UNIVERSITY OF VAASA

SCHOOL OF ACCOUNTING AND FINANCE

Eerika Niklander

THE PAYOFF OF DOING GOOD – THE IMPACT OF ESG CRITERIA ON FIRMS' COST OF DEBT CAPITAL

European Evidence

Master's Thesis in
Accounting and Finance

Master's Degree Programme in Finance

VAASA 2020

TABLE OF CONTENTS **page**

LIST OF FIGURES AND TABLES **page**

UNIVERSITY OF VAASA
School of Accounting and Finance

Author:	Eerika Niklander
Topic of the thesis:	The payoff of doing good - The impact of ESG criteria on firms' cost of debt capital: European evidence
Degree:	Master of Science in Economics and Business Administration
Master's Programme:	Master's Degree Programme in Finance
Supervisor:	Jussi Nikkinen
Year of entering the University:	2017
Year of completing the thesis:	2020
Number of pages:	74

ABSTRACT

During the past two decades a growing attention towards the phenomenon of corporate social responsibility (CSR) has emerged and firms are increasingly expected to implement CSR practices by socially conscious stakeholders. The purpose of this thesis is to study the relationship between CSR performance and cost of debt of a firm in order to find out how non-financial performance and CSR practices are considered by creditors when assessing the creditworthiness of a firm.

In this thesis CSR performance is measured with environmental, social and governance (ESG) scores. The impact of ESG scores on the firms' cost of debt is examined using pooled OLS regressions. The data includes information on 346 publicly listed firms from 7 European markets and it is obtained from Thomson Reuters ASSET4 database for the time period from 2002 to 2018. Furthermore, the thesis aims to find out whether the firms with the highest ESG scores gain financial benefit in the form of a lower cost of debt contrasted with the firms with the lowest ESG scores.

This study contributes to the existing literature by finding empirical evidence supporting the theory that firms with superior CSR performance tend to benefit from lower interest rates in the European market. The findings suggest that firms with superior overall ESG scores are rewarded by creditors with lower interest rates. Furthermore, the results propose that firms wanting to decrease their cost of debt should invest especially in CSR activities that improve the social score of the firm as superior social performance can lead to equally lower cost of debt as having a high overall ESG score. In addition, high governance scores, and contradictorily also low social scores, are found to be negatively related to cost of debt but the impact is smaller compared to the high overall ESG scores and the high social scores.

KEY WORDS: CSR, ESG, cost of debt

1. INTRODUCTION

Sustainability and corporate social responsibility have become some of the most significant trends in decades affecting the financial markets (Clark, Feiner & Viehs 2015; Ng & Rezaee 2015; Kim & Venkatachalam 2011). The number of companies reporting on sustainability issues has been increasing substantially. In 2017 85% of the companies listed in S&P 500 index published sustainability or corporate responsibility reports, whereas in 2011 the number was below 20%. The increase in the numbers is largely due to investors becoming more aware of sustainability issues, which has lead to an increase in the demand for relevant, comparable and accurate disclosure of ESG (environmental, social and governance) reports from the companies that they hold in their portfolios. (G&A Institute 2018.)

Nevertheless, from the perspective of an investor there is a debate about whether applying the sustainability criteria has a positive or negative impact on creating value for the investment (Jensen 2002). At the same time there is also an ongoing debate of whether the cost of implementing more corporate social responsibility (CSR) practices exceeds the monetary benefit gained from such activities. To put more simply, is responsible and conscious behaviour financially beneficial. In this thesis, cost of debt is used as a proxy for financial performance.

The latest United Nations Global Compact CEO study (Accenture 2016) examined the attitudes towards sustainability of more than one thousand CEOs globally. According to the results, 97% of the CEOs regarded sustainability as either an important or very important factor affecting the future success of their companies. Conversely, only 67% of the respondents thought that their company has taken adequate measures to tackle the global challenges related to sustainability. (Accenture 2016.)

One explanation for why the incorporation of CSR practices is still perceived as partly challenging is that there is still a lot of focus on the short-term results on the financial markets. A survey conducted by McKinsey & Company and CPP Investment Board found that 79% of the respondents who are C-level executives and board members personally feel responsible for delivering financial results in less than 2 years. Moreover, the incentive structures of firms are often build to reward short-term performance, which conflicts with the sustainability goals that commonly require a long-term approach. Consequently, the focus on making long-term strategic decisions that would benefit the

company both with a stronger financial performance and increased innovation in the future is deteriorated. (Bailey, Bérubé, Godsall & Kehoe 2014; Eccles & Serafeim 2013.)

Historically, the idea that there is an exiting correlation between corporate responsibility and the financial performance of a firm has not always received unanimous acceptance. Traditionally, activities related to corporate responsibility are regarded as a cost to the firm as it is considered that the resources used for such activities could be invested more profitably. Thus, according to the conventional view activities related to corporate responsibility ought to be avoided. (Magnanelli & Izzo 2017; Sharfman & Fernando 2008.)

However, there has been a shift in attitudes and sustainability is increasingly recognized for having the potential to increase profits as well as introduce options for improved value creation. Contrasted with the traditional view that the sole purpose of a business is to increase the value for its owners through efficiency and cost structures the shift in the attitudes is even more pronounced. (Humphrey, Lee & Shen 2012.)

The inclusion of ESG factors into the firm's sustainability strategy has the possibility to lead to cost savings through sustainable innovation in various fields affecting for example resource efficiency and product development. These improvements enable higher margins and revenues leading to enhanced financial performance. (Zeidan & Spitzek 2015; Eccles et al. 2013; Sharfman et al. 2008.) Moreover, CSR activities can be considered when forming the risk management strategy for a firm. Various risks related to environmental, social and governance issues may compromise the reputation of the firm. Thus, CSR activities can be utilized to enhance the reputation and control the risk of receiving disadvantageous political, regulatory or social sanctions. The absence of CSR activities may result in the loss of either firm or executive reputation, increased political pressure or pressure from the media, monetary sanctions and a possibility of consumer boycott. Overall, the financial benefits gained from CSR activities are seen to have the potential to surpass the the costs related to the activities. (Al-Hadi, Chatterjee, Yaftian, Taylor & Hasan 2017; Minor & Morgan 2011; Godfrey 2005.)

Previously, most studies have concentrated on the relationship between CSR performance and cost of equity (Cellier & Chollet 2016; El Ghoul, Guedhami, Kwok & Mishra 2011; Sharfman et al. 2008). This is perhaps due to the conventional perception of equity market pricing the CSR performance of firms more efficiently compared to the debt market. (Erragragui 2018.) However, research focusing on the relation between CSR performance

and cost of debt has emerged in the recent years. The importance of corporate debt market in current financial market is demonstrated by the estimations of corporate debt market exceeding $253 trillion in the end of 2019, whereas global equity outstanding represented $85 trillion according to Deutche Bank (Institute of International Finance 2020; CNBC 2019). This indicates that debt is the most significant form of external financing for firms, which emphasizes the need to understand how CSR performance is evaluated among creditors.

Goss and Roberts (2011) as well as Hsu and Chen (2015) use data from the United States to examine the relation between CSR performance and financial risk. The results of Goss et al. (2011) suggest that banks perceive CSR concerns as increased financial risk which is reflected in the cost of debt. Accordingly, firms with CSR concerns have a higher cost of debt compared to firms with superior CSR performance. Hsu et al. (2015) find that firms with superior CSR performance benefit from being responsible. Such firms are likely to have higher credit ratings and a lower cost of debt in comparison with firms that have low CSR performance scores. The results indicate that CSR related activities reduce the financial risk by improving the information asymmetry between the firm and its stakeholders. The results of the above-mentioned studies are supported by Erragragui (2018) who studies the relation between corporate social performance and the cost of debt of firms in the United States. He finds that concerns related to environment increase the cost of debt, whereas concerns related to governance have no effect on the default risk perceived by creditors. However, superior performance in either area is rewarded with a lower cost of debt.

