Corporate Sustainability Performance and the Financial Implications

An Empirical Study of the Nordics

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Abstract

Despite firms increasing interest in sustainability, researches have been unable to validate the financial implications of sustainability activities. Based on sustainability performance data from 2004 to 2012, covering 134 unique Nordic firms, we study the relative performance of Nordic firms. Sustainability is measured as environmental, social and governance (ESG) performance separately. Additionally, we study the link between sustainability and financial implications. The empirical results are supported by interview findings from Nordic firms showing superior sustainability performance. Our results indicate Nordic firms as superior within environmental and social performance, but are historically behind their European and international counterparts in governance aspects. Furthermore, the results suggest a positive relation for social and environmental performance and a negative relation for governance performance, when tested against financial performance. Overall, both the positive and negative correlations are stronger for Nordic firms, which would indicate the importance of sustainability in this region. These findings can also be explained by stricter governmental regulations (e.g. Kuisma, 2007) and a higher level of public awareness (Dille, 2014). In addition, ESG performance have been tested against capital constraints, which is broader financial measurement of a firm's ability to access financial capital and enhance its value. Here, we find contradictory results to previous studies conducted on global samples, indicating that Nordic firms may deviate.

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Table of Contents

List of Tables

List of Figures

1. Introduction

Corporate sustainability, an evolution of the more traditional phrase corporate social responsibility (CSR)[1], represents a field of growing strategic concern for firms around the globe. Despite the rapidly increasing interest among business leaders, research is still lacking to justify the implications of sustainability actions[2]. Many questions concerning sustainability's impact on not only financial performance but also risk and the stock market, still remain unanswered (e.g. Bénabou and Tirole, 2010). Hence, in this study we aim to address these issues, by identifying sustainability behaviour around the world and measuring the relationship between sustainability factors and financial performance, as well as firms' ability to access finance.

Only in the last years, several firms have experienced turmoil for not complying with sustainability standards. For example, the Swedish/Finnish telecom firm TeliaSonera was accused of corruption and bribery in Eurasia, leading to massive critique and resulting in organizational restructurings[3]. Similar scandals have in the past resulted in confiscated assets, jeopardized operations and negative brand affects leading to damaged business relations and consumers turning elsewhere[4]. Also, the Finnish/Swedish pulp and paper manufacturer, Stora Enso, recently experienced turmoil in sustainability aspects after being accused of child labour in their supply chain in Pakistan. This resulted not only in managerial restructurings but also of Stora Enso being excluded from several sustainability funds[5]. Both firms endured negative reputation due to the critique, and these were only two examples on how lack of sustainability can lead to financial implications. The question is therefore what the financial benefits from sustainability performance are.

There are several practical examples of positive financial effects of sustainability, the Finnish energy firm Neste Oil was able to reap larger benefits by partly switching from oil to renewable energy (Tuovinen, 2014) and the Danish pharmaceutical firm Novo Nordisk claim that their outstanding

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[1] Corporate sustainability is a more business oriented definition of ESG issues, compared to CSR (Van Marrewijk, 2003).

[2] In 2008, the Economist published an article to attest to the popularity of CSR that "The CSR industry, as we have seen, is in rude health. Company after company has been shaken into adopting a CSR policy: it is almost unthinkable today for a big global corporation to be without one."

[3] http://www.dn.se/ekonomi/telia-rensar-efter-uzbekistanaffaren/, (2014-04-29)

[4] http://www.svd.se/naringsliv/nyheter/varlden/dyrt-att-ta-latt-pa-korruption_7601948.svd, (2014-04-29)

[5] http://www.svt.se/nyheter/sverige/stora-enso-straffas-for-barnarbete, (2014-04-29)

sustainability performance and image supported the entry and strong position in the Chinese market (Dille, 2014). In a recent study[6], business leaders across the world expressed their view of sustainability in the future, 93% of the 1,000 asked CEOs believed that sustainability would play an important role for the future success of their business, yet again shedding light on the increasing importance of sustainability in today's business environment.

Despite the increasing interest in the field, there are ambiguous thoughts and findings of the link between sustainability and financial performance (Margolis *et al.*, 2007), it has however been suggested that studies should be conducted on a disaggregated level rather than on an aggregated level (Mercer, 2009). Furthermore, most studies are to date based on US firms or covering a global sample. Given however that the Nordic[7] region is overrepresented in various sustainability rankings, such as the Global 100 index[8] (Gjølberg, 2009; Midttun *et al.*, 2006), and that the respective governments usually are seen as advocates in regulations of environmental and social concerns (Kuisma, 2007; Lafferty and Meadowcroft, 2000), we believe this region to be of additional interest.

The objective of this study, based on data from 2004 to 2012, is therefore to uncover if Nordic firms are superior in regards to sustainability performance, and how sustainability relates to financial implications, such as performance and access to financial capital. By not only disaggregating the geographical region but also the sustainability factors, into environmental, social and governance (ESG), we are improving the likelihood of significant results. To the best of our knowledge, this is the first study covering the Nordics and the financial implications of the ESG factors individually.

Our results indicate that Nordic firms outperform the rest of the world in environmental and social aspects, in governance aspects the results are more varying with Nordic firms firstly being outperformed, but over the last couple of years showing a greater improvement. Furthermore, the results show a positive correlation between financial performance and social and environmental performance respectively, but a negative link between governance and financial

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[6] The UN Global Compact – Accenture CEO Study on Sustainability 2013, http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-UN-Global-Compact-Acn-CEO-Study-Sustainability-2013.PDF, (2014-04-29)
[7] The Nordics usually consists of Denmark, Finland, Norway, Iceland and Sweden. Our empirical sample does not however cover Iceland and thus in this study we refer to the Nordics as Denmark, Finland, Norway and Sweden.
[8] The Global 100 Sustainability index annually reports the 100 most sustainable firms in the World.

performance. In addition to pure financial performance measurements we have also tested the link between ESG performance and capital constraints, a more in-depth value enhancing measurement, measuring a firm's ability to access financial capital. Contradictory to previous research these results suggest an overall negative relationship between sustainability performance and access to financial capital.

We believe that this study will be relevant for future scholars, looking to distinguish a more distinct link between sustainability and financial performance, as well as for practitioners to validate sustainability behaviour. Finally, the results should be of interest both for Nordic firms and investors, given the novelty of the topic.

The remainder of this paper is organized as follows: In section 2, we establish our theoretical framework by introducing previous research on sustainability and the financial implications of it, leading up to the hypotheses we intend to test. In section 3, we describe the methodology and the reasoning behind our approach. This includes a description of our choice of measurements and the reasoning behind our choice of data. In section 4, we describe the database from which sustainability performance is gathered and the dataset we have used. In section 5, we present and discuss our results, which provide the basis for our conclusions in section 6.

2. Theory and Hypotheses

In the following chapter, we will build up our theoretical framework and present our hypotheses, where we base our empirical study.

2.1 Summary of Previous Empirical Studies

As more and more emphasis has been given to sustainability, scholars have investigated both qualitatively and quantitatively how it affects firm performance in various ways. Research based on neoclassical economics argues that sustainability is an unnecessary cost decreasing a firm's competitiveness contra its competitors (Friedman, 1970; Aupperle *et al.*, 1985; McWilliams and Siegel, 1997; Jensen, 2002).

However, there are numerous studies indicating that sustainability can affect firms positively in several ways. Firstly, sustainability can provide firms with

better financing and access to valuable resources (Cochran and Wood, 1984; Waddock and Graves, 1997; Cheng *et al.*, 2014). Secondly, firms pursuing sustainability activities can attract and retain a higher quality workforce (Turban and Greening, 1997; Greening and Turban, 2000). Thirdly, sustainability may function as a means of advertising by creating awareness, increasing demand for a firm's products or services and reducing price sensitivity among customers (Navarro, 1988; Sen and Bhattacharya, 2001). Lastly, it can also create new business opportunities such as providing access to new markets (Fombrun *et al.*, 2000), improve social legitimacy (Hawn *et al.*, 2011) and sustainability performance can even become intangible assets (Gardberg and Fomburn, 2006; Hull and Rothenberg, 2008).

Recent studies have focused on investigating the likelihood of sustainability as a factor of long-term value creation. Lee and Faff (2009) indicate that firms with superior sustainability performance enjoy lower idiosyncratic risks, and Goss (2009) indicates that firms with inferior sustainability performance face a higher risk of experiencing financial distress. In financial terms, it has been discovered that firms with the most inferior sustainability performance face between 7 and 18 basis points more on their bank debt compared to better performing firms (Goss and Roberts, 2011). Additionally, El ghoul *et al.* (2011) concluded on a sample of US-firms that sustainability performance was negatively correlated with the cost of equity and Dhaliwal *et al*. (2011) found that firms voluntarily disclosing sustainability activities would overall enjoy lower cost of capital.

However, overall, empirical studies have resulted in ambiguous results (Margolis and Walsh, 2003; Margolis *et al.,* 2007). Arguably, conflicting findings arise due to theoretical and empirical limitations of measuring sustainability (McWilliams and Siegel, 2000).

2.2 Corporate Sustainability

Despite the extensive and increasing research on the topic, there is still no clear definition of sustainability; Dahlsrud (2006) argues that people and firms from different backgrounds and cultures have different understandings of the concept. Bénabou and Tirole (2010) state that sustainability tends to differ depending on the underlying incentives and motivations, which can be driven either by altruistic reasons or in order to enhance financial performance. Additionally,

motivation and incentives will differ between various stakeholders; shareholders for example might demand the firm to behave responsible, or on the other hand such activities might reflect the values and incentives from management and the board (Bénabou and Tirole, 2010).

The range of activities that qualify as sustainability is rather broad and not commonly agreed upon, meaning that the definition and scope can differ. Activities relate to the environment, employees, business ethics, respectfulness of the surrounding communities and investor-relations (ibid). Usually, sustainability include the following indicators: *Environmental:* climate change, efficiency (waste, water, energy), environmental management systems and compliance as well as other aspects, such as toxics etc. *Social:* human rights, employee health and safety as well as human capital- and shareholder management. *Governance:* board management and corporate code of conduct (Kocmanová and Docekalová, 2012). Nevertheless, to date, a majority of studies are based on aggregated sustainability scores rather than measuring the ESG factors separately.

Bénabou and Tirole (2010) discuss the challenges of measuring sustainability on an aggregated level, stating that there certainly are challenges on how to weigh certain areas against each other, and how to evaluate firms that do well in some areas but poorly in others. To illustrate, how should a firm's sustainability performance be evaluated when closing down a coal power plant emitting a lot of carbon dioxide but providing jobs to the local community? In this case environmental and social aspects are weighted against each other and a rating agency would have to assess the impact and importance of them separately, which would increase the subjectivity of the assessment (ibid). Also, could for example financing local social projects offset some level of environmental damage? Lastly, the question is whether sustainability should be evaluated in absolute or relative terms. An energy firm may pollute a lot, but take distinct actions to reduce their overall impact, thus Landier and Nair (2008) suggest that firms should also be assessed by their relative performance compared to the rest of the industry, by such "best in class" firms would be identified.

2.3 The Link between Sustainability and Financial Performance

Although the relationship between sustainability and financial performance has seen increased coverage during the past decades, the question whether engaging in sustainability is profitable or not still remains unanswered, the short explanation is that the answer is dependent on several factors (Margolis *et al.*, 2007). Firms may engage in sustainability activities due to the goals and values of investors, employees, management and the board and thus not necessarily in order to enhance financial performance (Sandelands, 2003; Frank, 2007), which hampers the possibility to evaluate the link. For instance, according to Sprinkle and Maines (2010) firms have not purely engaged in sustainability activities on a voluntary basis, arguing that attention rather has been regulatory driven – *"the most common corporate response has been neither strategic nor operational but cosmetic"*. Hence, depending on the underlying incentives for engaging in sustainability, the outcome may differ, whether it is purely financially driven or driven by intrinsic values (Bragdon and Marlin, 1972). For these reasons, measuring the costs and benefits inflicted by sustainability activities, to different stakeholders, is essential for validating such behaviour (Lemon *et al.*, 2011).

2.4 Benefits of Sustainability

The benefits of sustainability are naturally associated with the pursued activities, which in the end increase cash inflows or reduce cash outflows (Sprinkle and Maines, 2010). Typically, the greater the link between the firm's business and the respective ESG issue, the greater is the opportunity to use the firm's resources and create benefits to the society within these aspects. Incorporating sustainability initiatives in the core business can enable firms to find solutions that create shared value (Porter and Kramer, 2006).

Benefits from environmental performance often stem from innovations, which not only benefit the society but also the firm by creating a competitive advantage or leading to cost reductions (Porter and Kramer, 2006). The Swedish firm Tetra Pak, for instance, was by providing sustainable packing solutions not only able to create a competitive advantage, but also able to benefit the society[9].

Moreover, engaging in sustainability activities and providing better transparency may improve the image of a firm among its employees, customers,

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[9] http://sustainability.tetrapak.com/meeting-challenges-today-and-tomorrow, (2014-05-05)

investors, bankers and suppliers (Fombrun and Shanley, 1990). Engaging in sustainability and doing good can lead to coverage by third-party organizations and hence firms can enjoy "free" advertising. Also, employee retention and attraction are greatly correlated with sustainability performance, which leads to reductions in employee turnover costs (Sprinkle and Maines, 2010). Blake (2006) claims that costs of employee turnover can be significant, ranging from 50% of base salary (entry level positions) to 400% of base salary (specialists). Thus, if sustainable behaviour would help retaining a specialist with an annual salary of 1,000,000 SEK, it would lead to a 4,000,000 SEK benefit for the firm.

