

UNIVERSITY OF VAASA
SCHOOL OF ACCOUNTING AND FINANCE

Jaakko Nurminen

**ENVIRONMENTAL RESPONSIBILITY AND FIRM FINANCIAL
PERFORMANCE IN THE NORDIC COUNTRIES**

Master's Thesis
in Finance

Master's Degree
Programme in Finance

VAASA 2020

TABLE OF CONTENTS

	page
LIST OF FIGURES AND TABLES	5
ABBREVIATIONS	9
ABSTRACT	11
1. INTRODUCTION	13
1.1. Purpose of the study	14
1.2. Structure of the study	17
2. LITERATURE REVIEW	19
2.1. Evolution of CSR and early studies	19
2.2. CSR and stakeholder relations	22
2.3. ESG and risk exposure	25
2.4. ESG and firm financial performance	28
2.5. Environmental responsibility and firm financial performance	32
2.6. Conclusion of empirical findings	34
3. THEORETICAL FRAMEWORK	39
3.1. Stakeholder theory	39
3.2. Corporate Social Responsibility	41
3.2.1. Origins of CSR	41
3.2.2. Definition of CSR	43
3.2.3. Strategic CSR	45
3.2.4. Socially Responsible Investing	46
3.3. Environmental, Social & Governance	47
3.3.1. United Nations Principles of Responsible Investing	49
3.3.2. Global Reporting Initiative	51
3.3.3. EU Action Plan	52
3.4. Financial performance	54
3.4.1. Book value	54
3.4.2. Risk and return	55

3.4.3. Tobin's Q	57
3.4.4. Firm performance	58
4. DATA & METHODOLOGY	60
4.1. Financial data	60
4.2. ESG and Environmental data	62
4.3. Descriptive statistics	63
4.4. Dummy variable construction	65
4.5. Methodology	67
4.6. Regression models	70
4.7. Hypothesis development	72
5. EMPIRICAL RESULTS	76
5.1. Relationship of environmental responsibility and firm financial performance	76
5.2. Low and high performance of environmental responsibility	82
5.3. Robustness tests	85
6. CONCLUSION	92
LIST OF REFERENCES	98

LIST OF FIGURES AND TABLES

Figure 1. The indirect link between CSR and firm value	25
Figure 2. Descriptive statistics of ESG and environmental dimension (ENS) over the period of 2010-2014 in Europe	37
Figure 3. The “Managerial View” for corporations	40
Figure 4. The constitution of CSR	43
Figure 5. Examples of ESG issues A	48
Figure 6. Examples of ESG issues B	49
Figure 7. The growth of UN PRI signatories over the time period of 2006-2019	50
Figure 8. GRI reporting standards	51
Table 1. Concluding table of empirical findings	35
Table 2. Descriptive statistics of financial metrics and ER data of the Nordics during the sample period of 2002-2018	64
Table 3. Industry diversification of the study	66
Table 4. Descriptive statistics for high and low ER variables	67
Table 5. Regression results of models 1-5 over the sample period of 2002-2018. The relationship of ER and ROA	77
Table 6. Regression results of models 1-5 over the sample period of 2002-2018. The relationship of ER and Tobin’s q	80
Table 7. Regression results of models 6 and 7 over the sample period 2002-2018. Low and high ER and ROA	82
Table 8. Regression results of models 6 and 7 over the sample period 2002-2018. Low and high ER and Tobin’s q	84
Table 9. Regression results of models 8 and 9 over the time period 2003-2018. Dependent variable ROA	86

Table 10. Regression results of models 10 and 11 over the sample period 2002-2018.
Dependent variable Tobin's q 89

ABBREVIATIONS

CAPM	Capital Asset Pricing Model
CFP	Corporate Financial Performance
CO2 Emissions	CO2 Emissions of firm in tonnes
CS	Corporate social
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
EMI	Emissions Score, which is a subdimension of ENV
ENV	Environmental dimension of ESG
ENV INN	Environmental Innovation Score, which is a subdimension of
ENV MGT TR	Environmental Management Training for Employees
ER	Environmental Responsibility
ESG	Environmental, Social, and Governance
EU ETS	The EU Emission Trading System
FP	Financial performance
GRI	Global Reporting Initiative
ROA	Return on Assets
ROE	Return on Equity
SDG	Sustainable Development Goals
SRI	Socially Responsible Investing
TEG	Technical Expert Group on Sustainable Finance
UNFCCC	United Nations Framework Convention on Climate Change
UN PRI	United Nations Principles of Responsible Investing

UNIVERSITY OF VAASA**School of Accounting and Finance****Author:**

Jaakko Nurminen

Master's Thesis:Environmental Responsibility and Firm
Financial Performance in the Nordic Countries**Degree:**Master of Science in Economics and Business
Administration**Master's Programme:**

Master's Degree Programme in Finance

Name of the Supervisor:

Sami Vähämaa

Year of Entering the University:

2015

Year of Completing the Thesis:

2020

Pages: 105

ABSTRACT

Increasing attention of media and the public towards climate change issues and ongoing legislative procedures such as EU ETS and EU Action Plan are pressuring firms to act on behalf of a more sustainable future. As environmental issues affect us all, previous research suggests that the Nordic countries of Europe are seen to be more stakeholder-oriented and, thus, found to be the top performers among CSR. From the perspective of a firm, it is essential to match stakeholders' increasing values towards environmental responsibility. Moreover, it is in the interest of investors, firms, and decision-makers to understand the potential underlying risk exposure environmental issues have on firm financial performance.

This thesis contributes to the existing literature by first investigating the general relationship of environmental responsibility (ER) and firm financial performance (FP) in the Nordic countries during the sample period of 2002-2018. Secondly, as it is found by previous literature that strong ESG and ER contribution are negatively correlated with risk exposure of firms, this thesis investigates the strong and weak performance of ER and its potential effects on FP. For the purposes of this study, Finland, Sweden, Norway, and Denmark are considered as a proxy for the Nordics. Hence, the data of financial metrics and ER variables are derived from the all-share indices of Helsinki, Stockholm, Oslo, and Copenhagen over the sample period. The *Environmental* dimension of ESG, among the subdimensions of *Emissions score*, *Environmental innovation*, and *CO₂ and equivalent emissions* operate as proxies for environmental responsibility in this study. Following previous research, ROA and Tobin's q are considered as proxies for firm financial performance. All data has been derived from the Refinitiv (earlier Thomson Reuters) database.

This study finds that ER measured with emissions control of firms is positively associated with FP measured with both ROA and Tobin's q in the Nordics in general. Hence, this finding is confirmed with the negative relationship of CO₂ and equivalent emissions and FP. Thus, markets seem to appreciate ER in the valuation of a firm. Regarding the weak performance of ER, the lack of emissions control shows some negative effects on ROA. Regarding the strong performance of ER, this study finds a positive association between ER and Tobin's q.

The findings of this study indicate that a strong contribution towards emissions control is beneficial for firms in terms of ROA and Tobin's q. However, the findings regarding the weak and strong performance of ER and FP are not found to be that straightforward. Therefore, the generalization of the findings is needed to be taken with caution. Nevertheless, the findings of this study contribute to the existing literature by offering additional information regarding the risk exposure of firm and firm financial performance in the Nordics offering potential field for future studies of ER and FP.

KEYWORDS: Environmental responsibility, Firm financial performance, Emissions control, The Nordics

1. INTRODUCTION

During the past decade, environmental issues have increasingly gathered a lot of attention from media and academia largely because of the concerns of climate change. Such issues have disseminated through social media increasing the awareness of various stakeholders leading to change in corporate behavior. For firms, it is essential to understand how such factors reflect to financial performance of the firm.

Continents, regions, and various institutions are seeking ways to tackle environmental and social issues by setting unions and regulations. For instance, the United Nations Framework Convention on Climate Change (UNFCCC) established a global agreement of multiple nations, the Kyoto Protocol in 1997, to decrease emissions of greenhouse gases (GHGs). Kyoto Protocol has had a series of well-known treaties, such as the Doha Amendment in 2012. Paris Agreement in 2017 was an even more ambitious treaty that pursued sustainable development. (UNFCCC Kyoto Protocol 2018.) However, the debate of climate change has separated opinions and in 2017 the president Donald Trump retrieved the US from Paris Agreement stating that it would expose US firms to permanent disadvantage (Eliwa, Aboud & Saleh 2019).

As the climate change is threatening the societies worldwide, Europe is seen as a frontrunner of mitigating emissions. European Union was the first continent to establish an emissions trading system in 2005 pursuing the mitigation of GHG emissions in Europe. The EU Emission Trading System (EU ETS) remains to be the biggest emissions trading market in the world covering approximately 75 % of the total carbon trading. Hence, the core purpose of such market is to inspire other countries and regions to take action against the issues of climate change. (EU ETS 2016.) Furthermore, the recent adaptation of the EU Action Plan is intended to set regulations around the disclosure of Environmental, Social, and Governance (ESG) issues for firms operating in Europe (EU Taxonomy 2019).

It is fair to say that the climate change issues and the relevant regulatory settings are factors affecting the operations of companies. In addition to the regional agreements and

regulations, the firms are increasingly pressured by stakeholders' values through an increase in awareness towards environmental issues (Eliwa et al. 2019). Lee, Cin, and Lee (2016) state that the CSR and ESG have been raising awareness among media and the public, which leads to the increasing attention of firms as well. Hence, an increase in media attention leads to an increase in academic research that ultimately leads to shareholder proposals (Borgers, Derwall, Koedijk & Ter Horst 2013).

ESG factors can be thought of as non-financial factors affecting the firm (Galema, Plantinga & Scholtens 2008; Atan, Alam, Said & Zamri 2018). The investor who is responsible takes into account environmental issues and therefore the firm's ESG factors during the decision-making process (Atan et al. 2018; UN PRI 2019). From the perspective of stakeholders, it is essential for firms to concentrate on ESG issues as it can mitigate their risk exposure in financial, reputational, and legislative risks. (Sassen, Hinze and Hardeck 2016). Overall, the attention towards Corporate Social Responsibility (CSR) issues are raising among stakeholders, and it is the purpose of the firm to match these expectations (Wang, Chen, Yu & Hsiao 2015).

1.1. Purpose of the study

Due to the increasing attention and value towards ESG, it is relevant for investors, companies, and decision-makers to understand the links between ESG and companies' operations. Negligence of ESG leads to increasing risk exposure among firms (Atan et al. 2018). The lack of ESG concentration and therefore poor Corporate Social Performance (CSP) can lead to increasing risk exposure and a decrease in firm value (Sassen et al. 2016). Hence, identifying and managing such risks are relevant to the company's operations (Atan et al. 2018). Therefore, it is important to understand how such non-financial factors potentially effect on firm's performance and value.

Considering the socially responsible performance of companies, based on previous literature and common intellect European countries are most often performing well in CSR (Ho, Wang & Vitell 2012; Sassen et al. 2016). Jurgens, Berthon, Papania & Shabbir

(2010) point out that Northern European countries are prone to cover various groups of stakeholders and hence, Scandinavia among Northern Europe is more stakeholder-oriented than other regions in general. Ho et al. (2012) find that developed countries in Europe have stronger CSP scores than other regions. Liang and Renneboog (2017) study the relationship of legal origins in countries and firms' CSR ratings finding that firms operating in the countries of civil law have stronger CSR scores than those operating in countries of the common law. Thus, Liang and Renneboog (2017) find that the firms in Scandinavia scores the highest scores in most CSR ratings. Moreover, Eliwa et al. (2019) specifically state that Denmark among countries with more focus on stakeholder orientation is experiencing lower cost of debt through strong ESG performance improving their financial performance. Overall, it seems that Nordics are most often found to be among the top performers in terms of ESG and ER.

Therefore, it is the purpose of this study to first investigate the relationship of environmental responsibility (ER) and financial performance (FP) of publicly listed firms in the Nordics in general. Secondly, as the Nordics are experiencing superior performance to other regions among CSR, this study contributes to the existing literature by investigating the poor and strong performance of ER and its potential effects on FP. Hence, the research questions this thesis seeks to answer are the following.

1. Does ER have an impact on firm performance in the Nordics?
2. Does ER have an impact on firm value in the Nordics?
3. Does the negligence of ER lead to a decrease in firm performance and value of firms in the Nordics?
4. Does the strong performance in areas of ER lead to enhancement of financial performance in the Nordics?

To investigate the relationship between ER and FP, the following ER factors are chosen for this study from the Refinitiv (earlier Thomson Reuters) database. First, ESG and its environmental dimension (ENV) are retrieved. Secondly, few of the following sub-dimensions are chosen to be proxies for ER. Emissions score (EMI) describing how well firms contribute to mitigating GHGs. Environmental innovation (ENV INN), which

represents a firm's contributions to innovating and offering new environmentally friendly products for its customers. CO2 Emissions, which is a measure in tonnes of firm's CO2 emissions during the accounting year.

As this study concentrates on the Nordics as a region, the proxy for the Nordics is essential to define. The proxy for the Nordics is constructed of publicly listed firms in Finland, Sweden, Norway, and Denmark. Hence, the data is derived from the all-share indices of Helsinki, Stockholm, Oslo, and Copenhagen over the sample period of 2002-2018. As the sample period is rather long, some of the firms have died and some born. In this study, both dead and active firms are taken into consideration that controls for survivorship bias (Eliwa et. al 2019).

The proxy for firm performance measure is Return on Assets (ROA), which is chosen accordingly respecting the findings and reasoning of previous literature. Similarly, the second dependent variable Tobin's q has been selected to operate as a proxy for firm value. Overall, ROA and Tobin's q represent the firm financial performance metrics whereas ENV, EMI, ENV INN, and CO2 Emissions represent the environmental responsibility of firms.

Due to the choice of considering the Nordics as a whole, the country-specific concentration of these firms is out of the scope of this study. Furthermore, some studies suggest that the investigations regarding CSR and financial performance should be carried within industry levels (Griffin & Mahon 1997). The rationale behind such suggestion rests into the fact that not all industries are exhibiting a similar magnitude of interest and exposure towards ESG issues (Griffin & Mahon 1997; Humphrey, Lee & Shen 2012). Thus, this seems reasonable, this study does not concentrate on investigating specific industry levels. However, industry effects have been controlled coherently in this study throughout the empirical section by utilizing industry dummies to control for different impacts of ER on various industries.

1.2. Structure of the study

In order to reach the objectives of this study, this thesis consists of four major sections that are literature review, theoretical framework, data and methodology, and empirical research.

The first section of the study introduces and discusses the literature review regarding the topic of this study. This part seeks to introduce the evolution of ESG in chronological order. In this respect, the earlier research regarding CSR and Socially Responsible Investing (SRI) is first discussed. The second part of the literature review discusses the previous findings regarding CSR and stakeholder orientation as it is one of the core theories behind the relationship between CSR and corporate financial performance (CFP). Thirdly, the concentration moves to concern the findings regarding ESG and firm performance. This is carried out by first covering the empirical findings regarding ESG and the cost of capital and secondly the ESG and firm performance. Later on, the literature review discusses the previous research regarding ER and FP. Lastly, the literature review is concluded. Overall, this paragraph intends to constantly and coherently move to the core of this study.

In the second section of the study, the theoretical framework is presented. In this section, the essential stakeholder theory is presented following a detailed discussion of the concepts of CSR and ESG covering the latest regulations affecting corporate behavior in the Nordics. Secondly, the theoretical part concentrates on introducing the framework of financial performance and risk-return tradeoff. This part concentrates mostly on the relevant subjects regarding this study that are ROA and Tobin's q .

The third section covers the discussion of the data and methodology regarding the empirical part of this thesis. In this section, the financial metrics, ESG, and ER related data are introduced separately and in detail moving towards the discussion of descriptive statistics and dummy variable construction of this study. After covering the data discussion, the methodology of this thesis is presented. Lastly, the regression models and hypothesis development of this thesis are introduced.

The last section presents the empirical findings of this study. In this chapter the findings are introduced and discussed in detail. After the empirical results have been introduced, this study will conclude with the discussion of the limitations of the study and proposals for future studies.

2. LITERATURE REVIEW

This part of the study concentrates on presenting and discussing previous literature regarding the relationship of ESG, ER, and financial performance of firms. In order to coherently understand how academia has come to consider ESG issues, it is essential to introduce the findings regarding the concepts of CSR and SRI as well. It is essential for the reader to understand that ESG originates from the concept of CSR, and that the concepts of CSR, SRI, and ESG are linked together and ultimately have the same goals. CSR considers the firm's corporate responsibilities and output for society and is centered around the stakeholder perspective. SRI is seen as a tool for investors to implement their values into their investing behavior. ESG is seen as an addition to financial analysis to further understand the risks of environmental, social, and governance issues. Most often, ESG is used as a proxy for CSP in academic research.

This literature review intends to present the flow of academic research in chronological order going towards the academia that is most relevant for this study. First, the findings regarding SRI and investment performance is introduced. Secondly, stakeholder relations and awareness regarding CSR are discussed. Thirdly, the concentration moves into the core of this study with the discussion of the relationship of ESG and the cost of capital that might have indirect effects on firm value. Fourthly, the relationship between ESG and firm performance is covered. Fifthly, the relationship between ER and FP is discussed. Lastly, this literature review concludes the empirical findings of previous literature.

2.1. Evolution of CSR and early studies

CSR has gone through a long road of discussion separating opinions. One of the earliest statements regarding CSR is from Milton Friedman (1970) as he separates business into two factors. Firstly, the firm's main objective is to maximize its profits and solely concentrate on that objective. Secondly, humans are the ones that have responsibilities. Therefore, he implies that CSR should not affect a firm's performance. (Friedman 1970.)

McWilliams and Siegel (2001) describe CSR as additional actions for social good that firms take. These actions overcome the requirements of law. McWilliams and Siegel (2001) remind that the definition of CSR varies. Furthermore, the relatively earlier studies have found controversial findings between SRI and CFP (Griffin & Mahon 1997).

At first, academic research has concentrated on the relationship between SRI and fund performance. For instance, Jo and Statman (1993) investigate whether socially responsible (SR) funds perform better than conventional mutual funds. They cover 32 SR funds over the sample period of 1981-1990 by identifying these funds as SR through fund manager characteristics. By investigating the performance of SR funds and conventional benchmark funds, they find no significant difference among SR mutual funds and conventional funds in abnormal returns by implementing Jensen's alpha. Hence, they lead up to the conclusion that financial markets do not price the characteristics of social responsibility. (Jo & Statman 1993.)

Similarly, Bello (2005) investigates SRI screens effect on diversification and performance of mutual funds. The study is done with 42 SR mutual funds, which each are compared with two randomly picked same-sized conventional funds during the period of 1994 to 2001. They expect that screening leads to decreasing effects of diversification as well as that SRI mutual funds are outperformed by conventional ones. Bello (2005) finds no significant difference in performance nor diversification of the SR mutual funds and conventional funds during the sample period of 1994-2001.

Whereas the performance of SRI funds can be determined to be dependable on the fund manager's skills, SRI equity indices do not have this attribute. Schröder (2007) takes 29 SRI equity indices and corresponding conventional indices to study the characteristics of SRI indices. They concentrate on SRI indices performance and risk. Furthermore, the 29 SRI indices cover a broad geographical area. They use a single linear regression model where the dependable variable is each SRI index's returns and the main independent variable is the corresponding benchmark index. (Schröder 2007.)

Schröder (2007) reasons that if the beta is above one, the SRI index has a bigger risk. On the contrary, when beta is below one SRI index has less risk than its benchmark. Furthermore, and similarly to Jo and Statman (1993) he uses Jensen's alpha to investigate the performance of SRI indices relative to their benchmark indices. He finds that SRI indices have greater risk exposure and do not exhibit statistically different performance. (Schröder 2007.)

Going further with academic research, it seems that the next step has been to examine the SRI and firm performance by forming portfolios. As previously shown, elder studies have mostly compared SRI funds to more traditional funds, but Kempf and Osthoff (2007) remind that the fund performance includes the skills of the fund manager. Kempf and Osthoff (2007) investigate SRI's effects on the performance of different portfolios they form. Hence, their study investigates the SRI performance of firms through screening the stocks by social and environmental screens.