Contradictory evidence is presented by Sharfman et al. (2008) who demonstrated that increased environmental risk management is associated with a higher cost of debt capital using the data of S&P 500. These results are supported by the findings of Magnanelli and Izzo (2017) who similarly find a positive relationship between CSR performance and cost of debt. In other words, firms with strong CSR performance are associated with higher cost of debt. This supports the traditional view that suggests that creditors consider investments in CSR practices merely as redundant costs instead of factors having the potential to reduce risks.

As described, the majority of previous studies focus on examining the effects of CSR performance on the cost of debt on the U.S. market. Thus, there is a lack of studies that would have been conducted using the data of companies listed in European stock exchanges. According to a Eurobarometer poll conducted by the European Commission

in 2017, 94% of European citizens consider conserving nature important and the percentage considering it very important has only increased over the last decade. The answers also describe the concern that the consumers have of products containing plastic and various chemicals and the possible negative consequences that these materials could have for the consumers' own health as well as the environment. The poll further shows that the European consumers are personally devoted to act but expect the institutions and businesses to do the same. (European Commission 2017.) Thus, the increasing awareness concerning sustainability issues and the ongoing changes in consumption habits affect both financial institutions as well as firms, as consumers demand also them to react and adapt accordingly. This gives a strong motivation to study whether CSR performance has an impact on the loan decisions in the European debt market.

This study concentrates on examining the European markets by analysing altogether 346 firms from 7 European markets. The methodology of this study follows the methodology of Erragragui (2018) but differs from the previous literature by utilizing the data of Thomson Reuters ASSET4. This study contributes to the existing literature by finding evidence supporting the theory that firms with superior CSR performance tend to benefit from lower interest rates.

1.1. Objectives of the thesis

Corporate responsibility has been an increasingly popular subject of interest in financial research for the past decade. Previous research has mostly concentrated on using the data from the U.S. market. This thesis contributes to the literature by continuing the research and examining whether CSR performance, which in this study is measured with the ESG ratings, has an effect on the firms' cost of debt capital in the European markets.

The motivation behind studying the ESG ratings impact on the firms' cost of debt capital is understanding the significance of the ESG ratings and CSR efforts to the creditors. The findings answering this question will also contribute to the debate of whether firms benefit financially from superior CSR performance. The extent to which firms benefit from having positive ESG ratings will also indicate to what degree ESG criteria should be implemented and resources allocated to firms with high ESG ratings and thus superior CSR performance. The subject of this thesis has also novelty value as the impact of ESG criteria on a firm's cost of debt capital has not yet been largely studied and the findings seem to be divergent.

The research question is formulated to examine the possible financial benefit that having a superior CSR performance could result in. The theories of corporate social responsibility indicate that responsibility practices diminish the information asymmetry between the firm and its stakeholders decreasing the financial risk associated with the firm. Furthermore, the increased levels of transparency should lead to a better assessment of the risk profile of a firm. (Hsu et al. 2015.) The research question concentrates on finding out whether CSR performance has an impact on the cost of debt capital of a firm. The motivation is to find out how creditors consider non-financial performance when assessing the risk profile of a firm. The research question, more specifically, examines the following:

How is the cost of debt of a firm affected by its ESG ratings?

As described earlier, Hsu et al. (2015) and Goss et al. (2011) find that firms with low CSR performance have a higher cost of debt compared to firms with high CSR performance. Similarly, the results of Erragragui (2018) indicate that superior scores especially related to environmental and governance issues decreases the cost of debt. The following hypothesis is formulated based on the findings of previous research:

High ESG ratings are inversely related to cost of debt.

1.2. Structure of the thesis

The thesis presents an extensive review of current research and theories on corporate social responsibility and the ESG ratings. This thesis will proceed in the following manner. The second chapter focuses on the theoretical background of corporate social responsibility introducing relevant theories behind CSR and the ESG criteria as well as socially responsible investing. The third chapter presents the debt market and theory behind the cost of debt of a firm. The fourth part reviews previous research regarding CSR affecting financial risk and cost of debt summarizing the main findings. The fifth chapter presents the data and thoroughly describes the research methods used in this thesis. The sixth chapter presents and analyses the empirical findings and discusses the limitations affecting the study. The last chapter summarizes the major findings and deductions of the research and finally concludes the thesis. Additionally, some topics for further research are suggested in the conclusions.

2. CORPORATE SOCIAL RESPONSIBILITY

The purpose of this chapter is to define corporate social responsibility and present the theoretical background by introducing the latest and most relevant theories behind corporate social responsibility (CSR) and the environmental, social and governance (ESG) criteria, which has become the one of the most common ways of measuring the non-financial performance of a firm especially in matters related to CSR. Furthermore, the history behind the development of corporate social responsibility is introduced. This is important in order to understand the emergence of responsible investing.

2.1. Defining CSR

Corporate social responsibility is a much used term of a complex social phenomenon and thus it has been lacking a clear definition. The discussion related to CSR ranges from topics related to different aspects of ecology, society and economy such as profitability of business, stability of the economy, the organization of work and production to environmental preservation. In general, CSR is used to refer to actions related to employees, communities and the environment that are not required from the firm by the legislation. (Barnea & Rubin 2010.) In his study Sheehy (2015: 643) defines CSR as "a form of international private self-regulation focused on the reduction and mitigation of industrial harms and provision of public good".

European Commission (2011) defines corporate social responsibility (CSR) as "the responsibility of enterprises for their impacts on society". This definition is based on the presumption of firms respecting the legislation and the agreements with all its stakeholders. Operating in a socially responsible manner requires companies to integrate social, environmental, ethical, human rights and consumer concerns into its strategy and daily operations. The aim of a socially responsible firm is to maximise the value that it is creating not only for its shareholders but also for its other stakeholders as well as the whole society. Having a long-term CSR strategy that includes innovative product and service development as well as development of business models that have positive effects both socially and environmentally, supports this endeavour. Moreover, identifying, averting and diminishing possible unfavourable effects is an essential part of a CSR strategy. (European Commission 2011.)

2.2. Development of CSR

The investors' awareness about issues related to social responsibility has significantly increased in the past two decades as the research in corporate social responsibility and corporate governance has increased. The discussion around corporate social responsibility started already in the 1950s and 1960s in the U.S. as an outcome of rising civil-rights and feminist movements, the ongoing Vietnam War as well as a heightened concern of the state of the environment. The view that firms should take responsibility for these matters started gaining popularity among the general public. The history of socially responsible investing dates back to the same time, 1950s, when a fund called the Pioneer Fund first started screening sin stocks. The purpose was to assist Christian investors in shunning away from investing in industries promoting sin and vice. (De Colle & York 2009.)