Sustainability may also work as motivation for employees, and taking part in voluntary programs could increase employees' knowledge and leadership skills, leading to improved overall performance. Engaging in sustainability can furthermore improve the value-chain; by implementing sustainable practices firms can reap benefits in several ways; Wal-Mart for example, was by implementing environmental friendly activities able to increase its transportation efficiency, which led to a reduction of its yearly fuel expenses by more than 26 million dollars (Diamond, 2009).

Cheng *et al.* (2014) argue that acting sustainable reduces informational asymmetries and potential agency costs, these firms then enjoy decreasing costs of external financing. Furthermore, the authors claim that adopting and implementing successful sustainability activities lead to reduced capital constraints due to two mechanisms. Firstly, sustainability performance is positively correlated with stakeholder engagement and the firm's commitment towards them (Jones, 1995). Secondly, firms successful within sustainability are more likely to publicly disclose their sustainability activities (Dhaliwal *et al.,* 2011) and these sustainability reports are often more credible because of quality assurance by a third party (Simnett *et al.*, 2009). Hence, reporting of sustainability activities increases transparency related to ESG factors and may positively affect internal reporting to be in compliance with regulations (Cheng *et al.*, 2014). The outcome of increased credible disclosure is reduced informational asymmetries, which in the end leads to lower capital constraints (Hubbard, 1998).

Apart from enhanced financial performance, sustainability performance can also reduce the overall risk by reducing the possibility of experiencing rare

negative events (Tsoutsoura, 2004). A number of such events within environmental, social and governance aspects have hit firms in the past; in the mid 90s Nike was for example accused of having exploited cheap labour in developing countries. The working conditions at Nike fabrics were said to be abusive, ranging from inadequate wages to safety hazards. These allegations and observations resulted in significant negative media attention, leading to decreasing sales[10]. As already addressed, corruption and bribery allegations can have long-term negative effects, potentially leading to devastating costs[11], applying sustainability activities would reduce the risk of bribery and corruption. By implementing controls, better quality can be reached as well as the risk of negative social events such as child-labour scandals, which would hamper the image of the firm (Tsoutsoura, 2004).

2.5 Costs of Sustainability

Certainly, some sustainability actions create immediate cash-outflows, while the gains however usually are accrued long-term (Mohr and Webb, 2005). In general terms, costs arise from allotting resources such as cash or employee time to perform certain activities (Balakrishnan *et al.,* 2009). Hence, in order to measure the costs of sustainability a firm needs to identify the pursued activities, as well as any opportunity costs for engaging in these activities. To illustrate, as charitable donations are tax deductible, a firm donating 2 million SEK, assuming a corporate tax rate of 35%, would incur a cost of 1,3 million SEK (2 million – 0,35*2 million). Furthermore, the firm must also consider the opportunity cost, if it for example could have financed a project generating a return of 10% instead; the lost after-tax profit needs to be added as a cost (Sprinkle and Maines, 2010).

Measuring the cost of employees volunteering their time may be more difficult; almost certainly there will be a cost involved due to reduced productivity. If there however would be an excess capacity in "off" season times, the cost would be close to zero. Measuring the costs of lost productivity can prove difficult in certain industries, where the relation between labour input and revenue is vague. The potential costs associated to environmental activities can usually be found by comparing environmental friendly solutions against more "traditional" ones (ibid). Additionally, higher costs would arise by for example

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providing better employment benefits or securing a low environmental impact by adopting environmental friendly equipment etc. (Barnett and Salomon, 2006).

Porter and Kramer (2006) argue that if firms would evaluate their sustainability options as they would with their core business opportunities, they would discover that sustainability could be much more than purely a cost or charitable deed; it can create opportunities and push innovation that would lead to competitive advantages. A lack of understanding the link between sustainability and strategy, will surely drive managers to postpone such activities, which at a later stage can lead to significantly higher costs when the firm is judged for its code of conduct and possible violations of its social and environmental obligations (ibid).

Lastly, Peloza (2006) claims that firms should be modest in promoting their sustainability actions, as over-promotion may cause negative public reactions. The tobacco company Phillip Morris for instance, was publically criticized for spending more on advertising its donations to charity, than what it actually donated.

2.6 Hypotheses

Rowley and Berman (2000) argue that sustainability performance is of a multi-dimensional characteristic and thus to fully grasp it a single-dimension measurement should not be used. As previous studies have shown ambiguous results, Mercer (2009) suggests disaggregated studies as far as practicable. For these reasons, instead of using an aggregated sustainability index each hypothesis is tested against ESG performance separately. These three factors are mainly known as the areas of concern and central factors in measuring sustainability performance. These factors are admittedly made of multiple variables, in turn; they are to some extent aggregated as well. However, the separation of the overall sustainability index into ESG factors makes it possible to look closer into what kind of corporate actions and commitments affect corporate mechanisms such as financial performance and capital constraints.

The first objective of the study is to distinguish whether Nordic firms are superior within sustainability performance. The second objective is then to identify a relationship between sustainability performance and financial implications. To test this empirically a number of hypotheses have been set up.

The first hypothesis is to distinguish Nordic firms' relative sustainability performance. The second patch of hypotheses aims to oversee the overall relationship between sustainability and financial performance. The third patch of hypotheses delves deeper into the Nordics and investigates certain mechanisms further within the Nordic countries. Hence, the third patch of hypotheses concerns sustainability performance and capital constraints.

Hypothesis 1: *In general, Nordic firms perform better within sustainability aspects.*

Nordic firms are often overrepresented in various sustainability indices (the Global 100 for instance), and domestic awareness and regulations also tend to be stricter (Kuisma, 2007). Thus, we expect to find that Nordic firms achieve a better sustainability rating than their international counterparts.

Hypothesis 2.1: *There is a positive correlation between environmental and financial performance in the Nordics.*

In other words, firms performing well within environmental aspects will also enjoy better financial results. Previous research have proven that environmental performance can create competitive advantages and reduce costs (Porter and Kramer, 2006). Therefore, we expect to find a positive relationship, on the basis that engaging environmentally can lead to long-term benefits in several ways, such as innovation and reputation.

Hypothesis 2.2: *There is a positive correlation between social and financial performance in the Nordics.*

Studies testing specific factors such as employee retention or attraction have found a positive relationship. Also, some level of risk reduction may relate to social performance as it reduces rare negative events (read Nike sweatshop scandal etc.). Thus, we expect social performance to affect financial performance positively; especially in the Nordic countries were such aspects are premiered.

Hypothesis 2.3: *There is a positive correlation between corporate governance and financial performance.*

Sustainability activities within governance have proven to improve transparency and thus reducing agency costs, which lead to financial benefits (Cheng *et al.,* 2014). Hence, we expect to find a positive relationship due to reduced agency costs and reduced risk of negative events, such as corruption and bribery.

Hypothesis 3.1: *There is a negative correlation between environmental performance and capital constraints in the Nordics.*

Superior sustainability performance within environmental aspects can lead to long-term benefits, such as innovations and resource effectiveness. Hence, the hypothesis is that the market will recognise such efforts and make it easier for firms to access capital. The negative correlation in the hypothesis is due to the direction of the dependent variable; high values equal higher capital constraints and vice versa. In other words, low scores represents better access to financial capital.

Hypothesis 3.2: *There is a negative correlation between social performance and capital constraints in the Nordics.*

Studies have shown that sustainability performance within social aspects could improve the workforce and reduce the probability of rare negative events. Thus, addressing social aspects should lead to stability and therefore lower capital constraints.

Hypothesis 3.3: *There is a negative correlation between corporate governance performance and capital constraints in the Nordics.*

Sustainability activities within governance have proven to improve transparency and thus reduce idiosyncratic risk, and thereby also lower the corporate interest rate (Lee and Faff, 2009). If the same holds for the Nordic region, naturally, superior governance performance should lead to reduced capital constraints.

3. Methodology and Measurements

The quantitative study will include ESG ratings as well as accounting and market-based financial performance measurements. The accounting based measurement will be return on equity (ROE) and return on assets (ROA) and the market based measurement will be Tobin's Q. In addition, the Nordic market analysis will also include the KZ-Index, which captures a firm's specific capital constraints, due to data limitations this link will only be evaluated using the Nordic sample. A more detailed description of all measurements will follow in this chapter.

3.1 Measurements

We have chosen several financial measurements to distinguish the link between sustainability and financial performance. In addition to pure financial performance measurements we will also evaluate the link between sustainability performance and capital constraints, using the KZ-index formula, which captures a firm's ability to access financial capital and as such enhance its value.

3.1.1 Measuring Sustainability Performance

For sustainability performance we rely on sustainability performance data gathered from Thomson Reuters' ESG database ASSET4. A database claimed to provide an objective and transparent view on sustainability performance, recognized among both practitioners and researchers, which motivates our choice of using it. The ASSET4 database will be further explained and reviewed in the next chapter.

3.1.2 Measuring Financial Performance

There are several established measurements for measuring financial performance; generally the concept indicates how well a firm uses its assets to generate revenues (Dallocchio and Salvi, 2005). Mostly market- and accounting based measures have been used in relation to sustainability performance, without any clear evidence of which would be the superior measurement. The former reflects the view of shareholders and their expectations, thus taking the future into account, while the latter more is a measure of historical performance. Margolis and Walsh (2003) suggest that in order to apply a more prudent approach one should, in an empirical study, include measures from both categories. Thus, to test the relationship between sustainability and financial performance we will rely on both accounting and market based measurements. The relationship will be tested using two different accounting measurements: ROE and ROA.

ROE is a profitability ratio, measuring the firm's ability to generate profit from shareholders' investments. It is expressed in percentages, the higher the percentage the better the firm is to generate profit out of equity (Dallochio and Salvi, 2005). It can be calculated either before or after taxes, as our sample consists of firms from different countries that are taxed differently, we use the before tax figures.

$$ROE = \frac{profit\ before\ TAX_t}{Shareholders\ Equity_t} \times 100$$

ROA is a similar measurement of profitability; it measures how well a firm generates profit using all assets of the firm (Dallochio and Salvi, 2005). It is also expressed in percentage, for the same reasons as above we use the before tax figures.

$$ROA = \frac{profit\ before\ TAX_t}{Total\ Assets_t} \times 100$$

Tobin's Q will be used as the market based measurement, following the same procedure as Cavaco and Crifo (2009) as well as (Blundell *et al.,* 1992). Tobin's Q measures the return from a shareholder perspective, calculated accordingly:

$$Tobin's\ Q = \frac{MV\ of\ Equity_t + Total\ Debt_t}{Total\ Assets_t}$$

Tobin's Q is a ratio between the market value and the replacement value of the firm's physical assets. The numerator (equity and debt) is measured in terms of market value and the denominator (total assets) is measured in terms of book value. A ratio of 1 would appear when the market value exactly reflects the recorded assets of the firm. If Tobin's Q would exceed 1, it would indicate that the market value of the firm is larger than the book value of its assets, which would suggest that the market value reflects some unrecorded assets of the firm. On the contrary, a ratio below 1 indicates that the firm's market value of its assets is lower than the recorded value of the very same assets, hence suggesting

that the market is undervaluing the firm. Market hypes and intangible assets are usually explanations of Tobin's Q values varying from 1 (Cavaco and Crifo, 2009).

The variable is not available in WorldScope as a whole and we have therefore calculated it by retrieving the individual variables. Equity is calculated at year-end by multiplying the amount of outstanding shares by the share price. Total debt is given as the sum of short- and long-term debt. The last variable, total assets, is defined as the sum of all recorded assets at year-end.

3.1.3 Measuring Capital Constraints

The main purpose of for-profit organizations is generating profits by taking on NPV-positive investments. In order to take on new investments, firms need access to capital and thus there is a link between the capital constraints facing a firm and its strategic investments. Investments are dependent on the marginal productivity of capital, the interest rate and tax rules (Summer *et al.*, 1981; Mankiw, 2009). Hence, Stein (2003) argues that for this to hold up nothing else should affect a firm's investment decision, such as the firm's equity and debt mix, its cash reserves or the conditions of the financial market. However, other studies investigating the debt and equity markets, indicate that a key factor affecting firms' investment decisions is their level of cash flow (Blundell *et al.*, 1992; Whited, 1992). In addition, firms' inability to access finance reduces the level of certain strategic investments, (Hubbard, 1998; Campello *et al.*, 2010) such as inventory (Carpenter *et al.*, 1998) and R&D (Hall and Lerner, 2010), which in the long run affects firms' ability to grow.

In order to test the relationship between sustainability performance and capital constraints, one needs a firm-specific indicator for capital constraints. By following the extant literature in corporate finance (e.g. Lamont *et al.,* 2001; Almeida *et al.*, 2004; Bakke and Whited, 2010) a profound measurement of capital constraints can be put in place, namely the *KZ Index,* developed by Kaplan and Zingales (1997). It is a commonly used five-factor model, which has gained substantial recognition as an indicator of capital constraints. More specifically, the KZ index consists of a linear combination of five accounting ratios; (1) *Cash Flow to Capital*, (2) *Tobin's Q,* (3) *Leverage,* (4) *Dividends to Capital*, (5) *Cash Holdings to Capital.* A higher value indicates that the firm is more capital constrained, in other words having less access to financial capital. The intuition behind the variables is that a firm with higher cash flow and a higher level of

14

cash balance, has more internal funding, and as such can be considered as less capital constrained (Baker *et al.,* 2003). Firms with high dividend payments and low market to book ratios have on the other hand fewer alternatives for growth, and hence, they are not as dependent on new financing (Lamont *et al.*, 2001). Lastly, high leveraged firms are less likely to obtain additional debt financing, due to their probability of default, resulting in higher financing costs (Baker *et al.,* 2003).