After the portfolio construction, they run Carhart (1997) four-factor model to investigate whether their portfolios provide abnormal returns or not. They find that investors could benefit from simple screening methods and long-short trading strategies with the highest abnormal returns of 8.7 % annually. Furthermore, their study raises a considerable point of view, stating that the fund managers are combining multiple criteria while making investment decisions based on SRI. Also, most of the studies have regarded SR firms by only looking into environmental screens. (Kempf & Osthoff 2007.)

Galema, Plantinga, and Scholtens (2008) go beyond previous research to investigate SRI's effect on book-to-market ratios of firms. Similarly to Kempf and Osthoff (2007), they form portfolios based on SRI criteria derived from the KLD database using the period from June 1992 to July of 2006. They create 12 portfolios based on six dimensions KLD provides. Furthermore, the portfolios are created by strengths and weaknesses in these dimensions. (Galema et al. 2008.)

They run Carhart (1997) four-factor model to investigate how well the asset pricing model explains the variation in portfolios' excess returns and to see if there are abnormal returns.

Moreover, they use the Fama-Macbeth regression model to investigate KLD scores effects on book-to-market ratios of individual stocks by utilizing financial data from Datastream. (Galema et al. 2008.)

They find that SRI decreases book-to-market ratios that might be the explanation to the fact that multiple studies have not found significant abnormal returns regressing socially responsible portfolios with Fama and French risk factor models or the Carhart model. Furthermore, they suggest that the difference in pricing among stock prices can be due to investor preference, for instance. If SRI stocks have more demand than non-SRI stocks, it is expected that SRI stocks are overpriced whereas non-SRI stocks are underpriced. (Galema et al. 2008.)

Borgers et al. (2013) study examines the stakeholder relations and returns on stocks. They use the time period of 1992-2009. Quite straightforwardly, they state that one theoretical background for the mispricing of the assets in markets is that the financial markets are not capturing the intangible effects on stock pricing. (Borgers et al. 2013.) ESG can be said to be the newest sub-dimension of CSR and it can be thought of as a non-financial factor of firm (Galema et al. 2008; Atan et al. 2018). Therefore, one might think that capturing long-lasting trends such as environmental issues among investors might lead to better performance of the firm, until the financial markets correct the mispricing.

2.2. CSR and stakeholder relations

Borgers et al. (2013) form Stakeholder relations Index (SI) in order to study whether stakeholder relations affect stock returns. It is believed that if a firm improves its stakeholder relations, the firm creates intangible long-run economic benefits. They investigate the surprise part of the returns comparing analysts' announcements and realized returns. They find that stakeholder relations significantly effect on risk-adjusted returns of stocks during the time period of 1992 to 2004. From 2004 to 2009 the results are found to be insignificant, and Borgers et al. (2013) reflect this to the theory that anomaly of CSR has been learned from investors, and the markets have learned the

mispricing and corrected itself. Going forward from 2004 CSR announcements of firms have been increased with stakeholder proposals that could suggest that the anomaly has been learned.

Continuing in the areas of investor awareness, Heinkel, Kraus, and Zechner's (2001) study examines whether investors are able to affect corporate behavior through their investment activities. Heinkel et al. (2001) suppose in their theoretical framework that there are two types of investors that are green investors and neutral investors. Green investors are only investing in companies that are environmentally responsible whereas neutral investors do not care about whether a company is environmental or not. Rather conveniently, they assume that if green investors boycott non-green firms, the decrease in demand of such stocks causes a decrease in stock prices leading to increasing cost of capital for non-green firms. Furthermore, they assume that non-environmental firms are able to take action if willing to do so and correct their behavior in order to attract green investors. Heinkel et al. (2001) assume that if the green investors can effect on firms' behavior, it can be said that these investors have had an economic impact.

Heinkel et al. (2001) form three groups of firms that are firms acceptable for green investors, firms that are not acceptable for green investors, and firms that have reformed their technologies with some cost into acceptable investments for green investors. They remind that for companies who might reform from non-environmental into environmental firms, the main factor is the cost of reform. In other words, if the firm's target is to maximize their shares the cost of reform has to lead to an increase in share price. As the number of green investors increase under the assumption that the total investor amount remains constant, there are fewer neutral investors willing to hold non-environmental firms' stocks. This leads to an increase in expected returns among neutral investors towards these stocks that leads to a decrease in share prices. (Heinkel et al. 2001). Hence, Galema et al. (2008) findings regarding the relationship between book-to-market ratios and SRI suggest that SRI leads to differences in demand between non-SRI and SRI stocks.

Furthermore, Heinkel et al. (2001) form an equilibrium model to investigate the required amount of investors needed to affect firm behavior. In other words, the theoretical amount

that would lead non-environmental firms to shift and reform their operations to become more environmental. Based on their model, they state that over 25 % of investors should be green investors in order to pressure companies to reform from non-environmental to environmental. During their research, it is calculated based on previous research that the amount of green investors in financial markets was about 10 %. Based on their research, this is not enough for their model to affect corporate behavior. (Heinkel et al. 2001.)

The main finding of their study is that investor preference towards SRI can lead to a change in corporate behavior. Regarding Heinkel et al. (2001) study and to the recent increasing amount of SRI investments and implementation of ESG into business operations (Kempf & Osthoff 2007; Borgers et al. 2013; Lee, Cin & Lee 2016), one could think that we are moving into the direction that there could be enough investors to pressure companies to shift from non-environmental to environmental based business platforms. Hence, the question of whether there are enough investors to effect on corporate behavior or not becomes apparent. And thus, if so, have firms absorbed the levels of ESG demanded by investors?

To strengthen this perspective, it seems that investor preference is converting with the preference of CSR activities, as institutional investors' focus on CSR screens is increasing (Guenster, Bauer, Derwall & Koedijk 2011; Sassen et al. 2016). Hence, El Ghoul, Guedhami, Kwok & Mishra (2011) imply that the investor pool for low CSR firms has decreased through investor values.

Eliwa et al. (2019) mention that the concentration of various stakeholders towards ESG issues is pressuring firms beyond the required levels of attention towards environment. Hence, consumers are implementing their values of sustainability by favoring the brands that operate well in ESG. As they study the ESG disclosure and cost of debt in Europe over the sample period of 2005-2016, they find that the cost of debt practices of more stakeholder-oriented countries in Europe are more exposed to ESG disclosure. (Eliwa et al. 2019.) This finding is relevant to note in this study as well, as this has effects on firms ESG scores. Moreover, Ho et al. (2012) study concentrated on investigating the

geographical and cultural effects on the CSP of 49 countries. They find that firms that operate in Europe are superior to others when it comes to CSP.

2.3. ESG and risk exposure

In order to understand the underlying factors affecting the relationship between CSP and firm performance factors, there are studies concentrating on CSP and risk formation. The study of Harjoto and Laksmana (2018) concentrates on investigating the level of risk-taking, firm value, and CSR. They utilize risk-taking measures that are R&D expenses and capital expenditures (CapEx). For firm value, they use Tobin's q as a proxy. Their research covers a sample period of 1998-2011 and they concentrate on firms operating in the US.

Harjoto and Laksmana (2018) find that firms which perform better in CSR leads to more optimal risk-taking. Hence, the deviation from optimal levels of risk for firms with strong CSR performance is lower. As risk is known to determine the value of a firm, they find indirectly that firm value is enhanced through CSR performance as a firm experiences lower deviation from optimal risk-taking levels. Furthermore, it seems that the environmental component (with diversity) is one of the main components driving the CSR strengths and weaknesses in their study.

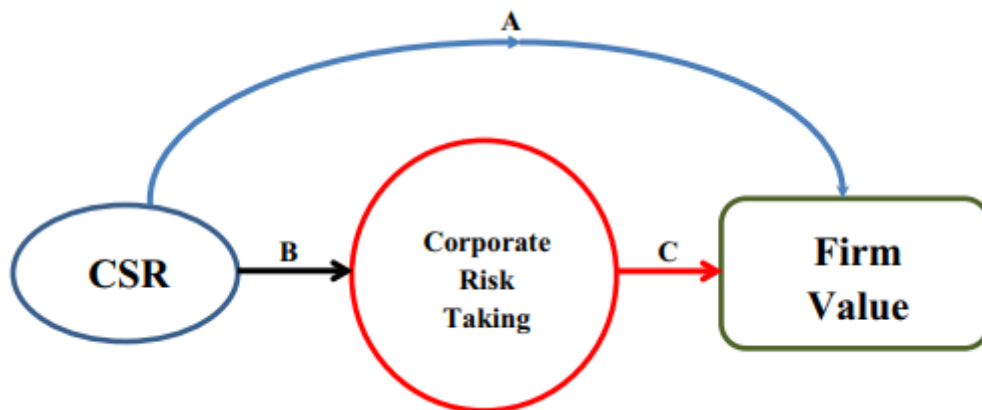


Figure 1. The indirect link between CSR and firm value (Harjoto & Laksmana 2018).

What comes to the debate of CSR, Harjoto and Laksmana (2018) study shows that stronger CSR performance leads to more optimal risk-taking of firms. As uncontrolled risk-taking can damage firm value, the CSR involvement could lead to enhancement of firm value.

El Ghoul et al. (2011) study concentrates on investigating the relationship of financial performance and CSR by studying the effects of CSR on the cost of equity of firms. They use the sample period of 1992-2007 for US firms. As the theoretical framework suggests, the equity cost of capital is in fact the discount rate that investors implement for determining the market value of the company through its predicted cash flows. In this respect and similarly to Harjoto and Laksmana (2018), it is believed that good performance in CSR can decrease the riskiness of the firm and lead to an increase in market value as such firm exhibits lower financing costs for their equity. They find that firms with high CSR scores have significantly lower cost of equity relative to low CSR firms (El Ghoul et al. 2011).

Following the academia of CSP and risk exposure, Sassen et al. (2016) study the impacts of ESG factors on firm risk, market risk, and total risk in Europe over the time period of 2002-2014. As the non-financial factors can lead to enhancement of financial performance and decrease in the cost of capital, CSP factors lead to an impact on shareholder values as well. In this sense, ESG concerns are a factor of risk managerial perspective. (Sassen et al. 2016.)

Sassen et al. (2016) investigate idiosyncratic risk respecting the financial theory regarding risk composition. They use the Capital Asset Pricing Model (CAPM) in order to derive market risk for firms, and the Fama and French four-factor model for deriving residual terms for further investigation of firm-specific risk. Supporting the findings of El Ghoul et al. (2011), they find that enhanced performance in ESG can lead to an increase in value of the firm because of the lower underlying risk exposure. Furthermore, if the firm performs poorly in CSR, it might be vulnerable to reputational and regulatory risks. Thus, they find that environmental performance significantly decreases the firm-specific risk of

the firm, but the governance factor does not produce significant findings. (Sassen et al. 2016.)

Furthermore, Sassen et al. (2016) raise an important point about managerial incentives stating that managers usually overinvest to firm's CSR practices during the times that the financial performance is weak in order to justify the poor financial performance. On the other hand, during the times that financial performance is thriving the investments into CSR practices decrease. Similarly, Humphrey et al. (2012) remind that the management of the firm is required to decide whether to spend resources on CSP. They state that such decisions need to be evaluated by future outlooks of such expenditures. In other words, will investing in CSP lead to enhancement of firm value or not.

Humphrey et al. (2012) further investigate the relationship of CSP and financial performance with a proxy of cost of capital and hence, the risk of a company. Their study concentrates on firms in the UK over the period of 2002-2010. The proxy for CSP is ESG ratings and firm data is monthly returns for corresponding firms in FTSE all-share index. They remind that some industries are more prone to pressure of environmental actions for instance, and therefore they also control the industry effects by investigating the relationship of cost of capital and CSP within industry levels. (Humphrey et al. 2012.)

They find no significant discrepancy in risk-adjusted returns of high and low CSP firms. Furthermore, they find some evidence that firms with better CSP produce lower betas implying that those are less sensitive relative to market movements. Confirming earlier studies, the high CSP scores possessing firms seem to be significantly larger as well. They reason this with the facts that larger firms have greater resources to invest in ESG factors and more pressure than small firms to consider such issues. Overall and on contrary to findings of El Ghouli et al. (2011) and Sassen et al. (2016), they find no significant discrepancies between the risk-adjusted returns in the UK among good and poor performers of ESG. (Humphrey et al. 2012.)

Aouadi and Marsat (2018) concentrate on studying the relationship between firm value and ESG controversies. They use 4 312 firms from all over the world for a sample period

of 2002 to 2011 and they capture approximately 3 000 controversies of ESG for these firms. By ESG controversies they mean the negative media attention because of questionable social actions or other scandals the firm is experiencing. Such events may damage the reputation of a firm leading to having an effect on firm value. As a proxy for firm value they use Tobin's q. (Aouadi & Marsat 2018.)

Interestingly they find that in some cases ESG controversies have a positive and significant effect on firm value. However, by controlling the ESG score while testing ESG controversies, the ESG controversies have no significant effect on firm value. Overall, they find that "higher CSP score has an impact on market value only for high-attention firms, those firms which are larger, perform better, located in countries with greater press freedom, more searched on the Internet, more followed by analysts, and have an improved social reputation". (Aouadi & Marsat 2018.)

2.4. ESG and firm financial performance

Continuing to the core of this thesis, the CSR and ESG effects on firm performance have been recently studied. McWilliams and Siegel (2001) investigate the optimal amount of CSR attention firms should spend to achieve optimal levels of CSR. The concentration is on public firms and the theory they base their study is stakeholder theory. They apply basic theories of supply and demand implementing these for the concept of CSR. The demand is considered to originate from two dimensions that are the demand that comes from the consumers and their values, and secondly the demand that originates from stakeholders from other sources. They imply that firms can attach CSR into their branding and through their marketing strategies firms may achieve and attract the values of consumers. Furthermore, they state that CSR can be used as a strategy for differentiation that will lead to an increase in R&D investments through innovations. For the side of the supply, it is expected that firms that are involved with CSR have higher costs than those who are not. Furthermore, this leads to the bigger size of the firm. (McWilliams & Siegel 2001.)

Their constructed model implies that firms that attribute to CSR have higher costs. However, the profits between the firms that exercise CSR and the firms that do not, should be similar because CSR can be thought of as a way of attracting certain consumers. Whereas McWilliams and Siegel (2001) expect that the relationship is neutral between CSR and CFP, in this study it is expected that a positive link is found.

Wang et al. (2015) study the relationship of firms' brand equity and CSR as well as firm performance and CSR. They use Taiwanese high-tech firms over the sample period from 2010 to 2013. Like many other studies, they state that the attention towards CSR issues are raising among stakeholders, and it is the purpose of the firm to match these expectations.

They use Dow Jones Sustainability Index (DJSI) in order to build a variable for CSR. They examine different dimensions of CSR with multiple regressions. The study derives its data for firms from Taiwan Stock Exchange, and they have 1086 firm-year observations. Furthermore, their study compares the results of OLS and quantile regressions. Overall, they find that CSR has a positive effect on firm value and that brand equity and CSR has a positive effect on firm performance in the high-tech industry of Taiwan. (Wang et al. 2015.)

Lee et al. (2016) study's objective is to investigate how ESG and especially the effect of ER reflects to performance of firms. Their study is based on Korean firms over the period of 2011-2012. Lee et al. (2016) state that ESG has been raising awareness among media and the public, which leads to the increasing attention of firms as well. The most recent issue is the environmental responsibility of firms because of global warming. Furthermore, a big part of management of the sustainability among firms is concentrating on environmental issues and responsibility. Moreover, the academic research has been increasingly begun to cover especially the sustainability issues and firm performance. Hence, the linkage between ER and firm performance. (Lee et al. 2016.)

Lee et al. (2016) use OLS and 2SLS methods in order to investigate the environmental responsibility of firms' effect on ROA and ROE. Their findings imply that the

environmental responsibility of firms has a positive effect on both ROA and ROE. However, they remind to be careful with generalizing their findings for broader views, because their research was done solely on Korean firms. Furthermore, their ESG criteria is derived from the Korea Corporate Governance Service, which have their own implications to ESG criteria in order to evaluate and support the construction of ESG portfolios.

Quite recently, Atan et al. (2018) study firm performance and ESG of Malaysian public-limited companies over the time period of 2010-2013 using the Bloomberg ESG database. Malaysia is an emerging country expected to become a developed country by 2020. Malaysian government has instructed companies to engage in environmental business operations and raising awareness towards social issues by constructing multiple SRI funds in 2003. Atan et al. (2018) use Tobin's Q as a proxy for firm value and ROE as a proxy for firm profitability. In addition, they investigate ESG's effect on the cost of capital by implementing the Weighted Average Cost of Capital (WACC) of firms.

On contrary to Lee et al. (2016) findings, Atan et al. (2018) find no statistical evidence between ESG score, ROE, and Tobin's q. Similar findings are retrieved for individual dimensions of ESG as well. Regarding the cost of capital, they find a positive relationship between ESG and WACC but insignificant association between dimensions of ESG and WACC. (Atan et al. 2018.)

Similarly to Atan et al. (2018), Farooq's (2015) purpose is to examine whether ESG improves firm performance in emerging markets. They use excess returns of stocks (RET) as a proxy for firm performance and they study Indian markets over the sample period of 2005 to 2010 from the perspective of informational asymmetry. It is theoretically believed that firms with headquarters in financial centers are more available to analysts and therefore such companies are more reviewed. Thus, the companies operating in other cities than financial centers are less reviewed and suffer from informational asymmetry. (Farooq et al. 2015.)

They divide companies into two groups based on the location of the firm's headquarter; headquarters located in the financial center of Mumbai and cities outside of Mumbai. It is believed that the firms with headquarters in Mumbai have lower informational asymmetry than the firms outside of Mumbai. By deriving ESG data from Bloomberg, they find a significant and negative relationship between ESG disclosure and RET among firms located in Mumbai. As ESG disclosure increases one unit, the RET is seen to decrease by 0.0326 basis points, which is the main finding of their study. For the firms with headquarters outside of Mumbai, they find insignificant results. Overall, their findings suggest that ESG disclosure decreases the firm performance in the financial center of India. They reason this by stating that stakeholders might see ESG as an additional cost rather than as an advantage. (Farooq 2015.)

Quite recently Miller, Eden, and Li (2018) continue the research field of CSR by examining the relationship between CSR and firm performance by using ROA as a proxy for firm performance. They use a sample of 7 317 banks in the US and investigate whether CSR reputation has an effect on ROA from 1992 to 2007. The study concentrates on how firms' actions towards government regulations regarding corporate social (CS) issues affect their performance. In general, a firm can follow the government's ruling or not. In addition, a firm can exceed the required levels of CS government suggests. (Miller et al. 2018.)

In other words, the main purpose of their research is to study how changing CSR reputation of the firm effects on its performance. The adaptation of the firms towards changing CSR issues is measured with the Community Reinvestment Act's (CRA) ratings. The main findings are that for banks to increase their CSR reputation by following or exceeding government ruling is in the bank's benefit. For instance, improving CSR reputation might lead into 4.04 % increase in profits for the average bank. On the other hand, a negative impact on CSR reputation might lead to a decrease of 7.8 % in profits. (Miller et al. 2018.)

Lins, Servaes, and Tamayo (2017) study the relationship of CSR and firm performance during the financial crisis in 2008-2009 using the database of MSCI ESG Stats. They find

that CSR contribution leads to significantly higher returns during market turbulence. Furthermore, strong CSR has a positive association towards profitability among firms, and thus, implying that during market turbulence the investors' trust increases its importance.

Griffin and Mahon (1997) review the past 25 years of evidence from researches regarding CSP and CFP. At the time their study was done, they find rather contradictory results. However, most of the previous literature seem to have found positive relations. Furthermore Griffin & Mahon (1997) remind that the practitioners should take these contradictions and inconsistencies with caution.

Similarly to Griffin and Mahon (1997), Beurden and Gössling (2008) have done a meta-analysis regarding research of CSR and financial performance. Overall, it seems that CSR is raising its effect on financial performance over time, and the opposite side who claims it has no effect base their evaluation on outdated evidence. The main finding of their research is that the majority of the empirical research has found positive findings between the relationship of CSP and CFP. (Beurden & Gössling 2008.)