The view on what the main purpose of a company ought to be and to what extent it includes taking into consideration ethical issues has largely varied throughout the years. Previous research suggests two contrary views on CSR. The first one is the shareholder expense view, which takes a stand against CSR. Conversely, the second view is the theory of the stakeholder value maximization, which encourages CSR activities. (Li, Gong, Zhang & Koh 2018)

In his famous essay Friedman (1970) states that the sole purpose of a business is to make profit. This view is known as the shareholder theory as according to the theory the firm is exclusively responsible for maximizing the returns for the shareholders. This implies that the firm has no responsibility for benefiting the other stakeholders or the society and therefore should not invest in CSR activities on behalf of its shareholders. Furthermore, he argues that if an individual shareholder wishes to contribute to a socially responsible cause he may do so at his own expense. This view was questioned by many already during the time when it was published. The opinions of the purpose of a business ranged from going beyond profit making and legal and economic requirements (Davis 1960; Backman 1975; McGuire 1963) and voluntary activities (Manne & Wallich 1972) to taking responsibility in several social problem areas (Hay, Gray & Gates 1976) and giving way to social responsiveness (Ackerman & Bauer 1976; Sethi 1975).

Despite the increased debate around the subject in the 1970s, corporate social responsibility still lacked a framework. A framework of CSR was constructed by Carroll (1979) based on the four different types of responsibilities that she distinguished in her

research. The four types identified are economic responsibility, legal responsibility, ethical responsibility and discretionary responsibility. The economic responsibility is the single most important responsibility of a business. It includes producing services and products needed in the society and selling them at a profit. Legal responsibility can be defined as the legislative environment and the common regulations and rules that companies are expected to follow in their operations. Their economic mission is supposed to be fulfilled within the limitations of the legislation. Ethical responsibilities mean the norms and encouraged behaviour defined by the society that companies ought to follow in their actions. Discretionary responsibilities mean all the additional social roles that are not defined by society but which society expects the company to assume. Such roles are voluntary and it is at the discretion of the company to choose the kind of social activities it wants to engage in. However, if a company would not wish to assume any such roles, it would not be considered as unethical by the society. (Carroll 1979.)

In 1984 Freeman presented the stakeholder theory as an opposing theory to the shareholder theory that had been introduced over ten years earlier by Friedman (1970). Unlike the shareholder theory that argues that the most fundamental purpose of a firm is to maximize the profit of the owners of the firm, the stakeholder theory believes that firms should take into consideration also other stakeholders of the firm such as customers, employees and local communities. (Freeman 1984.)

In the end of 20th century firms especially in the tobacco, oil and chemical industries started facing critique for their involvement in matters such as human rights violations and environmental disasters. As a consequence, they had to reassess their practices to gain back the trust of consumers and regulators. Similar expectations were soon aimed at firms in all the other industries that had so far been considered mostly uncontroversial. Some of the practices and policies were not completely new to the firms such as providing adequate and safe working conditions or healthcare to employees or donating to charity. However, the change initiated by adoption of CSR has made the firms' reporting of CSR practices and their involvement in the society more coherent, comparable and professional. (Crane, Matten & Spence 2014.)

Modern CSR frameworks that are used by firms and investors alike have also been influenced by the stakeholder theory of Friedman. One of the most notable frameworks is the Global Reporting Initiative (GRI), which is the first global standards that is used by multinational corporations, small and medium enterprises as well as governments for sustainability reporting. The GRI standards were introduced in 2000 with the aspiration

of enabling third parties such as investors and creditors to evaluate and compare the responsibility in environmental, social and governance matters of firms and their supply chains. Furthermore, a framework for sustainability reporting increases the transparency of firms and helps firms in communicating their positive and negative sustainability impacts to stakeholders such as customers and creditors. The standards are used worldwide in 90 countries and in 2017 75% of the world's largest 250 firms reporting on sustainability used GRI standards. (Global Reporting Initiative 2020.)

The framework of corporate social responsibility is in constant change. For example, nowadays many of the companies operating in controversial businesses can without difficulty meet the responsibilities defined by Carroll (1979) yet many would not consider them socially responsible. The sin companies are regarded as unethical because of their core products, which often have unfavourable effects and consequences for an individual as well as the whole society.

2.3. Evaluation of CSR performance

The CSR performance of a firm can be evaluated according to ESG criterion that takes into account environmental, social and corporate governance issues (Renneboog, Horst & Zhang 2008). Table 1 presents some of the sustainability issues that are evaluated in each dimension of ESG criteria (Clark, Feiner & Viehs 2015).

Table 1. Examples of sustainability issues included in the ESG criteria (Clark, Feiner & Viehs 2015).

Environmental	**Social**	**Governance**
• Biodiversity / land use • Carbon emissions • Climate change risks • Energy usage • Raw material sourcing • Regulatory risks • Supply chain management • Waste and recycling • Water management • Weather events	• Community relations • Controversial business • Customer relations • Diversity issues • Employee relations • Health and safety • Human capital management • Human rights • Responsible marketing and R&D • Union relationships	• Accountability • Anti-takeover measures • Board structure and size • Bribery and corruption • CEO duality • Executive compensation schemes • Ownership structure • Shareholder rights

Environmental score takes into account everything related to sustaining and preserving the environment. This includes factors such as emissions, waste management and the use of resources. The environmental score measures how the firm manages risks and opportunities related to environment and the impact it has on the nature. (Clark, Feiner & Viehs 2015.)

Social score is used to evaluate the relation and trust between the firm and its stakeholders including the firms' employees, customers, suppliers and the communities where it is active. Social score includes factors such as employee and customer relations, diversity, human rights and safety policies. (Clark, Feiner & Viehs 2015.)

Governance score assesses the corporate governance of a firm and the firm's processes that are meant to ensure that the board and management acts in a manner that benefits the shareholders and that mismanagement is minimized. The governance score includes factors such as the compensation of leadership, board structure, audits and internal controls as well as bribery and corruption practices. Furthermore, it indicates whether reporting is carried out according to legislation and common standards. (Clark, Feiner & Viehs 2015.)

ESG criteria is increasingly utilized by firms' socially conscious stakeholders such as investors and creditors to assess the sustainability performance of a firm. This, alongside financial information, is used to decide whether to invest in the stocks of the firm or to grant a loan. Besides the firms' successes the investors are also interested in the risks emerging from the non-financial activities affecting the reputation of the firm that could be related to for example environmental disasters, violations in human rights, questionable working conditions or poor corporate governance. The ESG rating illustrates the measures and their impacts that the firm has undertaken related to improving its responsibility. Responsible practices lower the exposure to ESG risks and enhances the ESG ranking whereas the lack of responsible actions increases the risks resulting in a decreased ESG rating. (Crane et al. 2014.)

The increasing interest towards measuring ESG is also reflected in the number of third-party organizations that assess firms in order to provide ESG data. However, currently a standardized manner for measuring firms' performance related to ESG issues does not exist. The challenge with developing a standard evaluation methodology arises from the complexity of depicting both the good performance as well as the deficiencies in a manner where the good results in one area do not hide the shortcomings in other areas. The

offsetting effect is not sought-after as firms are regarded socially responsible when the performance is in balance between different dimensions of ESG. (Escrig-Olmedo, Muños-Torres, Fernández-Izquierdo & Rivera-Lirio 2014.)

2.4. Theories of CSR

The value maximization theory, which is also known as the shareholder theory, states that all decisions made in a firm should be made with a regard to that they will increase the total market value of the firm in the long term. The total market value is considered to include equity, debt, preferred stock and warrants. The discussion around whether firms should maximize their value or not can be separated into two issues. The first one regards the value maximization of the firm as the single most important objective, whereas the second view questions the first view by stating that the objective of a firm should rather be something that benefits the society, for example sustaining employment or improving the environment. (Jensen 2002.) The value maximization theory takes a stand against CSR activities as they are seen to be a cost for the firm that could have been invested in something more profitable (Li et al. 2018).