Constructing the KZ- index formula[12], we follow the same procedure as Baker *et al.* (2003) and Cheng *et al.* (2014), thus using the same regression coefficients and also in line with Cheng *et al.* (2014), in order to avoid extreme ratios, we winzorise each variable at the 99th and 1st percentile.

$$KZ\ Index = -1.002 * \frac{CF}{K} + + 0.283 * Q + 3.13 * \frac{\text{Debt}}{\text{Assets}} - 39.678 * \frac{Div}{K} - 1.315 \text{ x } \frac{Cash}{K}$$

Where:

$K = \ Property.Plant\ \&\ Equipment_{t-1}$

$CF = Income\ Before\ Extraordinary\ Items_t + Total\ Depreciation\ and\ Amortization_t$

$Q = Tobin's\ Q = \dfrac{MV\ of\ Equity_t + Total\ Debt_t}{Total\ Assets_t}$

$Debt = Total\ Long\ Term\ Debt_t + Total\ Short\ Term\ Debt_t$

$Assets = Total\ Assets_t$

$Div = Total\ Cash\ Dividends\ Paid_t$

$Cash = Cash\ and\ Short\ Term\ Investment_t$

3.1.4 Control Variables

Year, *Country*, *Industry* and *Size* are used as control variables as these are expected to influence the relationship between sustainability and financial performance as well as capital constraints (Ullman, 1985; Waddock and Graves, 1997). The industry variable is categorized into 10 industries, using the GIC system classification (see Appendix A Table 2 for categorization and definition). The variable *Size* is distinguished by the natural logarithm of total assets each year, in line with previous research, e.g. Albuquerque *et al.* (2013).

There is also an overwhelming concern of causality; with two endogenous variables the question is whether sustainability performance affects financial performance or vice versa. The novelty of the time series, however, allows us to

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[12] The original ordered logit regression can be found in Kaplan and Zingales (1997).

perform regressions with lagged values. If lagged independent values achieve to explain the dependent variable, at least a tendency of direction can be proved, following the comprehensive methodology of Granger (1969).

3.2 Quantitative Model

In this study we use, beyond general statistical tests, several regression models to test the stated hypotheses. Firstly, the hypothesis regarding the relationship between sustainability and financial performance and capital constraints are determined through an OLS regression with fixed effects on *Country*, *Sector* and *Year*.

$$(1)\ \varphi_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 S_{it} + \beta_3 G_{it} + Size_{it} + \varepsilon_{it}$$

$\varphi = Financial\ Performance\ \&\ Capital\ Constraint\ (Tobin's\ Q, ROA, ROE, KZ\ Index\ )$
$E = Environmental\ Score$
$S = Social\ Score$
$G = Corporate\ Governance\ Score$
$Size = Logarithm\ of\ Total\ Assets$
$i = unique\ firm$
$t = time\ in\ years$

As a robustness check, for the Nordic sample, each independent variable is also treated separately following the same methodology as the previous regression:

$$(2)\ \varphi_{it} = \beta_0 + \beta_1 E_{it}/S_{it}/G_{it} + Size_{it} + \varepsilon_{it}$$

As well, we run a regression with an aggregated measurement for *Sustainability* (ESG):

$$(3)\ \varphi_{it} = \beta_0 + \beta_1 ESG_{it} + Size_{it} + \varepsilon_{it}$$

Furthermore, additional robustness checks are carried out in order to test for causality in the overall relationship between *Sustainability* and *Financial Performance* with up to four years of lagged independent variables.

$$(4)\ \varphi_{i0} = \beta_0 + \beta_1 E_{it} + \beta_2 S_{it} + \beta_3 G_{it} + Size_{it} + \varepsilon_{it}$$

$t = 1, \dots, 4$

3.3 Qualitative Model

As previous empirical studies have not been able to agree on the relationship between sustainability and financial performance, we were aware that our empirical results might be limited. Therefore, to back up our quantitative findings we have conducted four interviews, with one firm from each Nordic country. The interviews have been conducted with firms showing superior performance in sustainability, in order to receive their perspective on the topic and why they choose to engage. We decided to interview Nordic firms listed in the last Global 100 Sustainability Index. We were able to conduct interviews with Husqvarna, Neste Oil, Novo Nordisk and SPP Storebrand, see Appendix C Table I.

All interviews were conducted over telephone in a semi-structured manner, which enabled the respondent to shed light on issues we might not have considered else, see Appendix C Table II for interview template.

4. Data Descriptions

The sustainability performance data is gathered from Thomson Reuters' ASSET4 database and the financial data is gathered from WorldScope, while the classification of sectors is obtained through Compustat. The financial databases are commonly used and straightforward, the sustainability data however is somewhat subjective and thus an introduction and critical review of the ASSET4 database will follow in this chapter.

4.1 Database

The ASSET4 database is as mentioned provided by Thomson Reuters; a Swiss-based company specified in in-depth, objective and comparable ESG-data. With a task force of 120 experienced analysts they produce bi-weekly company specific and quantitative analyses, based on 750+ data points and 280+ key performance indicators (KPI), which all are integrated and structured into 15 categories.

Table 1 – ESG Categories

Environmental Performance	Social Performance	Corporate Governance Performance
• *Resource Reduction* • *Emission Reduction* • *Product Innovation*	• *Employment Quality* • *Health and Safety* • *Training and Development* • *Diversity and Opportunity* • *Human Rights* • *Community* • *Customer / Product Responsibility*	• *Board Structure* • *Compensation Policy* • *Board Functions* • *Shareholder Rights* • *Vision and Strategy*

Table 1 illustrates the three main ESG pillars and the respective categories that form each factor. The full explanation of the included aspects in each ESG factor can be found in Appendix B Table I. The categories are further divided into pillars, three which are represented in this paper; (1) Environmental Performance, (2) Social Performance and (3) Corporate Governance Performance. Institutional investors as well as investment managers all around the world recognize Thomson Reuters' ESG panel dataset as a profound source for sustainability information[13]. The main source of evaluation is the firms' sustainability reports but information is also gathered from company reports, company websites, non governmental organization (NGO) websites and media. The objectivity is uphold by only using publicly available information, and the data is presented and constructed in a way to ease the comparability across companies and markets.

We acknowledge that these ratings, indeed, are subject to certain limitations; although the analysts have rather clear guidelines on how to assess firms, there is still room for some level of own interpretation. We identify two distinct limitations. Firstly, as the main source of evaluation is firm reported data, firms may be able to influence the ratings. This is however plausible as firm reported data is only one of many used sources, discrepancies would most certainly be found as the rating also is based on information from NGOs and various news sources. It is unlikely that a firm would be able to influence its rating as there are several other information sources, which provides a significant degree of triangulation across these originators. Also, the ASSET4 database is extensively recognized in the financial industry and used by a wide range of investors.

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[13] BlackRock is one example of a highly regarded financial investor that has chosen Thomson Reuters' ASSET4 as a global ESG data provider. The US-based asset manager Blackrock has over $4.10trn in asset under management (September, 2013).

Secondly, again due to subjectivity, the quality of the data can be questioned. The lack of transparency increases the difficulty of validating the dataset or the methods used to generate the ratings. Considering existing studies and databases, however, we are confident in the data provided by the ASSET4 database.

As already discussed, there is potentially an overwhelming issue on how to assess sustainability activities that relate to more than one ESG factor, specifically activities that might for example harm the environment but strengthen social standards. Moreover, there is definitely a lack of transparency when trying to unravel the evaluation methods; therefore to an extent the ratings have to be assumed to be fair (Van den Heuvel, 2012). There is however significant correlation between the ASSET4 ratings and the sustainability ratings of KLD and FTSE4Good, which would imply some level of external validation (ibid). Lastly, the fact that a wide range of investors representing a significant amount of capital uses ASSET4, should guarantee a rather high level of both reliability and validity.

4.2 Dataset

Although the study focuses on the Nordics, several comparisons will be made and thus we have constructed a global sample, distributed into three regions: the Nordics, Europe and the World.

Table 2 provides descriptive statistics of the entire sample, followed by descriptive statistics for each geographical region. Starting with the whole picture we have the World sample, pared down to the European sample and finally the region of interest, the Nordics, and its respective countries. As such, the Nordic countries are represented in all samples and the European countries in the European as well as the World sample. The first column in Table 2 represents the country, followed by the number of unique firms in each country and last the number of observations. The sample contains collected ratings on firms in all three ESG factors respectively. In other words, ratings on firms' performance within environmental, social and governance aspects respectively, as such the dataset consists of 4,638 unique firms, of which 134 are Nordic firms.

Table 2 – Dataset

Country	N	Obs.	Country	N	Obs.
ABU DHABI	1	5	KUWAIT	4	20
AUSTRALIA	357	1526	LUXEMBOURG	9	47
AUSTRIA	20	160	MALAYSIA	46	149
BELGIUM	28	221	MEXICO	28	112
BRAZIL	90	314	MOROCCO	3	13
CANADA	335	1809	NETHERLANDS	48	302
CHANNEL ISLANDS	4	10	NEW ZEALAND	12	90
CHILE	22	82	NIGERIA	1	3
CHINA	84	333	NORWAY	25	198
COLOMBIA	11	32	OMAN	1	4
CYPRUS	1	5	PERU	2	6
CZECH REPUBLIC	4	20	PHILIPPINES	22	65
DENMARK	27	209	POLAND	25	80
DUBAI	1	5	PORTUGAL	12	99
EGYPT	11	32	QATAR	2	10
FINLAND	26	211	RUSSIAN FEDERATION	34	157
FRANCE	103	781	SAUDI ARABIA	6	29
GERMANY	94	650	SINGAPORE	54	375
GREECE	24	182	SOUTH AFRICA	141	296
HONG KONG	157	772	SOUTH KOREA	107	370
HUNGARY	4	17	SPAIN	57	409
ICELAND	3	12	SRI LANKA	1	3
INDIA	84	281	SWEDEN	56	435
INDONESIA	26	90	SWITZERLAND	72	509
IRELAND	19	136	TAIWAN	132	405
ISRAEL	14	54	THAILAND	24	82
ITALY	62	443	TURKEY	25	100
JAPAN	442	3510	UNITED KINGDOM	412	2838
JORDAN	1	5	UNITED STATES	1220	7743
KAZAKHSTAN	1	5	ZIMBABWE	1	3
Total	**WORLD**			**4638**	**26864**
	EUROPE			**1157**	**8069**
	NORDICS			**134**	**1053**

In line with Cheng *et al.,* (2014) we opted for a relatively long time frame but in contrary a more updated sample, as our sample stretches from 2004 to 2012. This provides us with 1,053 observations within our Nordic sample, in which 209 observations are from Denmark, 211 from Finland, 198 from Norway and lastly 435 from Sweden, see Table 3. Considering the Nordics we have decided to exclude Iceland, as our sample only includes 3 Icelandic firms, which all are not rated after the financial crisis. Therefore, these are not included in the Nordic sample, but however in the European and the World samples. The Nordic sample, thereby, follows the same distribution between countries as they are represented in Forbes 2000 [14]. In Table 3, representing distribution of observations across years, an incremental progressive increase can be discerned.

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[14] www.forbes.com/global2000/, (2014-03-20)

However, the year specific growth in the Nordic sample is not as severe as the observation growth in the World sample.

Table 3 – Observations

	WORLD	EUROPE	NORDICS	DENMARK	FINLAND	NORWAY	SWEDEN
Year	Obs.	Obs.	Obs.	Obs.	Obs.	Obs.	Obs.
2004	1833	716	99	18	17	20	44
2005	2253	851	118	21	22	23	52
2006	2267	855	117	21	23	24	49
2007	2443	877	117	24	23	23	47
2008	2937	909	118	24	24	22	48
2009	3368	945	118	24	25	21	48
2010	3983	981	123	26	26	22	49
2011	4067	993	123	26	26	22	49
2012	3713	942	120	25	25	21	49
Total	**26864**	**8069**	**1053**	**209**	**211**	**198**	**435**

Furthermore, Table 4 presents the distribution of observations across sectors. Two of which, *Industrials* and *Financials* represent, a large portion of the total number of observations in the World sample, although the remaining sectors – *Energy, Materials, Consumer Discretionary, Consumer Staples, Health Care, Information Technology, Telecommunication Services and Utilities* – are also populated. The distribution between the sectors is relatively equal across the three subsamples even though the sector *Utilities* is underrepresented among the Nordic firms.

