests used to test our hypotheses. Reliability and validity will be discussed throughout the section.

4.1. Overall research design

This study investigates the relationship between corporate sustainability performance and financial performance, as well as the impact of board composition, by using a quantitative research design. Based on the instrumental stakeholder theory, we adopt a deductive approach to test our hypotheses (Saunders, Lewis, & Thornhill, 2012) on firms listed on NASDAQ OMX Stockholm between the years 2009 and 2013. In a first step, correlation analysis will determine the relationship between sustainability performance, financial performance, and board composition. The relationship between sustainability and financial performance will then be tested using multivariate regression analysis. The following generic model is used to test the two hypotheses:

Financial performance = f(sustainability performance + board diversity + control variables)

4.2. Operationalization

4.2.1. Corporate financial performance measurement

In their meta-analysis of the sustainability-financial performance relationship, Orlitzky et al. (2003) found that accounting based measures of financial performance have a stronger relationship to corporate sustainability performance than market based measures. Following much previous research, e.g. Waddock and Graves (1997), Orlitzky et al. (2003), Callan and Thomas (2009), and Barnett and Salomon (2012), this thesis uses the return on assets (ROA) to measure financial performance. ROA is not only a standard measurement of corporate performance within corporate sustainability literature, it is also commonly used in the majority of strategy research (Barnett & Salomon, 2012). ROA is calculated as the net profit in relation to total assets.

4.2.2. Corporate sustainability performance measurement

An often credited explanation for the inconsistent and inconclusive results in prior studies, is the various constructs used to measure sustainability performance (Salzmann et al., 2005). Despite approximately fifty years of previous research (Margolis & Walsh, 2003), there is still no consensus on how to properly measure sustainability within corporations (Ameer & Othman,

2012; Montiel & Delgado-Ceballos, 2014). According to a literature review performed by Montiel and Delgado-Ceballos (2014), there are two main data collecting methods used to capture corporate sustainability performance. Firstly, previous empirical research has used various secondary sources in the form of different *sustainability indexes* as a proxy for measuring corporate sustainability. Among the most commonly used indexes are, for instance, the Kinder Lydenberg, and Domini (KLD) index (e.g. Waddock & Graves, 1997; Hillman & Keim, 2001; Mattingly & Berman, 2006), the Dow Jones Sustainability Index, DJSI (e.g. Lopez, Garcia, & Rodriguez, 2007), and the ASSET4 ESG index (e.g. Trumpp, Endrikat, Zopf, & Guenther, 2015). These indexes are based upon a set of sustainability criteria and indicators, which are evaluated by third-party observers; either by the use of surveys, interviews, and/or by content analysis of public corporate disclosure material (Soana, 2011; Chatterji & Levine, 2006). However, there are several potential drawbacks using these forms of secondary sources. For instance, there is a risk of subjectivity, as rating agencies might interpret sustainability performance differently (Soana, 2011). Furthermore, rating agencies may also use different methodologies, e.g. use of criteria, amount of qualitative or quantitative indicators, and weighting systems, which may affect the end results (Chatterji & Levine, 2006). Another issue is the lack of transparency, since indicators used by these agencies may not be publically available; therefore limiting the reliability of the results.

The second method of collecting data used by prior empirical research, is the construct of *new indexes and scales* to measure corporate sustainability performance - thus, collecting own primary data (Montiel & Delgado-Ceballos, 2014). This is done either by using surveys or by analysing public corporate reporting directly (e.g. Bansal, 2005; Ameer & Othman, 2012). As with secondary sustainability indexes, this method is also associated with a certain level of subjectivity. However, it also allows for a greater consideration to contextual factors. For instance, several indicators in secondary sustainability-measurements are usually formulated based on American regulations and reporting standards (e.g. labour and health care). Thus, making them less relevant for other contexts where other regulations and cultural traditions apply, such as the Swedish context. According to Gjølberg (2009), Nordic companies are well committed to CSR activities and also operate under stringent social and environmental regulations.

As only few Swedish companies are included in the present acknowledged sustainability rating databases and because of limited accessibility and appropriateness, it is not suitable to use these secondary databases. Since doing so would result in a too limited sample. We therefore constructed a new sustainability performance index based on publically disclosed reporting material.

Disclosure or performance?

Before constructing a sustainability performance index based upon corporate disclosures, it is important to consider whether sustainability performance is related to the level of disclosure quality of sustainability or not. Herbohn, Walker, and Loo (2014) found that among mining and energy firms in Australia, there was a strongly significant positive relationship between the quality of sustainability disclosures and sustainability performance. Similarly, Al-Tuwaijri, Christensen, and Hughes (2004) found a significant positive relationship between environmental performance and comprehensive environmental disclosures. Thus, these results indicate that the quality of company disclosure of sustainability activities is appropriate to assess the level of sustainability performance.

However, a common concern regarding sustainability performance, is that most information is provided by the companies themselves (Orlitzky et al., 2003; Soana, 2011); therefore, increasing the risk for 'greenwashing' activities (Baumgartner & Ebner, 2010). Thus, to determine the quality of corporate sustainability reporting, critical examinations are needed. To mitigate the risk of 'greenwashing', a performance index should therefore consist of both qualitative ('soft') and quantitative ('hard') indicators, since the latter is more difficult to mimic or alter – i.e. to be perceived as more sustainable (Clarkson, Li, Richardson, & Vasvari, 2008). Furthermore, to determine the quality of sustainability reporting, the performance index may also include, for instance, whether the corporation uses a renowned sustainability reporting standard or if it monitors or verifies its results by a third party (Thomson Reuters ASSET4, 2015).

Index construction

Creating a composite index involves selecting and categorising appropriate indicators aimed at capturing corporate sustainability performance, i.e. "how do companies actually integrate environmental and social responsibility activities within business processes?" (Ameer & Othman, 2014:66). According to Singh, Murty, Gupta, and Dikshit (2009), this procedure needs to be based on both theory and empirical analysis. Thus, in accordance with instrumental stakeholder theory, the sustainability measurement was divided into primary stakeholder groups (Clarkson, 1995), i.e. (1) *Corporate Governance (CG)*[4]*,* (2) *Employees & Suppliers (ES)*, (3) *Customers & Society (CS)*, and (4) *the Environment (E)*. This stakeholder approach is supported by previous research, for instance Ameer and Othman (2014), who made a division into community, diversity, environment, and ethical standards. Thereafter, appropriate key performance indicators, aimed at capturing corporate sustainability performance, were selected for each stakeholder group –

[4] The Corporate Governance indicator does not include any aspects that can impede with board composition and financial performance.

underpinned by both theoretical and empirical research to increase the validity of the sustainability index (Ameer & Othman, 2012). For example, the sustainability-rating index ASSET4[5] provides a detailed list of indicators used in its assessment (Thomson Reuters ASSET4, 2015) and was, therefore, used as input for our index. In Appendix 1, Table 2, a list is presented with the theoretical and empirical used to support the sustainability index.

A binary coding scheme (0 or 1) (Herbohn et al., 2014) was used for the eighteen indicators constituting the index. As mentioned above, quantitative indicators are more difficult to mimic. Therefore, six indicators[6] are divided into three levels: 1) qualitative reporting, 2) proactive quantitative target setting, and 3) quantitative progress. To reward those companies that showed proactive initiatives or explicitly improved their sustainability performance, (i.e. not only the amount of qualitative disclosure), the second and third level represent two and three scores respectively. Thus, resulting in that companies reporting quantitative data are scored higher than companies only reporting qualitative data (Al-Tuwaijri et al., 2004). In those instances where the company did not report data on an indicator, these were assumed to be insignificant or less important for the company and, thus, assigned a zero score. In addition, we further tested whether replacing these missing values with the industry mean value for that indicator would change the score (Barnett & Salomon, 2012). However, we found no significant changes. Instead the sustainability performance score remained relatively constant.

Finally, each stakeholder group includes a various number of indicators, thus resulting in different total score per category. Thus, to ensure equal weighting of each group, the total score for each category is scaled by the total maximum score of the category in question (Herbohn et al., 2014). This resulted in four (4.0) being the maximum possible sustainability performance score. Further, due to inter-industry variations in sustainability practices, industry needs to be accounted for to mitigate the effect of these differences (Margolis & Walsh, 2007). For instance, occurrence or differences in proprietary costs of pollution (Clarkson et al., 2008) or the degree of regulation imposed on a firm could influence sustainability performance differently (Margolis & Walsh, 2007). However, no industry weighting was performed in the index. Instead these industry differences are taken into account by adding industry as a fixed variable (see Section 4.5. Statistical tests).

”The reliability of a scale indicates how free it is from random error.” (Ameer & Othman, 2012:67). To assess reliability of the index results, Cronbach’s Alpha was used to test the internal consistency among the indicators within each category. The Cronbach’s coefficient is measured

[5] ASSET4 has been found to be a suitable measure of firm long-term value creation (Ribando & Bonne, 2010).
[6] One of the six indicators was changed and is divided into two levels (i.e. 1 and 2).

from 0 to 1 - with a higher value indicating higher reliability. More specifically, a value within 0.6-0.7 is considered acceptable and a value above 0.8 is considered good (Nunnally, 1978 cited in Ameer & Othman, 2012, p. 67). We therefore tested the indicators within the four categories and found values of 0.72 (CG), 0.65 (ES), 0.67 (CS), and 0.83 (E). This suggests that the selected indicators are acceptable for constructing a multidimensional measurement of sustainability performance.

Before conducting the main data collection, a pilot study, including fifteen randomly selected companies (of different sizes and industries) for the years 2010 and 2013, were performed. This study was conducted to test the relevance of the sustainability performance index – i.e. the choice of indicators, time required for data collection for each observation, etc. As a result of the pilot study, some indicators were removed or slightly altered due to the lack of company reporting of those indicators. For instance, the points for quantitative progress of diversity were removed, due to differences in reporting and, which therefore resulted in difficulties of interpretation. The remaining final sustainability performance index is presented in Appendix 1, Table 1, followed by the list of the theoretical and empirical literature used to support each indicator, Table 2. To ensure transparency, and thus reliability, examples of interpretations are included in the index next to each indicator.