2.5. Environmental responsibility and firm financial performance

Guenster et al. (2011) study considers the environmental responsibility of the firms by investigating the concept of eco-efficiency and its effects on firm performance over the time period of 1997 and 2004. For proxies of firm performance, they use ROA and Tobin's q, where ROA represents the profitability of a company through operational performance. Tobin's q represents a forward-looking measurement that includes the values of investors as intangibles into the valuation of a company.

They find that the eco-efficiency of the firms has a positive and significant effect on ROA. In other words, better eco-efficiency leads to the improvement of operational performance. Furthermore, firms with low eco-efficiency scores have lower ROA whereas high eco-efficiency firms benefit significantly in terms of ROA. Similarly, they

find strong positive and significant findings regarding the relationship of eco-efficiency on Tobin's q at 1 % level (i.e. firms with higher eco-efficiency have higher firm valuation). (Guenster et al. 2011.)

Similarly, El Ghoul, Guedhami, Kim, and Park (2018) implement database Trucost's information regarding environmental cost data in order to study the relationship of ER of the firms and the cost of equity. Such environmental cost variables are measured with different pollutants and GHGs, which represent the efficiency of firm's contribution of their resources towards the ER. Their study covers 7 122 firms from 30 countries worldwide and the sample period for their study is from 2002 to 2011. They find that the higher ER leads to lower cost of equity. Furthermore, they state that the benefits from higher investments in ER overcomes the costs of such investment. (El Ghoul et al. 2018.)

Gupta (2018) studies the relationship of cost of equity and environmental practices. They construct their own environmental sustainability index (ESI) from data derived from Refinitiv. The sample period of their study is 2002-2012 and they have over 23 000 firm-year observations. Furthermore, the firms are operating in 43 countries. They find that the cost of equity decreases as the environmental practices are enhanced. Hence, the emission reduction is seen to be one of the main variables decreasing cost of equity. (Gupta 2018.)

Brulhart et al. (2019) combine the stakeholder orientation and firm profitability. They consider environmental actions of firms as well by implementing environmental proactivity of the firms into consideration. For stakeholders, they mean anyone who is affected through firm's businesses. For firm profitability they use ROE, ROA, and return on sales (ROS). Brulhart et al. (2019) find that environmental efforts of the firm make the company more tempting to a wider range of stakeholders that will eventually lead to enhancement in profitability.

2.6. Conclusion of empirical findings

While multiple studies have investigated the relationship of CFP and ESG, some limitations are important to keep in mind regarding the methodologies and inconsistencies of such studies. One of the issues Griffin and Mahon (1997) raise is that most of the studies have been executed by cross-sectional regressions considering multiple rather than specific industries. Hence, the social issues occurring around the world usually affect different industries with different manners (Griffin & Mahon 1997) similarly to environmental issues (Humphrey et al. 2012). The second issue Griffin and Mahon (1997) raise is the fact that most studies use single or few chosen proxies for financial performance. Furthermore, they recognize the issue of usually using one or few databases to measure CSP. (Griffin & Mahon 1997.)

Whereas Griffin and Mahon (1997) raise issues regarding the methodologies used in researches, Beurden and Gössling (2008) raise a critical question regarding the theories used in studying the relationship of CSR and financial performance as the ethics and therefore values of the world are changing. How well can these theories with the stakeholder theory be applied in the world as it is today? Also, it seems relevant to mention that there is no mutual understanding of the concept of social responsibility when it comes to what should be included into the concept in question. (Beurden & Gössling 2008.) Hence, Brulhart et al. (2019) remind that the contradictions among researches might be due to the usage of terms of “sustainability” or “social responsibility” that are used to describe various aspects of firm behavior.

Nevertheless the limitations, the academic contribution of studying the relationship of ESG and financial performance of firms is important from both risk managerial and stakeholder perspectives. This literature review has begun by first covering the early stages of academic research regarding CSR and stakeholder orientation of firms and moved consistently towards the most recent studies regarding the relationships of ESG, ER, and financial performance.

Table 1. Concluding table of empirical findings.

Author(s)	Published Journal	Region	Sample period	Findings			
				Pos.	Neg.	No rel.	Proxies of FP
PANEL A:							
<i>ESG and cost of capital - indirect effects</i>							
El Ghoul, Guedhami, Kwok & Mishra	2011 <i>Journal of Bank Finance</i>	USA	1992-2007	x			Cost of equity
Humphrey, Lee & Shen	2012 <i>Journal of Corporate Finance</i>	UK	2002-2010			x	Stock returns
Sassen, Hinze & Hardeck	2016 <i>Journal of Business Economics</i>	Europe	2002-2014	x			Risk measures
Aouadi & Marsat	2018 <i>Journal of Business Ethics</i>	Worldwide	2002-2011	x			Tobin's q
Harjoto & Laksama	2018 <i>Journal of Business Ethics</i>	USA	1998-2011	x			Tobin's q
PANEL B:							
<i>ESG and financial performance</i>							
Griffin & Mahon	1997 <i>Business & Society</i>	<i>Meta-analysis</i>	1972-1994	x			
Beurden & Gössling	2008 <i>Journal of Business Ethics</i>	<i>Meta-analysis</i>	1991-2007	x			
Wang, Chen, Yu & Hsiao	2015 <i>Journal of Business Research</i>	Taiwan	2010-2013	x			ROA, Tobin's q
Farooq	2015 <i>Journal of Applied Business Research</i>	India	2005-2010		x		Stock returns
Lee, K., Cin & Lee, E.	2016 <i>Business Strategy and the Environment</i>	Korea	2011-2012	x			ROA, ROE
Atan, Alam, Said & Zamri	2018 <i>Management of Environmental Quality: An International Journal</i>	Malaysia	2010-2013			x	Tobin's q, ROE
Miller, Eden & Li	2018 <i>Journal of Business Ethics</i>	USA	1992-2007	x			ROA
PANEL C:							
<i>ER and financial performance</i>							
Guenster, Bauer, Derwall & Koedijk	2011 <i>European Financial Management</i>	USA	1997-2004	x			Tobin's q, ROA
El Ghoul, Guedhami, Kim & Park	2018 <i>Journal of Business Ethics</i>	Worldwide	2002-2011	x			Cost of equity
Gupta	2018 <i>Journal of Business Ethics</i>	Worldwide	2002-2012	x			Tobin's q
Brulhart, Gherra & Quelin	2019 <i>Journal of Business Ethics</i>	France		x			ROA, ROE

Whereas the elder studies seem to find no significant differences in the financial performance of strong and poor CSR firms (Jo & Statman 1993; Bello 2005; Schröder 2006) the more recent studies seem to tilt towards a positive relationship between CSP and CFP. Table 1 illustrates the conclusions of the empirical findings with respect to the sample periods, geographical regions, proxies of the studies, and their findings.

Beginning with the concept of ESG, its effects on the cost of capital is important for risk managerial decision-making of the firm. From the perspective of investors and other stakeholders it is essential to understand the factors affecting the construction of a firm's risk exposure. Panel A in Table 1 represents the findings of ESG and the cost of capital. The findings of Panel A in Table 1 are reported as indirect effects on firm value. Hence, the found relationship of ESG and risk is negative, it indirectly increases the firm value and is reported as a positive relation in Panel A for the purposes of this thesis.

El Ghouli et al. (2011) finds that strong performance in CSR decreases the cost of equity leading indirectly to the enhancement of firm value. Such findings are confirmed by Sassen et al. (2016). Also, similar conclusions are found by Aouadi and Marsat (2018) and Harjoto and Laksmana (2018) that both use Tobin's q as a proxy for firm value. On contrary to the majority of the findings, Humphrey et al. (2012) find no significant differences between good and poor ESG performers in risk-adjusted returns in the UK.

Panel B in Table 1 represents the concluding findings regarding ESG and FP. Most of the researches find positive relationships between ESG and FP (Griffin & Mahon 1997; Beurden & Gössling 2008; Wang et al. 2015; Lee et al. 2016). However, Farooq (2015) shows that there is a negative relationship between ESG disclosure and excess returns in emerging markets of India. Miller et al. (2018) study indicates that good impacts (negative impacts) on CSR reputation lead to increasing (decreasing) profitability among banks in the US. Atan et al. (2018) finds no significant relationship between ESG and FP in Malaysia.

Panel C in Table 1 represents the concluding findings regarding ER and FP. Considering the main interest of this study, ER consideration of firms seems to have a positive impact on firm value (Guenster et al. 2011; El Ghouli et al. 2018; Gupta 2018; Brulhart et al. 2019). Guenster et al. (2011) show that eco-efficiency of firms leads to enhancement of firm value and performance with proxies of Tobin's q and ROA. Indirect effects of ER to firm value is also indicated by the studies of El Ghouli et al. (2018) and Gupta (2018). In those studies, the negative relationship between ER and the cost of capital is retrieved, which leads to increase in firm value. Brulhart et al. (2019) study indicates that the ER of the firm improves its capabilities to reach a wider group of stakeholders that eventually leads to enhancement in profitability.

Moreover, the geographical interest seems to be quite widely diversified. Nevertheless, the majority of the empirical findings that are reviewed in this thesis seem to suggest that ESG and ER have positive impacts on the financial performance of firms in various parts of the world. Interestingly, the geographical area of Europe seems not to be investigated too widely.

Eliwa et al. (2019) find that stakeholder-oriented countries in Europe are more prone to ESG disclosure and greater disclosure leads to benefits in the cost of debt. This finding is important to this study as greater ESG disclosure implies better scores of ESG in general. Thus, Europe is the first continent to have GHG emissions market covering approximately 75 % of the world's GHG emissions markets (EU ETS 2016). Hence, EU Action Plan is expected to have an increasing effect on ESG disclosure. Moreover, countries in Europe experience superior performance when it comes to CSP (Ho et al. 2012).

Variable	Mean	Median	SD	Min.	Max.
Panel A: risk measures					
BETA	0.8030	0.7373	0.4351	-0.4058	3.0885
RSTD	0.3377	0.2934	0.1734	0.0000	3.3010
IR	0.3313	0.2958	0.1824	0.0001	2.4260
Panel B: ESG scores					
ESG	0.6131	0.6689	0.2333	0.0494	0.9700
CGS	0.5566	0.6038	0.2671	0.0148	0.9726
ENS	0.6354	0.7346	0.2921	0.0827	0.9734
SOS	0.6473	0.7274	0.2820	0.0346	0.9896
SOCU	0.5666	0.6029	0.3072	0.0305	0.9922
SOSO	0.5825	0.6007	0.2657	0.0816	0.9852
SOWO	0.6245	0.6557	0.2207	0.0670	0.9800

Figure 2. Descriptive statistics of ESG and environmental dimension (ENS) over the period of 2010-2014 in Europe (Sassen et al. 2016).

Sassen et al. (2016) descriptive statistics visualized in Figure 2 shows rather high levels of performance in areas of ESG and environmental dimension (ENS) for countries in Europe. Comparing this later in this thesis with descriptive statistics in the section of Data & Methodology, it is seen that the Nordics as a whole performs even better regarding both ESG and ENV according to mean and median values.

As of the earlier findings and common intellect of European and the Nordic countries performing well in the areas of CSP (Ho et al. 2012; Sassen et al. 2016; Liang & Renneboog 2017; Eliwa et al. 2019), this thesis seeks to contribute to the existing literature by first investigating the relationship of ER and FP of firms in the Nordics in general. As it can be thought that the Nordics are the frontrunners in sustainable

development the environmental risk of firms operating in the Nordics should be well covered and minimized. Therefore, this thesis also contributes to the existing literature by studying the relationship between low and high performers of ER and FP. This study expects that the ER has a positive effect on the financial performance of firms operating in the Nordics in general. Furthermore, it is expected that high performers of ER benefit from the concentration of ER by enhancement in FP, whereas low performers of ER experience negative effects on FP.

3. THEORETICAL FRAMEWORK

In 1970 Milton Friedman proposed the well-known shareholder theory, which states that the sole purpose of the firm is to maximize the profit of its shareholders. Later in 1984, Edward Freeman suggested that the firm's purpose is to consider the perspectives of other stakeholders as well as it is in the benefit of the firm. Coming to this day, the discussion of firm's purpose has been present. As of early 2000s media has opened up to the public through technological innovations such as social media and its dissemination, the values of the public have increased its presence. Partly due to the increasing demands of investors with the addition of climate change issues, the concept of CSR has been under debate.

In this chapter the core purpose is to introduce the concept of CSR as it is essential to the core of this study as the concept of ESG originates from it. In order to prepare a ground for CSR it is important to understand the relationship of it with financial theories. Therefore, the stakeholder theory is first introduced in this chapter moving to the discussion of CSR and ESG. After covering the concepts of CSR and ESG, the theoretical framework from financial perspective is covered in detail with firm value construction, risk-return relationship, as well as firm value and performance metrics.

3.1. Stakeholder theory

In the past, organizations were quite uncomplicated and the operations were mostly considering two groups of stakeholders. Suppliers, from which the firm required raw materials, and customers to whom the firm sold its end products. This is what Freeman (2010) calls as "Production view", in which the organization concentrated solely on managing its suppliers and customers. (Freeman 2010, 4-6.)

Due to the technological innovations, political, and social factors the firms' attention shifted to consider other things as well. Hence, the shift to more open environment of considering other stakeholders as well was evident. (Freeman 2010, 4-6.)

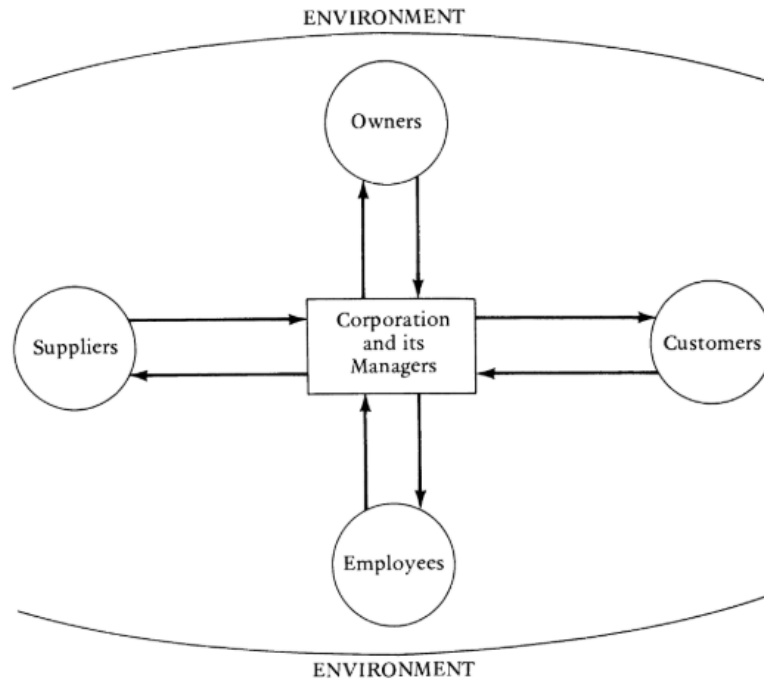


Figure 3. The “Managerial View” for corporations (Freeman 2010, 6).

The “Managerial View” required the firm and its management to consider stakeholders from a wider perspective. If the corporation was not able to satisfy other stakeholders as well in their everyday operations and continued to use the simplified strategic framework of “Production View”, the failure was evident. As of today, it is essential for firms to satisfy as many stakeholders as possible. For instance, and as Figure 3 implies, at least its employees, owners, suppliers, and customers. (Freeman 2010, 4-20.)

Hence, the corporation’s strategic framework is affected through its internal forces and the external forces establishing from the business environment the firm operates in. Government’s actions affect the corporation’s operations, and the media produces information to firm and external participants. (Freeman 2010, 4-20.)

Moreover, the positive relationship of CSP and firm value indicators can be thought to be a consequence of the stakeholder view (Sassen et al. 2016; Freeman 2010). Overall, firm’s stakeholders include customers, suppliers, employees, shareholders, creditors, and government, just to name a few (Sassen et al. 2016).

As it appears, the stakeholder theory does not implicitly define the ways of dealing with optimal decisions between the interests of various groups of stakeholders (Brulhart, Gherra & Quelin 2019). Buysse and Verbeke (2003) offer further definitions of stakeholder groups based on the company's environmental strategies. Such strategies are reactive strategy, pollution prevention, and environmental leadership. The main external stakeholders they list are international customers, domestic suppliers, and international suppliers. The main internal stakeholders are employees and financial institutions. Under regulatory stakeholders, they list national governments and public local agencies. (Buysse and Verbeke 2003.)

The debate of CSR activities among firms arises from the cost-benefit perspective. The parties that oppose CSR usually favors the perspective of shareholder theory. They base their argument on the statement that concentrating company assets to CSR is off from the profit of the firm's shareholders. The proponents, on the other hand, raise a point that a firm's concentration for all stakeholders beyond solely shareholders, has the potential of bringing indirect value to shareholders as well and is essential for a firm's existence. (Harjoto & Laksmana 2018.)

3.2. Corporate Social Responsibility

In this section, the concept of CSR is introduced. First, the origins of CSR are discussed. Secondly, the definition of CSR is presented. Thirdly the concept of strategic CSR is introduced. At the end of this section, the SRI is briefly introduced.

3.2.1. Origins of CSR

People form societies that seek to set and reach common goals. In order to reach the common goals, societies build organizations. The organizations can be divided into three categories of governments, profit-seeking organizations, and non-profit seeking organizations. (Chandler 2017, 2-5.)

Governments set the laws and regulations for business fields basing the regulations on common consensus of society. Profit-seeking organizations can be said to be the engines of our society that leads us to a richer future with innovations. The non-profit organizations are helping the profit-seeking organizations in operating. Hence, the non-profit organizations' main purpose is the benefit of society. (Chandler 2017, 2-5.)

Whereas governments are the regulating origin of our society, it takes time for laws to be set for a couple of reasons. First of all, the common consensus of society takes time to develop. Secondly, as the common consensus has developed it takes time for it to be formed into the concept of regulations and laws. To add in the factor of fast innovation, the controversy of the societal system is evident. The controversy underlies under the main foundation of our societal framework, as the rapidly innovative industries, such as the technological sector, go ahead of regulation. Therefore, the formation of laws is lagged behind. This creates the question of ethicality among the decision-making process of firms. Whereas the firm can operate under legal sanctions, the question of are they acting morally right respecting the societal expectations arises. This phenomenon highlights and underlines the core questions of CSR. (Chandler 2017, 2-5.)

Chandler (2017) states two questions that form the concept of CSR.

1. "What is the relationship between a firm and the societies in which it operates?"
2. "What responsibility does a firm owe society to self-regulate its actions in pursuit of profit?"

Furthermore, Chandler (2017) states that CSR has critical and controversial aspects. The critical aspect refers to the fact that profit-seeking companies create jobs and wealth and overall increase the wellbeing of the society by innovations. By doing its core business the controversial aspect emerges. As seeking the critical aspect of CSR, the core operation of a business, the methods of reaching the company's targets, and contributing to society can be made with controversial actions to society. (Chandler 2017, 2-7)

3.2.2. Definition of CSR

The concept of CSR varies among its users as people see it implying different things. Therefore, CSR can be said to be difficult to determine. (Chandler 2017, 7.) United Nations Global Compact (2013) defines CSR as referring to “business practices involving initiatives that benefit the society” (Kadyan 2016). Similarly, the European Union defines CSR as “the responsibility of enterprises for their impacts on society” (European Commission 2011) and that:

“Enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders”. (European Commission 2011).

Carroll (1991) states that the concept of CSR is constructed from four social responsibilities that are “economic, legal, ethical and philanthropic”.



Figure 4. The constitution of CSR (Carroll 1991).

Figure 4 represents the four categories that CSR constitutes from. Historically, the economic responsibility refers to the firm as producing goods and services to society. Later on, the economic responsibility has shifted to the motive of profit, where the economic responsibility of firms is to maximize profits. To maximize its profits, the firm needs to have a good competitive position and maintain its operating efficiency. Hence, a firm needs to be consistently profitable. (Carroll 1991.)

By legal responsibilities, Carroll (1991) implies that the firm needs to operate in accordance with laws and regulations. Hence, the successful firm needs to accomplish its legal requirements.