Stakeholder theory suggests that managers should take into account the interests of all stakeholders of the firm when making decisions. These stakeholders include both individuals as well as groups such as customers, employees, financial claimants, communities and government officials. (Jensen 2002.) The stakeholder theory is in favour of investments in CSR activities as they are seen to benefit the different stakeholders as well as the society at large (Li et al. 2018).

When examining the contrasting interests of the firm's management, its shareholders and other stakeholders, the theories of agency relationship and asymmetrical information need to be considered. Agency relationship is such where the principal (the owner) delegates some responsibilities to another person (the agent) allowing the agent control and right of decision. Thus, agency relationship can be defined as the separation of ownership from control. Practically, this means that stockholders give the management of the firm the responsibility for all decision making concerning the company while expecting the management to act in the stockholders' best interest. However, managers do not always act in the best interest of the owners. Agency cost is the cost to the shareholder that arises as a consequence of such behaviour. (Jensen & Meckling 1976.)

Asymmetrical information is a consequence of the agency relationship. Asymmetrical information means that in financial transactions the other party has more relevant information than the other. In the context of this thesis it means that the manager has more relevant information about the company, its opportunities and risks compared to the creditor or investor. (Brealey, Myers & Allen 2011: 466.)

There are varying views on whether CSR activities increase or decrease the value of the firm. Barnea and Rubin (2010) introduced the overinvestment theory, which is based on the agency theory of Jensen et al. (1976). In general, the overinvestment theory proposes that if CSR activities do not maximize the value of the firm, engaging in them is costly and a waste of resources that undermines the financial performance of the firm. Therefore, the overinvestment theory interprets high CSR performance negatively and suggests that the firms with the highest CSR scores are expected to have the highest cost of debt due to weak financial performance. (Jo & Harjoto 2012a; Barnea et al. 2010.) In their study Barnea et al. (2010) state that CSR expenses can be in line with maximizing the value of a firm if it is according to the preferences of the shareholders. According to their findings, to some extent investments in CSR activities contribute towards a higher firm value. However, CSR activities are often more advantageous to the managers than the shareholders, as managers bear little cost in investing in CSR activities but in doing so they personally benefit from gaining a reputation of promoting responsibility. This could lead to managers persuading firms to overinvest in CSR at the expense of the shareholders. CSR investments can thus be seen as agency conflicts between the management and the shareholders of the firm (Goss et al. 2011).

Conflict resolution theory suggests the opposite. Van Beurden and Gössling (2008) conducted an extensive literature review on the relationship between CSR and financial performance. They find evidence of positive correlation between the two suggesting that implementing ethics in business is financially beneficial. The findings of Jo et al. (2012a) support this conclusion. Their results demonstrate that engagement in CSR activities, specifically those related to community, environment, diversity and employees, is positively related to financial performance. Furthermore, various studies (Lopatta, Buchholz & Kaspereit 2016; Hsu & Chen 2015; Kim & Kim 2014; Fombrun & Shanley 1990) have studied the relation between CSR and agency costs and found that CSR activities diminish agency costs as they significantly reduce the information asymmetry that exists between the internal and external stakeholders. Thus, CSR is regarded to provide additional nonfinancial information for investors, creditors as well as regulators. This suggests, that the expenses of CSR activities can be rationalized as a way of reducing

the levels of asymmetrical information. Based on the conflict resolution theory high levels of CSR should reduce the cost of debt as more information of the firm is available for creditors.

To summarize, the theories suggest that there is a balance that needs to be found between the possible financial benefits and disadvantages from CSR activities. The benefits include for example lower levels of information asymmetry between the firm and the investors. However, the firms need to be cautious of not overinvesting in CSR activities as this deteriorates the agency problem.

2.5. Socially responsible investing

Socially responsible investing (SRI) means identifying and investing in firms with high CSR. The CSR performance of a firm is generally assessed based on the ESG criteria. (Renneboog, Horst & Zhang 2008.) The development of socially responsible investing is largely enabled by the sustainability reporting standards such as the GRI. Screening for socially responsible investments would not be possible if information about the sustainability practices, policies and performance of firms would not be available. Furthermore, having common standards improves the quality of the reported information making it comparable. (Willis 2003.)

Investors investing in a socially responsible manner expect not only to attain financial utility from their investments but also non-financial utility that comes with making investments that are in accordance with their personal and societal values (Bollen 2007). The results of previous research indicate that investors as well as analysts consider the improved performance in environmental risk factors when making investments and recommendations (Mackey, Mackey & Barney 2007; Heinkel, Kraus & Zechner 2001).

In order to support and engage investors in taking ESG criteria into account alongside more traditional financial factors an international group consisting of world's largest institutional investors created The Principles of Responsible Investment (PRI) in 2006. The PRI presents six principles that suggest possible actions of how to include issues related to environmental, social and governance into investment practice. (UNPRI 2019.) In addition to principles guiding institutional investors in implementing ESG criteria, sustainability is also increasingly considered among financial institutes such as banks. United Nations Environment Programme - Finance Initiative (UNEP FI) runs a banking

programme which is a large network of over 130 leading banks all over the world. Their aim is to increase lending that supports economic activities that are both socially and environmentally sustainable. In order to support the endeavours towards reaching the sustainable development goals set by the Paris Climate Agreement the Principles of Responsible Banking were created by UNEP FI in 2019. The principles offer support for firms in aligning the strategy of the firm with the sustainability goals as well as setting objectives for the evaluation of the results. Furthermore, the public disclosure of the objectives, actions and results is recommended in order to increase transparency. (UNEP FI 2019.)

The commitment of the 130 leading banks to follow the Principles of Responsible Banking implies that major financial institutes consider implementing sustainability criteria in all investment and loan decisions important and aim to prioritize investments that are sustainable for the environment and climate. This could be reflected in the findings of this research if banks favour high CSR performance with a lower cost of debt.

2.5.1. Sin stocks

Despite SRI gaining popularity among many investors in recent years, some investors do not abstain from investing also in so called sin stocks. Sin stocks are the stocks of publicly traded companies that are in the business of taking advantage of human weaknesses. The industries in which these companies operate include alcohol, tobacco, gambling, adult entertainment and weapons. (Blitz et al. 2017; Hong & Kacperczyk 2009.) In their research Hong et al. (2009) studied how the social norms affect the cost of capital of sin stocks. The products of these companies are often deemed sinful because of the addictions that they cause and the unfavourable consequences they have on an individual and the society if consumed excessively. Therefore, social norms do not encourage funding such businesses. (Hong et al. 2009.)

Investing in these stocks is considered to be the opposite to responsible investing and highly against the Principles of Responsible Investment. Many investors form an exclusion list of stocks that they refuse to invest in in order to avoid being associated with the activities of these firms (Blitz et al. 2017; Kim & Venkatachalam 2011). According to the research of Hong et al. (2009) 15-20% of large institutional investors, such as pension funds and other norm-constrained institutions, avoid including sin stocks in their portfolios. Thus, they are willing to pay or accept missing a profit in order to discriminate certain stocks. This cost comes from a few different sources. Firstly, in avoiding sin

stocks one misses out on the opportunity of diversifying portfolio with such stocks. In addition to the aforementioned, sin stocks are found to often be comparably cheap when measured with price-to-book or price-to-earnings ratios and contrasted against other stocks with similar characteristics. This implies that sin stocks should have a higher cost of capital as a result of trading at a lower price-to-earnings (P/E) ratio. This avoidance of investing in sin stocks causes a considerable price effect as it affects the cost of capital of such firms significantly. (Hong et al. 2009.)