4.2.3. Board diversity

In accordance with Harjoto et al. (2014), multiple board diversity components are tested. Board diversity is operationalized by four variables - gender, age, education and an aggregated diversity measurement of the former variables. The variables are constructed into separate diversity indexes using Blau's index of heterogeneity. The level of heterogeneity of a characteristic within a group is calculated as $(1-\sum p_i^2)$, where P represents the proportion of directors in a given category and i stands for the number of categories represented (Blau, 1977). Depending on the number of categories, the score for perfect heterogeneity varies. More specifically, gender measures the level of gender heterogeneity - male and female - present on the board. This implies that a diversity index of 0.0 represents complete gender homogeneity and a value of 0.5 represents perfect gender heterogeneity of the board[7]. Age represents the level of diversity regarding director's age, which is divided into five different categories - younger than 40 years old, 40 to 49, 50 to 59, 60 to 69, and 70 years old or higher. With these five categories, perfect heterogeneity of director's age represents a Blau's index value of 0.8. Education measures the heterogeneity of the director's educational background. These are divided into eight categories - business, engineering, law,

[7] More specifically, the maximum value of the gender diversity index with two categories is $0.5=(1-0.5^2+0.5^2)$.

other education (e.g. medicine), combined degrees of business and engineering, combined degrees of business and law, other combinations of degrees, and no educational background or unspecified. Thus, Blau's index for perfect educational heterogeneity is 0.875.

However, to be able to construct an aggregated board diversity measurement (DIV), each of the three diversity indexes is divided by the total score (i.e. perfect heterogeneity) for each category. Thus, the minimum and maximum level for each separate diversity component is 0.00 respectively 1.00. By adding the three separate diversity indexes together, the aggregated board diversity measurement has a minimum level of 0.00 and a maximum level of 3.00.

4.3. Control variables

When investigating the relationship between corporate sustainability performance and financial performance, it is important to take into account variables that may influence a corporation's performance. Failing to do so may lead to biased results (Saunders et al., 2012). According to the findings of the meta-analysis performed by Orlitzky et al. (2003) and Margolis and Walsh (2007), the most common control variables within corporate sustainability literature are firm size, industry and financial risk (e.g. debt ratio). Firm size (i.e. total assets) and debt ratio are therefore included in the analysis together with fixed (industry and year) effects, to control for unobservable variables influence (see Section 4.5. 'Statistical tests' for a specification of fixed effects).

Firm-size

According to Waddock and Graves (1997), firm size should be considered because of its potential influence on both corporate sustainability and financial performance. Indeed, empirical research has found that there is a relationship between the size of the firm and sustainability performance as well as to some measurements of financial performance (Fischer & Sawczyn, 2013; Orlitzky et al., 2003) and to the sustainability rating of the firm (Johnson & Greening, 1999). For instance, stakeholders may have greater expectations and concerns regarding the level of responsibility of actions and activities performed by larger firms (Hillman & Keim, 2001). Furthermore, the size of the corporation might also affect the availability of resources that can be used for the creation of performance disclosures (Herbohn et al., 2014). For instance, previous research has found a positive relationship between firm size and the amount of corporate disclosure (e.g. Clarkson et al., 2008). In accordance with Waddock and Graves (1997), firm size is measured by the logarithm of total assets.

Debt ratio

The second control variable accounts for the risk associated with debt burden. The level of debt might have implications on managerial behaviour. More specifically, it may constrain managers' opportunity seeking behaviour as well as controlling managers into making decisions that are in the best long-term interest of the company (Waddock & Graves, 1997; Barnett & Salomon, 2012). Following much previous research (e.g. Waddock & Graves, 1997; Nelling & Webb, 2009; Barnett & Salomon, 2012), the proxy measurement for financial risk is debt ratio, calculated as the ratio of total debt to total assets.

Board size

Previous research has investigated whether the size of the board has an impact on board decisions. For our second hypothesis, board size will therefore be added to the control variables in accordance with Hillman and Keim (2001). For example, Kassinis and Vafeas (2002) have found that the risk of the firm being charged with environmental litigation, increased with board size. This finding indicates that large boards are less effective in monitoring and preventing such behaviour (Kassinis & Vafeas, 2002). Similarly, Walls et al. (2012) discovered that firms with larger boards had poorer environmental performance. Supporting this, Benson et al. (2011) found that smaller boards have more effective monitoring processes that prevent excessive spending of firm resources on stakeholder management activities. Thus, board size may influence board effectiveness and, as a result also sustainability and financial performance. Board size refers to the total number of directors on the board.

4.4. Sample and data collection

The thesis considers discretionary sustainability related material available in the public domain; thus, only data that is available to all stakeholders (van der Ploeg & Vanclay, 2013). Therefore, the data collection for the sustainability index relies on corporate annual reports and sustainability reports as sources of information. This approach is used in previous studies, for example Clarkson et al. (2008) and Herbohn et al. (2014). The financial performance data is collected from Thomson Reuters' Datastream and board data is manually collected from annual reports and corporate governance reports.

The thesis uses an unbalanced data set of firms listed on NASDAQ OMX Stockholm during 2009-2013. An advantage of using an unbalanced sample is that the risk of survival bias is eliminated. As presented in Table I, our initial sample constitutes of 1,193 observations (300 firms) from various industries. However, in accordance with previous research, financial institutions and investment companies are excluded - as these companies do not report any

operational profit and also follow different regulatory requirements compared to other firms represented in the sample. We also exclude, observations with zero sustainability performance and missing accounting data. These adjustments resulted in a final unbalanced sample of 1,015 observations (252 firms).

Table I. Sample adjustments

	Observations
Initial sample	1,193
Financial institutions and investment companies	-108
Zero CSP values	-63
Missing Data	-7
Final Sample	**1,015**

Previous research has used various time frames, ranging from one year (Waddock & Graves, 1997; Al-Tuwaijri et al., 2004) to fifteen years observations (Barnett & Salomon, 2012) and, still, rendered equally significant results. This thesis investigates sustainability and financial performance between 2009 and 2013. Before deciding upon this time frame, i.e. prior to the pilot study and the main data collection, the level of sustainability reporting was examined for ten of the companies present in our sample between 2007 and 2013. The small study indicated that prior to 2009, there was less focus on corporate sustainability practices, thus, potentially affecting the level of disclosure, especially for small and medium-sized enterprises (SMEs). However, as can be seen by the results of our main data collection (presented in Table II), the average corporate sustainability performance increases during the course of the period. The average corporate sustainability performance (CSP) in 2013 is 1.218, which is a 29 percent increase compared to 2009 (0.946). This is in line with the growing interest for sustainability issues in society and among company leaders (Laplume et al., 2008). Furthermore, considering the partially qualitative dimension of the data collection method, there is a time constraint for the number of years that are attainable. Thus making five years an appropriate time frame.

Table II. Average corporate sustainability performance (CSP) over time

	2009	**2010**	**2011**	**2012**	**2013**
CSP	0.946	1.052	1.120	1.186	1.218

According to Bansal and DesJardine (2014), research on sustainability needs a broader measurement of firm performance that incorporates time-based information. The effects of a sustainability investment tend to have a time lag and it is therefore important to find a measurement of performance that consider time-based information about a firm's profitability (Bansal & DesJardine, 2014). As the index applied in this thesis considers quantitative

information about firms' sustainability performance. The potential influence of a time lag between disclosure and performance is minimised when the voluntary (sustainability) disclosures impact the operations for that year (e.g. use of energy or resources). Additionally, as financial performance and certain aspects of sustainability disclosure behaviour are relatively static, the effects of time lags are further reduced. Furthermore, time lags between financial and sustainability performance might not be necessary due to the previously mentioned 'virtuous cycle', where the variables positively influence each other simultaneously (Waddock & Graves, 1997; Nelling & Webb, 2009). Or, alternatively due to the 'negative synergy hypothesis', where sustainability activities and financial performance affect each other negatively (Makni, Francoeur, & Bellavance, 2009).

4.5. Statistical tests

To examine the underlying hypothesised relationship between corporate sustainability performance and financial performance, a univariate regression analysis is conducted - using ROA as the dependent variable and corporate sustainability performance (CSP) as the independent variable. However, to be able to determine the strength of this relationship, an ordinary least squares (OLS) multivariate regression analysis is performed to control for other potentially influential variables. This procedure is commonly used within the corporate sustainability literature (e.g. Waddock & Graves, 1997; Barnett & Salomon, 2012). Furthermore, to test the four stakeholder categories (Corporate Governance, Employees & Suppliers, Customer & Society, and Environment) from the sustainability index, a second model regresses ROA on each category separately. This allows further investigation of the relationship between financial performance and different aspects of sustainability performance. The following general regression models are tested, with slight modifications (presented as Model 1-3 and 4a-d in the empirical results):

$$ROA_{it} = \beta_0 + CSP_{it}\beta_1 + X_{it}\beta_2 + Z_t\beta_3 + I_i\beta_4 + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + CG_{it}\beta_1 + ES_{it}\beta_2 + CS_{it}\beta_3 + E_{it}\beta_4 + X_{it}\beta_5 + Z_t\beta_6 + I_i\beta_7 + \varepsilon_{it}$$