Ethicality in this concept implies to satisfying the assumptions of fairness and operating morally right by the standpoint of stakeholders. In order to do so, a firm needs to recognize the ethical trends evolving in a society and to the best of its knowledge to respect them. Furthermore, the ethical norms should not be diminished while reaching the corporate targets. Thus, ethical corporate behavior is beyond just obeying the rules set up by the government. (Carroll 1991.)

Whereas legal and economic responsibilities are required from firms, the ethical and philanthropic views are not. The ethical responsibility can be said to be expected whereas philanthropic is desired. Furthermore, the dimensions of CSR in Figure 4 are not to be considered to be in hierarchical order. In other words, it is not the purpose of this illustration nor Carroll's (1991) to state that the philanthropic stage is the most advanced. The economic and legal responsibilities are the fundamentals that business operations require, whereas philanthropic responsibilities are considered to be not as important as the other dimensions. (Carroll 1991; Schwartz & Carroll 2003.)

Overall, the varying definitions make it difficult to determine what the actual CSR constitutes from. Therefore, CSR implications of firms can lead to the concept of "greenwashing". The greenwashing implies to firms misleading the consumers or other stakeholders with their CSR implications. For instance, the firm claims to be

environmental, whereas, in reality, its operations state otherwise. (UL 2019; Nyilasy, Gangadharbatla & Paladino 2012; Parguel, Benoit-Moreau & Larceneux 2011).

Chandler (2017) seeks to define CSR with the perspective of the end justifying the mean. In this sense, CSR can be seen as a process but also as an outcome. Overall, CSR considers the relationship between corporations and societies and in what degree society benefits from the actions of corporations considering the ethicality of their actions. In such way, Chandler (2017) underlines the importance of understanding and reacting to the firm's stakeholders and their demands. (Chandler 2017, 2-7.)

3.2.3. Strategic CSR

As the stakeholder theory proposes, the perspectives of stakeholders are required to be in a firm's strategy. Hence, the core of the stakeholder perspective originates from the strategy of the firm. Chandler (2017) proposes the concept of strategic CSR, in which CSR practices are implemented into the business strategy of the firm. As CSR is implemented into business strategy, it holds a key position in order for firm to be profitable. As the societal issues and values stakeholders hold are matched internally in a company, it creates value and hedges the downside risk of not implementing CSR into the business model. The negligence of CSR can lead to missing of comparative advantages and furthermore be harmful for brand image if societal issues are not addressed internally. (Chandler 2017; 2-7, 18, 246-249.)

Whereas ethics of finance concentrates on right and wrong, the strategic CSR considers everyday practices the firm has. The strategic CSR means that the profitability and the actions in order to achieve a firm's targets are both taken into consideration. In this sense, the strategic CSR becomes a key element for firms for creating value. (Chandler 2017, 246-249.)

Chandler (2017) divides strategic CSR into five elements that circulate around the stakeholder perspective.

1. “that firms incorporate a CSR perspective within their culture and strategic planning process”
2. “that any actions taken are directly related to core operations”
3. “that firms seek to understand and respond to the needs of their stakeholders”
4. “that they aim to optimize value created”
5. “that they shift from a short-term perspective to managing their resources and relations with key stakeholders over the medium to long term.” (Chandler 2017, 248.)

As discussed, CSR considers the responsibilities of corporations and in which regard they deliver societal good for society. To conclude the discussion of CSR for the concentration of this study, the implication of CSR issues is important for firms from the economic perspective. The negligence of considering laws, regulations, social, and environmental issues among others, can prevent firms from reaching competitive advantage and differentiation and makes the firm prone for increasing risk exposure. (Chandler 2017, 2-7 & 20.) Moreover, considering environmental, social, and governance issues is becoming more of a necessity than an option for companies.

3.2.4. Socially Responsible Investing

Continuing with the form of CSR, SRI can be seen as an attribute that is implementing social issues into the decision-making of the investment process. It is a tool for investors to implement their awareness and values into investment strategies by conducting with companies because of the characteristics of business operations companies have. (Chandler 2017, 127-129.)

SRI can be implemented with screening methods. Positive screening means that an investor seeks to engage with companies that are acting in the areas that benefit the environmental sustainability and aids to enhance the social benefits. For instance, such companies are seeking technological innovations reaching to be more sustainable in different industries. Negative screening is leaving out companies that do not face the criteria of SRI. These companies can also be categorized as belonging to “sin” industries.

Such companies operate in businesses of alcohol, tobacco, weapons, and gambling, for instance. (Chandler 2017, 127-129.)

At the most basic levels, SRI is implemented by excluding or including companies based on whether they operate in the criteria of sustainability. The common screening methods for SRI are positive and negative screening, impact investing, thematic investing, and ESG.

3.3. Environmental, Social & Governance

Whereas CSR aims to offer guidelines for a firm's engagement with stakeholders considering societal output, ESG is considered to be a tool for investors to evaluate the performance of firms in the areas of ESG. Most often, CSP of a firm is defined by ESG criteria (Sassen et al. 2016).

ESG dates back to 1960 by investors screening out (omitting) the stocks by their involvement in controversial businesses or industries similarly to SRI (MSCI 2020). Therefore, considering ESG issues is not new, but the underlying risks have been determined by other definitions, such as regulatory and reputational risks (CFA Institute 2015).

The main purpose of ESG is to evaluate the ethical impact and sustainability the investment has by considering a firm's performance in areas of environmental, social, and governance issues (Marketbusinessnews.com 2019). As in the case of CSR, various definitions have been offered for ESG as well. For instance, Nordea (2020) links ESG to sustainability and how sustainable development is enhanced by the firm's operations. Similarly, Robeco (2020) defines ESG as factors that can be used to evaluate how sustainable the firm is. MSCI (2020) defines it as factors that are considered in the investment process to aid decision-making.

CFA Institute (2015) reminds that it is important to identify underlying risk factors to determine the expected returns of various asset classes. Hence, the ESG factors are non-financial factors affecting to risk exposure of a firm. By constantly including the perspective of ESG into the investment process, investors can benefit from enhanced analyzes of the investment targets. (CFA Institute 2015.) Similarly, MSCI (2020) implies that controlling ESG issues can lead to mitigation of risk exposure in the future.

Environmental Issues	Social Issues	Governance Issues
■ Climate change and carbon emissions	■ Customer satisfaction	■ Board composition
■ Air and water pollution	■ Data protection and privacy	■ Audit committee structure
■ Biodiversity	■ Gender and diversity	■ Bribery and corruption
■ Deforestation	■ Employee engagement	■ Executive compensation
■ Energy efficiency	■ Community relations	■ Lobbying
■ Waste management	■ Human rights	■ Political contributions
■ Water scarcity	■ Labor standards	■ Whistleblower schemes

Figure 5. Examples of ESG issues A (CFA Institute 2015).

Figure 5 illustrates ESG issues through its three dimensions. The environmental dimension constitutes from issues such as climate change, which can be determined by the firm's CO₂ emissions for instance. The social dimension originates from a firm's actions towards various social trends such as employee engagement. The governance dimension considers the firm's outputs for its governmental construction and can be measured with executive compensation for instance. Overall, the dimensions seek to measure a firm's internal business operations and external outputs of its actions. However, it is often difficult to determine in which dimension the issue in question belongs, as the issues are commonly interlinked. (CFA Institute 2015.)

CFA Institute (2015) states that ESG factors are measurable but the cost analysis of such factors is often difficult to determine. Also, the phrases of sustainability and responsibility are used in varying cases, sometimes implying the same thing and sometimes not (CFA Institute 2015). Similarly, MSCI (2020) states that sustainable investing, impact investing, and SRI are often used by overlapping manners with ESG.

Besides the misinterpretation and confusion between the aforementioned acronyms, those all seek to do good while doing their business. The core purpose of ESG is to give insight on underlying risk factors and the implementation of ESG into firm's operations can mitigate such risk. From the perspective of the long-term approach, ESG as a non-financial performance should lead to an enhancement in the valuation of public firms (Atan et al. 2018). From the perspective of investors, constantly implementing the ESG issues into the investment process enables the value attachment and profit-seeking of individuals.

3.3.1. United Nations Principles of Responsible Investing

UN PRI was orchestrated in 2006, and it defines responsible investment as an investment in which investors, both creditors and owners, take ESG factors into account in their decision-making process. Furthermore, the purpose is to enhance risk management that will lead to better returns of portfolios and clarify investment strategies. (UN PRI 2019.)

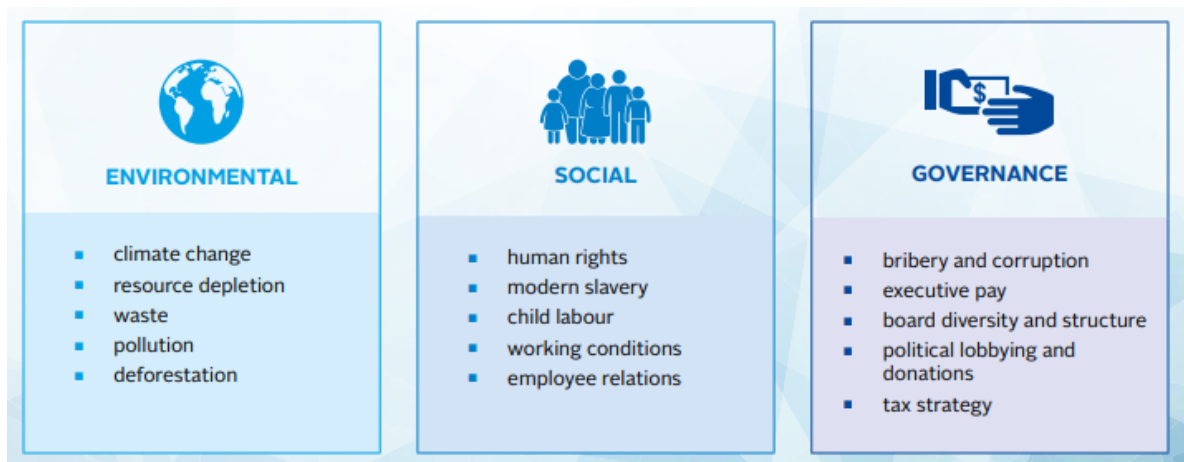


Figure 6. Examples of ESG issues B (UN PRI 2019).

Figure 6 clarifies the issues that UN PRI (2019) raises as examples of the concerns ESG can contain. As it is seen, similarities between Figure 5 and Figure 6 are evident. Furthermore, UN PRI raises three approaches that aid the incorporation of ESG issues into investment strategies. Those approaches are integration, screening, and thematic.

Integration implies to approach that ESG factors are taken into consideration constantly and coherently in the investment process. In screening, investor implements her values to exclude or include investments. By thematic investing, an investor should seek themes from the market that contribute to support the fixing of ESG issues and can lead to the improvement of returns. (UN PRI 2019.)

A combination of such approaches is seen to lead to better risk management, which then leads to enhancement of returns. UN PRI separates responsible investment by stating that it can be achieved even for investors that concentrate solely on their financial performance, whereas other terms considering environmental and social issues might implement ethical and moral perspectives into the process. (UN PRI 2019.)

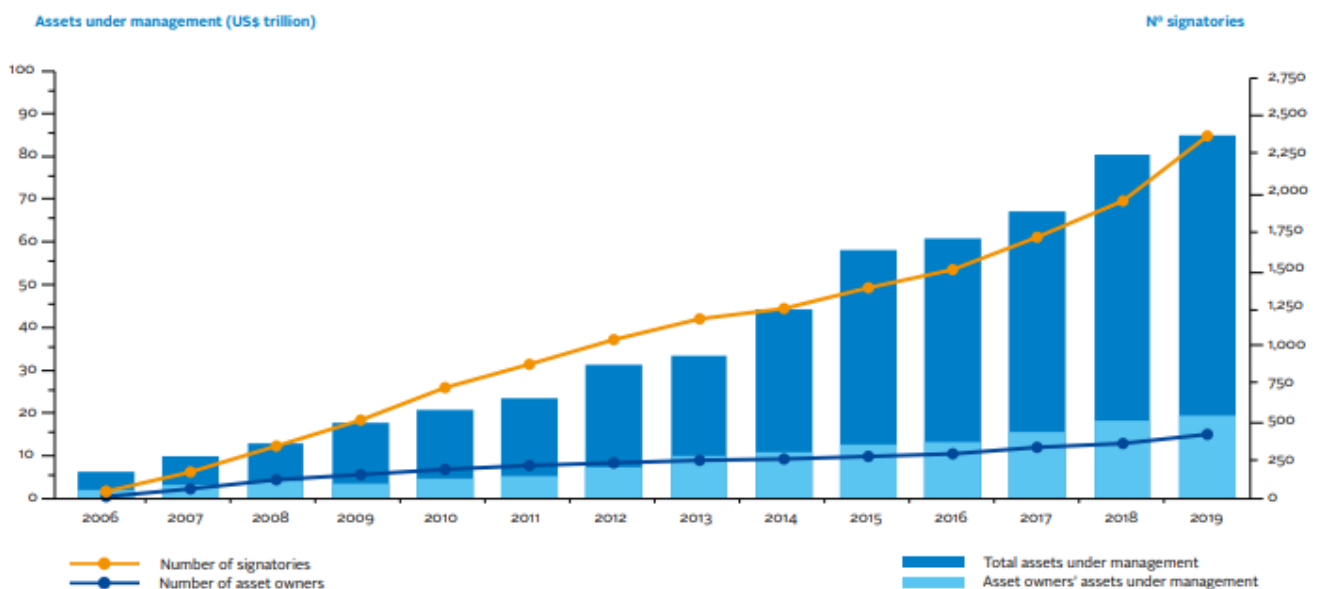


Figure 7. The growth of UN PRI signatories over the time period of 2006-2019 (UN PRI 2019).

As Figure 7 illustrates, the signatories as well as assets under management that respect the principles of responsible investing have increased strongly during the past decade. Hence, UN PRI directs firms for disclosure of ESG factors (Atan et al. 2018). Furthermore, UN PRI has increased the consideration of ESG practices and it can be seen among the most influential factors affecting the popularity of ESG (Humphrey et al. 2012).

3.3.2. Global Reporting Initiative

An international organization GRI was established in 1997 with a core purpose to aid firms understanding and reporting organizational impacts on the environment and society. Hence, it is the purpose of GRI to support reporting on sustainability that concerns issues such as human rights, climate change, and well-being of society. Its standards are most widely adopted and recognized. Quite recently, in 2016 it launched the world's first sustainability reporting standards. (GRI Standards 2019.) Based on the KPMG Survey of Corporate Responsibility Reporting in 2017, approximately "93 % of the world's largest 250 corporations report on their sustainability performance". The core purpose of GRI is to set standards that organizations are required to disclose regarding their impacts on environment, economy, and society (GRI standards 2019).

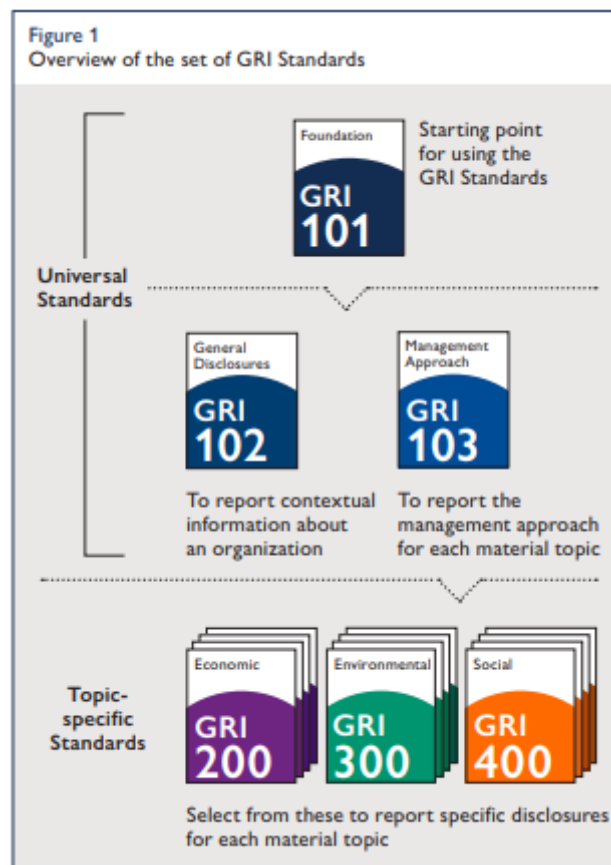


Figure 8. GRI reporting standards (GRI standards 2019).

Figure 8 illustrates the process of using GRI for sustainability reporting. GRI 101 is the first step for reporting based on GRI standards. GRI 102 defines the general disclosure framework for the organization implementing GRI reporting. Hence, it guides the information firm needs to report of itself and its sustainability in order to follow the standards. Similarly, GRI 103 sets the managerial approach that defines the objectives of management and evaluation of it. Furthermore, GRI 200, 300, and 400 set the framework for economic, environmental, and societal disclosure that an organization should cover in their reporting in order to follow the reporting standards. Overall, GRI 101, 102, and 103 can be seen as universal standards, whereas GRI 200, 300, and 400 are the topic-specific standards. (GRI Standards 2019.)

3.3.3. EU Action Plan

Moving to the core of this thesis, the EU commission adopted the “action plan on sustainable finance” during March of 2018. With the core purpose of implementing ESG issues into the managerial and organizational decision-making process, the EU seeks sustainable financial development by increasing the disclosure regarding the risks and impacts of firms on sustainability. (ECEUROPA 2018.)

EU Taxonomy is straightly related to United Nation’s accepted Sustainable Development Goals (SDG) that were adopted in 2015. EU defines the purpose of EU Taxonomy as follows. (EU Taxonomy 2019.)

“The EU Taxonomy is an implementation tool that can enable capital markets to identify and respond to investment opportunities that contribute to environmental policy objectives. Decisions by investors to allocate capital or influence company activities will be making a substantial contribution to climate goals and to the related SDGs.” (EU Taxonomy 2019).

In the core of the EU Action Plan is the Technical Expert Group on Sustainable Finance (TEG) that seeks to define the framework for ESG implementation in the EU. In other words, to define the framework for EU Taxonomy. TEG consists of 35 members named by the European Commission and 10 observers from the EU. Such members have backgrounds from academia, civil society, finance, and business. The operation was done

by first building a framework draft for activities that contributes to the adaptation of climate change issues and sustainable development. The draft was then sent to review and feedback for the potential usability. (EU Taxonomy 2019.)

It is in line with other agreements to seek sustainable development and supports the EU Emissions Trading System (EU ETS) and its goals. EU ETS has set certain target levels for GHG mitigations that are supposed to be reached by 2020 and 2030. The long-term target for the EU is to become climate neutral (net-zero emissions of GHGs) by 2050. (EU Taxonomy 2019.)

Overall, EU Action Plan is an extension of the SDG and Paris Agreement for the EU and its member states to seek sustainable development. The center of such plan is the EU Taxonomy that is seeking to implement ESG disclosure for organizational financial frameworks. (EU Taxonomy 2019.)

On December 18th, 2019, the European Council and Parliament agreed to the EU Taxonomy. The follow up of the agreement is the general framework of six environmental objectives and four social objectives that defines “environmentally sustainable economic activity”. (European Commission press release 2019.)

“Environmental objectives:

1. Climate Change Mitigation
2. Climate Change Adaptation
3. Sustainable Use and Protection of Water and Marine Resources
4. Transition to Circular Economy
5. Pollution Prevention and Control
6. Protection and Restoration of Biodiversity and Ecosystems

Four requirements that economic activities need to comply with in order to qualify.

1. They provide a substantial contribution to at least one of the six environmental objectives above;

2. “No significant harm” to any of the other environmental objectives;
3. Compliance with robust and science-based technical screening criteria; and,
4. Compliance with minimum social and governance safeguards”

(European Commission press release 2019.)

3.4. Financial performance

In this chapter, the firm value and performance metrics are introduced. At first, the book value (BV) is discussed with presenting the financial statements. Secondly, risk-return tradeoff is discussed with illustration of firm valuation for public firms. In this section, the relevant risk types for this study are also introduced. After the discussion of BV and market value, the firm value metrics of Tobin’s q is introduced. Lastly, the firm performance metric of ROA is discussed.