Blitz et al. (2017) studied the observed anomaly of sin stocks generating positive abnormal returns. Previously, the abnormal returns have been rationalized as a result of the sin stocks being underpriced due to a large number of investors refusing to make investments in them. Therefore, investors who do invest in sin stocks would earn a premium from acting against the social norms (Hong et al. 2009). Another explanation for the sin stock premium is that the sin stock firms gain financial advantage from not acting according to the social norms as doing so would entail expenses related to maintaining a certain standard (Fabozzi, Ma & Oliphant 2008). However, the latest findings of Blitz et al. (2017) present contrasting evidence indicating that the sin stocks do not generate abnormal returns when controlled for profitability and investment asset pricing factors presented by Fama and French (2015) in addition to the size, value and momentum factors. Consequently, these findings contradict the theory of investors earning a premium due to the reputation risk when investing in sin stocks.

In theory, sin stocks should have the weakest ESG performance as their attributes are contrary to those of good ESG performers. Sin stock firms abstain from conforming to socially acceptable standards, which can be expected to be reflected in the ESG scores of such firms. Under this assumption, sin stocks should be associated with a significantly higher risk profile and thus a higher cost of debt capital.

3. CORPORATE DEBT MARKET

The aim of this chapter is to introduce the global debt markets and its standing in the corporate capital markets. The most common forms of corporate debt; bank lending and corporate bonds, are presented and their characteristics and the factors affecting the cost of debt are described. The final part discusses how firms choose between different debt sources based on the findings of previous research.

3.1. Structure of corporate debt market

The capital structure of a firm is the ratio between debt and equity, which tells how the firm finances its operations and future growth. The optimal capital structure varies largely between firms depending on various determinants such as the industry in which the firm operates. (Brealey et al. 2011: 4, 343.) According to the estimations, the size of the global debt market exceeded $253 trillion at the end of 2019, whereas the size of the equity market was $85 trillion, representing only a third of the size of the debt market (Institute of International Finance 2020; CNBC 2019). The bond market accounted for almost half of the size of debt market with its size being $115 trillion (Institute of International Finance 2019). This illustrates the significance of corporate debt market as a source of external financing for firms (Menz 2010; Denis & Mihov 2003).

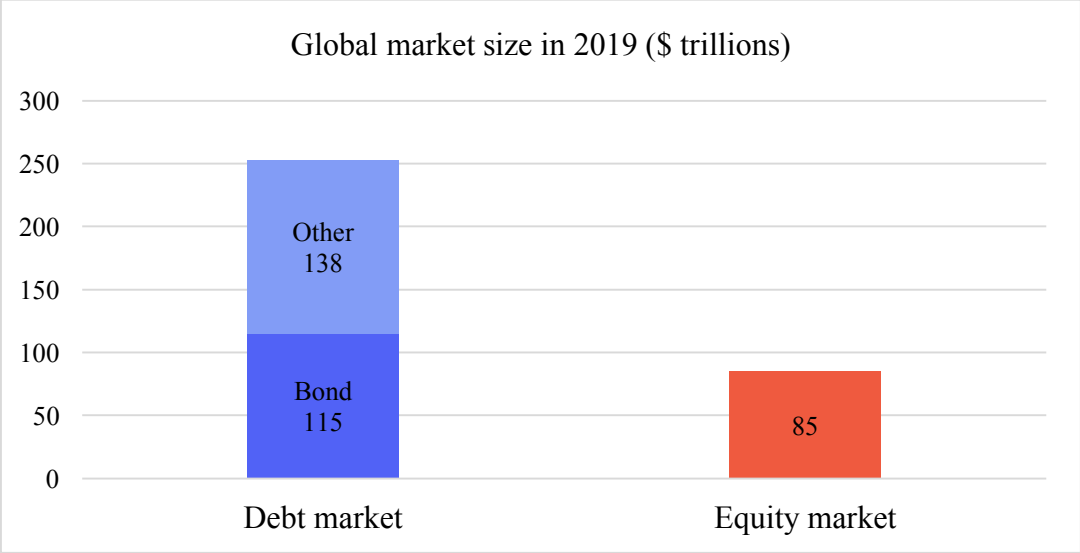

Figure 1. Size of global debt and equity market in 2019.

The debt market consists of the private debt market and the public debt market. The lenders of private debt market can be further divided into banks and non-bank private lenders. (Denis et al. 2003.) The most common form of private debt are loans received from banks whereas corporate bonds are a typical source of debt financing from the public market.

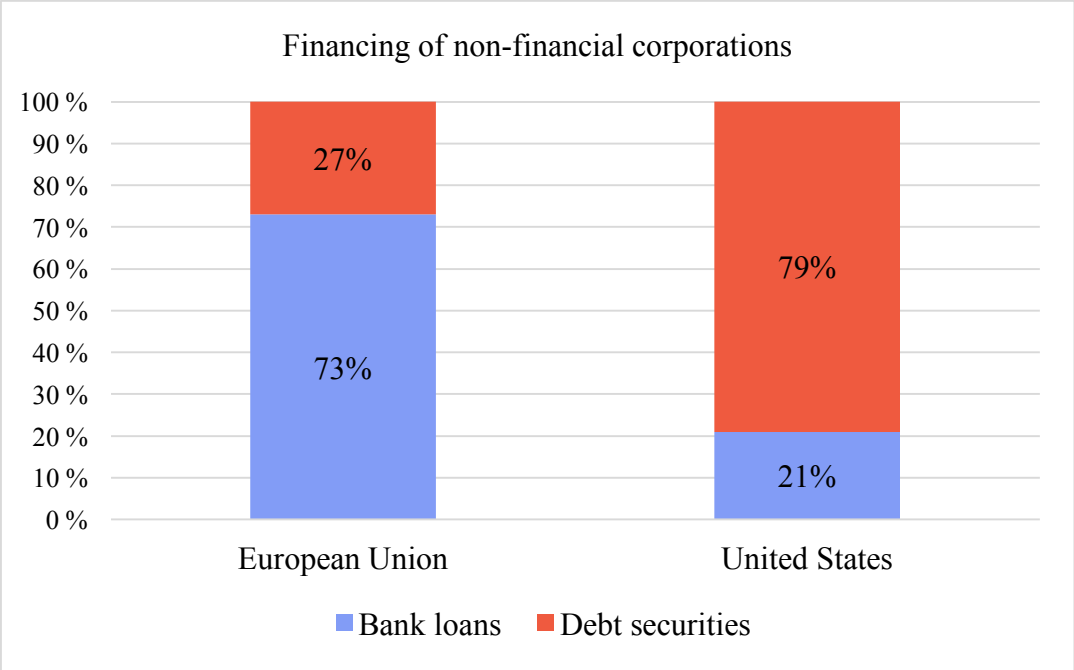

Figure 2. Financing of non-financial corporations in the EU and the U.S. (SIFMA 2020).

Figure 2 above describes the proportions of bank lending and debt securities used in the financing of firms operating in all other industries except in the financial sector both in the European Union and the United States. There is a considerable difference in the financing sources used between firms in the EU and the U.S. In the EU loans received from banks cover 73% of firms' debt financing and only 27% of funds is obtained from debt securities. The shares are nearly opposite in the U.S. where debt securities constitute a majority of debt financing with 79% and the share of bank lending is only a fifth of all debt financing with 21%. (SIFMA 2020.) These statistics indicate that the public debt market is much larger and more significant in the U.S. regarding firms' debt financing needs. Conversely, the private debt market seems to be the main source of debt capital for firms in the EU countries. The differences between the two debt markets demonstrated by the aforementioned statistics further emphasize the importance of examining the European debt markets and how CSR information is regarded by the European creditors when pricing debt. Furthermore, while both the private and the public markets offer debt

capital for firms there are dissimilarities in how the cost on the debt is priced.