A multivariate regression analysis is also used to examine our second hypothesis, i.e. the impact of board diversity on the relationship between corporate sustainability performance and financial performance. To test the impact of board diversity, an interaction term of corporate sustainability performance (i.e. the independent variable) and for each board diversity variable is computed (Aiken & West, 1991). However, prior to computing the interaction term, the variables are centred to avoid issues of multicollinearity, i.e. by subtracting the mean from the independent variables. A dummy is also created for each diversity variable - between those who scored 0.50 or

higher on the diversity scale and those who scored lower. This procedure allows for a comparison of the influence on the sustainability-financial performance relationship between firms with the most and the least diverse boards of directors. Each of the four diversity variables is included separately, below categorized as BOARD. The following general regression model are tested for board (presented as Model 6-9 in the results):

$$ROA_{it} = \beta_0 + CSP_{it}\beta_1 + BOARD_{it}\beta_2 + CSP_{it}*BOARD_{it}\beta_3 + X_{it}\beta_4 + Z_t\beta_5 + I_i\beta_6 + \varepsilon_{it}$$

Table III. Variable descriptions

ROA_{it}	= Square transformation of return on assets
CSP_{it}	= Corporate sustainability performance
CG_{it}	= Corporate Governance
ES_{it}	= Employees and Suppliers
CS_{it}	= Customers and Society
E_{it}	= Environment
$BOARD_{it}$	**Board diversity**
DIV_{it}	= Aggregated board diversity
$GENDER_{it}$	= Gender diversity
$EDUCATION_{it}$	= Education diversity
AGE_{it}	= Age diversity
X_{it}	**= Control variables**
FIRM $SIZE_{it}$	= The logarithm of total assets
DEBT $RATIO_{it}$	= Financial risk, measured by debt-ratio
BOARD $SIZE_{it}$	= Total number of directors
Z_t	= Fixed year effects
I_i	= Fixed industry effects
β_0	= Intercept
ε_{it}	= Error term
i	= Observation
t	= Year of observation

An assumption in OLS regression is independence of observations, thus any serial correlation would therefore violate this assumption (Brooks, 2002). Due to the use of panel data, i.e. several observations per firm over several years, the risk exists that errors are correlated across observations over time (Greene, 2012). Furthermore, there might be a systematic variation of performance within industries, i.e. that performance varies between industries due to non-temporal factors (e.g. seasonal fluctuations). To account for this unobserved heterogeneity, we include (fixed) year and industry effects[8] in the models (Greene, 2012). By including these fixed

[8] For each year (i.e. 2009-2013) and industry (divided into four industries – manufacturing, services, trade, and real estate) dummies are created.

variables, we are able to control for characteristics that are not directly measured by the other variables.

4.5.1. Sample adjustments and tests

Parametric tests require the data variables to have a normal distribution. Thus, it is necessary to normalize the variables before conducting the statistical analysis. A box-plot visualising the distribution of observations demonstrated existence of extreme values, which without action may distort the regression results and lead to overestimated results. This thesis uses winsorisation to eliminate the influence of outlier values, which entails moving the extreme values from the tails towards the mean of the sample. More specifically, with a set limit of one percent for both tails, outlier values were moved to the 1st and 99th percentile respectively. This method of handling outliers is preferred since it improves the distribution of our sample and is a common outlier screening method within accounting research (Leone, Minutti-Meza, & Wasley, 2014). A further prerequisite for running a multivariate regression model is that the variance in the residuals is homogenous (Brooks 2002). A visual inspection of the predicted residuals (through a P-P plot) indicated a random pattern, thus lending support to assuming homoscedasticity.

To examine whether the independent variables correlate, a multicollinearity assessment was conducted by investigating the *Variance Inflation Faction* (VIF). However, there are differences in opinion when the VIF value is perceived as too high. For instance, prior research has used a VIF-level ranging from 4 to 10 to signal excessive multicollinearity (O'Brien, 2007). Therefore, in lack of a long-established critical VIF-level (Stine, 1995), this thesis has set the VIF-limit to the frequently used maximum of 10 (e.g. Barnett & Salomon, 2012). Our results (see Appendix II, Table 6 and 7) indicated a low level of multicollinearity, since all variables had a VIF-level ranging between one and three; hence lower than our maximum level of acceptance. Thus, we can assume that the level of multicollinearity does not have a negative influence our results presented herein.

5. EMPIRICAL RESULTS AND ANALYSIS

This chapter entails the results from the statistical analysis. Beginning with a presentation and analysis of the descriptive statistics and correlation analysis. This is followed by the findings from the first (H1) and second (H2) multivariate regressions as well as robustness tests.

5.1. Descriptive statistics and correlations

Table IV presents the descriptive statistics and correlations for the variables used to assess the relationship between corporate sustainability performance (CSP) and corporate financial performance (ROA), i.e. the first hypothesis. ROA is on average 0.02, with a minimum and maximum level of -0.74 and 0.26. The average CSP is 1.10 - with a minimum and maximum level of 0.04 and 3.83. The average sustainability score of 1.10 is relatively low in comparison with the maximum index score of 4.00. However, this may be explained by the structure of the sustainability index, which rewards quantitative improvement disclosure higher than qualitative reporting. Thus, to qualify as a top sustainability performer, both high scores in terms of qualitative and quantitative disclosure is required. Therefore, the average score indicate that relatively few were able to fulfil both these conditions. To increase the transparency of the results, descriptive statistics for transformed variables (i.e. ROA and FIRM SIZE) as well as skewness and kurtosis are presented in Appendix II, Table 3.

CSP and ROA show a significant positive correlation at 0.25 ($p<0.01$). This supports our first hypothesis, i.e. that there is a positive relationship between corporate sustainability activities and financial performance. ROA and FIRM SIZE have a positive correlation at 0.10 ($p<0.0.1$). Furthermore, CSP and FIRM SIZE are positively correlated at 0.45 ($p<0.01$). This could be explained by that larger firms, on average, score higher on sustainability performance than smaller firms. This result is as expected, since larger firms, generally, have more resources to spend on sustainability enhancing activities than smaller firms.

Each separate dimension of the sustainability index, i.e. Corporate Governance, Employees & Suppliers, Customer & Society, and Environment, is positively correlated to ROA ($p<0.01$). Thus, the first hypothesis is supported for each stakeholder category of the index, that is, all four aspects indicate a positive relationship between corporate sustainability performance and financial performance. Thus, further supporting our first hypothesis.

Table IV. Descriptive statistics and correlations – ROA & CSP

	1.	2.	3.	4.	5.	6.	7.	8.
1. ROA	1							
2. CSP	0.25**	1						
3. CG	0.22**	0.88**	1					
4. ES	0.15**	0.80**	0.64**	1				
5. CS	0.23**	0.79**	0.55**	0.46**	1			
6. E	0.20**	0.84**	0.70**	0.60**	0.51**	1		
7. FIRM SIZE	0.10**	0.45**	0.41**	0.41**	0.32**	0.34**	1	
8. DEBT RATIO	-0.01	0.24**	0.19**	0.17**	0.21**	0.22**	0.15**	1
Mean	0.02	1.10	0.26	0.26	0.35	0.22	16,955.8	0.52
Standard dev.	0.15	0.81	0.26	0.22	0.28	0.23	47,291.7	0.19
Minimum	-0.74	0.04	0.00	0.00	0.00	0.00	24.3	0.01
Maximum	0.26	3.83	1.00	1.00	1.00	1.00	396,110.5	1.41
N	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015

*** Significant at 0.01 level (2-tailed).*
** Significant at 0.05 level (2-tailed).*

Table V, presents the descriptive statistics and correlations for the variables used to answer the second hypothesis – including the aggregated diversity measurement (DIV) and the separate diversity components, GENDER, EDUCATION, and AGE. Aggregated diversity (DIV) is on average 2.03, with a minimum and maximum of 0.00 and 2.68, where 3.0 is the highest score for complete heterogeneity. On average, gender board diversity (GENDER) is approximately 0.64. The minimum and maximum level for GENDER is 0.00 respectively 1.0, thus boards are represented with both complete homogeneous and heterogeneous boards. AGE is on average 0.73, with a minimum level of 0.0 and a maximum level of 0.99. Therefore, no board among the sample constitutes of perfect heterogeneity regarding director age. The last and fourth diversity measurement, EDUCATION has a mean of 0.66 – with a minimum level of 0.00 and a maximum level of 0.93. As with AGE, there is no board with perfect heterogeneity in the sample. Concerning the size of the board (BOARD SIZE), the number of board members varies between 3 and 12 - and constitutes on average of 6 board members.

The correlation between ROA and DIV shows a positive relationship, 0.09 ($p<0.01$). There is furthermore a positive correlation between CSP and DIV at 0.24 ($p<0.01$). This implies that a heterogeneous board is positively related with both sustainability and financial performance. GENDER is positively correlated with both ROA, 0.12 ($p<0.01$) and CSP, 0.22 ($p<0.01$). Indicating that an even distribution between male and female board members among the board of directors is positively associated with corporate sustainability performance and financial

performance. Furthermore, AGE is positively related to CSP, 0.11 ($p<0.01$), thus, signalling that heterogeneity regarding age distribution among the board has a positive association with sustainability performance. Finally, a stronger correlation is found between CSP and BOARD SIZE, which is positive at 0.52 ($p<0.01$). There is also a weaker positive association between ROA and BOARD SIZE, 0.15 ($p<0.01$). Board size is further positively correlated to all four board diversity components. Indicating that larger boards have greater heterogeneity among the board of directors.

Table V. Descriptive statistics and correlations – Board diversity

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. ROA	1								
2. CSP	0.25**	1							
3. DIV	0.09**	0.24**	1						
4. GENDER	0.12**	0.22**	0.73**	1					
5. AGE	0.02	0.11**	0.46**	-0.02	1				
6. EDUCATION	-0.04	0.04	0.45**	-0.13**	0.13**	1			
7. FIRM SIZE	0.10**	0.45**	0.09**	0.03	0.06	0.08*	1		
8. DEBT RATIO	-0.01	0.24**	0.03	0.09**	-0.02	-0.07*	0.15**	1	
9. BOARD SIZE	0.15**	0.52**	0.28**	0.12**	0.23**	0.17**	0.49**	0.16**	1
Mean	0.02	1.10	2.03	0.64	0.73	0.66	16,955.8	0.52	6.48
Standard dev.	0.15	0.81	0.36	0.29	0.15	0.18	47,291.7	0.19	1.44
Minimum	-0.74	0.04	0.00	0.00	0.00	0.00	24.3	0.01	3.00
Maximum	0.26	3.83	2.68	1.00	0.99	0.93	396,110.5	1.41	12.00
N	1,015	1,015	927	927	927	927	1,015	1,015	1,015

*** Significant at 0.01 level (2-tailed).*
** Significant at 0.05 level (2-tailed).*

However, caution should be exercised in drawing conclusions from the relationships presented above, as the correlations only show a moderate magnitude. Furthermore, the analysis does not consider industry effects and does not control for time. Thus, to improve the reliability of the observed relationship between corporate sustainability performance and financial performance, the correlation analysis is followed by a multivariate regression analysis.