Table 4 – Industries

		WORLD	EUROPE	NORDICS
GIC Code	Industry Sector	N	N	N
10	Energy	383	78	14
15	Materials	583	105	15
20	Industrials	765	242	30
25	Consumer Discretionary	642	181	15
30	Consumer Staples	301	77	9
35	Health Care	259	62	13
40	Financials	937	259	25
45	Information Technology	441	68	8
50	Telecommunication Services	123	34	4
55	Utilities	204	51	1
Total		**4638**	**1157**	**134**

5. Results and Discussion

In the following chapter, we will, supported by both quantitative and qualitative findings, examine the hypotheses one by one and determine whether to accept or reject them. Firstly, we will identify the *Sustainability Performance* among Nordic

firms and compare them to European and international samples. The second objective is to distinguish the link between *Sustainability* and *Financial Performance*, measured in several ways. In addition to pure *Financial Performance* measures, the link will also be evaluated against *Capital Constraints*. Lastly, further testing will be carried out, in order to understand the results in terms of causality. Supporting data is provided in Appendix A, such as descriptive statistics of the main variables, *ESG* is found in Appendix A Table I and *Financial Performance* is found under the same section in Table II. We also present univariate correlations for all variables of interest in Appendix A Table III.

5.1 Sustainability Performance

The first hypothesis tested, is the Nordics relative *Sustainability Performance.* As a point of reference we have also created an overall *Sustainability Performance* score, by weighting the ESG factors equally, following the same procedure as e.g. Waddock and Graves (1997), these results are illustrated in Figure 1 and 2.

Figure 1 – Sustainability Score Regions   **Figure 2 – Sustainability Score Nordics**
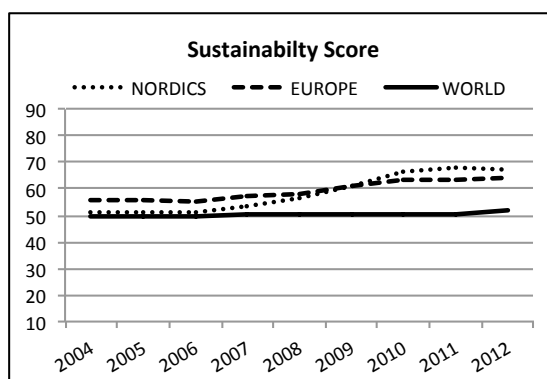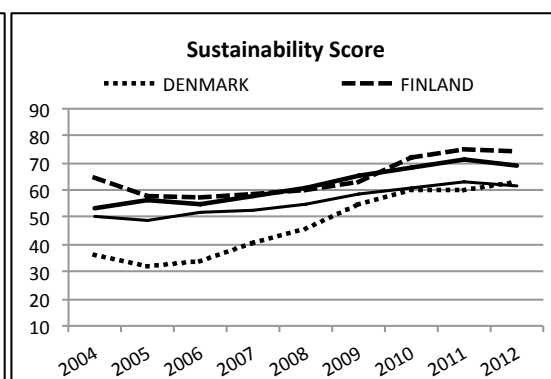
Figure 1 and 2 display the year specific average for all the regions.

First of all, in order to understand the graphs one must understand the underlying scores, and how these relate to each other. In all three factors, firms are evaluated on a scale of 0 to 100, as the average result however differs between the factors, absolute comparisons should not be done between the ESG factors. To illustrate, the average score for environmental performance is for instance higher than the average score for governance performance, 64 vs 52 in the Nordics, see Appendix A Table I, and thus the absolute numbers should not be cross compared. Typically, a low score in a pillar represents poor

22

policymaking and implementation, as well as lack of strategic actions and concrete efforts within the related area, and vice versa. To set these scores into perspective we have compared two energy companies in year 2012, the Swedish firm Alliance Oil and the Finnish firm Neste Oil. Measured in environmental performance, Neste Oil with a score of 84, is among the very best firms, however, Alliance Oil with a score of 16 is found among the poorest performing firms, as already discussed these scores relate to environmental management, considering both current strategic actions as well as planning and assessing future issues.

Moving forward, Figure 1 and Figure 2 illustrate some interesting findings, namely that the Nordics have had a great positive development, and in recent years they are both visibly and statistically better than their European and international counterparts. On a disaggregated Nordic sample, Denmark, on the other hand, seems to historically lag behind the other Nordic countries, a finding that will be discussed in the next paragraphs. Given that both scholars and practitioners suggest that a disaggregated measurement is preferable, we will continue by looking at the ESG factors separately.

Firstly, in Figure 3 below, environmental performance is evaluated, the average values are presented and we can distinguish that Nordic firms outperform both its European and international counterparts in this area. In line with the overall score, we find a steady improvement among the Nordic firms, which has widened the gap even further in the last five years of the sample, and although the performance of European firms has increased there is a clear stagnation among international firms. These results are also in line with our interview findings, where we could conclude that environmental aspects have increased in importance over the past years. On the other hand, Stjärnekull (2014) and Smith (2014) argue that firms find these ratings important tools for further improvements. Therefore, the performance improvement must not only relate to an increased importance in environmental issues but also due to a response mechanisms, where poorly rated firms are eager to improve their rating, which also have been proven in previous studies (Chatterji and Toffel, 2010).

Environmental Score

········ NORDICS   ━ ━ ━ EUROPE   ━━━ WORLD

Environmental Score

········ DENMARK   ━ ━ ━ FINLAND

Figure 3 and 4 display the year specific average for all the regions. The superscripts indicates significance levels for the two-sample t test with equal variances, p<0.10: Nordics is greater than: (*) World, (**) Europe & World. Less than: (') Europe, ('') Europe & World. Mix: (*') Greater than World, less than Europe based on the average of the scores.

Within the Nordics, see Figure 4, we can identify Finland and Sweden as the superior markets and Norway is found over the global average but under the European average in the recent year. Denmark's suggested inferiority is not as evident in the *Environmental Score,* as compared to the overall *Sustainability Score*.

Secondly, the result of *Social Performance* is presented in Figure 5. Yet again the Nordics is better than the global sample, however only in the last two years the Nordics has outperformed the European region. These findings prove that among European and especially Nordic firms, *Social Performance* have improved over the last couple of years. Plausibly, also here the improvement relate to both an increase in importance of the topic and to firms responding to poor ratings.

Figure 5 – Social Score Regions   Figure 6 – Social Score Nordics
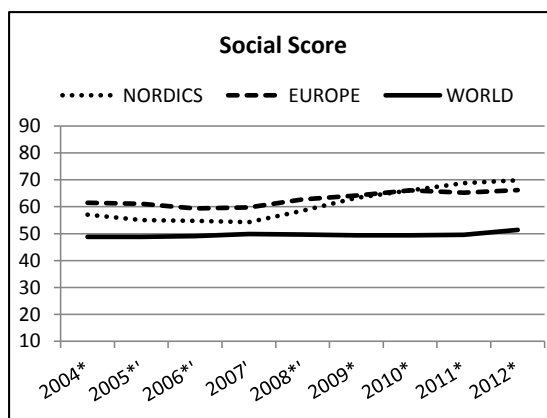
Social Score

········ NORDICS   ━ ━ ━ EUROPE   ━━━ WORLD

Social Score

········ DENMARK   ━ ━ ━ FINLAND
━━ NORWAY   ━━━ SWEDEN
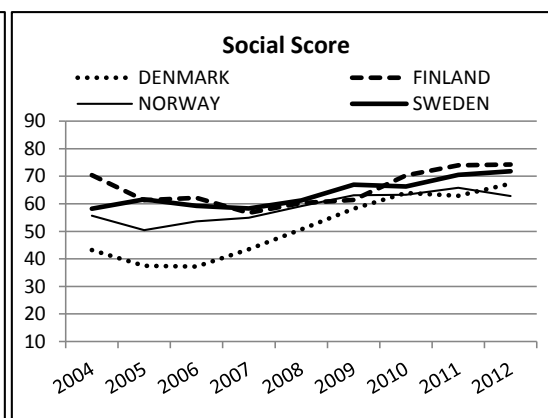
Figure 5 and 6 display the year specific average for all the regions. The superscripts indicates significance levels for the two-sample t test with equal variances, p<0.10: Nordics is greater than: (*) World, (**) Europe & World. Less than: (') Europe, ('') Europe & World. Mix: (*') Greater than World, less than Europe based on the average of the scores.

Within the Nordics we initially see large discrepancies among the markets in the first half of the sample, in the last four years however the Nordic countries are fairly close to each other, see Figure 6. Our interviewees pointed to the importance of social aspects, and especially Tuovinen (2014) suggested that social aspects such as health and safety are crucial, not least within their field of business (energy). Unanimously, they all acknowledged the benefits of social performance, stating that good working environments not only benefits the individual employee but also the firm in general, especially in the long run, as employee turnover costs correlate with the seniority of the employee.

Thirdly, corporate governance performance is evaluated in the same manner, see Figure 7. For which, we find the least discrepancies among the three regions and interestingly in the first half of the sample we find the Nordics below both their European and international peers. The Nordic firms' performance have however risen steadily and in 2009 they outperformed their international counterparts, and although also having passed the European firms, in the most recent year the Nordic firms were slightly outperformed by the European region.
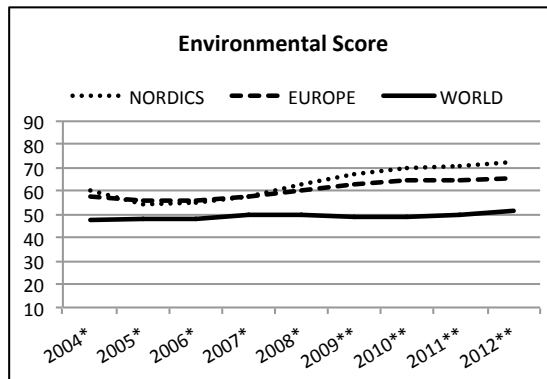
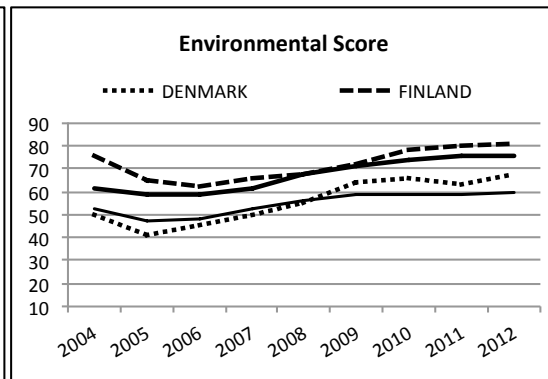**Figure 7 – Governance Score Regions**   **Figure 8 – Governance Score Nordics**
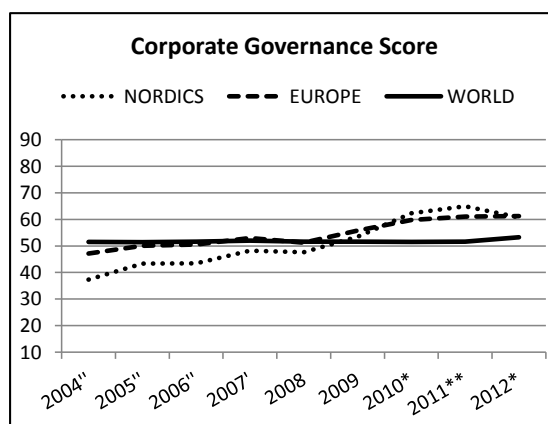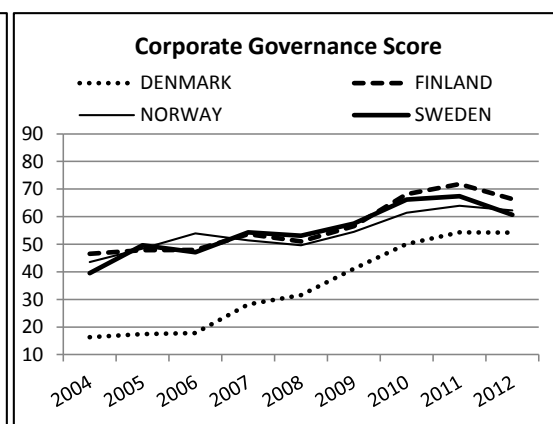
Figure 7 and 8 display the year specific average for all the regions. The superscripts indicates significance levels for the two-sample t test with equal variances, p<0.10: Nordics is greater than: (*) World, (**) Europe & World. Less than: (') Europe, ('') Europe & World. Mix: (*') Greater than World, less than Europe based on the average of the scores.

Looking within the Nordics, we initially see large discrepancies between Denmark and the rest of the Nordic countries. Denmark's poor performance definitely is a reason for the overall inferior Nordic performance, as the remaining Nordic countries are closer in line with their European and international counterparts, see Figure 8. Denmark's inferior corporate governance performance also helps to explain their relatively low overall

Sustainability Score. These findings are however surprising, due to the fact that Denmark was the first Scandinavian country to present a corporate code of conduct, and are considered to have the most comprehensive code in the Nordics (Grünberg and Hägg, 2007).

According to our interviewees, corporate governance ratings are generally more suitable for US firms (which is true for our sample), see Appendix A Table VI, as governance practices differs substantially between countries and regions. Stjärnekull (2014) states that Swedish firms follow the codes of conduct in the Swedish business sector, which seems to harm their corporate governance rating. Additionally, some corporate governance traditions and conditions regarding ownership structure are said to differ between the Nordic countries and the Anglo-Saxon and Continental European countries (Corporate Governance Board, 2009). Given that these arguments would apply to the ASSET4 rating, it could help to explain the Nordics inferior performance, in comparison to both its European and international peers. If the poor governance rating rather relates to differing governance practices, it does not necessarily mean that Nordic firms are performing worse than others, but instead that their code of conduct is not in line with the rating agencies requirements. To conclude on this issue, a closer study on the effectiveness of the respective corporate governance codes needs to be done. Furthermore, it has to be determined how the governance performance score relate to differing governance practices, in other words are there certain governance practices that are favoured in these ratings? Hence, we believe future scholars could conclude whether the Nordic firms' poor ratings relate to underperformance, or if the ratings not are applicable to their governance traditions and practices.