3.2. Cost of debt

Cost of debt is the interest rate that the creditor charges from the lender in addition to the principal. Interest rate is usually presented as an annual percentage rate. Financial risk is tightly related to the cost of debt. Essentially, the interest rate depicts the risk associated with the debt and it is determined in line with the trade-off between risk and return according to which high risk is rewarded with a high return. This means that if a loan is regarded to be low risk the interest rate charged on it should correspondingly be low.

Debt can be divided into long-term debt and short-term debt. Long-term debt has a longer maturity and it is repaid to the creditor in more than one year. Firms use long-term debt for example to finance large projects. Conversely, short-term debt are financial obligations that the firm has to repay within a year. Short term debt is commonly used to finance the daily operations of a firm such as payroll or accounts payable. (Brealey et al. 2011: 352.)

In addition to the maturity of the loan, each form of debt financing has their own specific characteristics that affect the cost of debt. The features of both bank lending and corporate bonds will be discussed in the following sections.

3.2.1. Bank lending

Bank lending is the most common form of debt acquired from the private debt market. A loan can be issued by either one bank or several banks. A loan provided by only one bank is called a bilateral loan. If the loan amount requested by a borrower is too large to be provided by one bank, two or more banks can jointly provide the loan. This kind of arrangement is called a syndicated loan and they are provided by investment banks and commercial banks. (Champagne & Coggins 2012: 1437; Brealey et al. 2011: 779.)

When assessing the risk and the creditworthiness of a firm, banks often look at several factors related to the borrowing firm, the loan in question as well as the market in which the firm operates. These factors include both quantitative and qualitative factors. (Weber, Scholz & Michalik 2010.)

Some particularly important sources of information for banks when assessing the creditworthiness of a firm and its ability to repay the loan are the financial statements of a firm. The quality of the accounting information allows the banks to evaluate the firm's performance and future cash flows. The accounting information also reveals the firm's history with repayments as well as the amount of outstanding loans, which is important to know as high leverage is known to be associated with an increased probability of bankruptcy. Furthermore, based on the assessment of a firm's financial standing banks can not only set a suitable interest rate but also customize the non-price terms of the loan to control for the evaluated riskiness of the loan. (Bharath, Sunder & Sunder 2008; Saunders 1999: 9.) Next to the financial statements, banks use credit ratings provided by credit rating agencies to evaluate the firm. The most recognised credit rating agencies are Moody's, Standard and Poor's and Fitch. A credit rating is an estimation of a firm's level of default risk. (Brealey et al. 2011: 587.)

In addition to evaluating the firm itself, banks assess the different qualities of the loan. The size and maturity of the loan, whether it is secured or not as well as the purpose for which the money will be used by the firm all affect the riskiness of the contract. A larger amount of loan increases the credit risk of the bank if the firm would fail to repay the loan. Furthermore, if the maturity of the loan is very long it the uncertainty regarding the future increases as does the risk of the borrower going bankrupt before the end of the loan contract. (Brealey et al. 2011: 353; Saunders 1999.)

In case of a concern related to the firm's ability to repay the loan, a bank may request the firm to provide a collateral for the loan, which is a security consisting of liquid assets. It is a usual practice especially related to long-term loans. (Brealey et al. 2011: 780.) Collaterals are used especially with firms that have a high risk of default. Firms in need of debt typically prefer the debt source from which they can receive debt with the lowest cost. Providing a collateral significantly decreases the cost of debt for low quality firms compared with the alternative of not providing a collateral for the bank. However, firms that decide to borrow with an unsecured bank loan are found to be unable to decrease their cost of debt even if they had provided a collateral. (Booth & Booth 2006.)

The economic conditions of the country and industry in which the firm operates are also considered by banks. If the industry in which the firm operates is considered risky or exposed to changes in the business cycle banks may impose a higher interest rate on the debt than to a firm with a similar credit rating that operates in another industry. If changes in the industry would affect the value of the borrower on the equity market, it would have

an impact on the firm's capability of repaying the loan. (Magananelli et al. 2017; Weber et al. 2010; Saunders 1999: 10.) Furthermore, characteristics related to the country, its political climate or reporting requirements can either increase or decrease the risk related lending (Carnevale & Mazzuca 2014).

The private lending market is found to be informationally efficient, meaning that the banks consider new information quickly and accurately when pricing loans. Banks' ability to have strong relationships with the borrowers gives them an advantageous position in comparison to other investors in obtaining and collecting new knowledge of the borrowers that is up to date and can be later reused. An indication of this is its ability to outperform both equity and bond markets in predicting a firm's default. Banks ability to continuously monitor the financial standing of a firm lower the risk of information asymmetry in long-term banking relationships. This is beneficial also to the borrower as recurrent borrowing from the same bank is found to result in lower cost of debt (Bharath, Dahiya, Saunders & Srinivasan 2011; Allen, Guo & Weintrop 2004; Altman, Resti & Sironi 2004; Boot 2000).

In the recent years, there has been increasingly new findings of banks considering CSR factors in their lending decisions. The results of Nandy and Lodh (2012) indicate that environmentally conscious firms with high environmental ratings receive loans from banks with better loan contract terms in comparison to firms with weak environmental performance. Further evidence indicating that the CSR actions of a firm have an effect on its creditworthiness was found by Weber et al. (2010). According to their results, the sustainability performance of the firm can predict the riskiness of issuing a loan together with traditional financial factors as a connection was identified between the sustainability performance and the credit default risk. With firms increasingly investing in CSR practices, taking these factors into consideration when assessing the credit risk of a firm can be reasoned. Further findings of previous studies regarding the connection between CSR performance and cost of debt will be presented in the following chapter of this thesis.

3.2.2. Corporate bonds

Corporate bond is a debt security that a firm issues to the public debt market in order to receive debt capital. In theory, anyone can invest in a bond and thus a bond can be held by multiple investors at the same time meaning that there can be hundreds or thousands of bondholders. A common form of a corporate bond is a coupon-paying bond. In exchange for obtaining debt, the firm pays the bondholders interest, known as coupons,

semi-annually or annually and when the bond matures, the bondholder receives the final interest payment as well as the principal of the bond. Furthermore, after the bond has been issued, it can be traded among investors in the financial markets. Corporate bonds are mostly used by large companies who have an access to the public debt markets. (Brealey et al. 2011: 2, 46.)

The price of a bond that pays coupons is determined according to the following formula,

$$(1) \qquad P_0 = \frac{C}{1+r} + \frac{C}{(1+r)^2} + \cdots + \frac{C}{(1+r)^n} + \frac{PV}{(1+r)^n}$$

where P_0 is the price of the bond at time = 0, C is the coupon payment, r is the discount rate, PV is the par value of the bond and n is the number of periods. The interest rate of a bond is negatively correlated with the price of the bond, meaning that when the interest rates decline the price of the bond increases. This implies that the yield of the bond varies according to the changes in price making it challenging to compare different bonds only based on its price or interest rate. Therefore, investors looking to buy bonds are interested in the internal rate of return of a bond, which is called yield to maturity (YTM). Yield to maturity is a measure of the return that the investor will gain if he holds the bond until its maturity. Yield to maturity allows an investor to compare between bonds that have different coupons and maturities. (Brealey et al. 2011: 46–50; Fabozzi 2008: 214)

Bond prices are affected by various factors related to the creditworthiness of the issuer of the bond as well as the characteristics of the bond and the terms and conditions on which the bond is issued. A bond indenture is the legal contract between the firm issuing a bond and the bondholder, which specifies all the terms and conditions on which the bond is issued. An indenture includes information of the bond's maturity date and the firm's commitments to the bondholder such as the timing of interest payments and how the interest is calculated. Furthermore, the indenture details whether the bond is secured or unsecured or the possible inclusion of embedded options. (Fabozzi 2008: 260.)