5.2. Positive relationship between sustainability performance and financial performance

To test the first hypothesis, a multivariate regression analysis was conducted with ROA as the dependent variable. However, prior to the multivariate regression, a univariate regression analysis was performed with ROA as the dependent variable and corporate sustainability performance (CSP) as the independent variable – to test the underlying relationship (See Appendix II, Table 4 for results). The results indicate a significant ($p<0.01$) positive relationship between ROA and CSP – with an adjusted R-square at 0.059. However, to be able to determine the strength of the relationship, multivariate regression analyses were also conducted to control for other influential variables.

The results from the multivariate regression analyses, which are divided into three models, are presented in Table VI. In Model 1, ROA is regressed based on corporate sustainability performance (CSP) using firm size and debt ratio as control variables and without fixed year and industry effects. In Models 2 and 3, the same multivariate regression was conducted, with the exception that year effects are included in the second model and both year and industry effects are added into the third model. Thus, these models are imposed to stricter tests in comparison with the first regression model.

As can be seen at the end of each column (Table VI), the adjusted R-square, i.e. the explanatory power of the regression model, improves continuously in each of the three models, i.e. 0.102 (Model 1), 0.105 (Model 2), and 0.159 (Model 3). That is, the explanatory power of the regression model improves when year and industry effects are added to the analysis. This indicates that there is no substantial year-specific and industry-specific variation in performance of observations. If this had been the case, the explanatory power of the model would have been reduced as opposed to being improved. However, as depicted in Table VI, the industry fixed effects were greater than the year fixed effects.

Model 1 (i.e. with control variables and no fixed effects) supports the results from the correlation analysis, that is, there is a significant ($p<0.01$) positive relationship between corporate sustainability (CSP) and ROA. More specifically, when the corporate sustainability activities of companies improve, the financial performance in terms of ROA increases. These findings are consistent with previous empirical research investigating the relationship of the two components (e.g. Waddock & Graves, 1997; Orlitzky et al., 2003).

These results remain consistent in, Model 2 (i.e. with control variables and year fixed effects). That is, adding year fixed effects did not have any major effects of the results from the first model. However, as already mentioned, the explanatory power improved slightly.

Model 3 (i.e. with control variables and year/industry fixed effects), still supports a positive relationship between CSP and ROA, however, with a slightly reduced significance level at ($p<0.05$). The significant positive relationship between ROA and FIRM SIZE as well as the significant negative relationship between ROA and DEBT RATIO remains constant. Thus, adding both fixed year and industry effects, affected the findings only slightly – including a higher adjusted R-square. Lastly, the findings from all models (1-3) suggest that larger firms have higher ROA whilst companies with higher debt burden have lower ROA.

To further explore the relationship, a multivariate regression was conducted without adding CSP as an independent variable to test the strength of the control variables on ROA. The results, which are presented in Appendix II, Table 5, show an improvement of the adjusted R-square when CSP is added, i.e. from 0.156 to 0.159. Therefore, indicating that corporate sustainability performance improves the explanatory power of the relationship.

Table VI. Multivariate regression analysis – ROA & CSP

	Model 1	**Model 2**	**Model 3**
CSP	0.02***	0.02***	0.02**
	(2.70)	(2.62)	(2.31)
FIRM SIZE	0.05***	0.05***	0.06***
	(6.05)	(6.07)	(7.24)
DEBT RATIO	-0.16***	-0.16***	-0.20***
	(-5.38)	(-5.33)	(-6.80)
Constant	0.49***	0.51***	0.46***
	(20.33)	(19.45)	(17.45)
Year	NO	FIXED	FIXED
Industry	NO	NO	FIXED
N	1,105	1,015	1,015
F	39.27	18.03	20.21
Adj. R^2	0.102	0.105	0.159

**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

In conclusion, although the results are overall moderate, our first hypothesis is supported by the empirical data. That is, there is a positive relationship between corporate sustainability performance and financial performance. However, to further investigate the relationship, each stakeholder group is regressed against financial performance, to explore what drives this relationship further.

Table VII, therefore, separates the aggregated corporate sustainability performance (CSP) index into its four stakeholder categories, i.e. Corporate Governance (CG), Employees & Suppliers (ES), Consumer & Society (CS), and Environment (E). However, out of these four sustainability categories, only Consumer & Society can for certainty explain variations in ROA. More specifically, there is a significant ($p<0.01$) positive relationship between CS and ROA. That is, despite the fact that all stakeholder categories are positively correlated to ROA (see Table IV), only Consumer & Society is significant when controlling for firm size, debt ratio, and industry/year fixed effects in the regression. Thus, implying that for three of the stakeholder categories, other variables have stronger influence in explaining ROA. To investigate these effects further, additional tests of the stakeholder categories were performed where the two control variables, i.e. firm size and debt ratio, were each excluded from the analysis. The findings, which are presented in Appendix II (Table 8), indicate that when firm size is excluded from the regression, the influence of each stakeholder category is positive and significant at ($p<0.01$). Therefore, implying that firm size has a stronger effect in explaining ROA, than the separate stakeholder categories (i.e. CG, ES, and E).

However, despite insignificant results for the stakeholder category, the adjusted R-squares for Model 4a, 4c, and 4d remain relatively constant - ranging from 0.155-0.157 - in comparison with the adjusted R-squared in Model 3 (Table VI) at 0.159. The highest adjusted R-square is present in Model 4b, i.e. with the significant stakeholder category (Consumer & Society, CS), at 0.165 - indicating that this model has the highest explanatory power of ROA. These findings are consistent with those of Orlitzky et al. (2003), i.e. that social aspects of corporate sustainability show the strongest relation to good financial performance.

Whilst the other categories were insignificant, no dimension of the sustainability index indicates a negative association with firm profitability. This is in accordance with the proposition that firm profitability and sustainability are not mutually exclusive (Jones, 1995).

Table VII. Multivariate regression analysis –ROA & Stakeholder categories

	Model 4a	Model 4b	Model 4c	Model 4d
CG	0.04			
	(1.55)			
ES		0.00		
		(0.91)		
CS			0.07***	
			(3.52)	
E				0.02
				(0.88)
FIRM SIZE	0.07***	0.08***	0.06***	0.07***
	(8.08)	(9.83)	(8.93)	(9.23)
DEBT RATIO	-0.20***	-0.20***	-0.21***	-0.20***
	(-6.71)	(-6.80)	(-6.97)	(-6.79)
Constant	0.46***	0.44***	0.46***	0.45***
	(17.09)	(17.31)	(18.24)	(17.15)
Year	FIXED	FIXED	FIXED	FIXED
Industry	FIXED	FIXED	FIXED	FIXED
N	1,015	1,015	1,015	1,015
F-stat.	19.86	19.57	21.05	19.67
Adj. R^2	0.157	0.155	0.165	0.155

**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

5.2.1. Robustness test and sensitivity analysis

To test the robustness and sensitivity of the results presented above, different variations of the regression models were conducted. The results from these tests are presented below in Table VIII, with the results from Model 3 (Table VI) presented again to facilitate referencing. Firstly, ROA is replaced by the following year's ROA ('lagged'), to test the possible time delay between sustainability activities and financial outcome. Secondly, the appropriateness of using ROA as our financial performance measurement was tested by using both return on equity (ROE) and return on sales (ROS) as the dependent variable respectively. Finally, a curvilinear regression was conducted to test whether the assumption of linearity holds.

ROA lag

The results from using the following year's ROA as the dependent variable are presented in Table VIII, Model 3a and 3b. In likeness with Waddock & Graves (1997), in Model 3a, the ROA used in the previous models (i.e. Model 1-3 and 4a-d) was replaced by the 'lagged' ROA[9], i.e. the following year's ROA. In comparison with the present ROA (Model 3), which produced significant results at ($p<0.05$), the lagged ROA also indicated significant results; however, with a lower significance level, ($p<0.10$). Furthermore, the adjusted R-square (i.e. the explanatory

[9] $ROA_{it+1} = \beta_0 + CSP_{it}\beta_1 + X_{it+1}\beta_2 + Z_t\beta_3 + I_i\beta_4 + \varepsilon_{it+1}$

power) for the lagged ROA-model is lower at 0.129 in comparison with the adjusted R-square for the present ROA-model at 0.159.

However, it is possible that the lagged ROA is more dependent on the present year's ROA than CSP. Thus, in accordance with Barnett & Salomon (2012), the present ROA is added as an independent variable in Model 3b[10]. As expected, the results indicate that the coefficient for present ROA is the most influential determinant of lagged ROA ($p<0.01$), whilst the influence of CSP is insignificant. This is further confirmed by that the adjusted R-square is considerably improved to 0.573 compared to 0.159 (Model 3), that is, the inclusion of the present year's ROA, explains lagged ROA better than CSP.

Different performance measurements

Although ROA is frequently used in previous research aimed at investigating the relationship between corporate sustainability performance and financial performance. Prior studies have also used other measurements to capture various aspects of financial performance, for instance return on equity (ROE) and return on sales (ROS). To further test our model, we replaced our financial performance measurement, i.e. ROA, with ROE and ROS. As with ROA, winsorisation was used to eliminate the impact of outliers, with a set limit of one percent in each tail before conducting the regression analyses.