The fact that the Nordic firms are claimed to be undervalued in their governance performance does not explain Denmark's inferior performance to the rest of the Nordic countries, therefore these findings may instead relate to our sample. The Danish sample ranges between 18 and 25 unique firms, which however is in line with the Norwegian and the Finnish sample sizes. Although only large public firms are included, 8 out of the 10 GIC sectors are covered (missing technology and utilities), thus not skewed to any particular industry.

Interestingly, the Danish firm Novo Nordisk, considered the 7th most sustainable company in the World, on the latest global 100 Sustainability Index,

received a modest score of 46 in the rating in 2012, which is well below the Nordic average and even below the Danish average. Whether this relates to rapid improvement in governance over the last year, to the ambiguity in the rating or to a lower importance of the governance factor in the overall sustainability evaluation remains unsaid. In this study, Denmark's inferior performance will not be further investigated and thus remain unanswered, but certainly there is room for further analysis and discussion in future research.

Moreover, our interviewees identify governance as a highly important factor for the overall business, which to large extent have to be integrated, and given that the corporate code of conduct[15] has been improved and extended for all Nordic countries during the last decade, it might help to explain their improved performance. However, in conformity with environmental and social performance we would also expect firms with a poor governance rating to respond to this, and thereby the weaker performing firms drive the overall improvement.

By dividing the sustainability score into the ESG factors separately, we prove that there are differences between these factors, and that they individually may help to explain the overall sustainability score, supporting our previous discussion that sustainability should rather be measured on a disaggregated level.

Overall, the Nordic firms show a better sustainability performance compared to both their European and international peers, which can be shown both at a quick glance in the presented figures and statistically at a ten percent significance level. Especially, Nordic firms show superior environmental performance over time and over the last couple of years they prove to be superior within social aspects as well. Only within governance aspects Nordic firms have shown a more modest performance, however as addressed, concerns have been raised regarding the legitimacy of these governance ratings. Therefore, it cannot not be fully concluded whether Nordic firms have been outperformed in governance aspects, as these ratings may not reflect the domestic codes of conducts.

Generally, for both the Nordics and Europe there is an upward trend in all ESG factors, and the Nordic firms have improved more than others. Again, this

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[15] www.ecgi.org, (2014-05-11)

could be explained by the fact that firms work reactively, and as such respond to poor ratings.

To a certain extent, the Nordic superiority could be explained by the fact that Nordic governments often are considered leaders in environmental and social regulations, and that Nordic firms are claimed to show strong tradition within these areas (Kuisma, 2007; Lafferty and Meadowcroft, 2000). All interviewees share the opinion that Nordic firms, in general, have come further when it comes to sustainability, and although referring to governmental sanctions as a driver of sustainability, the main driver is overall higher public awareness, which forces firms to take action. Moreover, these firms truly believe that acting sustainable is not only the right thing to do, but that it also improves the long term financial performance due to several factors, including innovation, reduced costs, new opportunities and employee retention and attraction.

Lastly, all interviewees suggest that sustainability issues will in the future become more important all over the globe. If awareness for sustainability will increase even further in the future, we would expect firms to enjoy even greater benefits from superior sustainability performance. Also, we would suggest that firms that already have positioned themselves as sustainable will have an advantage when these issues will be premiered. Again, highlighting that sustainability is rather a long-term perspective and as such firms will also reap benefits over time.

Given these findings, it can be concluded that, generally, the Nordics do in fact outperform the rest of the world and consequently the first Hypothesis is accepted.

5.2 The Link between Sustainability and Financial Performance

Our empirical results indicate that sustainability seems to have a positive impact on financial performance using an aggregated sustainability measurement, see Appendix A Table IV. However, by testing the relationship between sustainability and financial performance we could conclude varying results for the different ESG factors, using regression (1), yet again supporting a disaggregated method, see Table 5 for the Nordics, Table 6 for Europe and Table 7 for the World findings.

Table 5 – Sustainability and Financial Performance Nordics

NORDICS			
Independent variables	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Environmental Score	.00122172	.02586584	-.00564444
Social Score	.00495228***	.04299544**	.11009206**
Corporate Governance Score	-.0040066**	-.06202643***	-.14208826***
Size	-.145881***	-.78513381***	-.55485543
Constant	3.6455151***	20.338089***	27.978662***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	1034	1032	1032
Adj R^2	.35043882	.08362267	.05318693

legend:*p<.1;**p<.05;***p<.01

Table 6 – Sustainability and Financial Performance Europe

EUROPE			
Independent variables	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Environmental Score	-.0019169***	-.01023747*	-.04323734**
Social Score	.00463847***	.02926353***	.10935267***
Corporate Governance Score	.00063284	-.00902069	-.0338754*
Size	-.25583826***	-1.0699107***	-1.1366701***
Constant	5.5387995***	24.859306***	33.718369***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	7884	7894	7807
Adj R^2	.35656063	.15318215	.07499453

legend:*p<.1;**p<.05;***p<.01

Table 7 – Sustainability and Financial Performance World

World			
Independent variables	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Environmental Score	-.00078127**	-.00983844***	-.0250596***
Social Score	.00450453***	.03067124***	.0830798***
Corporate Governance Score	-.00011593	-.0024995	-.01835653*
Size	-.31961728***	-.8628453***	-.69449594***
Constant	6.7822877***	20.469343***	23.782507***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	26241	26242	25959
Adj R^2	.36453118	.14518584	.11198167

legend:*p<.1;**p<.05;***p<.01

The empirical results suggest an overall positive link between *Environmental* and *Financial Performance* in the Nordics, however only when *Environmental Performance* is tested separately and not combined with *Social* and *Governance Performance*, the results show adequate significance. In Table 8, we see that environmental performance can be statistically proven to have a positive impact on both *Tobin's Q* and *ROA* respectively, the results for *ROE* are on the other hand insignificant.

Table 8 – Environmental and Financial Performance Nordics

NORDICS			
Independent variable	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Environmental Score	.00270266**	.02905256**	.00820994
Size	-.12172655***	-.60111795***	-.07211055
Constant	3.2237923***	16.34427***	18.050929**
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	1034	1032	1032
Adj R^2	.34064269	.06634516	.03736506

legend:*p<.1;**p<.05;***p<.01

These results indicate that by measuring financial performance both on a market based and an accounting based level, there tends to be a positive link, which would suggest that improved *Environmental Performance* leads to better *Financial Performance.* Furthermore, our interview findings point at the same direction, as all interviewees state that superior environmental performance strengthens innovations and the brand image, in the long run leading to improved financial performance. Consequently, we can accept Hypothesis 2.1.

Previous studies show the same relationship, although mostly carried out on global or American samples, they have for example shown that improved sustainability performance can lead to environmental benefits such as innovations and cost reductions (Porter and Kramer, 2006).

When comparing the findings for the Nordic firms with the European and international samples, interestingly, for these two regions we find a negative relation between *Environmental* and *Financial Performance*, which is contradictory to previous research, see Table 6 and 7.

Testing the link between *Social* and *Financial Performance* we can conclude a positive link for all financial measurements, and the results are statistically significant both when measured combined with *Environmental* and *Governance Performance*, and when measured on a stand-alone basis, which is displayed in Table 5 and 9. Therefore, Hypothesis 2.2 is also accepted. The strongest link is found between *Social Performance* and *ROE*, in terms of magnitude of the beta. Although, both the European and the international sample also show a positive link, see Table 6 and 7, the Nordics show a stronger link over all three financial measurements. Additionally, all interviewees support this link, by referring to, for instance, reputational benefits, leading to both increased employee retention

and attraction, which in the end leads to enhanced productivity and reduced recruiting costs. These findings are in line with previous research, which for example has suggested that *Sustainability Performance* can have social benefits such as employee retention (Greening and Turban, 2000) as well as employee attraction (Turban and Greening, 1997).

Table 9 – Social and Financial Performance Nordics

NORDICS			
Independent variable	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Social Score	.00405755***	.03317845**	.04530323
Size	-.14119737***	-.69655819***	.31485722
Constant	3.4881465***	17.836328***	16.506974*
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	1034	1032	1032
Adj R^2	.34547141	.06720829	.0455781

Legend: *p<. 1; **p<. 05; ***p<. 01

Contrary to the positive link for *Social* and *Environmental Performance*, we find a negative link between *Governance* and *Financial Performance*. All tests, except *Tobin's Q* on a stand-alone basis are statistically significant, hence Hypothesis 2.3 is rejected. *ROE* displays the strongest negative link, which can be seen in Table 5 and 10.

Table 10 – Governance and Financial Performance Nordics

NORDICS			
Independent variables	**(1) Tobin's Q**	**(2) ROA**	**(3) ROE**
Corporate Governance Score	-.00110623	-.02969886*	-.091034**
Size	-.09685833***	-.27134144	-.4583253
Constant	3.0196556***	13.970143***	22.557094**
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	1034	1032	1032
Adj R^2	.33626688	.06504771	.03959838

legend:*p<.1;**p<.05;***p<.01

The European and the international samples also indicate a negative relation in all financial measurements, the negative link is however weaker than what is displayed for Nordic firms.

Contrary to our empirical findings, our interviewees would expect a positive link between *Governance* and *Financial Performance*. By arguing that risk

management, such as corruption work for instance, should lead to long-term benefits, as such they fail to provide arguments for our empirical results. Moreover, previous research suggests a positive link between governance and financial performance, showing that it can reduce a firm's cost of capital (e.g. Dhaliwal *et al.*, 2011). A plausible explanation for these contradictory findings could first of all relate to our choice of sample, as previous studies have been conducted on either global or American samples. However, when testing the empirical link solely on US firms we still find evidence of a negative relationship between *Governance* and *Financial Performance*, see Appendix A Table VI.

Overall, among our interviewees, reputational benefits are considered the major benefit from engaging in sustainability, which also might help to explain the positive link for environmental and social performance. Dille (2014) cites public awareness and opinion as major drivers for sustainability. If we would assume that reputational benefits correlate with these, and that there is a more profound awareness for social and environmental issues, it would not be surprising that Nordic firms assign more resources to these issues and hence are able to reap higher benefits for improved performance. As we find stronger positive and negative connections for the Nordic firms we might assume that independent on the factor measured and the outcome, the importance of the ESG factors tend to be higher in the Nordics.

To the best of our knowledge, to date, most studies have been conducted on an aggregated sustainability performance, rather than measuring the ESG factors separately, also these studies are conducted on either a global or an American sample. Therefore, any contradictory findings to previous studies may relate to our disaggregated method, or to our differing sample. Furthermore, the timeframe could also have an effect on the link between sustainability and financial performance.

Finally, as already discussed, we must consider the issue of causality when assessing the link between sustainability and financial performance. In other words, it might be the case that that *Financial Performance* drives *Sustainability* and not the other way around. Even though "true" causality is rather philosophical, it is possible to utilize the nature of the time series. By lagging the dependent variables, using the causality approach by Granger (1969), one can at least underpin the prevailing opinion. It turns out, that lagged values have

32

significant impact on *Financial Performance.* We can thereby show that our dependent variables Granger-cause *Financial performance*, see Appendix A Table V. The relationship is particularly evident for the *Social* and *Corporate Governance* parameters in the Nordics and the *Social* variable overall.

5.3 The Link between Sustainability and Capital Constraints

Similarly to our previous findings, when testing *Capital Constraints* against the various ESG factors we see varying results depending on the ESG factor that is tested, see Table 11. *Environmental Performance* show a positive relation, which would indicate that firms with better *Environmental Performance* are more *Capital Constrained*, and as such less likely to obtain financial capital. *Social Performance*, however, shows a negative correlation and thus firms with better *Social Performance* tend to be less *Capital Constrained*. Also, *Governance Performance* is negatively correlated and as such firms with superior *Governance Performance* experience less *Capital Constraints.*

Table 11 – Sustainability and Capital Constraints Nordics

NORDICS	
Independent variable	**KZ-Index**
Environmental Score	.1455083***
Social Score	-0.02834082*
Corporate Governance Score	-.10835812***
Size	-.51024111
Constant	-4.8405597
Country fixed effects	Yes
Industry fixed effects	Yes
Year fixed effects	Yes
N	822
Adj R²	.11370034

legend:*p<.1;**p<.05;***p<.01

As *Capital Constraints* in a sense affects a firm's ability to pursue positive investments and generate profits, we would expect to similarly find negative correlations for the factors that are positively correlated to *Financial Performance*. The only factor however that shows this relationship is *Social Performance*. *Environmental Performance* seems to be positively correlated to bot *Financial Performance* and *Capital Constraints*, while *Governance Performance* is negatively correlated to both financial measurements. Moreover, our interviewees were unable to give clear indication on how sustainability performance in any ESG factor affects the firm's ability to access financial capital,

in other words they were unable to distinguish whether they would be able to access the same amount of financial capital with inferior sustainability performance. They did however express their hope for a positive correlation between sustainability performance and the ability to access finance, which with extended data might be easier to conclude in the future.

There is certainly a lack of existing literature in this field, a recent study (Cheng *et al*., 2014), however suggests contradictory findings. The authors find that firms with superior performance within the ESG factors respectively are less capital constrained, and in other words more likely to access finance. The authors also use sustainability data from the ASSET4 database, the study is however conducted on a global sample, and using another timeframe, which could help to explain the contradictory findings. This would then suggest that the Nordics as a region behave differently. We see our findings as evidence of sustainability behaviour differing among regions.