The maturity of a bond can vary between one year and 30 years and the rate of return required by creditors is often higher for bonds with a long maturity compared to bonds with a short maturity. The term structure of interest rates, also known as the yield curve, is a term used to depict the difference between the interest rates of short-term bonds and long-term bonds. Generally, interest rates increase in accordance with the maturity,

meaning that lenders require a higher interest rate for a long-term loan than short-term loan. This creates an upward sloping yield curve, which is a sign for investors of an expansionary economy. Conversely, a downward sloping yield curve is formed when the interest rates on short-term loans are higher than the interest rates on long-term loans. This is often a sign of a downturn in the economy. (Brealey et al. 2011: 53; Fabozzi 208.)

As in bank loans, securities can also be attached to bonds. A secured bond requires a collateral from the firm issuing the bond in order to certify that the firm will repay the debt. Different assets of the firm can be used as a security on a bond including real property and machinery, inventory financial assets and accounts receivables. (Fabozzi 2008: 260–261.)

Embedded options define certain rights given to either the issuer of the bond or the bondholder that affect both parties if the right is exercised. An example of an embedded option is a callable bond, which gives the issuer a right to buy back the bond and repay the investor early at any time in the future. Conversely, a putable bond gives the bondholder a right to demand that the bond issuer repays the bond early. The holders of convertible bonds have the option of exchanging to the bond for the firm's common stocks and therefore the coupon rate is usually lower compared to a bond without such option. (Brealey et al. 2011: 68, 605.)

In addition to the terms and conditions of the bond agreement, an investor needs to evaluate also other risks affecting the investment such as the liquidity risk and the default risk. The corporate bond market is characterized by being more illiquid compared to both the government bond market and equity market. As the corporate bonds are not traded regularly and they are hard to sell on a short notice, the price of a corporate bond needs to reflect the liquidity risk. (Lin, Wang & Wu 2011; Edwards, Harris & Piwowar 2007: 1450.) The most common way of measuring bond liquidity is the bid-ask spread, which measures the difference between the highest price that a buyer is ready to pay for the bond and the lowest price that a seller is ready to accept. For liquid bonds the bid-ask spread tends to be narrow. However, due to the weak availability of the bid-ask spread for mature bond or bonds that are not traded frequently, other means to measure the liquidity are needed. The liquidity of a bond can additionally be measured by the face value of a bond and the percentage of zero trading days. The face value illustrates the size of the bond and typically, a large bond is held by a large number of investors. A large pool of bondholders is likely to result in more trading of the bond, which increases the liquidity. The second measure, percentage of zero trading days, can be used as an indicator for the

trading activity regarding a certain bond. (Helwege, Huang & Wang 2014; Chen, Lesmond & Wei 2007.)

Default risk or credit risk is the risk that a borrower would not be able to repay a loan or the interest of the loan for the investor. However, as the risks related to each firm and the firm's ability to repay a debt are challenging to distinguish by an individual investor, corporate bonds are rated by credit rating agencies. Although the manner in which the credit ratings are presented vary by each agency the presentation still follows the same principle. The credit ratings are indicated with a system based on letters in which the bond with the highest credit rating and thus lowest risk is given a score of AAA. The lowest score, C or D depending on the credit rating agency, is assigned to a bond with the highest risk of default. Bonds with a credit rating of BBB or above are called investment grade bonds whereas bonds with a credit rating below BBB are known as non-investment grade bonds or junk bonds. (Brealey et al. 2011: 587.)

3.3. Debt source decisions

Firms' debt source decisions between lending from a bank or issuing a bond on the public market require evaluation of the cost of debt, the terms of the contract as well as the availability of different sources.

The research of Denis and Mihov (2003) examined how the firms decide between the different sources of debt with a dataset consisting of 1480 large publicly traded firms in the U.S. According to their findings the firm's choice of debt is dependent on the credit quality of the firm. Firms with good credit quality are described to often possess the following qualities; they are large and well-performing firms with high credit ratings and their amount of fixed assets is greater compared to total assets. Low credit quality firms tend to have the opposite characteristics.

The firms with the highest credit quality choose primarily to borrow from the public debt market. Moreover, the firms with average credit quality borrow from banks and the firms with low credit quality are most likely to obtain debt from the non-bank private lenders. The findings are explained with information asymmetry and the reputation of the borrower. Their findings also suggest that firms are likely to borrow from the same sources from which they have previously obtained funds. According to this finding, firms that have formerly borrowed from the public market have earned a reputation, which

lowers the information asymmetry between the firm and the creditor and eases borrowing the next time. Therefore, firms with low levels of information asymmetry favour public sources whereas firms with high levels of information asymmetry tend to receive loans from either banks or other private lenders. (Denis et al. 2003.) Similar results were obtained by Bharath, Sunder and Sunder (2008) who examined the impact of accounting quality on the firm's choice of debt market. Their findings indicate that firms with high accounting quality prefer public debt whereas low accounting quality firms obtain debt financing from private debt markets. Moreover, a partial explanation for low credit quality firms choosing to lend from banks instead of issuing bonds could be due to lack of alternatives as many large financial institutions such as commercial banks and pension funds are not permitted to invest in non-investment grade bonds (Brealey et al. 2011: 587).

Studies have also been conducted on the effect of banks' private information on the cost of debt of firms. Santos and Winton (2008) find that firms that have previously issued bonds in the public market are likely to also benefit from a lower interest rate on bank loans. They also found evidence of banks increasing the cost of loan during a recession but the difference in the interest rate is much lower for firms that have access to the public debt market compared to firms that do not. This suggests that banks exploit their information and charge higher interest rates than from firms who have not issued debt on public market or have done so a long time ago and are consequently dependent on the bank loans.

4. LITERATURE REVIEW

This part presents the findings of previous research. During the past two decades the amount of literature related to CSR and its relation to financial risk and the cost of debt of firms has substantially increased. However, the findings seem inconsistent and vary depending on the market and the methodology applied. The first part discusses the effect that CSR is found to have on financial risk while the second part presents the findings of the relationship between CSR and firms' cost of debt capital.

According to the theories of asymmetric information and agency costs, superior responsibility performance should result in reduced financial risk, an ameliorated access to debt as well as a lower cost of debt. The theories presented in the second part of the thesis are partly supported by the empirical evidence, however, some contradictory evidence is also found.

4.1. Impact of CSR on financial risk

In their research Cheng, Ioannou & Serafeim (2014) examine what kind of an impact does corporate social responsibility (CSR) performance have on the capital constraints of a company. They define capital constraints as market frictions that hinder firms from obtaining the funding needed for investments. The ESG data used in the study is obtained from Thomson Reuters ASSET4 and the sample includes firms from 49 countries such as Japan, the U.S., the U.K., China, Indonesia, Thailand, India, Hong Kong, Singapore, Australia as well as firms from Latin America and Continental Europe. Their findings conclude that firms with high CSR performance face lower capital constraints as they are better positioned to obtain financing and thus have an easier access to finance in capital markets. Furthermore, their findings demonstrate that both social and environmental factors have a positive impact on reducing the capital constraints. (Cheng et al. 2014.)