The results, which are presented in Table VIII (ROS in Model 3c and ROE in Model 3d), suggest that there are no significant findings for our independent variable (CSP) when adding different financial performance measurements other than ROA. However, despite insignificant results for CSP, the adjusted R-square was slightly improved for ROE. These results are similar to previous research, which has found stronger significance level for ROA than other measurements of financial performance (e.g. Waddock & Graves, 1997). This has contributed to ROA being one of the most used financial measurements to investigate the relationship between sustainability performance and financial performance.

A potential reason for these mixed results might be that ROA is more static across firms with different business operations and capital structure in comparison with ROS and ROE. For instance, our sample constitutes of both industrial firms with larger capital base and service firms with smaller capital base. Therefore, there is a large variance between firms when performance is measured as profit in relation to their capital base. This could explain why ROE does not capture a significant effect of CSP. For ROS, greater fluctuations in sales for certain companies (e.g.

[10] $ROA_{it+1} = \beta_0 + CSP_{it}\beta_1 + ROA_{it}\beta_2 + X_{it+1}\beta_3 + Z_t\beta_4 + I_i\beta_5 + \varepsilon_{it+1}$

biotech companies) may lead to less stable financial results in comparison to ROA. Thus, failing to yield significant results in the scope of this study.

ROA Curvilinear regression

The previous models have assumed a linear relationship between corporate sustainability performance and financial performance. However, there is also a possibility that the relationship is more complex, for instance that there is a curvilinear relationship, which have been suggested by previous research (e.g. Barnett & Salomon, 2012). Thus, to test our model further, a quadratic regression was conducted[11]. The results are presented in Model 3e, Table VIII.

According to the findings, both models are statistically significant - with an F change of 12.25 from the addition of the non-linear effect to the regression. Thus, the explanatory power in Model 3e is higher at 0.169 than in Model 3 at 0.159. Thus, these findings suggest a stronger support for a curvilinear relationship rather than a linear relationship between corporate sustainability performance and financial performance.

The monotonic curvilinear relationship is depicted graphically in Figure 2. – with ROA on the vertical axis and CSP on the horizontal axis. As can been seen by the figure, the relationship is formed as a slightly inverted U-shape. Thus, indicating that low and high sustainability performers are performing lower in terms of ROA in comparison with firms performing moderate/medium in terms of sustainability performance. With regards to ROA, the financial performance rises as the CSP score increases – reaching a maximum level at a CSP score of approximately 2.50. Thereafter, the financial performance surprisingly decreases as the CSP score increases – however at a lower magnitude than for low sustainability performers.

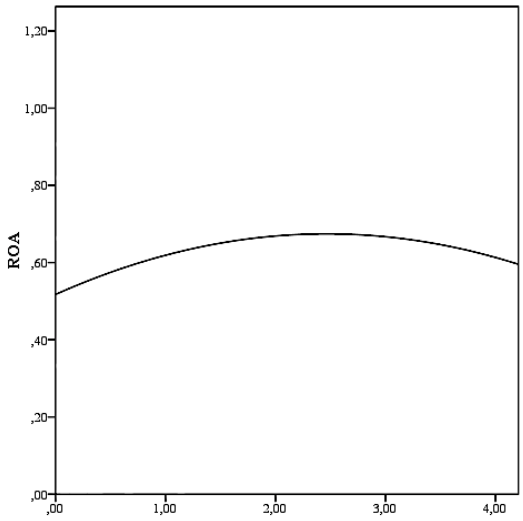

Figure 2. Curvilinear relationship between sustainability performance and financial performance

[11] $ROA_{it} = \beta_0 + CSP_{it}\beta_1 + CSP_{it}^2\beta_2 + Xit\beta_3 + Zt\beta_4 + Ii\beta_5 + \varepsilon it$

Thus, for remarkably high sustainability performers the quadratic regression indicates a slightly negative relationship between sustainability performance and financial performance. Therefore, this contradicts our first hypothesis, at least to a certain extent. More specifically, our hypothesis is only supported by low to moderate sustainability performers, but rejected for remarkably high sustainability performers. Thus, according to this additional analysis, the first hypothesis is rejected.

Table VIII. Multivariate regression analysis – Robustness tests ROA & CSP

	Model 3	**Model 3a** Lag I	**Model 3b** Lag II	**Model 3c** ROS	**Model 3d** ROE	**Model 3e** Curvilinear
ROA			0.66***			
			(26.38)			
CSP	0.02**	0.02*	0.00	0.08	0.22	0.09***
	(2.31)	(1.78)	(0.20)	(1.24)	(1.28)	(4.12)
CSP^2						-0.03***
						(-3.50)
FIRM SIZE	0.06***	0.06***	0.03***	0.47***	0.89***	0.06***
	(7.24)	(5.66)	(4.58)	(7.49)	(5.17)	(7.08)
DEBT RATIO	-0.20***	-0.13***	-0.11***	-1.24***	-0.73	-0.21***
	(-6.80)	(-3.67)	(-4.42)	(-5.80)	(-1.22)	(-7.05)
Constant	0.46***	0.43***	0.12***	3.94***	17.70***	0.44***
	(17.45)	(14.31)	(4.82)	(20.72)	(33.35)	(16.01)
Year	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
Industry	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
N	1,015	1,015	1,015	1,015	1,015	1,015
F-stat. change						12.25
F-stat.	20.21	20.21	102.41	18.84	20.34	19.69
Adj. R^2	0.159	0.129	0.573	0.150	0.161	0.169

Model 3 repeats data from Table VI to facilitate referencing.
**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

5.3. Board diversity

Our second hypothesis predicts that board diversity enhances the relationship between sustainability performance and financial performance, that is, a more diverse board of directors has a positive influence on the relationship as opposed to a more homogeneous board. Table IX, presents the regression results for the second hypothesis. Models 6-9 show the results with linear multivariate regressions whereas Models 6a-9a present the results for the non-linear regressions This will enable an assessment of whether the addition of the board diversity components affect the linear and curvilinear relationship, in accordance with the findings from the previous analyses including the robustness test. More specifically, there is a possibility that increased board diversity will buffer the negative relationship for high sustainability performers which is depicted in Figure 2.

As shown in Table IX, the findings in Model 6 indicate that the aggregated board diversity (DIV) does not significantly differ from more homogenous boards in terms of the influence on the relationship between sustainability performance and financial performance. Similarly, the separate diversity measurements, gender diversity (GENDER) and age diversity (AGE), do not show any significant results (Model 7-8). This indicates that gender or age diverse boards do not moderate a stronger relationship between sustainability and profitability.

Model 9, however, shows a significant positive influence at 0.07 ($p<0.10$) for the impact of educational diversity on the relationship between sustainability and financial performance. This supports the findings by Harjoto et al. (2014), who argue that expertise diversity among directors of the board is one of the driving forces of the level of corporate sustainability. It is also in accordance with Kim and Lim (2010) who find that directors' educational background influences financial performance.

Models 6a-9a show the results from the addition of the curvilinear regressions. These follow the results from the linear multivariate regressions, that is, there is only a slightly significant positive impact of educational diversity on the relationship (Model 9a). With educational diversity, the addition of the curvilinear regression had an F change of 9.65 and an adjusted R-square of 0.166. Thus, showing a improved explanatory power for the curvilinear model as opposed to the linear model (Model 9), which had an adjusted R-square of 0.158.

Table IX. – Multivariate regression analysis – Board diversity[12]

	Model 6	Model 7	Model 8	Model 9	Model 6a	Model 7a	Model 8a	Model 9a
CSP	0.02**	0.02**	0.03***	0.03***	0.10***	0.10***	0.09***	0.09***
	(2.47)	(2.31)	(2.72)	(2.80)	(4.04)	(4.02)	(3.91)	(3.96)
CSP^2					-0.03***	-0.03***	-0.02***	-0.02***
					(-3.33)	(-3.38)	(-3.08)	(-3.11)
Interaction term	0.02	0.01	-0.06	0.07*	0.03	0.04	-0.05	0.07*
	(0.71)	(0.35)	(-1.19)	(1.94)	(1.43)	(1.18)	(-1.10)	(1.91)
DIV	0.01				0.13			
	(0.66)				(0.65)			
GENDER		0.02*				0.03**		
		(1.79)				(2.06)		
AGE			-0.01				-0.10	
			(-0.39)				(-0.47)	
EDUCATION				0.13				0.01
				(0.83)				(0.62)
FIRM SIZE	0.07***	0.07***	0.08***	0.07***	0.07***	0.07***	0.07***	0.07***
	(6.45)	(6.30)	(6.39)	(6.28)	(6.28)	(6.18)	(6.20)	(3.96)
DEBT RATIO	-0.21***	-0.21***	-0,21***	-0.21***	-0.21***	-0.22***	-0.22***	-0.21***
	(-6.52)	(-6.51)	(-6.57)	(-6.48)	(-6.77)	(-6.80)	(-6.79)	(-6.75)
BOARD SIZE	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	-0.01	-0.01
	(-1.44)	-1.03	(-1.21)	(-1.53)	(-1.13)	(-0.62)	(-0.91)	(-1.25)
Constant	0.48***	0.46***	0.47***	0.46***	0.42***	0.49***	0.44***	0.43***
	(13.81)	(13.51)	(13.15)	(13.04)	(11.83)	(13.19)	(12.18)	(11.89)
Year	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
Industry	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
N	927	927	927	927	927	927	927	927
F-stat change	-	-	-	-	11.10	11.42	9.50	9.65
F-stat	14.02	14.25	14.09	14.33	13.95	14.20	13.88	14.12
Adj. R^2	0.155	0.157	0.155	0.158	0.164	0.167	0.163	0.166

**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

However, to be able to facilitate interpretation, the results of the curvilinear regression are presented graphically below in Figure 3., with financial performance on the vertical axis and corporate sustainability performance on the horizontal axis. As shown by the figure, the effect of a more heterogeneous board (i.e. the green line), in similarity with the findings of hypothesis 1, has a maximum ROA at the CSP level of approximately 2.50. ROA thereafter decreases for high sustainability performers as the CSP score increases, but at a lower magnitude than for low sustainability performers. A more homogenous board (i.e. the blue line), on the other hand has a maximum ROA at a CSP level of approximately 1.30, however with a weaker curvilinear relationship. Thus, the inclusion of the educational diversity component did not improve the relationship, but it did not distort it either.