Below, in Table 12, we provide a list of our hypotheses and the outcome of the regressions.

Table 12 – Hypothesis Consequence

Hypothesis		
1	**In general, Nordic firms perform better within sustainability aspects**	*Accepted*
	There is a positive correlation between sustainability and financial performance in the Nordics	
2.1	*Environmental*	*Accepted*
2.2	*Social*	*Accepted*
2.3	*Corporate Governance*	*Rejected*
	There is a negative correlation between sustainability and capital constraints in the Nordics	
3.1	*Environmental*	*Rejected*
3.2	*Social*	*Accepted*
3.3	*Corporate Governance*	*Accepted*

6. Conclusion

In this study, we firstly identify *Sustainability Performance* among three different regions: Globally, Europe and the Nordics. Secondly, among Nordic firms we empirically evaluate the link between *Sustainability Performance* and financial

implications. Our empirical findings suggest that Nordic firms outperform the rest of the world in *Environmental* and *Social Performance*, but not however in *Governance Performance.* These findings are supported by practitioners, who frame the Nordic countries as pioneers in sustainability. Additionally, they question the validity of the governance rating and suggest that the Nordics inferior governance rating rather relate to differing governance practices than inferior performance. Perhaps the most intriguing result of this part of our study is Denmark's inferior *Governance Performance*, a finding that certainly should attract further analysis in future research.

Furthermore, similar to previous studies we find evidence of a positive link between *Financial Performance* and *Environmental* and *Social Performance* respectively, which also is supported by our qualitative results, refereeing to the long-term financial benefits of overall sustainability performance. Interestingly, in contradiction to previous research and our qualitative findings our empirical results indicate a negative link between *Governance* and *Financial Performance*. This might relate to limitations in our choice of sample or to the fact that in the Nordics, *Governance Performance* is not premiered in the same manner as *Environmental* and *Social Performance*. In addition, we also find varying empirical results concerning the link between *Sustainability Performance* and *Capital Constraints*, suggesting that *Social* and *Governance Performance* lead to less *Capital Constraints*. The results do however indicate that *Environmental Performance* does not lead to less *Capital Constrains*, but rather the contrary. These results are however neither supported or rejected by our interview findings, as they are unable to distinguish the link between sustainability performance and a firms' ability to access financial capital.

Overall, we find evidence of both stronger positive and negative relations between sustainability and financial implications for Nordic firms' compared to others. This could be an indication of stronger influence and importance of sustainability aspects in the Nordic region.

This study contributes to existing literature by illustrating how aggregated sustainability measurements are less suitable in detecting financial drivers. This paper also fills a gap in the existing literature by comparing the relationship of *Sustainability* and *Financial Performance* between different regions. The empirical study, however, does not explain the overall negative link between

Governance and *Financial Performance*, or the fact that the financial link differs between pure *Financial Performance* measurements and measurements of *Capital Constraints*. Hence, there are still several potential issues to address. As we argue that sustainability is rather a long-term strategic engagement the benefits of the surging sustainability efforts may yet to be realized. We therefore look forward to future researches who have access to extended data, to conduct empirical studies on a longer timeframe, in line with the perspective of sustainability. At that time it could also be fruitful to use instrumental variables, to for example investigate the relationship between *Sustainability* and employee retention and its direct effect on *Financial Performance.* Our results may also work as validation for Nordic practitioners, in order to financially support sustainability behaviour, as we show that there is a positive financial link for both *Environmental* and *Social Performance.* Given the novelty of the topic, and our contradictory findings we indeed hope that sustainability performance in the Nordics will attract future research in order to provide better validation of the link between *Sustainability Performance* and financial indicators.

References

Albuquerque, R., Durnev, A., and Koskinen, Y., 2013, Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence, ECGI Working Paper Series in Finance, No. 359.

Almeida, H., Campello. M., and Weisbach M. S., 2004, The cash flow sensitivity of cash, Journal of Finance 59, 1777–1804.

Aupperle, K. E., Carroll, A. B., and Hatfield, J. D., 1985, An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability, The Academy of Management Journal 28, 446-463.

Baker, M., Stein, J. C., and Wurgler, J., 2003, When does the market matter? Stock prices and the investment of equity-dependent firms, Quarterly Journal of Economics 118, 969–1005.

Bakke T. E., and Whited T. M., 2010, Which firms follow the market? An analysis of corporate investment decisions, Review of Financial Studies 23 (5), 1941 – 1980.

Balakrishnan, R., Sivaramakrishnan, K., and Sprinkle, G. B., 2009, Managerial accounting, New York, John Wiley & Sons, Inc.

Barnett, M. L., and Salomon, R. M., 2006, Beyond Dichotomy: the Curvilinear Relationship Between Social Responsibility and Financial Performance, Strategic Management Journal,27, 1101–1122.

Bénabou, R., and Tirole, J., 2010, Individual and Corporate Social Responsibility, Economica 77, 1–19.

Blake, R., 2006, Employee retention: What employee turnover really costs your company, www.webpronews.com, (2014-04-17)

Blundell, R., Bond, S., Devereux M., and Schiantarelli, F., 1992, Investment and Tobin's Q: Evidence from company panel data, Journal of Econometrics 51, 233-257.

Bragdon J. H., and Marlin J. A. T., 1972, Is Pollution Profitable? Risk Management 19, 9-18.

Campello, M., Graham, J. R., and Harvey, C. R., 2010, The real effects of financial constraints: Evidence from a financial crisis, Journal of Financial Economics, 97 (3), 470-487.

Carpenter, R. E., Fazzari, S. M., and Petersen, B. C., 1998, Financing constraints and inventory investment: A comparative study with high-frequency panel data. Review of Economics and Statistics 80, 513-519.

Cavaco, S., and Crifo, P., 2009, The CSP-CFP missing link: complementarity between environmental, social and governance practices? Journal of Economic Literature.

Chatterji, A., K., and Toffel, M., W., 2010, How firms respond to being rated, Strategic Management Journal 31(9), 917–945.

Cheng, B., Ioannou I., and Serafeim G., 2014, Corporate Social Responsibility and access to finance, Strategic Management Journal 35, 1–23.

Cochran, P., L., and Wood, R., A., 1984, Corporate Social Responsibility and Financial Performance, Academy of Management Journal, 27, 42-56.

Corporate Governance Board, 2009, Corporate Governance in the Nordic Countries, www.corporategovernanceboard.se

Dahlsrud, A., 2006, How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions, www.interscience.wiley.com

Dallocchio, M., and Salvi, A., 2005, Finanza d'Azienda, Milano: EGEA.

Dhaliwal, D., Li, O. Z., Tsang, A. H., and Yang, Y. G., 2011, Voluntary non-financial disclosure and the cost of equity capital: The case of corporate social responsibility reporting, The Accounting Review, 86 (1), 59-100.

Diamond, J., 2009, Will big business save the earth? The New York Times, C14.

El Ghoul, S., Guedhami, O., Kwok, C. C. Y., and Mishra, D. R., 2011, Does corporate social responsibility affect the cost of capital? Journal of Banking and Finance 35(9), 2388 – 2406.

Fombrun, C., and Shanley, M., 1990, What's in a Name? Reputation Building and Corporate Strategy. The Academy of Management Journal 33 (2), 233-258.

Fombrun, C. J., Gardberg, N. A., and Barnett, M. L., 2000, Opportunity platforms and safety nets: Corporate citizenship and reputational risk. Business and Society Review, 105(1), 85-106.

Frank R., 2007, Richistan: A Journey through the American Wealth Boom and the Lives of the New Rich, New York: Crown Publishing Group.

Friedman, M., 1970, The social responsibility of business is to increase its profits, New York Times Magazine, 13 September, 122–6.

Gardberg, N.A. and Fombrun, C. J., 2006, Corporate citizenship: Creating intangible assets across institutional environments, Academy of Management Review, 31(2), 329-346.

Gjølberg, M., 2009, Measuring the immeasurable? Constructing an index of CSR practices and CSR performance in 20 countries, Scandinavian Journal of Management 25, 10–22.

Goss, A., 2009, Corporate Social Responsibility and Financial Distress, Proceedings of the Administrative Sciences Association of Canada. Working paper.

Goss A., and Roberts, G. S., 2011, The impact of corporate social responsibility on the cost of bank loans, Journal of Banking and Finance 35(7), 1794–1810.

Granger, C. W. J., (1969), Investigating Causal Relations by Econometric Models and Cross-spectral Methods, Econometrica 37(3), 424–438

Greening, D. W., and Turban, D. B., 2000, Corporate social performance as a competitive advantage in attracting a quality workforce, Business & Society, 39(3), 254-280.

Grünberg, J., and Hägg, I., 2007, Nordic corporate governance codes – similarities and differences, Working paper

Hall, B. H., and Lerner, J., 2010, The Financing of R&D and Innovation. In: Hall, B. H., and Rosenberg, N., (eds.), Handbook of The Economics of Innovation, Elsevier, Chap 14.

Hawn, O., Chatterji, A., and Mitchell, W., 2011, How operational legitimacy conditions the impact of changes in social legitimacy on firm's economic value: The Dow Jones sustainability index addition and deletion, Working paper, Duke University.

Hubbard, R. G., 1998, Capital-market imperfections and investment Journal of Economic Literature 36, 193-225.

Hull, C. E., and Rothenberg, A., 2008, Firm performance: The interactions of corporate social performance with innovation and industry differentiation, Strategic Management Journal, 29(7), 781-789.

Jensen, M. C., 2002, Value maximization, stakeholder theory, and the corporate objective function, Business Ethics Quarterly, 12(2), 235-256.

Jones, T. M., 1995, Instrumental stakeholder theory: A synthesis of ethics and economics, Academy of Management Review, 20, 404-437.

Kaplan S. N., and Zingales, L., 1997, Do investment-cash flow sensitivities provide useful measures of financing constraints? Quarterly Journal of Economics 112, 169 – 215.

Kocmanová, A., and Docelaková, M., 2012, Construction of the economic indicators of performance in relation to environmental, social and corporate governance (ESG) factors, Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunesis 4, 195–206.

Kuisma, M., 2007, Social Democratic Internationalism and the Welfare State After the 'Golden Age'. Cooperation and Conflict, Journal of the Nordic International Studies Association 42(1), 9–26.

Lafferty, W., and Meadowcroft J., 2000, Patterns of Governmental Engagement. In Implementing Sustainable Development in High Consumption Societies, edited by W., Lafferty and J., Meadowcroft, Oxford: Oxford University Press.

Lamont O., Polk C., and Saa-Requejo J., 2001, Financial constraints and stock returns, Review of Financial Studies 14(2), 529–554.

Landier, A., and Nair, V., 2008, Investing for Change: Profit from Responsible Investment, Oxford: Oxford University Press.

Lee, D., and Faff, R., 2009, Corporate sustainability performance and idiosyncratic risk: A global perspective, The Financial Review, 44 (2), 213-237.

Lemon, K. N., Roberts, J. H., Raghubir, P., and Winer, R. S., 2011, Measuring the Effects of Corporate Social Responsibility, The Conference Board 3(7).

Mankiw, N. G., 2009, Macroeconomics, Worth Publishers, chap. 17.

Margolis, J., and Elfenbein, H., 2008, Do well by doing good? Don't count on it, Harvard Business Review, Social Responsibility, Special Issue on HBS Centennial 86(1), 19.

Margolis, J. D., Elfenbein, H. A., and Walsh, J. P., 2007, Does It Pay To Be Good? A Meta-Analysis and Redirection of Research on the Relationship between Corporate Social and Financial Performance, Working paper.

Margolis, J. D., and Walsh, J. P., 2003, Misery loves companies: rethinking social initiatives by business, Administrative Science Quarterly, 48(2): 268-305.

McWilliams, A., and Siegel, D., 1997, The role of money managers in assessing corporate social responsibility research, Journal of Investing 6(4), 98–107.

McWilliams, A., and Siegel, D., 2000, Corporate social responsibility and financial performance: correlation or misspecification? Strategic Management Journal, 21(5), 603-609.

Mercer, 2009, Shedding light on responsible investment: Approaches, returns and impacts, www.mercer.com/ri.

Midttun, A., Gautesen K., and Gjølberg, M.. 2006, The Political Economy of sustainability in Western Europe, Corporate Governance – The International Journal of Business in Society 6 (4), 369–385.

Mohr, L. A., and Webb, D. J., 2005, The Effects of Corporate Social Responsibility and Price on Consumer Responses, The Journal of Consumer Affairs 39, 121-147.

Navarro, P., 1988, Why do corporations give to charity? The Journal of Business, 61(1), 65-93.

Peloza, J., 2006, Using Corporate Social Responsibility as Insurance for Financial Performance, California Management Review, 48(2), 52-72.

Porter, M. E., and Kramer, M. R., 2006, Strategy and society: The link between competitive advantage and corporate social responsibility, Harvard Business Review, 84(12), 78-92.

Rowley, T., and Berman, S., 2000, A Brand New Brand of Corporate Social Responsibility, Business & Society 39(4), 397-418.

Sandelands, L. E., 2003, The Argument for God from Organization Studies, Journal of Management Inquiry 20, 1–10.

Sen, S., and Bhattacharya, C. B., 2001, Does doing good always lead to doing better? Consumer reactions to corporate social responsibility, Journal of Marketing Research, 38(2), 225-243.