3.4.1. Book value

The balance sheet of a company informs the firm’s financial position at a given time. It consists of a firm’s assets and capital, which gives an insight of liabilities and equity (i.e. how the assets of a company are financed). Assets can be divided into current assets and non-current assets. Most of the firm’s assets are usually non-current and includes sections of property, plant, and equipment (PP&E). Current assets include classes such as inventories, receivables, and cash and equivalents. Firm’s assets need to be equivalent to capital, liabilities, and equity. Therefore, assets equal to the firm’s liabilities and equity. Similarly, the shareholder’s equity can be calculated by deducting liabilities of third parties from assets. (Jones 2014, 110-116.)

Furthermore, assets include the things and subjects that the company leases or owns. Liabilities are the debts and responsibilities the company owes. Equity is the financial wealth company owns. Hence, the book value (BV) of a company can be determined by

deducting total liabilities from the total assets of a firm or additionally looking into shareholder's equity of a firm in a balance sheet. (Jones 2014, 110-116.)

$$(1) \quad BV = Total\ assets - total\ liabilities$$

The income statement of a firm informs the performance over the corresponding time period. For external stakeholders, the income statement is provided annually, but the internal origins of a company may write income statements more frequently. It provides information regarding the firm's income and expenses holding a core purpose of determining the profits of a company. Cash flow statement offers information regarding the cash inflows and outflows during the corresponding year. It provides information regarding the operations, investments, and financing cash flows. (Jones 2014; 89-95, 220-223.)

3.4.2. Risk and return

Risk and return are commonly accepted to go "hand in hand". In this respect, risk determines the return. Hence, greater the risk the greater the required rate of return of investors. (Bodie, Kane & Marcus 2014, 10.)

According to the portfolio theory, the risk composes from market risk (systematic risk) and firm-specific risk. Market risk is the risk that all firms are exposed for and it cannot be diversified away. (Bodie et al. 2014, 206-207.) It is dependable on macroeconomic variables such as inflation, business cycle, and interest rates to name a few examples that are considered to be part of market risk (Bekaert & Holdrick 2018, 274). Firm-specific risk includes all other components of firm-specific risk such as business risk and governance risks (Eiteman, Stonehill & Moffett 2004, 445; Bodie et al. 2014).

The link of risk-return relationship can be illustrated with the well-known Gordon's growth model.

$$(2) \quad S = \frac{D_1}{r-g}$$

where: S is the current stock price of a firm
 D_1 represents the dividends of a company
 r is the required rate of return
 g is the constant rate of growth of company dividends through perpetuity.

The main interest in this illustration is in the required rate of return, which is defined by the riskiness of an investment. This model represents the risk-return tradeoff in a way that as r increases, the value of a stock decreases.

Going into more detail regarding the risks firm is exposed to, this study considers governance risk, reputational risk, political risk, and global-specific as risks relevant for this study. Governance risk is part of the firm-specific risk that is due to the internal processes of the firm. It is managed by the firm's management by controlling the business operations to be in line with the country's legal requirements for instance. (Eiteman et al. 2004, 442-445.) Hence, reputational risk can occur from poor governance of a firm.

Political risk is dependable on the geographical area the firm operates in and the political decision-making of that area. It includes various aspects that can be divided into multiple categories of risk. Eiteman et al. (2004) divides political risk into country-specific risk, global-specific risk, and firm-specific risk that includes the aforementioned governance risk. Country-specific risk includes risks such as the ownership structure of the firm and the corruption level of the country. Global-specific risks are due to terrorism or environmental issues for instance. Such risks have effects on firm's business operations and therefore those are relevant to manage. (Eiteman et al. 2004, 443-445.)

Whereas multiple risks are effecting on daily operations of firms, the environmental responsibility, or lack of it, is seen in their reputational risk. Countries that are considered greener has greater country-specific risk in respect of environmental perspective. If a firm does not consider such risk, it is exposed to reputational risk. Furthermore, political decisions in such country might effect on firm's operations. Moreover, the negligence of

environmental risk could lead to poor financial performance that is reflected in a decrease in firm value.

Environmental risk can be seen as part of systematic risk, the risk that a firm cannot control. However, the sentiment of investors is what the firm can control by performing well in the areas of environmental responsibility and seeking to contribute to the fight of more sustainable future. If the firm does not contribute to this at all, the downside risk is greater. We have come to a point in which if a firm does not consider environmental responsibilities, it is exposed to idiosyncratic risk that occurs from market risk in the sense that they are not contributing to minimize the overall environmental risk of the world.

To conclude this section, in the most basic terms the riskiness of a firm is seen as the required rate of return that determines the value of the stock. Such an example is shown in equation 2 with Gordon's growth model, which illustrates the reflection of risk to stock price that ultimately represents the market value of a firm. Whereas there are multiple approaches for the concept of valuing companies and deriving the accurate measures of firm value, this study concentrates on Tobin's q . This proxy is validated through existing literature and therefore appropriate for the purposes of this study.

3.4.3. Tobin's Q

An increase in market valuation of an asset can be explained by various reasons. One reason Brainard and Tobin (1968) state is the increase in capital's marginal efficiency, which leads to increase in valuation. The second example is the events occurring in financial markets that may decrease the rate of return demanded by investors leading to enhancement in market valuation. "The valuation of investment goods relative to their cost is the prime indicator and proper target of monetary policy". (Brainard & Tobin 1968.)

Tobin's q is a measure of firm performance that is derived from future outlooks. A value above one indicates that the firm's value is greater than its book value of assets. As the

value is below one, Tobin's q indicates that the firm's market value is below its asset value. In other words, in the case of Tobin's q being below 1, the metric implies that the resources of a firm are not used efficiently. Hence, the value the public firm is delivering is less than its assets value. (Aouadi & Marsat 2018.)

$$(3) \quad \text{Tobin's } q = \frac{\text{Mkt cap} + \text{Total liabilities}}{\text{Common shareholder's equity} + \text{Total liabilities}}$$

Whereas the originality of Tobin's q reflects to assets replacement costs, those are difficult to derive. The equation (3) is the version of the Tobin's q formula that is used throughout this study.

The popularity of using Tobin's q as a proxy for firm valuation or performance metrics originates from its abilities to overcome some of the fragilities that accounting techniques offer. For instance, Tobin's q does not account the accounting mechanics of profit planning of the firm's management. Furthermore, it does not account for the cash flow timing of the firm. Overall, Tobin's q offers all the abilities for it to be a proxy for evaluating the decision-making of management. (Aouadi & Marsat 2018.)

3.4.4. Firm performance

There are many ways and ratios that are used to represent the performance of a firm. Most constantly, such measures are derived from the information originated in balance sheet and income and cash flow statements. In this study, the ratio of ROA is used as a proxy for firm performance. This is in line with existing literature as Lee et al. (2016) and Miller et al. (2018) use these in their studies to investigate the relationship of ESG and its dimensions and the financial performance of firms.

The main purpose of the performance ratios derived from the income statement and balance sheet is to give insight into how well the company can produce returns with its capital. For the parties interested in firm performance, ROA is a good measure implicating

how the firm's assets are functioned in a company to produce profits. ROA is calculated with the equation below. (Barker 2001, 150-152.)

$$(4) \quad ROA = \frac{\textit{net income}}{\textit{average total assets}}$$

The main idea for firms in investing capital in various assets such as PP&E, is to generate returns. ROA measures the level of efficiency of a firm's resource usage. The low value of ROA implies that the firm is not using its assets efficiently. Hence, the net income generated relative to its assets is weak. The bottom line for ROA is that it represents the relationship of how the firm is able to produce returns relative to its assets. (Marr 2012, 49-51.)

4. DATA & METHODOLOGY

In this section, the data and methodologies used in this study are introduced. First, the construction of the data is introduced with discussions of the dependent and independent variables of the study by dividing the data into financial data and environmental data. Secondly in this chapter, the descriptive statistics are presented with discussion. After the data has been introduced, the concentration shifts to the methodologies this study uses. In this section, the theoretical framework of OLS regression is introduced and the necessary methods that are implemented into regression models in order to retrieve as accurate results as possible are discussed. At the end, the regression models are introduced and hypotheses development is presented.

For the purpose of this study, I use publicly listed firms in Finland, Denmark, Norway, and Sweden as a proxy for the Nordics. Hence, the data consists of all-share stock indices of Helsinki, Copenhagen, Oslo, and Stockholm. The data is annual data covering the time period of 2002 to 2018, which is the sample period of the study. The data is used in order to construct an unbalanced panel data over the sample period.

The data is derived from the database Refinitiv and it consists of two primary groups that are the firm-level financial data and environmental data. Environmental data is further considered as environmental responsibility (ER) of the firm and it is explained in detail later in this section. For not missing any data points, all data (including the data that has no available observations) have been imported into the Eviews data processing tool. Eviews considers the unavailable observations by excluding missing data in panel data regressions. Furthermore, no country-specific controls are used as the data is considered to be a proxy for the Nordics.

4.1. Financial data

The financial data consists of the dependent variables and control variables. The dependent variables for firm financial performance are ROA and Tobin's q. These are in

line with previous literature for studying the relationship of ESG and firm performance. Atan et al. (2018) use Tobin's q as a proxy for firm value investigating the relationship of ESG and firm performance. Similarly, Aoudi and Marsat (2018) use Tobin's q investigating ESG controversies and firm value. Miller et al. (2018) use ROA as a proxy for firm performance in their research studying the relationship of CSR and firm performance of banks in the US. Lee et al. (2016) use ROA as a proxy for firm performance studying the financial performance of Korean firms. Furthermore, Guenster et al. (2011) use both ROA and Tobin's q in their study while investigating the relationship of eco-efficiency and firm performance.

Tobin's q in this study is derived by adding together market capitalization and total liabilities and dividing that with the addition of common shareholder's equity and total liabilities. This is done throughout the study for all data points respectfully for each year.

The control variables this study utilizes for the dependent variable of ROA are size and leverage. For investigations regarding Tobin's q, size, leverage, and ROA are used as control variables. The size factor is constructed as a log of total assets. The size factor is proved to have a positive relationship on ESG disclosure (Atan et al. 2018). Furthermore, the size factor is a common control variable in comparable studies (Farooq 2015; Atan et al. 2018).

The leverage measure is derived by dividing total liabilities by total assets similarly to Lee et al. (2016). It is also found to be a relevant factor in previous research (Farooq 2015; Lee et al. 2016; Atan et al. 2018). The leverage describes the funding by third parties such as financial institutions and it also represents the firm-specific risk the firm has on its performance (Prior, Surroca & Tribó 2008; Atan et al. 2018). Hence, it is seen that as leverage increases the firm discloses more ESG related information (Lanis and Richardson 2013; Atan et al. 2018). In addition, greater levels of debt can be seen as a delimiting factor for firms affecting negatively to firm performance (Lee et al. 2016).

Profitability is proven by previous literature to be in direct link to the valuation of a firm (Aouadi & Marsat 2018). Therefore, and similarly to Guenster et al. (2011), the

methodology of this study also uses ROA as a control variable as a proxy for firm profitability in studying the dependent variable of Tobin's q.

In addition to the control variables presented earlier, some other variables were considered to be added as well. For instance, R&D has been explained to usually increase through improved performance of ESG (McWilliams & Siegel 2001). Aouadi and Marsat (2018) explain that contributions to R&D might lead to the enhancement of future returns. This control variable would have been appropriate to add into regression models regarding firm performance (ROA) of this study as well. Unfortunately, this variable was excluded due to the unavailability of data.

The all-share stock indices financial data includes the data of both active and dead firms over the sample period of 2002-2018. Both active and dead firms have been taken into account as this procedure avoids the survivorship bias of firms (Eliwa et al. 2019). Overall, financial data is found from 2 402 firms in the Nordics.

4.2. ESG and Environmental data

The ESG and environmental data for this study has been derived from Refinitiv's database. The main independent variables for this study are ESG's environmental dimension (ENV) as well as ENV's sub-dimensions. ESG score and ENV score range from 0 to 100. The greater the score, the better the firm performs in respect of ESG and ENV issues.

In order to study the specific interest of this study, the relationship of ER and financial performance in the Nordics, four (4) dimensions for ER in addition to ENV have been derived from Refinitiv. These dimensions are *Emissions score* (EMI), *Environmental innovation score* (ENV INN), *CO2 equivalents emission total* (CO2 Emissions), and *Environment management training* (ENV MGT TR). Two additional variables of *Resource reduction/environmental resource impact on controversies* as well as

Environmental R&D expenditures were also derived, but due to the lack of available data, these variables were omitted from this study.

Emissions score

Emissions score (EMI) “measures a company's commitment and effectiveness towards reducing environmental emissions in the production and operational processes”. This score ranges from 0 to 100, in which the greater score implies better performance in effectiveness and commitment towards reducing emissions. (Refinitiv 2020.)

Environmental Innovation Score

Environmental innovation score (ENV INN) “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 products”. This score ranges from 0 to 100, in which the greater the score more environmentally innovative the firm is. (Refinitiv 2020.)

CO2 Equivalent Emission Total

CO2 equivalent emission total (CO2 Emissions) is a measure in tonnes of the firm’s emissions of CO2 and CO2 equivalents. (Refinitiv 2020). For constructing a variable for CO2 Emissions, each observation has been divided by the corresponding industry average.

Environment Management Training

Environment management training (ENV MGT TR) measure gives a value of “Yes” if the firm has implemented training sessions for employees on environmental issues and “No” if it has not. (Refinitiv 2020).

4.3. Descriptive statistics

Overall, the data of financial metrics, ESG, and ER are used to construct an unbalanced panel data over the sample period of 2002-2018. This data set is used in this study as a

proxy for the Nordics. In order to improve the accuracy of this study, the outlier values for each variable have been controlled by windorising the variables for 0,5% and 99,5% level.

Table 2. Descriptive statistics of financial metrics and ER data of the Nordics during the sample period of 2002-2018.

	Mean	Median	Max	Min	S.D	Obs.
<i>Panel A -Financial data</i>						
ROA	-3.63	3.59	56.98	-179.90	28.32	20 600
TOBINS Q	1.94	1.27	17.10	0.45	2.05	19 637
SIZE	13.38	13.30	20.68	7.31	2.53	22 603
LEVERAGE	0.56	0.55	130.97	-0.20	1.24	22 592
<i>Panel B - ESG & ER data</i>						
ESG	62.17	73.38	97.23	3.74	30.03	2 467
ENV	64.65	76.83	97.09	9.33	29.73	2 467
EMI	61.20	65.65	99.19	1.01	25.67	2 483
ENVINN	57.75	50.00	98.96	4.86	23.16	2 483
CO2 Emissions	1.00	0.15	26.38	0.00	2.59	1 584
ENV MGT TR	Yes	No	Obs.			
	1 269	1 214	2 483			

Table 2 provides information of descriptive statistics of the study. Panel A includes the descriptive statistics regarding financial metrics, whereas Panel B has the corresponding data for ESG and ER factors. The observation numbers vary between both financial metrics and ER data leading to an unbalanced panel data for the regression models of this study.

As Panel A illustrates, interestingly the mean of ROA seems to be negative during the sample period yielding -3.63 whereas the median of ROA is 3.59. Descriptive statistics show that the average Tobin's q results in 1.94 whereas the median yields in 1.27 over the sample period.

Panel B provides information regarding the descriptive statistics of ESG and ER factors of this study. ESG, ENV, EMI, and ENV INN factors range from 0 to 100. A total of 2 467 firm-year observations are found for ESG and ENV variables. As can be seen, the

mean and median statistics of ESG for the Nordics are quite high resulting 62.17 and 73.38 respectfully. Moreover, the environmental dimension produces slightly higher statistics of 64.65 and 76.83 for mean and medians across the Nordics implying that the ENV of firms is superior in explaining the construction of the total ESG score. Both ESG and ENV descriptive statistics produce greater values compared to Europe in Sassen et al. (2016) study visualized in Figure 2. Hence, the Nordics is seen as a rather “green” region, which highlights the purpose of this study.

EMI produces mean and median values of 61.20 and 65.65 and ENV INN yields the ratings of 57.75 for mean and 50.00 for median over the sample period. Interestingly, both ER variables are lower than the environmental overall score. On the other hand, these dimensions are just partly explaining the construction of the total ENV score. A total of 2 483 firm-year observations are found for EMI and ENV INN variables. The original CO2 Emissions variable represents annual CO2 and equivalent emissions of firms in tonnes. In Table 2 it has been scaled by dividing each observation by corresponding industry average. A total of 1 584 firm-year observations is found for CO2 Emissions.

Overall, the performance of ESG and ENV is seen to be in rather good levels. Hence, it supports the statements that the Nordics is considered to be green and pioneer in the environmental responsibility of firms (Ho et al. 2012; Eliwa et al. 2019).

4.4. Dummy variable construction

Whereas ESG and ER factors are affecting various industries differently (Griffin & Mahon 1997; Humphrey et al. 2012; Lee et al. 2016), the dummy variables for industries are implemented in this study in order to control for industry effects. Refinitiv offers approximately 40 different industries. For clarification, the Nasdaq’s industry classification of 10 industries is used.

Table 3. Industry diversification of the study.

<u>Industry diversification</u>	
Industrials	28.85 %
Consumer Services	7.08 %
Technology	6.41 %
Financials	19.19 %
Telecommunications	1.33 %
Consumer Goods	10.70 %
Health Care	10.70 %
Basic Materials	5.20 %
Oil & Gas	9.53 %
Utilities	1.00 %

Table 3 represents the descriptive statistics of industry diversification over the sample period. Industry dummies are utilized coherently throughout the study. Similarly for industry dummies that control cross-sections, the time-effects in this study are fixed using Fixed Effects (FE) in estimations for both ROA and Tobin's q. These methods are reasoned later in the methodology section.

In addition to industry dummies, ENV MGT TR is used as a dummy variable in later stages of regression models that will be discussed later on in the sections of regression models and hypothesis development. As Table 2 illustrates, 1 269 firms have ENV MGT in place whereas 1 214 firms do not have over the sample period of this study. In later stages ENV MGT TR is 1 if the firm has ENV MGT TR in place and 0 otherwise.

Low and high performers of ER

For the purpose of investigating the relationship of ER and financial performance of low and high performers of ER, the following procedure is implemented to create plausible variables. The low (high) performers of ER are considered to be the firms that belong to the lowest (highest) quarter in three ER performance metrics (ENV, EMI, ENV INN). The lowest quarter being below 25 % of observation scores and the highest quarter being observations above 75 % of the dimension scores.

At first for ER variables ENV, EMI, and ENV INN, the dummy variable results 1 if the firm belongs to the lowest quarter in respect of ER metric and 0 otherwise. Next, the

created dummy is multiplied with the corresponding windorised ER variable in order to capture the values of low performing variables. With similar approach, the high ER variables are constructed. With this procedure, three variables of ENV low, EMI low, and ENV INN low are created for low ER performers. Similarly, three variables of ENV high, EMI high, and ENV INN high are obtained for high performers of ER.

Table 4. Descriptive statistics for high and low ER variables.

	Mean	Median	Max	Min	S.D.	Obs.
ENV Low	20.63	18.70	36.42	9.33	7.81	617
ENV High	94.02	93.96	97.09	91.84	1.24	617
EMI Low	25.39	28.57	40.43	1.01	11.70	621
EMI High	90.84	90.79	99.19	83.43	4.56	613
ENVINN Low	30.44	33.40	39.68	4.86	8.85	621
ENVINN High	89.10	89.31	98.96	79.89	6.04	618

4.5. Methodology

The purpose of this thesis is to investigate the relationship of ER and financial performance measured with ROA and Tobin's q in publicly listed firms in the Nordics during the sample period of 2002-2018. As Guenster et al. (2011) explain, ROA and Tobin's q have similarities in respect that both include accounting-based measures in the construction of such variables. However, a forward-looking measure of Tobin's q also captures the intangible value of a company through investor preferences. In such sense, both intangible and tangible values assigned for a firm are captured by utilizing Tobin's q. Hence, by utilizing both variables, this study captures the potential influences of ER on both accounting and market-based measures.