[12] A significant interaction term indicates a positive impact on the CSP-ROA relationship.

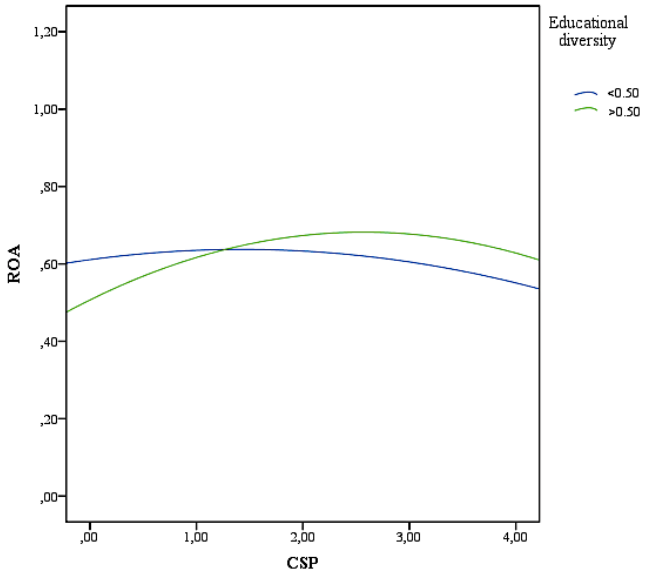

Figure 3. Curvilinear relationship between sustainability performance and financial performance and the impact of educational diversity

Thus, in accordance with the empirical findings, the second hypothesis is accepted for one of the four components used to measure board diversity. That is, board diversity in terms of educational background has a positive influence on the relationship between corporate sustainability performance and financial performance. The other diversity components, however, yielded insignificant results, thus not in accordance with our second hypothesis.

6. DISCUSSION

In the following chapter the findings from the previous chapter will be discussed and reflected upon with support from theoretical and previous empirical research. The chapter ends with the conclusions from the study as well as contributions, limitations, and avenues for future research.

6.1. Hypothesis 1: *Ceteris paribus,* there is a positive relationship between sustainability performance and financial performance

The question whether it pays to be good or if an increased focus on corporate sustainability practices result in financial disadvantages has been heavily debated. However, there is still no clear consensus whether there is a positive or negative relationship between corporate sustainability performance and financial performance. Nevertheless - despite inconclusive results - most empirical studies have reached a positive relationship when investigating the association between the two components; for instance Waddock and Graves (1997), Hillman and Keim (2001), Orlitzky et al. (2003), and Al-Tuwaijri et al. (2004). These previous empirical findings, thus, support our first results in the linear univariate and multivariate regression analyses, which all indicate a significant positive relationship between corporate sustainability performance and financial performance.

Moreover, our positive significant findings in these models are consistent with instrumental stakeholder theory, which states that if a corporation handles its stakeholder relationships effectively it can benefit financially (Donaldson & Preston, 1995). Furthermore, the positive significant results supports the arguments by Jones (1995), who argues that corporate sustainability performance and financial performance are not mutually exclusive, but sustainability practices can lead to competitive advantages due to minimised agency and transaction costs. That is, rather than distorting financial performance and shareholder value - as believed by advocators of a negative relationship (e.g. Friedman, 1979) - a focus on sustainability practices may actually be beneficial from a financial point of view.

The assessment of each separate stakeholder group, i.e. Corporate Governance, Employees & Suppliers, Customer & Society, and Environment, shed a light of what may be the driving force behind the positive relationship between sustainability and financial performance. However, according to the results, Customer & Society was the only significant factor, thus indicating that a focus on product or service quality, safety and community (e.g. charitable donations) are essential strategy tools for stakeholder management. By engaging in salient sustainability activities (e.g. community involvement) the firm might improve its reputation and thereby, as proposed by Cornell and Shapiro (1987) improve profitability. This is in accordance with considering

stakeholder management as a way to create a competitive advantage for the company (Barnett & Salomon, 2006). These findings are also similar to the results by Orlitzky et al. (2003), who found that 'social' performance indicators are more associated with improved financial performance than environmental performance indicators.

However, all these findings – in accordance with the first hypothesis – assume a linear relationship between corporate social responsibility and financial performance. When further testing the model, we found that the explanatory power of the model increased when a curvilinear (i.e. quadratic) regression was added to the analysis. The findings from the quadratic regression suggested a more complex relationship than depicted by the previous analyses. Instead of a complete linear relationship, the results indicated a slightly inverted U-shaped relationship between corporate sustainability performance and financial performance. Thus, instead of a complete positive relationship, there are indications that the positive relationship is only true for low and moderate sustainability performers and not for high sustainability performers. Thus, the case of the inverted U-shaped relationship between sustainability performance and financial performance asserts that there may be a suboptimal level of sustainability that diminishes shareholder wealth to a certain extent.

The findings that certain firms perform better than others are similar to Barnett and Salomon (2012), who found an U-shaped relationship between the two components. The authors explained these findings with the notion that some firms are better at capitalizing on the efforts aimed at corporate social responsibility than others. This may also be the case with our findings. However, contrary to the results discovered by Barnett and Salomon (2012), we found that medium firms performed highest in regards of ROA as opposed to the lowest. Furthermore, our results surprisingly indicate that there is a negative - although slight - relationship between the two components for high corporate sustainability achievers. Thus, the results from high sustainability performers thus reject our first hypothesis. Instead indicating support for a negative relationship as advocated by for instance Friedman (1970) for certain firms. More specifically, it may be that the effect of sustainability activities (i.e. stakeholder management) on financial performance may decline after a certain level of achievement is reached.

However, a possible explanation for the negative relationship for high sustainability performers might be the time horizon used in this study. When investigating high and low sustainability performers, Brammer and Millington (2008) found that poor sustainability performers achieved better financial results in the short term whilst high sustainability performers attained better financial results in the long-term. Thus, it can be speculated whether a longer time horizon would have yielded similar results as the study performed by Brammer and Millington.

In conclusion, according to the results from the linear multivariate regression analyses the first hypothesis is accepted, i.e. there is a positive relationship between corporate sustainability performance and financial performance. However, the robustness test indicated that the relationship is more complex than originally expected, i.e. rather than a linear relationship there is a curvilinear relationship between the two components. More specifically, there is a positive relationship for low and moderate sustainability performance, yet, a slightly negative relationship for remarkably high sustainability performances.

6.2. Hypothesis 2: *Ceteris paribus*, board diversity components have a positive impact on the relationship between corporate sustainability performance and financial performance.

In accordance with the reasoning by Letza et al. (2004), it is not sufficient to view the function of the board as merely a monitoring mechanism (Jensen & Meckling, 1976). Instead, as proposed by Pfeffer (1972) and Westphal and Fredrickson (2001), the directors of the board have important implications for firm management and performance through the unique set of capabilities each director brings to the board. As a more diverse board increases the variation of these capabilities and priorities, the ability of responding to various stakeholder needs increases, thus potentially leading to a more effective stakeholder management (Harjoto et al., 2014). In turn, instrumental stakeholder theory proposes that a more effective stakeholder management leads to improved financial profitability (Donaldson & Preston, 1995). A more diverse board may therefore facilitate the relationship between corporate sustainability and financial performance.

However, out of the four board diversity components, only one showed significant impact on the relationship between the two components. More specifically, our results suggest that only a more diverse board in regards of director educational background has a positive impact on the relationship. These findings are supported by previous research. For instance, diversity in terms of expertise/educational background has been found to be one of the driving factors of corporate sustainability (Harjoto et al. 2014) as well positively affecting financial performance (Kim & Lim, 2010). A more diverse board in terms of educational background enhances the knowledge base of the board, thus facilitating the possibility of responding to the - at times - conflicting interests of stakeholders. This is, however, somewhat contradictory to the findings by Rose (2007), who concluded that educational diversity does not impact board work in any greater extent. Instead the author argues that it is sufficient that the directors have higher educational degrees to successfully perform their duties as directors of the board.

The other diversity measurements, however, did not yield any significant results. This implies that overall diversity (i.e. the aggregated measurement), gender diversity, and age diversity among the board of directors do not significantly influence the relationship between corporate sustainability and financial performance. We therefore fail to find results in likeness with Bear et al. (2010) and Erhardt et al. (2003), who conclude that gender diversity positively influence corporate sustainability performance and financial performance respectively. The findings instead follow the results of Rose (2007). That is, significant findings of the influence of gender diversity on firm financial performance could not be confirmed. Furthermore, the significant positive findings of the impact of age diversity by Kim and Lim (2010) on financial performance could not be repeated. Instead, the insignificant findings of age diversity by Harjoto et al. (2014) are echoed. The reason for these insignificant findings may be that increased board diversity has a negative effect on board effectiveness.

According to Harjoto et al. (2014), too much diversity may impede the board's ability of handling various stakeholder interests. More explicitly, differences in perspectives and priorities might lead to prolonged decision making processes, thus stagnating the potential impact on the relationship between sustainability and financial performance. However, although several diversity components did not yield significant results when the impact of board diversity was investigated on the relationship between sustainability and financial performance. The diversity measurements may have significant influence when each diversity dimension is tested on each performance component separately. This is however beyond the scope of the thesis.

In summary, our results indicate that only high levels of educational diversity among the board of directors positively influence the corporate sustainability and financial performance relationship. Thus, our second hypothesis is confirmed for one of the four diversity components.