Simnett, R., Vanstraelen, A., and Chua, W. F., 2009, Assurance on sustainability reports: an international comparison, The Accounting Review, 84(3), 937-967.

Sprinkle, G. B., and Maines, L. A., 2010, The Benefits and Costs of Corporate Social Responsibility, Business Horizons 53, 445-453.

Stein, J., 2003, Agency, Information, and Corporate Investment, Handbook of the Economics of Finance, George Constantinides, Milton Harris, and Rene´ Stulz, eds. (Amsterdam: Elsevier Science)

Summers, L. H., Bosworth, B. P., Tobin, J., and White, P. M., 1981, Taxation and corporate investment: a Q-theory approach, Brookings Papers on Economic Activity 1, 67–140.

Tsoutsoura, M., 2004, Corporate social responsibility and financial performance, Haas School of Business, Applied Financial Project, University of California, Berkeley.

Turban, D. B., and Greening, D. W., 1997, Corporate social performance and organizational attractiveness to prospective employees, The Academy of Management Journal, 40(3), 658-672.

Ullmann A., 1985, Data in Search of a Theory: A Critical Examination of the Relationship Among Social Performance, Social Disclosure, & Economic Performance, Academy of Management Review 10, 450-77.

Van den Heuvel, R., 2012, How Robust are sustainability benchmarks? Comparing ASSET4 with Sustainalytics, Tilburg University, Working paper.

Van Marrewijk, M., 2003, Concepts and Definitions of CSR and Corporate Sustainability: Between Agency and Communion. Journal of Business Ethics 44(2-3), 95-105.

Waddock, S. A., and Graves, S. B., 1997, The Corporate Social Perfomance-Financial Performance Link Strategic Management Journal 18, 303–319.

Whited, T. M., 1992, Debt, liquidity constraints, and corporate investment: Evidence from panel data, The Journal of Finance, 47(4), 1425-1460.

Interviews

Dille, S. (2014, March 20). Telephone interview.

Smith, M. (2014, May 9). Telephone interview.

Stjärnekull, C. (2014, May 8). Telephone interview.

Tuovinen, P. (2014, March 21). Telephone interview.

Appendix A

Table I. Summary Statistics for Sustainability (ESG)

These tables present summary statistics for the *Sustainability* data obtained from Thomson Reuters ASSET4, ESG (environment, social, governance). The sample timeframe are from 2004 through 2012 and divided into the three subsamples; World, Europe and the Nordics. The aggregated *Sustainability score* is the equal-weighted score of the three ESG variables. Appendix B provides details on the attributes of the disaggregate *Sustainability score*.

WORLD	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Environmental	26864	49.29	44.98	31.86	8.35	16.76	83.40	97.18
Social	26864	49.65	47.75	30.91	3.42	19.79	80.42	98.88
Governance	26864	51.83	59.36	30.21	1.35	21.81	78.38	97.98
Sustainability	26864	50.26	48.86	24.41	4.71	31.22	70.61	97.58

EUROPE	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Environmental	8069	60.88	69.28	29.70	8.66	31.55	89.17	97.18
Social	8069	63.06	70.21	28.66	3.47	39.46	89.53	98.83
Governance	8069	54.80	59.26	26.40	1.57	33.82	77.12	97.21
Sustainability	8069	59.58	64.16	23.84	4.71	41.27	80.20	96.97

NORDICS	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Environmental	1053	63.57	76.04	29.83	8.89	35.96	90.6	97.18
Social	1053	61.01	67.59	28.52	5.16	38.09	87.42	98.74
Governance	1053	51.67	54.75	24.84	2.28	33.14	71.98	96.32
Sustainability	1053	58.75	63.24	23.83	6.42	41.44	78.63	95.03

Table II. Summary Statistics of Main Variables

These sets of tables present summary statistics (observation, mean, median, standard deviation, minimum, 25th, and 75th percentiles and maximum) for the used variables. The sample is the merged set between COMPUSTAT and WorldScope. The sample timeframe are from 2004 through 2012 and divided into the three subsamples; World, Europe and the Nordics. All variables, except for *Size*, are winsorized at the 1% and 99% levels.

WORLD	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Tobin's Q	36410	1.36	1.03	1.13	0.1	0.7	1.6	6.82
ROA	37539	6.29	5.8	9.48	-36.07	2.17	10.29	36.81
ROE	37094	13.74	13.15	23.13	-82.76	5.83	21.74	109.3
Size	38532	17.17	17.15	1.92	4.25	16.09	18.3	42.54

EUROPE	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Tobin's Q	9010	1.22	0.95	0.99	0.09	0.63	1.43	6.01
ROA	9277	6.62	5.79	8.21	-23.28	2.22	9.82	37.04
ROE	9150	15.92	14.6	25.45	-84.03	6.98	23.32	136.27
Size	9515	17.52	17.31	1.91	6.53	16.23	18.66	24.05

NORDICS	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Tobin's Q	1101	1.26	1.01	0.9	0.23	0.68	1.54	5.45
ROA	1118	7.59	6.76	8.79	-29.41	3.11	11.42	34.17
ROE	1117	17.25	16.33	21.14	-57.99	8.34	25.23	112.78
KZ-Index	864	-11.77	-4.93	16.87	-62.08	-14.98	-0.59	9.04
Size	1139	17.37	17.18	1.57	10.07	16.29	18.12	22.58

Table III. Correlation Coefficients Between Main Variables

These sets of tables presents correlation coefficients between the independent and depended variables used in the regressions. Hence, disaggregated ESG score and financial performance indices are represented . The sample timeframe are from 2004 through 2012 and divided into the three subsamples; World, Europe and the Nordics. Appendix B provides details on the attributes of the disaggregate *Sustainability score*. The numbers in parentheses are probability levels at which the hypothesis of a zero correlation can be rejected. The superscripts *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

World

	ENVSCORE	SOCSCORE	CGVSCORE	Size	Tobin's Q	ROA
SOCSCORE	0.773***					
	(0.00)					
CGVSCORE	0.1825***	0.3229***				
	(0.00)	(0.00)				
Size	0.3669***	0.3866***	0.0640***			
	(0.00)	(0.00)	(0.00)			
Tobin's Q	-0.1472***	-0.0910***	0.0657***	-0.4588***		
	(0.00)	(0.00)	(0.00)	(0.00)		
ROA	-0.0191***	0.0416***	0.0417***	-0.0510***	0.3394***	
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	
ROE	0.0230***	0.0866***	0.0484***	0.0235***	0.2406***	0.8133***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

EUROPE

	ENVSCORE	SOCSCORE	CGVSCORE	Size	Tobin's Q	ROA
SOCSCORE	0.7622***					
	(0.00)					
CGVSCORE	0.4381***	0.4802***				
	(0.00)	(0.00)				
Size	0.4060***	0.4353***	0.1375***			
	(0.00)	(0.00)	(0.00)			
Tobin's Q	-0.1603***	-0.1224***	-0.0428***	-0.4860***		
	(0.00)	(0.00)	(0.00)	(0.00)		
ROA	-0.0745***	-0.0535***	-0.0094	-0.2613***	0.5461***	
	(0.00)	(0.00)	(0.40)	(0.00)	(0.00)	
ROE	-0.0218*	0.0184	0.0205*	-0.1188***	0.3571***	0.7683***
	(0.05)	(0.10)	(0.07)	(0.00)	(0.00)	(0.00)

NORDICS

	ENVSCORE	SOCSCORE	CGVSCORE	Size	Tobin's Q	ROA	ROE
SOCSCORE	0.7320***						
	(0.00)						
CGVSCORE	0.4956***	0.5710***					
	(0.00)	(0.00)					
Size	0.2700***	0.3445***	0.2411***				
	(0.00)	(0.00)	(0.00)				
Tobin's Q	-0.0425	-0.0155	-0.0908***	-0.4129***			
	(0.17)	(0.62)	(0.00)	(0.00)			
ROA	-0.0077	0.0002	-0.1199***	-0.1529***	0.4626***		
	(0.80)	(0.99)	(0.00)	(0.00)	(0.00)		
ROE	-0.0796**	-0.0361	-0.1475*	-0.0616*	0.3679*	0.8287*	
	(0.01)	(0.25)	(0.00)	(0.04)	(0.00)	(0.00)	
KZ-Index	0.1065***	0.0646**	-0.0577*	0.0741**	-0.1972***	-0.1655***	-0.1232***
	(0.00)	(0.06)	(0.10)	(0.03)	(0.00)	(0.00)	(0.00)

Table IV. Sustainability Regression on Financial Performance (aggregated ESG)

The link between *Sustainability* and *Financial performance* is tested with respect to a aggregated sustainability measurement (ESG), using regression (3). In constructing the aggregated variable, each pillar has been equally weighted. The aggregated regression follow the same methodology as previous regression with *Country, Industry* and *Year* as fixed effects and *Size* as a control variable. Superscripts *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively. All independent variables are winsorized at the 1% and 99% levels.

WORLD

Variable	(2) Tobin's Q	(2) ROA	(2) ROE
Sustainability Score	.00429009***	.02268302***	.05617154***
Size	-.31708907***	-.84458799***	-.6318848***
Constant	6.7008553***	19.913975***	21.790999***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	26241	26242	25959
Adj R^2	.36205137	.14288414	.1092823

legend:*p<.1;**p<.05;***p<.01

EUROPE

Variable	(2) Tobin's Q	(2) ROA	(2) ROE
Sustainability Score	.00335417***	.01287646**	.04244148**
Size	-.2537828***	-1.0450709***	-1.0389099***
Constant	5.5131486***	24.379543***	31.86175***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	7884	7894	7807
Adj R^2	.35272956	.15054123	.07102018

legend:*p<.1;**p<.05;***p<.01

NORDICS

Variable	(2) Tobin's Q	(2) ROA	(2) ROE
Sustainability Score	.00313746**	.0202847	-.0130512
Size	-.12285707***	-.51467769**	.08499713
Constant	3.2309748***	15.49321***	16.594103*
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	1034	1032	1032
Adj R^2	.33949692	.06164381	.03740475

legend:*p<.1;**p<.05;***p<.01

Table V. Causality Test of Main Regression

These sets of tables present the base of the causality test made for the main regression (1). The sample timeframe are from 2004 through 2012 and divided into the three subsamples; World, Europe and the Nordics. The first table illustrate the three causality hypothesis constructed. All of them test whether the coefficients of the lagged values of *ESG scores* and *Size's* betas statistically significantly different from 0, for different subsamples. The numbers in parentheses are probability levels at which the hypothesis of a zero explanatory power can be rejected. The superscripts *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively. All hypothesis are reject, thus, one can argue that the ESG-variables can Granger-cause financial performance, this is, ESG-variables can be used to predict financial performance . The following tables show the conducted regression with respect each subsample and lagged independent values.

Null Hypothesis	Tobin's Q	ROA	ROE	Outcome
H_0: World	31.04***	11.02***	9.23***	*Reject*
	(0.00)	(0.00)	(0.00)	
H_0: Europe	7.91***	6.78***	5.10***	*Reject*
	(0.00)	(0.00)	(0.00)	
H_0: Nordics	1.12	2.15***	1.77**	*Reject*
	(0.34)	(0.01)	(0.03)	

World	t-1	t-2	t-3	t-4
Independent variables	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**
Environmental Score$_t$	-.00057209*	-.00023826	.00003802	.00014981
Social Score$_t$	.0045257***	.00461412***	.00426391***	.00394793***
Corporate Governance Score$_t$	-.00032833	-.00027428	.00022342	.00052313
Size$_t$	-.31431003***	-.30334093***	-.27522849***	-.25093519***
Constant	6.6732179***	6.4385084***	5.8701241***	5.3598026***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	22520	18137	14002	10619
Adj R^2	.36260992	.36536147	.36259283	.34583581

legend:*p<.1;**p<.05;***p<.01

EUROPE	t-1	t-2	t-3	t-4
Independent variables	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**
Environmental Score$_t$	-.00138949**	-.00086558	-.00023817	-4.356e-06
Social Score$_t$	.00469051***	.00452979***	.0040807***	.00417716***
Corporate Governance Score$_t$	.00002353	.00063505	.00103735	.00050219
Size$_t$	-.25408186***	-.25567344***	-.24588047***	-.22664777***
Constant	5.4976821***	5.459887***	5.2093337***	4.8045516***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	6937	5831	4767	3784
Adj R^2	.35386636	.35497436	.34074072	.31455338

legend:*p<.1;**p<.05;***p<.01

NORDICS	t-1	t-2	t-3	t-4
Independent variables	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**	**(1) Tobin's Q**
Environmental Score$_t$	.00169362	.00213933	.00178958	.00046847
Social Score$_t$	.00467151**	.00568668***	.00657463***	.00766261***
Corporate Governance Score$_t$	-.00408045*	-.00529728**	-.00528939**	-.00551867**
Size$_t$	-.14554411***	-.16419425***	-.16088446***	-.15841152***
Constant	3.6349993***	3.9268035***	3.7843888***	3.6960257***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	918	788	660	539
Adj R^2	.34146282	.31918771	.28531282	.23937583