This study follows Lee et al. (2016) in the sense of investigating the relationship of firm performance and ER. For studying the relationship of firm value and ER this study follows the methodologies similar to Guenster et al. (2011) and Atan et al. (2018). On contrary to Lee et al. (2016) and Atan et al. (2018), I will use a longer time period and the regional area is the Nordics. Hence, the main methodology of this study bases on Ordinary

Least Squares (OLS) method as the data is used in order to build an unbalanced panel data over the sample period of 2002-2018.

OLS is “a method for estimating the parameters of a multiple linear regression model. The OLS estimates are obtained by minimizing the sum of squared residuals” (Wooldridge 2016, 764.) In order for OLS to be as accurate as possible, it has five assumptions that are named as Gauss-Markov Theorem. The first four assumptions need to be satisfied in order for regression estimators to be unbiased. The fifth assumption enhances the regression model making the variables of OLS *the best linear unbiased estimators* (BLUE). (Wooldridge 2016, 92.)

Assumption 1.

The first assumption states that the multiple linear regression model (MLR) is linear in parameters (Wooldridge 2016, 92).

Assumption 2.

The second assumption states that the observations are randomly selected from the population (Wooldridge 2016, 92).

Assumption 3.

The third assumption states that no perfect collinearity should exist among independent variables (Wooldridge 2016, 92).

Assumption 4.

The fourth assumption states that the error terms and independent variables should not exhibit correlation. In other words, given any value of an independent variable the expected value of the error term is zero (Wooldridge 2016, 92.)

Assumption 5.

The fifth assumption concentrates on homoscedasticity of the error terms, stating that the variance of the error terms should be constant. “The error u has the same variance given any value of the explanatory variables”. (Wooldridge 2016, 92.)

It is the intention of this study to follow the Gauss-Markov Theorem as well as possible that enables this study to produce as accurate results as possible. Despite of the assumptions listed above being the general assumptions for MLR, those give a good theoretical framework for this study as well.

As this study uses unbalanced OLS panel data regressions, it is important that the assumptions of OLS are satisfied in order to retrieve sufficient test results. The violations of heteroscedasticity, endogeneity, and autocorrelation are usually issues that might have potential effects on the results making them inaccurate. The endogeneity problem refers to the situation in which the independent variable is endogenous predicting the value of the error term. In the most basic terms for this study's OLS regressions to yield sufficient results, the independent variables and error terms should be uncorrelated. (Wooldridge 2016, 92, 274.) This study utilizes the Fixed Effects (FE) model in order to control for the potential endogeneity issue. FE is found to be an appropriate method in similar studies (Sassen et al. 2016; Lins et al. 2017; Aouadi & Marsat 2018; Atan et al. 2018; Harjoto & Laksmana 2018; Eliwa et al. 2019).

The second potential issue among data sample such this study utilizes is the potential heteroscedasticity issue. Regarding the potential heteroscedasticity issue among the data sample, this study implements the coefficient covariance method of White cross-section. Hence, the robust standard errors are used in regressions in order to get sufficient results. Thus, panel data has its benefits as well as it controls for heteroscedasticity itself.

Overall, to retrieve as accurate results as possible, for the unbalanced OLS panel data regressions the FE is utilized to tackle the potential endogenous problem. Also, FE methodology controls for heteroscedasticity whereas such methodology allows for firm-specific and time-effects to be constant. Thus, in this study the year fixed effects is utilized in order to control for the conditions in changing economic environment similarly to Sassen et al. (2016). The cross-sections are controlled by industry dummies. Furthermore, the FE model allows us to tackle the correlation problem within the independent variables.

4.6. Regression models

In this section, the regression models of this study are introduced. At first the models 1-5 are presented with detailed discussion. Secondly, the regression models 6 and 7 are introduced. Later on in this section, the regression models 8, 9, 10, and 11 are introduced that operate as robustness regressions of this study. The first regressions of this study are constructed as follows.

$$(1) \quad FP_{i,t} = \alpha + \beta 1 ESG_{i,t} + B2 CV_{i,t} + \sum_{IND} \theta^{IND} + \varepsilon_{i,t}$$

$$(2) \quad FP_{i,t} = \alpha + \beta 1 ENV_{i,t} + B2 CV_{i,t} + \sum_{IND} \theta^{IND} + \varepsilon_{i,t}$$

$$(3) \quad FP_{i,t} = \alpha + \beta 1 EMI_{i,t} + B2 CV_{i,t} + \sum_{IND} \theta^{IND} + \varepsilon_{i,t}$$

$$(4) \quad FP_{i,t} = \alpha + \beta 1 ENV INN_{i,t} + B2 CV_{i,t} + \sum_{IND} \theta^{IND} + \varepsilon_{i,t}$$

$$(5) \quad FP_{i,t} = \alpha + \beta 1 CO2 Emissions_{i,t} + B2 CV_{i,t} + \sum_{IND} \theta^{IND} + \varepsilon_{i,t}$$

In regression models 1-5 $FP_{i,t}$ represents dependent variables of ROA and Tobin's q for firm i at time t that are proxies for financial performance. Coefficient $\beta 1$ represents the main independent variable in each model for firm i at time t . The coefficient $B2$ represents control variables (CV) for firm i at time t for the models. For ROA as a dependent variable the control variables are size and leverage. For Tobin's q as a dependent variable the control variables are size, leverage, and profitability. Furthermore, FE for periods is utilized for both FP variables of ROA and Tobin's q. Coefficient θ represents dummy variables for industries, which controls for cross-sectional dependency. Error term is represented by coefficient ε .

In the second stage of the regression models, this study seeks to find whether weak and strong performance of ER reflects to FP. The poor performers of ER in this respect are thought to be the performers belonging to the lowest quarter of the corresponding ER variable score, whereas strong performers are considered to be the firms that belong to

the group above the highest quarter of observation scores. The second regression models are constructed as follows.

$$(6) \quad FP_{i,t} = \omega + \beta_1 ER Low_{i,t} + \beta_2 CV_{i,t} + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

$$(7) \quad FP_{i,t} = \omega + \beta_1 ER High_{i,t} + \beta_2 CV_{i,t} + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

Similarly to models 1-5, FP denotes the dependent variables of ROA and Tobin's q for firm i at time t . Coefficient β_1 in model 6 represents the low performers of ER that belong to the lowest quarter of each ER variable ENV, EMI, and ENV INN. Similarly, in model 7, the β_1 coefficient represents strong performers of ER that belong to the highest quarter of each ER variable. Coefficient β_2 denotes the control variables in both models 6 and 7. For ROA the control variables are size and leverage and for Tobin's q the control variables are size, leverage, and profitability. For both FP variables of ROA and Tobin's q the FE is utilized for periods. Furthermore, in both models the coefficient θ denotes dummy variables for industries that control cross-sections. Error term is represented by coefficient μ .

For the third part of the empirical section, the regression models 8, 9, 10, and 11 are constructed. In this section and motivated by the findings of regression models 1-7, the simultaneous effects of some variables are tested. McWilliams and Siegel (2001) suggest that R&D increases for firms that invest more in ESG issues. In addition, Aouadi and Marsat (2018) suggest that increasing investments in R&D could reflect to increasing profitability in the future. As environmental innovation (ENV INN) can be thought of as an increasing factor for the R&D account, the lagged value of it is held as a control variable for investigating profitability.

$$(8) \quad ROA_{i,t} = \pi + \beta_1 ER_{i,t} + \beta_2 (\log) Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 ENV INN_{i,t-1} + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

$$(9) \quad ROA_{i,t} = \pi + \beta_1 ER Low_{i,t} + \beta_2 ER High_{i,t} + \beta_3 (\log) Size_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 ENV INN_{i,t-1} + \beta_6 Dummy ENV MGT TR + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

$$(10) \quad \text{Tobin's } q_{i,t} = \pi + \beta_1 ER_{i,t} + \beta_2 (\log) Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 ROA_{i,t} + \beta_5 \text{ Dummy ENV MGT TR} + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

$$(11) \quad \text{Tobin's } q_{i,t} = \pi + \beta_1 ER Low_{i,t} + \beta_2 ER High_{i,t} + \beta_3 (\log) Size_{i,t} + \beta_4 Leverage_{i,t} + \beta_5 ROA_{i,t} + \beta_6 \text{ Dummy ENV MGT TR} + \sum_{IND} \theta^{IND} + \mu_{i,t}$$

In regression models 8 and 9 the dependent variable is ROA and the control variables remain the same as in previous models regarding the investigations of ROA. However, the lagged value of ENV INN for firm i at previous year $t-1$ is added into equation denoted by coefficient β_4 in model 8 and β_5 in model 9. Also, in model 9, coefficient β_6 denotes dummy variable ENV MG TR that gets value 1 if firm i has ENV MGT TR in place at time t and 0 otherwise. Furthermore, model 9 accounts for low and high performers of ER in the same regression model. Periods remain controlled with the FE method. Cross-sections remain controlled by industry dummies denoted by coefficient θ and coefficient μ denotes for error terms.

In models 10 and 11 the dependent variable is Tobin's q for firm i at time t and the control variables remain the same as in previous models except for the fact that ENV MGT TR is taken into account as well denoted by β_5 in model 10 and β_6 in model 11. ENV MGT TR derives the value of 1 if firm has ENV MGT TR in place and 0 otherwise. Furthermore, model 11 accounts for both low and high performers of ER in the same regression model. Cross-sections remain controlled by industry dummies denoted by coefficient θ , periods remain controlled with FE, and μ denotes for error terms. In all models 8, 9, 10, and 11 ER is represented by ENV and EMI variables.

4.7. Hypothesis development

As Heinkel et al. (2001) study's theoretical framework suggests, an increasing amount of public awareness could lead to change in corporate behavior. I believe that the Nordics as a frontrunner in mitigating emissions have pressured companies towards a more

sustainable direction. Supported by Eliwa et al. (2019) and Ho et al. (2012) and the descriptive statistics of this study, the ESG and ER performance of the Nordics is prone to be at good levels. Therefore, the main interest of this thesis is to study the relationship of ER and FP of firms in the Nordics. This study contributes to the existing literature by first investigating the ER and its effects on FP in general in the geographical region of the Nordics. Secondly, this study seeks to find whether FP for low and high performers of ER differs.

As Europe is the frontrunner in environmental responsibility covering approximately 75 % of the world's carbon emission markets (EU ETS 2016) and investor awareness continues to increase, the first expectation of this study is to find a positive relation between ER and FP. Hence, continuous efforts of UN PRI and EU Taxonomy towards sustainable economy translate into investor values pressuring companies to take environmental issues into account. This ideology and reasoning lead to the first hypothesis of this study.

H₁: Environmental responsibility has a positive impact on the financial performance of firms operating in the Nordics

The first hypothesis is associated with regression models 1-5. If the results are shown to be insignificant, one possible explanation might be that ER as a non-financial factor affecting firms have already been learned by investors as suggested by Borgers et al. (2013).

As previous empirical findings imply, the negligence of ESG leads to increasing risk exposure of firms (El Ghouli et al. 2018; Harjoto & Laksmana 2018). To be more accurate, the negligence of ER and poor CSP might lead to increasing exposure of risk (Sassen et al. 2016). The increasing risk exposure indirectly leads to decrease in firm value that might be harmful to the firm's operations. (Harjoto & Laksama 2018).

Furthermore, regarding the relationship of ER and FP, the emission mitigation program of EU ETS is believed to become a norm leading firms to operate in a more

environmentally-friendly fashion. Overall, the indirect relationship of risk and CSP with the enormous amount of concentration by the EU towards sustainable development through EU ETS and EU Taxonomy bases the second hypothesis of this study.

H_{2a}: Strong (weak) contribution towards environmental responsibility reflects into increase (decrease) in profitability among the firms operating in the Nordics

H_{2b}: Strong (weak) contribution towards environmental responsibility associates positively (negatively) with firm valuation in the Nordics

The second hypotheses are associated with regression models 6, 7, 8, 9, 10, and 11. The second hypotheses are further motivated by El Ghouli et al. (2011) and Sassen et al. (2016) as they find that strong performance of ESG leads to decrease in risk enhancing the firm value. Hence, Sassen et al. (2016) study shows that environmental performance significantly decreases the firm-specific risk of a firm in Europe. On the contrary, if the firm performs poorly among CSR it might be vulnerable to increasing risk exposure in the areas of reputational and regulatory risks (Sassen et al. 2016).

Furthermore, the second hypotheses are based on the idea that strong environmental governance of a firm might lead to the intangible benefits of a firm. Poor governance of firms might lead up to tangible costs that are directly linked to the profitability of a firm. Such costs might occur from cleanup costs of environmental disasters for instance. Furthermore, the reputational risk associated or caused by environmental accidents have the potential of decreasing the sales and value of a firm. (Guenster et al. 2011.) Therefore, it is expected that strong ER among firms contributes with positive association towards financial performance, whereas weak ER decreases the financial performance of firms.

For the third part of the empirical section the regression models 8, 9, 10, and 11 are constructed. In this section and motivated by the findings of regression models 1-7, the simultaneous effects of some variables are tested. McWilliams and Siegel (2001) suggest that R&D increases for firms that invest more in ESG issues. In addition, Aouadi and Marsat (2018) suggest that increasing investments in R&D could reflect to increasing

profitability in the future. As environmental innovation (ENV INN) can be thought of as an increasing factor for the R&D account, the lagged value of it is held as a control variable for investigating profitability.

Also, the environmental management training of the firms is implemented by dummy variable. It is expected that firms that have environmental management training in place are overall more prone to be more concentrated towards ER. Hence, it is expected that this contribution reflects to financial performance positively and strengthens the findings.

H_{3a}: ER with environmental innovation as predicting variable enhances the results regarding the positive (negative) relationship of ER and FP of strong (weak) performers of ER

H_{3b}: Environmental management training for employees in place has positive impact on ER and FP

5. EMPIRICAL RESULTS

In this section, the empirical results of the regression models are introduced and discussed thoroughly. At first, the results regarding models 1-5 are discussed in section 5.1. Secondly, with models 6 and 7 the low and high performers of ER and their effects on FP in the Nordics are tested and discussed in section 5.2. Lastly, section 5.3 presents the findings of robustness tests with models 8, 9, 10, and 11.

5.1. Relationship of environmental responsibility and firm financial performance

In this section, the empirical results are introduced and discussed thoroughly. At first, the regression models 1-5 are discussed. In these models, the relationship of FP and ER is illustrated.

Table 5. Regression results of models 1-5 over the sample period of 2002-2018. The relationship of ER and ROA.

<i>Independent variables</i>	ROA				
	(1)	(2)	(3)	(4)	(5)
ESG	0.0271** (2.1271)				
ENV		0.0108 (0.9302)			
EMI			0.0364*** (3.5547)		
ENV INN				-0.0188** (-2.2040)	
CO2 Emissions					-0.3149*** (-4.6638)
Size	0.6752*** (2.6601)	0.7644*** (2.9928)	0.2012 (1.0546)	0.4443** (2.1411)	0.0409 (0.2509)
Leverage	-13.6126*** (-8.2647)	-13.3277*** (-8.1524)	-11.5480*** (-5.9139)	-11.5938*** (-6.0894)	-14.1501*** (-6.4465)
Intercept	-1.7882 (-0.4644)	-2.2004 (-0.5693)	4.3724 (1.2720)	3.9897 (1.1243)	10.5840*** (3.9672)
Fixed periods	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
R-squared	0.1390	0.1356	0.1328	0.1277	0.2309
F-statistic	13.8031	13.4086	13.1616	12.5805	16.3580
Observations	2 423	2 423	2 436	2 436	1 555

This table introduces the results of regression models 1, 2, 3, 4, and 5 for ROA.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 5 provides results for regression models 1-5 regarding the relationship of ER and ROA. As explained earlier in the Methodology section, the FE is utilized for periods. Furthermore, industry dummies are used in all regressions that control for cross-sections.

In model 1, the relationship of ESG and ROA is found to be significantly positive implying that the firm's efforts towards ESG issues lead to enhancement in profitability. The model 2 measures the relationship of ENV and ROA yielding positive but insignificant results.

Model 3 measures the relationship of EMI and ROA yielding positive and strongly significant coefficient (0.0364) for the EMI variable. This positive loading implies that firms with higher contributions towards emissions control through their production and business models are rewarded with an increase in profitability. The significant and negative findings of model 5 enhances this finding as the negative and significant CO2 Emissions coefficient (-0.3149) leads to a decrease in ROA. Both EMI and CO2 Emissions are found to be significant at 1 % level.

What comes to ENV INN variable in model 4, the coefficient yields negative and significant loading (-0.0188) at 5 % level. This finding implies that firms that perform better in areas of reducing environmental costs by concentrating on offering new innovative environmentally friendly products to their customers decreases profitability. Hence, this might be explained through the fact that innovations belong to R&D expenditures that is a negative account.

Considering the control variables in Table 5, the size factor is found to be positive and significant for most cases. Hence, it seems that bigger firms in the Nordics are able to produce better returns on their assets. Throughout the models leverage factor yields strongly negative and significant loadings implying that higher levels of debt among firms lead to decrease in profitability, which is in line with earlier findings (Guenster et al. 2011; Lee et al. 2016). Lee et al. (2016) explains the findings regarding leverage with the assumption that higher leverage leads to decrease in profitability as firms are not able to exploit new opportunities as effectively with higher levels of debt.

Interestingly, the findings regarding the effects of size on ROA are in contradiction with the findings of Guenster et al. (2011) who uses a similar approach in measuring size as a control variable. In addition, both size and leverage factors return opposite signs to Atan et al. (2018). The difference in findings regarding control variables might be due to the construction techniques of such measures as this study uses a log of total assets for size and the leverage ratio measurement is different. Also, the differences in control variables might be due to differences in data and sample periods as Atan et al. (2018) investigate Malaysian companies, whereas this study concentrates on developed countries in the

Nordics. Hence, it seems that bigger firms are able to generate better profits in the Nordics, which might also be explained by stating that bigger firms have greater resources and they are able to utilize their resources more efficiently.

R-squared of models 1-4 ranges between 0.1277 and 0.1390 implying that the models explain gradually the variation in ROA. Model 5 reports the value of 0.2309 for R-squared implying that approximately 23 % of the variation in ROA is explained by the regression model. Furthermore, all models' F-statistics report highly significant values implying that simultaneously the independent variables are significant in explaining the ROA of firms in the Nordics.

Overall, the findings regarding ER and ROA in respect of EMI and CO2 Emissions seem to be in line with previous research as Guenster et al. 2011 find a positive relation between eco-efficiency and FP of firms. Furthermore, Brulhart et al. (2019) find a positive relationship with ER and ROA as well.

Table 6. Regression results of models 1-5 over the sample period of 2002-2018. The relationship of ER and Tobin's q.

Independent variables	Tobin's q				
	(1)	(2)	(3)	(4)	(5)
ESG	0.0003 (0.5483)				
ENV		0.0005 (0.8207)			
EMI			0.0022*** (3.2569)		
ENV INN				0.0011 (0.6770)	
CO2 Emissions					-0.0397*** (-5.2827)
SIZE	-0.1295*** (-7.2080)	-0.1311*** (-7.6692)	-0.1324*** (-5.6727)	-0.1262*** (-4.6446)	-0.0375*** (-2.7925)
LEVERAGE	-0.5181 (-1.4494)	-0.5200 (-1.4621)	-0.4897 (-1.3916)	-0.4914 (-1.3938)	0.1669 (1.3322)
ROA	0.0394*** (3.1492)	0.0394*** (3.1532)	0.0434*** (3.2530)	0.0440*** (3.2991)	0.0719*** (13.1236)
Intercept	3.6242*** (8.4066)	3.6301*** (8.5195)	3.5042*** (6.2825)	3.4901*** (6.1884)	1.6725*** (8.8995)
Fixed periods	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
R-Squared	0.3694	0.3695	0.3722	0.3714	0.5323
F-statistics	47.7611	47.7734	48.5989	48.4288	59.2163
Observations	2 394	2 394	2 407	2 407	1 539

This table introduces the results of regression models 1, 2, 3, 4, and 5 for Tobin's q.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 6 provides results for regression models 1-5, in which the dependent variable is Tobin's q. As it can be seen, model 1 produces positive but insignificant loading for ESG. Similarly, model 2 yields positive and insignificant results for ENV dimension. For all models 1-5 regarding the relationship of ER and Tobin's q, the periods are held as fixed in regression models as discussed earlier in the Methodology section. Furthermore, industry dummies are implemented throughout the models.