6.3. Conclusions

The aim of this study was to analyse and clarify the relationship between corporate sustainability performance and financial performance in a new contextual setting, i.e. amongst Swedish firms. That is, investigating the relationship in circumstances with different cultural traditions and regulatory environment than has been previously covered in prior research. Furthermore, the thesis contributes to the existing literature of corporate sustainability by creating a new sustainability index as well as investigating the impact of board composition on the relationship between sustainability performance and financial performance.

According to the first hypothesis, a positive relationship between corporate sustainability performance and financial performance was predicted. Our findings confirm this hypothesis when assuming a linear relationship. However, further tests indicated that the relationship is more complex than originally hypothesised, i.e. there is only a positive relationship for low and moderate sustainability performance and a slightly negative relationship for remarkably high sustainability performances. Thus, according to the additional tests, the first hypothesis is rejected.

The second hypothesis predicted a positive influence of board diversity on the relationship between corporate sustainability and financial performance. Our findings suggest that educational diversity among the board members enhances the relationship. Thus, the second hypothesis is accepted for one of the four diversity components.

Although this thesis contributes in several aspects as mentioned above, there are also certain limitations in need of reflection. Firstly, as with any study of disclosures, there is always a potential risk of biased results due to subjective interpretations. These potential drawbacks, were however, continuously considered during both the index construction and the data collection - for instance by the use of a binary coding system and continuous dialogue between the authors during the data collection. We acknowledge, however that despite our efforts, the problem might not be entirely mitigated. Secondly, the assessment of corporate sustainability is complex. The index used in this study might not capture all aspects of sustainability activities that companies can engage in. Although stakeholder groups and indicators were carefully selected as the most influential for firm performance, future research could be directed at developing the index of sustainability performance even further and include more 'fine tuned' aspects of sustainability.

Furthermore, although some previous studies have used shorter time frames, the five-year-period used in this thesis may be considered relatively limited. Therefore, long-term effects from sustainability firm activities, may not be captured by the models used to test our hypotheses. By investigating various time frames, these effects may be captured – especially regarding potential time lags of the relationship. For instance, it can be speculated whether there is a need for a greater time lag between corporate sustainability activities and financial performance to properly capture the long-term effects of sustainability activities, for instance a ten-year lag. However, there are limited sustainability data available, thus making long-term studies more difficult – at least for SMEs. However, as shown previously, the amount of sustainability disclosure continuously increases, which may be a result of increased stakeholder demands, for instance stricter regulations on non-financial disclosure reporting. Thus, providing areas for further research on the relationship between corporate sustainability performance and financial

performance, especially in a Swedish or Scandinavian setting – a setting in which studies are currently lacking. The literature on corporate sustainability would gain from studies beyond the Anglo-Saxon contexts, which at present dominate the research area.

Moreover, this thesis uses firm size (measured in total assets) and debt ratio as control variables as well as tests for year and industry fixed effects. As the explanatory power of the model is relatively low, it is possible that there are other variables that influence the relationship further. We therefore suggest that future research focus on including more control variables to further test the complex relationship. As innovation is usually associated with the creation of corporate sustainability activities, for instance research in developing renewable energy sources. The level of innovation, measured in research and development (R&D) expenditures may be included as a control variable. Furthermore, advertising costs may also affect the relationship, as it takes into consideration the visibility of the firm towards stakeholders.

Concerning the second hypothesis, another area for future research is to use other measurements of board diversity. It is possible that other dimensions of board composition, than those covered in this thesis, can impact the relationship between corporate sustainability and financial performance. For instance, previous occupation (i.e. experience), tenure or ethnicity of the director might be able to explain differences among directors' capability of handling stakeholder interests. Furthermore, the implications of having a sustainability committee on the board may be added to the analyses, as this may influence both the focus on these activities as well as the effectiveness of the monitoring thereof. Lastly, the ownership structure of the firm might influence how the firm considers and values sustainability issues. For instance, the focus on short-term and long-term performance may differ depending how the ownership is structured. Thus, providing even further interesting avenues for future research.

In conclusion, does it pay to be good? Or, does an increased focus on corporate sustainability practices results in financial disadvantages? As depicted by our results, this question may not have a simple answer. Instead, it may be that some firms perform better in regards of corporate sustainability than others. Thus, the question should not be whether the relationship is positive or negative, but rather during what circumstances the relationship is one way or another.

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APPENDIX I

Table 1. Corporate Sustainability Performance (CSP) index

Annual report (AR); Sustainability report (SR)

CG	CORPORATE GOVERNANCE	SCORE (Max 7 p.)	EXAMPLES
CG1	**Top management sustainability focus**		
CG1A	Does the CEO statement (or equivalent) mention sustainability (i.e. regarding environmental, social, and/or governance) in the Annual Report?	No: 0, yes: 1	"Sustainability work is an integrated part of JM's strategy. It establishes that our corporate culture is to be characterized by sound values, responsibility, a long-term approach, sustainability and respect for individuals." (JM, AR, 2013, p. 2) +1p.
CG2	**Sustainability Reporting**		
CG2A	Does the company have a Sustainability Report or (if integrated) a separate section for sustainability reporting in the Annual Report?	No: 0, yes: 1	
CG2B	Is the company's Sustainability reporting issued in accordance with the GRI guidelines? And if so, which level of GRI-reporting?	No: GRI-reporting: 0 C-level: 1 B-level: 2 A-level/G4: 3	"Fabege reports its sustainability work yearly and the sustainability reporting is integrated in Fabege's Annual report for 2012 [...] Fabege reports in accordance with level C, GRI version 3.0. (Fabege, AR, 2012, p. 56) +1p.
CG2C	Is the Sustainability reporting externally audited?	No: 0; yes: 1	"Tyréns (the Reviewer) has reviewed Byggmax's sustainability report for the 2013 fiscal year. The review was based on GRI version 3.0. The Reviewer can affirm that the work was conducted in a goal-oriented and ambitious manner and that the information that is presented in the final sustainability report is factual and traceable. Byggmax has responded appropriately to the reviewer's questions and provided supplementary documentation upon request." (Byggmax, AR, 2013, p. 90) +1p.
CG3	**Member/supporter of Global compact**		
CG3A	Does the company support or is the company a signatory of the Global Compact[13]?	No: 0, yes: 1	"During 2011, Mekonomen decided to support the UN's Global Compact and introduced a Code of Conduct, which is attached to all agreements. (Mekonomen, AR, 2011, p. 5) + 1p.

[13] "The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption. By doing so, business, as a primary driver of globalization, can help ensure that markets, commerce, technology and finance advance in ways that benefit economies and societies everywhere." (UN Global Compact, 2013, https://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/index.html)

ES	EMPLOYEES & SUPPLIERS	SCORE (Max 12 p.)	EXAMPLES
ES1	**Health & safety**		
ESA	Does the company report on how to improve employee health & safety?	No: 0 Qualitative reporting: 1 Proactive quantitative target setting: 2 Quantitative achieved *progress*: 3	"The Group has the ambition to reduce workplace accidents towards zero in all facilities. In 2013, there were 0 (0) fatalities and the lost workday accident rate (per million hours worked) was reduced from 5.1 to 4.5." (Husqvarna, SR, 2013, p. 16) +1+2+3p.
ES2	**Diversity**		
ES2A	Does the company report on diversity (e.g. gender, minorities) and equality for employees?	No: 0 Qualitative reporting: 2	"ASSA ABLOY's ambition is to achieve a better gender balance at all levels in the organization. In 2011, the Group set a target of 30 percent women in management positions at levels 2 to 5 by 2020." (Assa Abloy, AR, 2013, p. 60) +1+2p.
ES3	**Suppliers and/or sourcing partners**		
ES3A	Does the company use criteria (governance, environmental, and/or social) in the selection process of its suppliers and/or partners?	No: 0, yes: 1	"Doro requires also that suppliers sign, in conjunction with the supplier score-card, a special declaration regarding good corporate social responsibility" (Doro, AR, 2011, p. 26) +1p.
ES3B	Does the company monitor its suppliers and/or partners?	No: 0, yes: 1	"These strategic suppliers are continually evaluated in terms of environmental certification, environmental performance and related policies, work environment and code of conduct." (HMS, AR, 2012, p. 25) +1p.
ES3C	Does the company report on being prepared to propose an action plan or being willing to end a relationship with a supplier/partner, if the criteria are not fulfilled?	No: 0, yes: 1	"Should a supplier fail to comply with the Company's recommendations, Swedish Match shall strive to resolve the situation through cooperation and information or, if deemed necessary, terminate the relationship." (Swedish Match, SR, 2013, p. 28) +1 p.

CS	CUSTOMERS & SOCIETY	SCORE (Max 4 p.)	EXAMPLES
CS1	**Product quality:**		
CS1A	Does the company report on how to monitor or improve the quality and safety of its products/services?	No: 0, yes: 1	"At Avega Group, all employees have a responsibility for quality assurance. This entails a commitment towards our customers to deliver in accordance – and preferably above – our customers' expectations as well as contributing to continuous improvement of our processes. […] Our Quality Management System Merito is based on ISO 9001:2000. Through regular surveys, we identify areas of improvement, with the result that quality is continuously raised in our processes and relationships." (Avega Group, AR, 2013, p. 18) +1p.
CS2	**Activities in local communities:**		
CS2A	Does the company engage in activities aimed at the local community in which it is present?	No: 0, yes: 1	"To support communities, Oriflame's employees and Consultants are encouraged to engage in local volunteering projects and each employee is offered one day per year of paid leave to do volunteer work for good causes in their markets." (Oriflame, AR, 2011, p. 48) +1p.
CS3	**Collaborations & partnerships:**		
CS3A	Does the company describe any collaborations, partnerships or initiatives with NGOs that focus on improving sustainability related issues?	No: 0, yes: 1	"The Volvo Group welcomes dialogue with civil society stakeholders global, national and local activities. The Group has two worldwide strategic partnerships – WWF and Oxfam – but most cooperation is on a local level with local NGOs and aid organizations." (Volvo Group, SR, 2013, p. 60) +1p.
CS4	**Cash donations:**		
CS4A	Does the company make cash or in kind donations to community/society?	No: 0, yes: 1	"As a good corporate citizen we actively support people and specific projects, to enhance the development of the societies in which we operate. During 2010, our donations to NGOs and other organisations totalled EUR 0.6 million." (Tieto, SR, 2010, p. 39) +1p.