legend:*p<.1;**p<.05;***p<.01

World	t-1	t-2	t-3	t-4
Independent variables	**(2) ROA**	**(2) ROA**	**(2) ROA**	**(2) ROA**
Environmental Score$_t$	-.00446545	-.00175872	-.00213023	-.00130357
Social Score$_t$	.0318285***	.03192282***	.03372067***	.03024069***
Corporate Governance Score$_t$	-.00469029	-.00559878	-.01094112**	-.00449692
Size$_t$	-1.0780423***	-1.0719027***	-.97656419***	-.83340947***
Constant	23.93975***	23.576962***	21.791553***	18.539167***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	22352	17963	13858	10502
Adj R^2	.15405313	.16025259	.15358179	.14268367

legend:*p<.1;**p<.05;***p<.01

EUROPE	t-1	t-2	t-3	t-4
Independent variables	**(2) ROA**	**(2) ROA**	**(2) ROA**	**(2) ROA**
Environmental Score$_t$	-.00136022	-.00019144	.00424607	.00592701
Social Score$_t$	.02723127***	.02764268***	.03107159***	.03565957***
Corporate Governance Score$_t$	-.00622477	-.00251258	-.01021612	-.01182096
Size$_t$	-1.220759***	-1.1976048***	-1.0792647***	-.98212082***
Constant	26.8434***	25.899589***	23.29931***	20.692581***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	6875	5759	4701	3723
Adj R^2	.16336074	.16945097	.15950271	.13965882

legend:*p<.1;**p<.05;***p<.01

NORDICS	t-1	t-2	t-3	t-4
Independent variables	**(2) ROA**	**(2) ROA**	**(2) ROA**	**(2) ROA**
Environmental Score$_t$	.02519563	.01819468	.03171419	.02458781
Social Score$_t$	.05071503**	.06540657***	.06945037***	.05621564**
Corporate Governance Score$_t$	-.05659991**	-.04478278*	-.06009722**	-.04119823
Size$_t$	-1.0628839***	-1.1676859***	-1.211106***	-1.0286189***
Constant	24.369352***	24.751407***	24.626904***	21.228966***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	907	776	648	527
Adj R^2	.08003774	.09357675	.10772531	.07121811

legend:*p<.1;**p<.05;***p<.01

World	t-1	t-2	t-3	t-4
Independent variables	**(3) ROE**	**(3) ROE**	**(3) ROE**	**(3) ROE**
Environmental Score$_t$	-.0079726	-.01173142	-.01756742*	-.01461631
Social Score$_t$	.07969835***	.08686086***	.09810874***	.08909674***
Corporate Governance Score$_t$	-.01806463*	-.01327331	-.03176269**	-.01905442
Size$_t$	-1.1417565***	-1.1019439***	-.92166517***	-.70061794***
Constant	30.626961***	28.963451***	25.615442***	19.986246***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	22101	17742	13672	10341
Adj R^2	.11873612	.12271845	.11453883	.09926719

legend:*p<.1;**p<.05;***p<.01

EUROPE	t-1	t-2	t-3	t-4
Independent variables	**(3) ROE**	**(3) ROE**	**(3) ROE**	**(3) ROE**
Environmental Score$_t$	-.01908373	-.02900024	-.01858362	-.01364795
Social Score$_t$	.10730346***	.1131079***	.12350158***	.13537747***
Corporate Governance Score$_t$	-.03354139*	-.01348757	-.03792929	-.04349292
Size$_t$	-1.5395619***	-1.6028652***	-1.5980296***	-1.5759151***
Constant	39.111678***	38.512777***	37.140154***	34.198658***
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	6805	5696	4648	3678
Adj R^2	.08898522	.09306634	.0825522	.06312352

legend:*p<.1;**p<.05;***p<.01

NORDICS	t-1	t-2	t-3	t-4
Independent variables	**(3) ROE**	**(3) ROE**	**(3) ROE**	**(3) ROE**
Environmental Score$_t$	-.00315332	.01067506	.03433982	.00434378
Social Score$_t$	.13124157**	.14601483***	.17566913***	.17713705***
Corporate Governance Score$_t$	-.13062733**	-.1095677*	-.14138547**	-.09810924
Size$_t$	-1.2295605*	-1.4040281**	-1.7178599**	-1.6533694*
Constant	37.488704***	36.696901***	39.082369***	36.050358**
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	907	776	647	526
Adj R^2	.06612794	.07381347	.09189454	.04479006

legend:*p<.1;**p<.05;***p<.01

Table VI. Summery Description of United State

These sets of tables present specific findings for a US-sample extracted from the global sample. The sample timeframe are from 2004 through 2012. The link between *Sustainability* and *Financial performance* is tested with respect to US. firms. The US. regression follow the same methodology as previous regression with *Country, Industry* and *Year* as fixed effects and *Size* as a control variable. Superscripts *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively. All independent variables are winsorized at the 1% and 99% levels.

United States	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Environmental	7745	40.97	26.03	31.063	8.35	13.78	72.94	97.15
Social	7745	45.03	39.76	28.25	3.42	19.64	70.23	98.88
Governance	7745	73.63	76.82	16.08	1.56	65.94	84.88	97.48

United States	Obs.	Mean	Median	St.dev	Min	p25	p75	Max
Tobin's Q	9508	1.53	1.214	1.15	0.13	.805667	1.87	6.42
ROA	9808	6.50	6.14	8.40	-29.74	2.87	10.35	31.76
ROE	9534	13.76	13.52	24.94	-95.98	6.69	21.35	124.80
Size	9996	17.55	17.42	1.50	11.32	16.58	18.45	23.87

United States

Variable	(1) Tobin's Q	(2) ROA	(3) ROE
Environmental Score	.0011727**	-.00602817	-.00105288
Social Score	.00628586***	.05006107***	.11395453***
Corporate Governance Score	-.00361192***	-.01150239	-.027438
Size	-.39914481***	-1.1622927***	-1.2995468***
Constant	8.5648282***	26.088074***	34.108422***
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
N	7549	7593	7420
Adj R^2	.33650018	.10774951	.06795302

legend:*p<.1;**p<.05;***p<.01

Appendix B

Table I. Description of ASSET4 Categories (from ASSET4 documents)

<table>
<tr>
<td rowspan="3">Environmental Performance Pillar</td>
<td>Resource Reduction

The resource reduction category measures a company's management commitment and effectiveness towards achieving an efficient use of natural resources in the production process. It reflects a company's capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.</td>
</tr>
<tr>
<td>Emission Reduction

The emission reduction category measures a company's management commitment and effectiveness towards reducing environmental emission in the production and operational processes. It reflects a company's capacity to reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity and to partner with environmental organizations to reduce the environmental impact of the company in the local or broader community.</td>
</tr>
<tr>
<td>Product Innovation

The product innovation category measures a company's management commitment and effectiveness towards supporting the research and development of eco-efficient products or services. It reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability.</td>
</tr>
<tr>
<td rowspan="4">Social Performance Pillar</td>
<td>Employment Quality

The workforce / employment quality category measures a company's management commitment and effectiveness towards providing high-quality employment benefits and job conditions. It reflects a company's capacity to increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focusing on long-term employment growth and stability by promoting from within, avoiding lay-offs and maintaining relations with trade unions.</td>
</tr>
<tr>
<td>Health and Safety

The workforce / health and safety category measures a company's management commitment and effectiveness towards providing a healthy and safe workplace. It reflects a company's capacity to increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well being and stress level of all employees.</td>
</tr>
<tr>
<td>Training and Development

The workforce / training and development category measures a company's management commitment and effectiveness towards providing training and development (education) for its workforce. It reflects a company's capacity to increase its intellectual capital, workforce loyalty and productivity by developing the workforce's skills, competences, employability and careers in an entrepreneurial environment.</td>
</tr>
<tr>
<td>Diversity and Opportunity

The workforce / diversity and opportunity category measures a company's management commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce. It reflects a company's capacity to increase its workforce loyalty and productivity by promoting an effective life-work balance, a family friendly environment and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation.</td>
</tr>
</table>

(Continue) Table I. Description of ASSET4 Categories (from ASSET4 documents)

<table>
<tr><td rowspan="3" style="writing-mode: vertical-rl;">Social Performance Pillar</td><td>

Human Rights

The society / human rights category measures a company's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a company's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labour.

</td></tr>
<tr><td>

Community

The society / community category measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community (local, national and global). It reflects a company's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.).

</td></tr>
<tr><td>

Customer / Product Responsibility

The customer / product responsibility category measures a company's management commitment and effectiveness towards creating value-added products and services upholding the customer's security. It reflects a company's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety, and preserving its integrity and privacy also through accurate product information and labelling.

</td></tr>
<tr><td rowspan="5" style="writing-mode: vertical-rl;">Corp. Governance Pillar</td><td>

Board Structure

The board of directors / board structure category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to a well-balanced membership of the board. It reflects a company's capacity to ensure a critical exchange of ideas and an independent decision-making process through an experienced, diverse and independent board.

</td></tr>
<tr><td>

Compensation Policy

The board of directors / compensation policy category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to competitive and proportionate management compensation. It reflects a company's capacity to attract and retain executives and board members with the necessary skills by linking their compensation to individual or company-wide financial or extra-financial targets.

</td></tr>
<tr><td>

Board Functions

The board of directors / board functions category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to board activities and functions. It reflects a company's capacity to have an effective board by setting up the essential board committees with allocated tasks and responsibilities.

</td></tr>
<tr><td>

Shareholder Rights

The shareholders / shareholder rights category measures a company's management commitment and effectiveness towards following best practice corporate governance principles related to a shareholder policy and equal treatment of shareholders. It reflects a company's capacity to be attractive to minority shareholders by ensuring them equal rights and privileges and by limiting the use of anti-takeover devices.

</td></tr>
<tr><td>

Vision and Strategy

The integration / vision and strategy category measures a company's management commitment and effectiveness towards the creation of an overarching vision and strategy integrating financial and extra-financial aspects. It reflects a company's capacity to convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

</td></tr>
</table>

Table II. Global Industry Classification Standard (GICS®)[1]

10	**Energy Sector** The Energy Sector comprises companies engaged in exploration & production, refining & marketing and storage & transportation of oil & gas and coal & consumable fuels. It also includes companies that offer oil & gas equipment and services.
15	**Materials Sector** The Materials Sector includes companies that manufacture chemicals, construction materials, glass, paper, forest products and related packaging products, and metals, minerals and mining companies, including producers of steel.
20	**Industrials Sector** The Industrials Sector includes manufacturers and distributors of capital goods such as aerospace & defence, building products, electrical equipment and machinery and companies that offer construction & engineering services. It also includes providers of commercial & professional services including printing, environmental and facilities services, office services & supplies, security & alarm services, human resource & employment services, research & consulting services. It also includes companies that provide transportation services.
25	**Consumer Discretionary Sector** The Consumer Discretionary Sector encompasses those businesses that tend to be the most sensitive to economic cycles. Its manufacturing segment includes automotive, household durable goods, leisure equipment and textiles & apparel. The services segment includes hotels, restaurants and other leisure facilities, media production and services, and consumer retailing and services.
30	**Consumer Staples Sector** The Consumer Staples Sector comprises companies whose businesses are less sensitive to economic cycles. It includes manufacturers and distributors of food, beverages and tobacco and producers of non-durable household goods and personal products. It also includes food & drug retailing companies as well as hypermarkets and consumer super centers.
35	**Health Care Sector** The Health Care Sector includes health care providers & services, companies that manufacture and distribute health care equipment & supplies and health care technology companies. It also includes companies involved in the research, development, production and marketing of pharmaceuticals and biotechnology products.
40	**Financials Sector** The Financials Sector contains companies involved in banking, thrifts & mortgage finance, specialized finance, consumer finance, asset management and custody banks, investment banking and brokerage and insurance. This Sector also includes real estate companies and REITs.
45	**Information Technology Sector** The Information Technology Sector comprises companies that offer software and information technology services, manufacturers and distributors of technology hardware & equipment such as communications equipment, cellular phones, computers & peripherals, electronic equipment and related instruments and semiconductors.
50	**Telecommunication Services Sector** The Telecommunication Services Sector contains companies that provide communications services primarily through a fixed-line, cellular or wireless, high bandwidth and/or fiber optic cable network.

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[1] http://www.msci.com/resources/pdfs/GICSSectorDefinitions.pdf, (2014-04-21)

53

(Continue) Table II. Global Industry Classification Standard (GICS®)[1]

55	*Utilities Sector* The Utilities Sector comprises utility companies such as electric, gas and water utilities. It also includes independent power producers & energy traders and companies that engage in generation and distribution of electricity using renewable sources.

Appendix C

Table I. Interview Table

Name	Position	Firm	Country
Matthew Smith	Head of Sustainability	Storebrand SPP	Norway
Scott Dille	Team Leader Insight and Outreach	Novo nordisk	Denmark
Pekka Tuovinen	Director Sustainability and Supplier Compliance	Neste Oil	Finland
Cathrine Stjärnekull	Corporate Communications Manager	Husqvarna	Sweden

Table II. Interview Template

1. What is your position?

2. How do you come in contact with sustainability activities?

3. What do you consider as sustainability?
- *Environmental*
- *Social*
- *Governance*

4. What are the costs and benefits of sustainability?

5. Why do you engage in sustainability?

6. Do you believe sustainability performance is related to your ability to access financial capital?

7. How do you think sustainability will develop in the future?

8. On an international level how do you think Nordic (your) firms perform?

9. Do you see a change or trend in the past 10 years?

Based on the sustainability performance data for the respective, a couple of tailored questions would follow, example:

10. What do you think are the underlying factors for these findings?

11. Do you agree with these findings?