Model 3 represents the findings of the relationship between EMI and Tobin's q. The significant and positive coefficient of EMI (0.0022) at 1 % level implies that firms that contribute to emissions control are valued in firm valuation. In other words, a stronger commitment towards emissions control in a firm's operations leads to an increase in the value of a firm. Hence, the coefficient of CO2 Emissions variable in model 5 is negative and strongly significant (-0.0397) implying that greater GHG emissions of a firm leads to decrease in firm value supporting the findings regarding EMI. What comes to the ENV INN variable, it yields positive but insignificant results in model 4.

Regarding the control variables, negative and significant loadings of size factor throughout all models imply that smaller firms have greater firm value. This finding is in line with previous empirical results (Guenster et al. 2011; Atan et al. 2018). Hence, it is commonly understood that smaller firms are valued higher through expectations of future growth. On contrary to Atan et al. (2018), negative loadings of leverage variable imply that lower leverage leads to enhancement of firm value. The negative leverage coefficient is constant throughout the regression models but it is insignificant in all cases. The control variable of profitability is strongly positive and significant throughout the models confirming the findings of earlier studies regarding the relationship of profitability and firm valuation (Guenster et al. 2011; Aouadi & Marsat 2018).

The values of R-squared for models 1-4 range from 0.3694 to 0.3722 implying that independent variables of each regression model explain the variation in Tobin's q quite well. Moving to model 5, the R-squared increases to approximately 53 % implying that CO2 emissions among control variables explain the variation in Tobin's q well. Regarding the simultaneous effect of independent variables in each regression, the F-statistics imply that the simultaneous explanatory power of independent variables is strongly statistically significant. Moreover, the findings regarding ER with respect to EMI and CO2 emissions and their effect on Tobin's q can be recognized somewhat similar to Guenster et al. (2011), who finds that eco-efficiency and Tobin's q are positively associated.

Overall, as Table 5 and 6 suggest, ER of firms seem to have somewhat improving impact on FP of firms in the Nordics. For both ROA and Tobin's q, the contribution of emissions control in production and business operations (EMI) is seen as a beneficial factor in improving financial performance. This finding is enhanced with the findings regarding CO2 emissions, as the greater emissions lead to a decrease in financial performance.

5.2. Low and high performance of environmental responsibility

Motivated by the findings of models 1-5, this section concentrates on investigating the relationship of financial performance and high and low performers of ER.

Table 7. Regression results of models 6 and 7 over the sample period 2002-2018. Low and high ER and ROA.

<i>Independent variables</i>	ROA					
	ENV low	ENV high	EMI low	EMI high	ENV INN low	ENV INN high
ER	0.0038 (0.1422)	-0.0004 (-0.1104)	-0.0353* (-1.7396)	0.0035 (0.7641)	0.0023 (0.1289)	-0.0077** (-1.9938)
Size	0.8314*** (3.3916)	0.8286*** (3.3380)	0.3287* (1.6769)	0.3555* (1.7802)	0.3779* (1.9034)	0.4167** (2.1280)
Leverage	-13.1754*** (-7.9146)	-13.1908*** (-7.8872)	-11.6174*** (-6.1071)	-11.6215*** (-6.0896)	-11.6334*** (-6.1533)	-11.6120*** (-6.1026)
Intercept	-2.5284 (-0.6351)	-2.4572 (-0.6191)	4.9546 (1.4237)	4.2935 (1.2215)	4.0369 (1.1357)	3.5733 (1.0350)
Fixed periods	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1349	0.1349	0.1277	0.1263	0.1262	0.1269
F-statistics	13.3381	13.3372	12.5854	12.4295	12.4130	12.4930
Observations	2 423	2 423	2 436	2 436	2 436	2 436

This table introduces the results of regression models 6 and 7 for ROA.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 7 provides results for regression models 6 and 7 for the relationship of ROA and high and low performers of ER. Regarding the low and high performers of ENV, the findings do not report significant results. In the matter of fact, the signs of the findings regarding ENV are in contradiction of expectations that low ENV performers would suffer a negative impact on profitability, whereas strong performers would be rewarded by concentrating on environmental issues.

Considering the results of EMI, the relationship of low performers of EMI and ROA is found to be negative and significant (-0.0353). This finding implies that the weak contribution towards emissions control decreases ROA. However, this finding is weak and significant only at 10 % level. For high performers of EMI, the loading is positive but insignificant.

Regarding ENV INN, the signs are opposite than expected. Low performers of ENV INN have positive loading implying that low ENV INN score leads to enhancement of returns. However, the finding is insignificant. Interestingly, for strong performers of ENV INN the loading is found to be negative and significant at 5 % level implying that contributions to environmental innovation lead to decrease in ROA. This finding is in line with model 4 as negative and significant effect of ENV INN on ROA was found for the whole sample as well. This finding further confirms the earlier assumption that firms that invest more in environmental innovation lead to increase in R&D expenditures, which is a negative account leading to decrease in returns.

Regarding the control variables, the size factor remains significant and positive in most cases, even though in some cases the significance is found only at 10 % level. Leverage remains highly and negatively significant throughout all models implying that higher levels of debt lead to decrease in profitability. Reported R-squared values range from 0.1262 to 0.1349 throughout the models explaining the variation in ROA in similar manners than in models 1-4. Furthermore, the F-statistics for each model are strongly significant implying that simultaneously the independent variables are able to explain the variation in ROA.

Table 8. Regression results of models 6 and 7 over the sample period 2002-2018. Low and high ER and Tobin's q.

<i>Independent variables</i>	Tobin's q					
	ENV low	ENV high	EMI low	EMI high	ENV INN low	ENV INN high
ER	-0.0012 (-0.4460)	0.0017*** (4.2754)	-0.0033 (-1.4290)	0.0018*** (5.3619)	-0.0053* (-1.7076)	-0.0002 (-0.3517)
Size	-0.1297*** (-6.5901)	-0.1391*** (-7.0395)	-0.1265*** (-4.7673)	-0.1323*** (-5.5234)	-0.1273*** (-4.7945)	-0.1211*** (-4.9531)
Leverage	-0.5181 (-1.4463)	-0.5101 (-1.4218)	-0.4915 (-1.3973)	-0.4887 (-1.3934)	-0.4764 (-1.4151)	-0.4914 (-1.3915)
ROA	0.0394*** (3.1517)	0.0394*** (3.1636)	0.0437*** (3.2453)	0.0438*** (3.2706)	0.0439*** (3.2735)	0.0438*** (3.2731)
Intercept	3.6506*** (8.4109)	3.7468*** (8.4280)	3.5679*** (5.9078)	3.5911*** (6.4897)	3.5880*** (5.9014)	3.4715*** (6.1813)
Fixed periods	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.3695	0.3712	0.3718	0.3730	0.3733	0.3712
F-statistics	47.7681	48.1235	48.5108	48.7660	48.8249	48.3851
Observations	2 394	2 394	2 407	2 407	2 407	2 407

This table introduces the results of regression models 6 and 7 for Tobin's q.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 8 contains results for the regression models 6 and 7 investigating the relationship of Tobin's q and ER of low and high performers. Regarding the signs of low and high performers of the ER, those are as expected in each model except for high ENV INN. For ENV, low performers yield a negative but insignificant coefficient (-0.0012). For high ENV the coefficient is found to be positive and significant (0.0017) at 1 % level leading to enhancement in firm valuation.

Similarly, the valuation of low performers of EMI is found to be negatively affected but the findings are insignificant. Regarding the strong performers of EMI, the loading is positive and significant (0.0018) at 1 % level implying that high contribution towards emissions reduction enhances the firm valuation measured by Tobin's q.

Regarding ENV INN, the low performance in environmental innovation and the inability to deliver eco-friendly products for customers decreases the valuation of a firm. However, the negative coefficient (-0.0053) is only gradually significant at 10 % level. Interestingly, the coefficient of the strong performers of ENV INN is found to be negative (-0.0002) implying that greater contribution towards environmental innovation is not appreciated in firm valuation. However, this finding is insignificant. Overall, no generalized conclusions of poor and strong performance of ENV INN can be made.

The control variable size remains highly and negatively significant at 1 % level throughout the models implying that smaller firms are valued higher. Also, in line with the findings of Table 6, the leverage remains negative but insignificant. The control variable of profitability remains strongly and positively significant confirming the earlier findings that profitability leads to an increase in firm valuation. Overall, the findings regarding control variables do not change regardless of high or low performance in the ER.

Furthermore, the R-squared ranges from 0.3695 to 0.3733 similarly to the findings in models 1-4. Hence, the models seem to explain the variation in Tobin's q quite well. The F-statistics are statistically significant for all models leading to the interpretation that simultaneously the independent variables explain the variation in Tobin's q. Overall, high performance in ENV and strong contribution towards emissions control are seen to be valued in the valuation of a firm by the markets, which is as expected. On contrary to expectations, the weak performance of ER is not found to be significant in explaining the firm valuation.

5.3. Robustness tests

In this section, the empirical results for regression models 8, 9, 10, and 11 are presented. In models 8 and 9 ROA operates as a dependent variable, and in models 10 and 11 Tobin's q is the dependent variable. Motivated by the findings of models 1-7 and reasoning

introduced in Hypothesis development section that R&D investments have an effect on profitability, ROA is tested with the lagged value of ENV INN.

Furthermore, the effect of ENV MGT TR is tested for both dependent variables with the expectation that it has a positive effect on FP because it is believed that firms with ENV MGT TR in place are more prone to show strong performance in ER as well. As in earlier models, the ER's effect on different industries is controlled with industry dummies and periodical effects are controlled with fixed effects.

Table 9. Regression results of models 8 and 9 over the time period 2003-2018. Dependent variable ROA.

	(8) ENV	(8) EMI	(9) ENV	(9) EMI
ENV	0.0298** (2.0521)			
EMI		0.0292** (2.5631)		
ER low			-0.0066 (-0.2291)	-0.0469** (-2.1293)
ER high			0.0121** (2.4271)	-0.0050 (-1.0105)
ENV INN (-1)	-0.0257** (-2.0165)	-0.0199* (-1.9356)	-0.0211* (-1.7438)	-0.0163* (-1.7236)
SIZE	0.2259 (1.2242)	0.2279 (1.1937)	0.2746 (1.5109)	0.3051* (1.6704)
LEVERAGE	-12.9669*** (-7.9842)	-12.2612*** (-7.0237)	-12.6914*** (-7.5108)	-12.3668*** (-7.2855)
ENV MGT TR	1.2682*** (3.3492)	1.3580*** (3.3903)	1.5831*** (4.4760)	1.6803*** (4.2806)
INTERCEPT	5.0857 1.5628	4.6156 1.4041	5.6961* (1.8666)	5.3502* (1.6778)
Fixed periods	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
R-squared	0.1746	0.1728	0.1725	0.1713
F-statistics	15.1203	15.0231	14.3944	14.3684
Observations	2 103	2 116	2 103	2 116

This table introduces the results of regression models 8 and 9 for ROA.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 9 presents findings regarding models 8 and 9 in which the dependent variable is ROA. The time period for this table is from 2003-2018 due to the fact that the lagged value of ENV INN is implemented into the regression models. Model 8 introduces the findings regarding the ENV and EMI dimensions of firms. On contrary to the findings of model 2 in Table 5, ENV yields positive and significant loading (0.0298) in model 8. Hence, it seems that while controlling for ENV INN, ENV is significant at 5 % level. Furthermore, the dummy variable of ENV MGT TR yields positive and significant results (1.2682) at 1 % level implying that firms with environmental management training for its employees have a positive impact on its ROA.

Similarly to model 3, EMI yields positive and significant loading (0.0292) but at 5 % level. Hence, still implying that firms with stronger contribution to emissions control perform better in terms of ROA. Also, in model 9 the value of the coefficient is lower due to controlling the ENV INN. Similarly to model 8, dummy variable of ENV MGT TR yields positive and significant result at 1 % level implying that firms with environmental management training in place increases firm performance.

Model 9 includes simultaneously low and high performers of ER, which is for both ENV and EMI. Regarding the low and high performers of ENV, the signs are as expected as low performers have negative and high performers have positive coefficients. However, only ER high yields significant loading (0.0121) implying that the strong performance of ENV increases ROA at 5 % level. This is on contrary to earlier findings in models 6 and 7 as no significance was found and the signs were unexpected.

Regarding low and high performers of EMI, the negative and significant coefficient (-0.0469) of ER low implies that firms with weak contribution towards emissions control suffer in performance measured by ROA. What comes to high EMI, the negative coefficient is unexpected and on contrary to earlier findings. However, ER high coefficient yields insignificant.

For low and high performers of ER regarding both proxies ENV and EMI, the ENV MGT TR dummy yields positive and significant coefficients at 1 % level implying that firms

with environmental management training for employees in place has an increasing effect in terms of ROA.

Regarding the control variables, the findings are similar to original models 1-7 as size is positive and leverage is negative. However, size factor is seen to be insignificant when controlling for ENV INN, and as ENV MGT TR dummy is implemented into models. The leverage factor remains highly and negatively significant confirming the findings that higher levels of debt lead to decrease in the performance of a firm.

The lagged value of ENV INN yields negative and significant but only at 10 % level throughout the regression models 8 and 9. This is somewhat expected reflecting to model 4, and to Aouadi and Marsat (2018) as they state that past investments to R&D effects on ROA and might lead to increase in profitability if the investments realize. R-squared ranges from 0.1713 to 0.1746, which is greater than in models 1-7 implying that models 8 and 9 explain more variation in ROA. Hence, the regressions are able to explain ROA gradually better. F-statistics for all models remain to be highly significant implying that simultaneously the independent variables explain the variation of ROA.

Table 10. Regression results of models 10 and 11 over the sample period 2002-2018.
Dependent variable Tobin's q.

	(10) ENV	(10) EMI	(11) ENV	(11) EMI
ENV	0.0013** (2.0686)			
EMI		0.0034*** (4.2800)		
ER low			-0.0009 (-0.2837)	-0.0030 (-1.0860)
ER high			0.0019*** (3.2013)	0.0021*** (5.4597)
SIZE	-0.1167*** (-6.7179)	-0.1298*** (-5.7459)	-0.1230*** (-6.1113)	-0.1301*** (-5.2508)
LEVERAGE	-0.4940 (-1.3239)	-0.4582 (-1.3194)	-0.4773 (-1.2961)	-0.4572 (-1.3295)
ROA	0.0431*** (2.9854)	0.0439*** (3.2904)	0.0430*** (2.9924)	0.0443*** (3.3112)
ENV MGT TR	-0.1792*** (-3.1011)	-0.2008*** (-3.1879)	-0.1888*** (-2.7766)	-0.2044*** (-3.1869)
INTERCEPT	3.4234*** (7.1167)	3.4990*** (6.3164)	3.5694*** (6.8898)	3.6735*** (6.1049)
Fixed periods	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
R-squared	0.3736	0.3755	0.3754	0.3767
F-statistics	46.6206	47.6196	45.4352	46.3050
Observations	2 376	2 407	2 376	2 407

This table introduces the results of regression models 10 and 11 for Tobin's q.

The t-statistics for each coefficient are reported in parentheses.

****, **, and * represent 1 %, 5 %, and 10 % significance levels.*

Table 10 introduces the findings regarding models 10 and 11, in which Tobin's q operates as a dependent variable. The construction of models 10 and 11 is similar to models 1-7 regarding Tobin's q, except for the fact that ENV MGT TR is taken into consideration and low and high performance of ER are tested in the same regressions.

Regarding the findings of variable ENV for ER, the coefficient is significant and positive implying that stronger performance in ENV leads to improvement in firm valuation. This finding is on contrary to model 2 regarding Tobin's q as the sign is the same but the coefficient was insignificant. Variable EMI remains highly significant and positive

(0.0034) implying that contribution to emissions control is valued in firm valuation. In the matter of fact, the value of the EMI coefficient increases as ENV MGT TR is taken into account.

Regarding the low and high performers of ER, the high performers of ENV and EMI remains positive and significant at 1 % level similarly to models 6 and 7 in Table 8. Hence, for both ER high variables, the coefficients increase. These findings confirm the earlier findings that strong performance in ER leads to enhancement of firm value. Furthermore, low contribution to the ER decreases the valuation of a firm but is found to be insignificant.

What comes to the control variables, size factor remains highly and negatively significant confirming that smaller firms are valued higher in terms of Tobin's q. Leverage remains negative and insignificant, whereas ROA has a strong and positive impact on Tobin's q. Therefore, the effects of control variables do not count for the level of ER in terms of financial performance.

Considering the findings regarding ENV MGT TR, the coefficients are negative and significant throughout the models 10 and 11. Unexpectedly, this finding suggests that firms with environmental management training for employees in place are valued lower. However, and as expected, accounting for ENV MGT TR enhanced the test results regarding ER and Tobin's q. The negative relationship of ENV MGT TR and Tobin's q might be due to an increase in assets as such practices might need investments in training facilities for instance. On the other hand, it might be that markets do not value such practices.

R-squared ranges between 0.3736 to 0.3767 implying that the models 10 and 11 explain the variation of Tobin's q quite well. Furthermore, F-statistics are highly significant, which implies that simultaneously independent variables explain the variation of Tobin's q.

Overall, the findings regarding models 8, 9, 10, and 11 are supporting the earlier findings of this study. What comes to emissions control of firms in the Nordics, stronger contribution towards EMI are rewarded with enhancement in firm performance and firm valuation in general. Also, high ER levels of a firm in respect of both ENV and EMI contribute to enhancement in firm valuation. Similar statements cannot be made regarding high ER and ROA. On contrary to earlier findings, the ENV dimension turns into positive and significant at 5 % level for ROA and Tobin's q in models 8 and 10. Also, low contribution towards emissions control strengthens its significance in model 9 into 5 % level.

6. CONCLUSION

The purpose of this thesis is to study the relationship of environmental responsibility and firm financial performance in the Nordics. During the last couple of decades, the attention of media and the public towards ESG issues have increased its presence (Borgers et al. 2013; Lee et al. 2016). Specifically, attention towards environmental issues by stakeholders reflect to company operations as expectations to act in a sustainable way (Eliwa et al. 2019).

In addition to the public awareness, various regulatory settings by regions are directing firms towards a more sustainable future (UN PRI 2019). Especially Europe has put effort into fighting for a sustainable future by launching EU ETS in 2005, which remains to be the world's largest emissions trading market covering approximately 75 % of the total carbon trading (EU ETS 2016). Furthermore, and most recently, the adaptation of the EU Action Plan is affecting firms all over Europe to prepare themselves to disclose ESG issues more thoroughly (EU Taxonomy 2019).

These regulations affect the firms operating in the Nordic countries as well. Northern European countries, and especially Scandinavia, are found to be more stakeholder-oriented in general (Jurgens et al. 2010) performing on top of CSR ratings (Liang & Renneboog 2017). Hence, it is reported that more stakeholder-oriented countries, such as Denmark, are experiencing strong ESG performance (Eliwa et al. 2019).

For such reasons, the non-financial factors that affect firm financial performance (Galema et al 2008; Atan et al. 2018) such as ER is increasing its importance from the risk managerial perspective. Hence, it is important for investors, firms, and decision-makers to understand how ER might reflect into a firm's operations and valuation. Therefore, this thesis contributes to the existing literature by first studying the general relationship of ER and FP in the Nordics over the time period of 2002-2018.

Moreover, it is becoming a necessity for firms to take environmental issues into consideration as previous empirical research shows that strong CSR performance

decreases the cost of equity enhancing the firm value (El Ghouli et al. 2011, Sassen et al. 2016; Aouadi & Marsat 2018; Harjoto & Laksmana 2018). Hence, the poor performance of CSR has the potential of making a firm more vulnerable to increasing risk exposure in risks such as reputational and regulatory risks (Sassen et al. 2016). Thus, the lack of covering the environmental issues among firms might lead to a decrease in sales leading to a decrease in profitability of a firm through tangible costs occurring from cleanup costs of environmental disasters for instance (Guenster et al. 2011). Furthermore, a wider group of stakeholders is argued to be reached through environmental efforts attaching the values of the public that might eventually lead to enhancement in profitability (Brulhart et al. 2019).