E	ENVIRONMENTAL	SCORE (Max 24 p.)	EXAMPLES
E1	**Transportation**		
E1A	Does the company report on initiatives to reduce the environmental impact of transportation of its products and/or its staff?	No: 0 Qualitative reporting: 1 Proactive quantitative target setting: 2 Quantitative achieved *progress*: 3	"Proffice prioritises renewable fuels for travel and energy use in offices. Proffice also works actively to reduce the need for travel by replacing physical meetings with voice, video, and web conferencing." (Proffice, AR, 2012, p. 16) +1p. "Air travel accounts for the largest share of Cybercom's carbon dioxide emissions and we therefore wish to reduce emissions from air travel per revenue krona by at least five percent between 2011 and 2015." (Cybercom, AR, 2013, p. 24) +1+2p "Average CO2 emissions reduced by 2.6 percent for cars and 0.5 percent for minivans. Total reduction was 3.2 percent" (Securitas, AR, 2013, p. 21) +1+3p.
E2	**Resource efficiency & recycling**		
E2A	Does the company report on initiatives on resource efficiency (e.g. raw materials)? Or does the company report on initiatives to recycle, etc.?	No: 0 Qualitative reporting: 1 Proactive quantitative target setting: 2 Quantitative achieved *progress*: 3	"Peab's goal concerning waste is that the least possible amount ends up at the waste disposal site. This is achieved through optimal resource use, maximum reuse, sorting waste better to recycle as much material [...] the sorting level rose from 63 percent in 2010 to 68 percent in 2011 in Peab's Swedish construction operations. Our goal is to recycle 70 percent." (Peab, AR, 2011, p. 31) +1+2+3 p.
E3	**Renewable energy and energy reduction**		
E3A	Does the company report on initiatives to use renewable energy sources (e.g. wind, solar)? Or does the company report on reducing energy consumption in general?	No: 0 Qualitative reporting: 1 Proactive quantitative target setting: 2 Quantitative achieved *progress*: 3	"An energy saving project was launched in 2009 to cut energy consumption at Saab's properties in Sweden in half by 2015. So far, a 20 per cent reduction has been achieved." Saab, AR, 2013, p. 40) +1+2 p. "Between 2011 and 2012, the energy consumption was reduced in stores by 2,437 MWh, which equals 8 percent of the total energy usage in stores." (Kappahl, SR, 2013, p. 13) +1+3 p.
E4	**Emissions**		
E4A	Does the company report on carbon dioxide (CO_2) emissions (greenhouse gas emissions)?	No: 0 Qualitative reporting: 1 Proactive quantitative target setting: 2 Quantitative achieved *progress*: 3	"Energy consumption per workstation, through the usage of PC, laptops, computer screens, and thin clients, has been identified as an area, in which potential improvements are continuously initiated and evaluated. Within Betsson, the workstations consumed 151 tonnes carbon dioxide, which in 2013 corresponded to 0.15 tonnes carbon dioxide per average employee [...] The goal for 2014 is to save more than 1.4 tonnes carbon dioxide though the use of thin clients." (Betsson, AR, 2013, p. 10) +1+2 p. "Between 2012 and 2012, the total greenhouse gases were reduced by 18 percent to 188 tonnes CO2. In relation to net sales, the emission were reduced by 31 percent to 416 kg CO2/mkr" (DGC, AR, 2013, p. 40) +1+3 p.

Table 2. Sustainability performance index indicators – Support from previous research & frameworks

	Ameer & Othman (2012)	Herbohn *et al.* (2014)	Clarkson *et al.* (2008)	Bansal (2005)	Van der Ploeg & Vanclay (2013)	KLD (used by e.g. Waddock & Graves, 1997; Mattingly & Berman, 2006)	ASSET4 (used by e.g. Trumpp et al., 2015)
Corporate Governance							
CG1A			**X**				
CG2A							**X**
CG2B			**X**		**X**		**X**
CG2C			**X**				**X**
CG3A							**X**
Employees & Suppliers							
ES1A		**X**		**X**		**X**	**X**
ES2A	**X**					**X**	**X**
ES3A	**X**						**X**
ES3B	**X**						**X**
ES3C	**X**						**X**
Customers & Society							
CS1A						**X**	**X**
CS2A	**X**	**X**	**X**	**X**		**X**	
CS3A	**X**						**X**
CS4A	**X**	**X**	**X**			**X**	**X**
Environment							
E1A						**X**	**X**
E2A	**X**	**X**				**X**	**X**
E3A	**X**		**X**			**X**	**X**
E4A		**X**	**X**			**X**	**X**

APPENDIX II

Table 3. Descriptive statistics – Including transformed variables and skewness/kurtosis

	N	Minimum	Maximum	Mean	Std. dev.	Skewness	Kurtosis
ROA	1015	-0.74	0.26	0.02	0.15	-2.74	9.90
ROA SQ.T.	1015	0.00	1.03	0.61	0.17	-1.20	2.94
CSP	1015	0.04	3.83	1.10	0.81	0.86	-0.06
CG	1015	0.00	1.00	0.26	0.26	1.06	0.47
ES	1015	0.00	1.00	0.26	0.22	1.07	0.88
CS	1015	0.00	1.00	0.35	0.28	0.57	-0.44
E	1015	0.00	1.00	0.22	0.23	1.23	0.73
FIRM SIZE	1015	24.27	396,110.50	16,955.80	47,291.69	5.31	31.57
FIRM SIZE LG	1015	1.39	5.60	3.41	0.86	0.27	-0.51
DEBT RATIO	1015	0.01	1.41	0.52	0.19	-0.23	0.58

SQ.T. - Square transformation
LG - Logarithm

Table 4. Univariate regression model – ROA & CSP

	Model I
CSP	0.05***
	(8.02)
Constant	0.55***
	(61.71)
N	1,015
F	64.34
Adj. R^2	0.059

**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

Table 5. Multivariate regression - Without CSP as independent variable

	Model II	**Model 3**
CSP		0.02**
		(2.31)
FIRM SIZE	0.08***	0.06***
	(11.72)	(7.24)
DEBT RATIO	-0.04***	-0.20***
	(-6.80)	(-6.80)
Constant	0.44***	0.46***
	(17.79)	(17.45)
Year	FIXED	FIXED
Industry	FIXED	FIXED
N	1,015	1,015
F	21.77	20.21
Adj. R^2	0.156	0.159

Model 3 repeats data from Table VI to facilitate referencing.
**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)

Table 6. Collinearity statistics – ROA & CSP

	Model 3	
	Tolerance	**VIF**
(Constant)		
CSP	0.50	1.99
FIRM SIZE	0.45	2.23
DEBT RATIO	0.81	1.23

Dependent variable: ROA

Table 7. Collinearity statistics – Board diversity

	Model 6		Model 7		Model 8		Model 9	
	Tolerance	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**	**Tolerance**	**VIF**
(Constant)								
Interaction term	0.79	1.27	0.90	1.11	0.55	1.82	0.56	1.78
CSP	0.48	2.08	0.47	2.14	0.35	2.84	0.38	2.66
DIV	0.76	1.32						
GENDER			0.88	1.14				
AGE					0.94	1.07		
EDUCATION								
FIRM SIZE	0.35	2.89	0.34	2.91	0.35	2.90	0.34	2.93
DEBT RATIO	0.80	1.25	0.80	1.25	0.79	1.26	0.80	1.26
BOARD SIZE	0.53	1.89	0.54	1.86	0.52	1.91	0.90	1.12

Dependent variable: ROA

Table 8. Multivariate regression analysis – Index & Control variables

Model 4	Model a	Model a1	Model a2	Model b	Model b1	Model b2	Model c	Model c1	Model c2	Model d	Model d1	Model d2
CG	0.04	0.05**	0.18***									
	(1.55)	(1.88)	(8.39)									
ES				0.00	0.00	0.16***						
				(0.91)	(0.13)	(6.10)						
CS							0.07***	0.07***	0.16***			
							(3.52)	(3.17)	(8.15)			
E										0.02	0.03	0.17***
										(0.88)	(0.96)	(6.99)
FIRM SIZE	0.07***	0.05***		0.08***	0.06***		0.06***	0.05***		0.07***	0.06***	
	(8.08)	(6.13)		(9.83)	(7.94)		(8.93)	(6.95)		(9.23)	(7.32)	
DEBT RATIO	-0.20***		-0.12***	-0.20***		-0.11***	-0.21***		-0.13***	-0.20***		-0.12***
	(-6.71)		(-4.23)	(-6.80)		(-3.75)	(-6.97)		(-4.26)	(-6.79)		(-3.94)
Constant	0.46***	0.42***	0.61	0.44***	0.40***	0.61***	0.46***	0.41***	0.61***	0.45***	0.40***	0.62***
	(17.09)	(15.65)	(32.16)	(17.31)	(15.76)	(31.37)	(18.24)	(16.60)	(31.74)	(17.15)	(15.62)	(32.36)
Year	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
Industry	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED	FIXED
N	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015	1,015
F-stat.	19.86	16.35	13.93	19.57	15.90	10.06	21.05	17.17	13.48	19.67	16.02	11.43
Adj. R^2	0.157	0.120	0.103	0.155	0.117	0.074	0.165	0.126	0.100	0.155	0.118	0.085

**p < 0.10; ** p < 0.05; *** p < 0.01 (2-tailed).*
(T-statistics in parentheses)