For such reasons, it is expected that the strong performance of ER among firms leads to an increase in FP whereas poor performance of ER decreases the FP of firms. Hence, this thesis also contributes to the existing literature by studying the relationship of poor and strong performance of ER and its potential effects on FP in the Nordics. Overall, this study seeks to answer for the following research questions.

1. Does ER have an impact on firm performance in the Nordics?
2. Does ER have an impact on firm value in the Nordics?
3. Does the negligence of ER lead to a decrease in firm performance and value of firms in the Nordics?
4. Does the strong performance in areas of ER lead to enhancement of financial performance in the Nordics?

In order to answer for the aforementioned research questions, this paper utilizes the financial data, ESG data, and ER data derived from the Refinitiv (earlier Thomson Reuters) database over the sample period of 2002-2018. As this thesis studies the relationship of ER and FP in the Nordics, the data is retrieved for firms that belong to all-share indices of Helsinki, Stockholm, Oslo, and Copenhagen. All firms, dead and active, during the sample period have been accounted for in this study that controls for survivorship bias (Eliwa et al. 2019).

For investigating the specific interest of this thesis, the proxies for firm financial performance and environmental responsibility have been chosen. FP metrics of ROA and Tobin's q for representing firm performance and firm valuation respectively, have been chosen accordingly to previous empirical research (Guenster et al. 2011; Lee et al. 2016; Aouadi & Marsat 2018; Harjoto & Laksmana 2018). The proxies for ER are the *Environmental dimension of ESG*, *Emissions score*, *Environmental innovation*, and *CO2 emissions and equivalents*.

The data has been further utilized to construct an unbalanced panel data over the sample period of this study. The regression models have been constructed similarly to studies of Guenster et al. (2011) and Lee et al. (2016) resulting in unbalanced OLS panel data regression models. Also, and according to similar researches, the Fixed Effects method has been utilized throughout the regression models in order to control for periodical effects. Moreover, as the various industries are experiencing different magnitude of effects through environmental issues (Humphrey et al. 2012), the industry dummies are used throughout the study to control cross-sectional dependency.

The main finding of this study is that firm's contribution towards emissions control (EMI) in its operational processes and production is positively associated with firm financial performance measured with both ROA and Tobin's q in the Nordics. Hence, it seems that the firms that contribute to emissions control are able to generate greater profits. Also, the positive and significant findings regarding Tobin's q imply that the firm's contributions towards emissions control in the Nordics are valued in the valuation of a firm. Thus, it seems that markets appreciate the firm's environmental responsibility in that regard. Moreover, these findings are confirmed with the negative and significant relationship of CO2 Emissions and both FP measures ROA and Tobin's q implying that greater CO2 Emissions decrease FP. Such findings are in line with previous literature, as Guenster et al. (2011) find a positive relationship between eco-efficiency and FP, and Brulhart et al. (2019) find a positive relationship of ER and ROA.

Regarding the expectations that firms with weak contribution towards ER in the Nordics would suffer in respect of FP whereas strong ER performers are rewarded by their efforts

towards sustainability, the findings are not that straightforward. This study finds no consistent findings regarding the effects of low performers of overall ER on FP. This finding is unexpected as it was hypothesized that weak contribution towards ER increases the risk exposure of a firm that leads to decrease in firm valuation and performance. However, interestingly for the weak performers of EMI, the negative and significant relationship between ER and ROA is found at 10 % level. Furthermore, the robustness tests enhance the finding of low EMI and ROA to 5 % level. This finding seems to suggest that firms that do not contribute to emissions control suffer in terms of ROA, which might be due to various reasons. It could be that such firms suffer in sales through consumer preference. Alternatively, it could be that those firms have greater assets in their balance sheets. Nevertheless, the finding is interesting and opens up a possible field for future studies.

What comes to the high performers of ER, this study finds a positive and significant relationship between strong ER and firm valuation (Tobin's q), which is further confirmed with robustness tests. The findings regarding the strong performance of ER and ROA cannot be generalized. The firm's contributions towards offering eco-friendly products for its customers through technological innovations have a negative effect on ROA in high levels of ENV INN. This finding might be due to the nature of such variable as it is seen to belong to R&D, which is a negative account usually decreasing profitability. The later tests show some expected relationship of high ENV dimension and ROA, but no generalized conclusions can be made between low and high performance of ER and ROA.

Nevertheless, no generalized conclusions can be made for weak and strong performers of ER as it was expected that strong performers have less risk that translates into an increase in FP whereas poor performers of ER have greater risk exposure. Poor performers of ER do suffer in terms of ROA through poor contribution towards emissions control in some manners. High performers of both ENV and EMI benefit in firm valuation in terms of Tobin's q, and it seems that markets value the environmental responsibility of a firm. This finding might be reasoned by stating that such firms have lower risk exposure through

contributions towards ER that reflects indirectly to an increase in firm valuation following findings of Sassen et al. (2016), El Ghoul et al (2018), and Harjoto and Laksmana (2018).

While seeking to answer the research questions of this thesis, there are some limitations worth mentioning in this study. First of all, the limitation this study shares with many other researches in this field is the fact that ER and ESG factors are derived from one database. As Griffin and Mahon (1997) mention, the issue of one database is that the results of the research are solely dependable on that database. Therefore, this thesis is solely dependable on the Refinitiv database. Furthermore, the original data has its flaws, which might lead to issues in data processing. Moreover, the availability of the data offers its own limitation, as some variables were needed to be omitted through the unavailability of the data.

Secondly, as the methodologies of this study are constructed with reasoning of findings regarding previous literature, it has its limitations as well. Griffin and Mahon (1997) suggest that studies regarding ESG and firm performance would be done within industry levels. Whereas this approach would have been an interesting and plausible option, this study chose to concentrate on investigating the Nordics as a whole. Thus, the industries were controlled by industry dummies throughout the study.

The third limitation lies in the choices of the author of this thesis. For instance, the variables representing ER (ENV, EMI, ENV INN, CO2 Emissions) could have been chosen to be other subdimensions of ENV. Furthermore, this study has decided to concentrate on the Nordics as a whole. Whereas this procedure offers broad observations for the Nordics, it operates as a limitation for country-specific approaches.

Whereas this study has contributed to the existing literature by studying the relationship of ER and FP in the Nordics, it has offered some insights for possible future studies as well. Hence, the aforementioned limitations might operate as guiding principles for the concentration of future studies in some manners. As this study has concentrated on investigating the Nordics as a whole, future studies could concentrate on the relationship of ER and FP at the country level.

Another potential approach would be to use different proxies of ER in studying the relationship of ER and FP. Also, this study has concentrated on a rather long time period from 2002 to 2018. Whereas a long time period offers benefits in the amount of the data and accuracy of the study, the time period closer to the present would be an interesting approach. This is also supported by the fact that EU Taxonomy (2019) has recently been implemented and takes some time to be adopted. Nowadays it seems that the public and media are more prone to concentrate on the ER of firms and therefore shorter time window closer to current time could be appropriate.

Finally, this study finds that general contribution towards emissions control is beneficial for firms in terms of FP, and thus, strong ER is found to be valued in terms of valuation of a firm. Combining the findings of this study with the finding of Humphrey et al. (2012) that the bigger firms are prone to have stronger CSP scores through greater resources, the differences among small and big firms towards ER and its potential effects on FP in the Nordics would be a potential approach for future studies. Furthermore, as climate change concerns and attention towards environmental issues remain to increase, the possible direction for future studies is to investigate environmental controversies and their potential impacts on FP in the Nordic countries.

LIST OF REFERENCES

- Aouadi, A. & Marsat, S. (2018). Do ESG Controversies Matter for Firm Value? Evidence from International Data. *Journal of Business Ethics*, 151(4), 1027-1047.
- Atan, R., Alam, M. M., Said, J. & Zamri, M. (2018). The impacts of environmental, social, and governance factors on firm performance. *Management of Environmental Quality: An International Journal*, 29(2), 182-194.
- Barker, R. (2001). *Determining value: Valuation models and financial statements*. Harlow: Prentice Hall. pp.150-152.
- Bekaert, G. & Hodrick, R. J. (2018). *International financial management* (3rd ed., pp. 274). Cambridge: Cambridge University Press.
- Bello, Z. Y. (2005). Socially Responsible Investing And Portfolio Diversification. *Journal of Financial Research*, 28(1), 41-57.
- Beurden, P. & Gössling, T. (2008). The Worth of Values – A Literature Review on the Relation Between Corporate Social and Financial Performance. *Journal of Business Ethics*, 82(2), 407-424.
- Bodie, Z., Kane, A. & Marcus, A. J. (2014). *Investments* (10th global ed., pp. 10, 206-207). New York: McGraw Hill Education.
- Borgers, A., Derwall, J., Koedijk, K. & Ter Horst, J. (2013). Stakeholder relations and stock returns: On errors in investors' expectations and learning. *Journal of Empirical Finance*, 22(C), 159-175.
- Brainard, W. C. & Tobin, J. (1968). Pitfalls in Financial Model Building. *The American Economic Review*, 58(2), 99-122.

- Brulhart, F., Gherra, S. & Quelin, B. (2019). Do Stakeholder Orientation and Environmental Proactivity Impact Firm Profitability? *Journal of Business Ethics*, 158(1), 25-46.
- Buyse, K. & Verbeke, A. (2003). Proactive environmental strategies: A stakeholder management perspective. *Strategic Management Journal*, 24(5), 453-470.
- Carhart, M. M. (1997). On Persistence in Mutual Fund Performance. *Journal of Finance*, 52(1), 57-82.
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39-48.
- CFA Institute (2015). Environmental, Social, And Governance Issues in Investing. A Guide for Investment Professionals [online]. [cited 18.02.2020]. Available from World Wide Web: <URL:<https://www.cfainstitute.org/-/media/documents/article/position-paper/esg-issues-in-investing-a-guide-for-investment-professionals.ashx>>
- Chandler, D. & Werther, W. B. (2017). *Strategic corporate social responsibility: Sustainable value creation* (4th ed., pp. 2-7, 18, 20, 127-129, 246-249). Los Angeles: SAGE.
- ECEUROPA (2018). Communication From The Commission To The European Parliament, The European Council, The Council, The European Central Bank, The European Economic And Social Committee Of The Regions. *Action Plan: Financing Sustainable Growth* [online]. [cited 31.02.2020]. Available from World Wide Web: <URL:<https://ec.europa.eu/transparency/regdoc/rep/1/2018/EN/COM-2018-97-F1-EN-MAIN-PART-1.PDF>>

Eiteman, D., Stonehill, A. I. & Moffett, M. H. (2004). *Multinational business finance* (10th ed., pp.442-445). Boston: Pearson Education.

El Ghoul, S., Guedhami, O., Kim, H. & Park, K. (2018). Corporate Environmental Responsibility and the Cost of Capital: International Evidence. *Journal of Business Ethics*, 149(2), 335-361.

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

Eliwa, Y., Aboud, A. & Saleh, A. (2019). ESG practices and the cost of debt: Evidence from EU countries. *Critical Perspectives on Accounting*. Article in press.

EU ETS. (2016). EU Emissions Trading System (EU ETS) [online]. [cited 28.04.2019]. Available from World Wide Web: <URL:https://ec.europa.eu/clima/policies/ets_en>

European Commission (2011). Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions. *A renewed EU strategy 2011-14 for Corporate Social Responsibility* [online]. [cited 17.02.2020]. Available from World Wide Web: <URL:https://www.europarl.europa.eu/meetdocs/2009_2014/documents/com/com_com(2011)0681_/com_com(2011)0681_en.pdf>

European Commission press release (2019). Sustainable finance: Commission welcomes deal on an EU-wide classification system for sustainable investments (Taxonomy) [online]. [cited 21.02.2020]. Available from World Wide Web: <URL:https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6793>

- EU Taxonomy (2019). Taxonomy Technical Report. *EU Technical Expert Group on Sustainable Finance. Finance a Sustainable European Economy* [online]. [cited 30.02.2020]. Available from World Wide Web: <URL:https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/190618-sustainable-finance-teg-report-taxonomy_en.pdf>
- Farooq, O. (2015). Financial Centers And The Relationship Between ESG Disclosure And Firm Performance: Evidence From An Emerging Market. *Journal of Applied Business Research*, 31(4), 1239.
- Freeman, E. (2010). *Strategic Management: A Stakeholder Approach*. Cambridge: Cambridge University Press. 4-20.
- Freeman, E. (1984). – *Strategic Management: A stakeholder approach*. Marshfield: Pitman Publishing Luc.
- Friedman, M. (1970, September 13). The Social Responsibility of Business is to Increase Its Profits. *The New York Times Magazine*.
- Galema, R., Plantinga, A. & Scholtens, B. (2008). The stocks at stake: Return and risk in socially responsible investment. *Journal of Banking and Finance*, 32(12), 2646-2654.
- Griffin, J. J. & Mahon, J. F. (1997). The Corporate Social Performance and Corporate Financial Performance Debate: Twenty-Five Years of Incomparable Research. *Business & Society*, 36(1), 5-31.
- GRI standards (2019). Consolidated set of GRI Sustainability Reporting Standards 2019. *GRI* [online]. [cited 30.01.2020]. Available from World Wide Web: <URL:<https://www.globalreporting.org/standards/gri-standards-download-center/consolidated-set-of-gri-standards/#user-details>>

- Guenster, N., Bauer, R., Derwall, J. & Koedijk, K. (2011). The Economic Value of Corporate Eco-Efficiency. *European Financial Management*, 17(4), 679-704.
- Gupta, K. (2018). Environmental Sustainability and Implied Cost of Equity: International Evidence. *Journal of Business Ethics*, 147(2), 343-365.
- Harjoto, M. & Laksmana, I. (2018). The Impact of Corporate Social Responsibility on Risk Taking and Firm Value. *Journal of Business Ethics*, 151(2), 353-373.
- Heinkel, R., Kraus, A. & Zechner, J. (2001). The Effect of Green Investment on Corporate Behavior. *Journal of Financial and Quantitative Analysis*, 36(4), 431-449.
- Ho, F., Wang, H. & Vitell, S. (2012). A Global Analysis of Corporate Social Performance: The Effects of Cultural and Geographic Environments. *Journal of Business Ethics*, 107(4), 423-433.
- Humphrey, J. E., Lee, D. D. & Shen, Y. (2012). Does it cost to be sustainable? *Journal of Corporate Finance*, 18(3), 626-639.
- Jo, H. & Statman, M. (1993). Doing Well while Doing Good? The Investment Performance of Socially Responsible Mutual Funds. *Financial Analysts Journal*, 49(6), 62-66.
- Jones, M. (2014). *Financial accounting* (2nd ed., pp. 89-95, 110-116, 220-223). Chichester: John Wiley & Sons.
- Jurgens, M., Berthon, P., Papania, L. & Shabbir, H. A. (2010). Stakeholder theory and practice in Europe and North America: The key to success lies in a marketing approach. *Industrial Marketing Management*, 39(5), 769-775.
- Kadyan, J. (2016). United Nations Global Compact and Corporate Social Responsibility. *International Journal of Science and Research (IJSR)*, 5(10), 478-480.

- Kempf, A. & Osthoff, P. (2007). The Effect of Socially Responsible Investing on Portfolio Performance. *European Financial Management*, 13(5), 908-922.
- KPMG (2017). The Road Ahead. The KPMG Survey of Corporate Responsibility Reporting 2017. *New Zealand Supplement* [online]. [cited 25.02.2020]. October 2017. Available from World Wide Web: <URL:<https://home.kpmg/xx/en/home/insights/2017/10/the-kpmg-survey-of-corporate-responsibility-reporting-2017.html>>
- Lanis, R. & Richardson, G. (2013). Corporate social responsibility and tax aggressiveness: A test of legitimacy theory. *Accounting, Auditing & Accountability Journal*, 26(1), 75-100.
- Lee, K., Cin, B. C. & Lee, E. Y. (2016). Environmental Responsibility and Firm Performance: The Application of an Environmental, Social and Governance Model. *Business Strategy and the Environment*, 25(1), 40-53.
- Liang, H. & Renneboog, L. (2017). On the Foundations of Corporate Social Responsibility. *Journal of Finance*, 72(2), 853-910.
- Lins, K. V., Servaes, H. & Tamayo, A. (2017). Social Capital, Trust, and Firm Performance: The Value of Corporate Social Responsibility during the Financial Crisis. *Journal of Finance*, 72(4), 1785-1824.
- Marketbusinessnews.com (2019). What is ESG? Definition and meaning [online]. [cited 08.02.2020]. Available from World Wide Web: <URL:<https://marketbusinessnews.com/financial-glossary/esg-definition-meaning/>>
- Marr, B. (2012). *Key performance indicators: The 75 measures every manager needs to know* (1st ed., pp. 49-51). Harlow ; New York: Pearson Financial Times Pub.

- McWilliams, A. & Siegel, D. (2001). Corporate Social Responsibility: A Theory of the Firm Perspective. *The Academy of Management Review*, 26(1), 117-127.
- Miller, S., Eden, L. & Li, D. (2018). CSR Reputation and Firm Performance: A Dynamic Approach. *Journal of Business Ethics*, 1-18.
- MSCI 2020. ESG 101: What is ESG? [online]. [cited 29.01.2020]. Available from World Wide Web: <URL:<https://www.msci.com/what-is-esg>>
- Nordea 2020. What is ESG [online]. [cited 14.02.2020]. Available from World Wide Web: <URL:<https://www.nordea.com/en/sustainability/sustainable-business/what-is-esg/>>
- Nyilasy, G., Gangadharbatla, H. & Paladino, A. (2014). Perceived Greenwashing: The Interactive Effects of Green Advertising and Corporate Environmental Performance on Consumer Reactions. *Journal of Business Ethics*, 125(4), 693-707.
- Parguel, B., Benoît-Moreau, F. & Larceneux, F. (2011). How Sustainability Ratings Might Deter 'Greenwashing': A Closer Look at Ethical Corporate Communication. *Journal of Business Ethics*, 102(1), 15-28.
- Prior, D., Surroca, J. & Tribó, J. A. (2008). Are Socially Responsible Managers Really Ethical? Exploring the Relationship Between Earnings Management and Corporate Social Responsibility. *Corporate Governance: An International Review*, 16(3), 160-177.
- Refinitiv (2020). ASSET4 ESG Data Glossary in Datastream.
- Robeco (2020). ESG Definition [online]. [cited 16.02.2020]. Available from World Wide Web: <URL:<https://www.robeco.com/en/key-strengths/sustainability-investing/glossary/esg-definition.html>>

- Sassen, R., Hinze, A. & Hardeck, I. (2016). Impact of ESG factors on firm risk in Europe. *Journal of Business Economics*, 86(8), 867-904.
- Schröder, M. (2007). Is there a Difference? The Performance Characteristics of SRI Equity Indices. *Journal of Business Finance & Accounting*, 34(1-2), 331-348.
- Schwartz, M. & Carroll, A. (2003). Corporate Social Responsibility: A Three-Domain Approach. *Business Ethics Quarterly*, 13(4), 503-530.
- Tobin, J. (1969). A General Equilibrium Approach To Monetary Theory. *Journal of Money, Credit and Banking*, 1(1), 15-29.
- UL (2019). Sins of Greenwashing [online]. [cited 16.01.2020]. Available from World Wide Web: <URL:<https://www.ul.com/insights/sins-greenwashing>>
- UNFCCC Kyoto Protocol (2018). Targets for the first commitment period [online]. [cited 20.04.2019]. Available from World Wide Web: <URL:<https://unfccc.int/process/the-kyoto-protocol>>
- UN PRI (2019). An Introduction to Responsible Investment. What is Responsible Investment?. *United Nations Global Compact. United Nations Principles of Responsible Investing* [online]. [cited 20.12.2019]. Available from World Wide Web: <URL:<https://www.unpri.org/pri/an-introduction-to-responsible-investment/what-is-responsible-investment>>
- Wang, D. H., Chen, P., Yu, T. H. & Hsiao, C. (2015). The effects of corporate social responsibility on brand equity and firm performance. *Journal of Business Research*, 68(11), 2232-2236.
- Wooldridge, J. M. (2016). *Introductory econometrics: A modern approach* (6th ed., pp. 92, 274, 764). Boston: Cengage Learning.