According to Choi and Wang (2009) and Eccles, Ioannou and Serafeim (2014) high CSR performance is connected to better stakeholder engagement which diminishes the possibility of opportunistic behaviour and thus the possible agency costs. The stakeholder engagement processes of a company indicate that mutual trust and collaboration are valued, both of which are the basis for long-term relationships. Having superior relationships with customers, business partners and employees may also positively affect

the financial performance of the company. Moreover, companies with higher CSR performance are found to be more willing to publish their actions regarding CSR (Dhaliwal, Li, Tsang & Yang 2011). This results in higher transparency and accountability lowering the information asymmetry between firms and investors. Having reduced capital constraints provides the firms with the opportunity to invest in projects that are estimated to be strategically beneficial and profitable that it otherwise would not be able to undertake. This may further boost the firms' performance on the capital markets. (Cheng et al. 2014.)

Sun and Cui (2014) study the relationship between CSR and firm default risk aiming to find out whether CSR has the capability of decreasing firms' risks of falling into default. They find that CSR is strongly and negatively correlated to firm default risk meaning that CSR does help firms in reducing default risk. Furthermore, the relationship is stronger for firms operating in highly turbulent markets compared to firms operating in low turbulent markets. This suggests that CSR is considered an insurance-like asset that has the ability to protect the firm during turbulent periods in the financial markets. In addition, they find that CSR activities that benefit the society result in a lower cost of debt and a higher credit rating.

The connection between CSR and firm risk in controversial industries, such as alcohol, tobacco, weapons and gambling, in the U.S. is examined by Jo and Na (2012b). As firm risk is considered to be a greater concern for firms operating in controversial industries than in non-controversial firms, their research also studies whether CSR activities have a similar impact on both controversial and non-controversial industry firms. The study finds that the risk-reduction effect is more significant for controversial industry firms compared to the non-controversial industry firms. The study concludes that engaging in CSR activities reduces the firm risk also for controversial industry firms, thus supporting the firm's risk management.

4.2. Impact of CSR on cost of debt

The impact of CSR on cost of debt capital has been studied in several academic papers. The research conducted by Erragragui (2018) examines the relationship between corporate social performance (CSP) and the cost of debt of firms in the United States. According to his findings, only few factors of the CSP distinguish as factors that investors are interested in when assessing the credit risk of a firm. Environmental concerns are

found to increase firms' cost of debt as it increases the creditors' perception of default risk whereas governance concerns do not affect it. Furthermore, having a strong performance in environmental and governance issues lowers the firm's cost of debt. These results suggest that creditors do not place importance equally on governance strengths and governance concerns. Goss and Roberts (2011) also conduct a study on the relation between corporate social responsibility and bank debt in the U.S. According to their results companies that are associated with CSR concerns have 7 to 18 basis points higher cost of debt than companies with a higher CSR performance. This indicates that banks regard CSR concerns as risks and will price debt accordingly. Furthermore, firms that are considered as low-quality borrowers that engage in voluntary CSR spending will be offered less attractive loan contract terms such as a shorter maturity. However, same does not apply with high-quality borrowers making similar investments in CSR activities.

Hsu and Chen (2015) concur with the results of the above-mentioned studies. They study the relation between corporate social responsibility performance and financial risk using data of the largest 3000 U.S.-based companies. Activities related to CSR are found to reduce both financial risk and agency costs as they improve the information asymmetry between the firm and its stakeholders. High CSR performers are found to benefit from being socially responsible. This can be observed in the higher credit risk ratings and lower cost of debt compared to companies with weak CSR performance. These results are due to lower agency costs, improved information transparency and reduced bankruptcy risk that are related to superior CSR performance.

Similar results are obtained by Oikonomou, Brooks and Pavelin (2014) who examine the effects of corporate social performance (CSP) on the pricing of corporate debt and credit ratings in the U.S. market. The results of their study indicate that good CSP can decrease the risk premium related to corporate bonds which leads to a lower cost of corporate debt. The factors found to have an impact on reducing the risk premium associated with the corporate bonds were supporting local communities, an increased level of marketed product safety and quality and avoiding disputes with the employees of the firm. Their results are found to be robust across different industries. Moreover, higher CSP performance is found to result in improved credit quality and decreased perceived credit risk. Superior CSP is recompensed with lower corporate bond yields and inferior CSP is penalized with higher corporate bond yields. Corporate social performance and the yield spreads are more significantly negative for bonds with a long maturity. This indicates that the financial benefits gained with a good CSP is realized in the long term. (Oikonomou, Brooks & Pavelin 2014.)

The results of a research conducted by Al-Hadi, Chatterjee, Yaftian, Taylor and Hasan (2017) are in accordance to the results of Erragragui (2018) and Hsu et al. (2015). Al-Hadi et al. study the relationship between CSR performance and financial distress of publicly listed Australian firms. Furthermore, they test whether the life cycle stage of the firm is associated with the results. According to their findings, high CSR performance has a significantly negative relation with financial distress. In other words, firms with positive CSR performance have a better access to finance and a lower cost of capital. Moreover, their findings indicate that the negative relationship is more distinct for firms in the later stages of the life cycle, suggesting that the more mature firms are not associated with CSR issues and risks as much as firms in the earlier life cycle stages. Thus engaging in CSR activities can reduce the risk associated with the earlier life cycle stages.

Orens, Aerts and Cormier (2010) study the effects of voluntary Web-based non-financial disclosure on the cost of capital for large listed firms in North America as well as Continental Europe. Overall, voluntary non-financial reporting is found to positively affect the cost of capital. According to their findings, Continental European firms with high levels of Web-based non-financial reporting are more likely to also benefit from having a lower lever of information asymmetry. Furthermore, a significant negative relationship between Web-based non-financial reporting and cost of debt persists for firms in Continental Europe, meaning that the cost of debt is lower for firms who disclose non-financial information in the Web. However, these findings do not hold for the North American firms. The research of Sengupta (1998) finds supporting evidence that firms with superior disclosure quality ratings have a lower interest rate on debt. Furthermore, their results indicate that financial analysts' dependence on the disclosures is accentuated when the market uncertainty around the firm is high.

Further European evidence regarding the impact of CSR disclosure on the cost of debt is presented by Hamrouni, Uyar and Boussaada (2019). They examine French corporations listed in the SBF 120 index between 2010 and 2015 using data obtained from Bloomberg. According to their findings, the combination of ESG disclosure scores is negatively related to the cost of debt. However, when the dimensions of ESG are examined separately, only environmental performance lowers the cost of debt, whereas social performance is found to increase the cost of debt and governance score has no effect on the cost of debt. Furthermore, their results indicate that creditors take into consideration the CSR reports of a firm when assessing its creditworthiness. The research of Nandy and Lodh (2012) finds supporting evidence that banks take firms' environmental performance

into account when making loan decisions. They use the data of 1026 firms in the U.S. between 1991 and 2006.Their results suggest that firms with superior environmental performance receive more favourable loan contracts compared to firms with low environmental performance.

Contrary results are reached by Magnanelli and Izzo (2017) who also study the connection between corporate social performance and cost of debt from a data set consisting of 332 companies worldwide. Their findings demonstrate a positive relationship between corporate social performance and cost of debt meaning that firms with superior corporate social performance are associated with higher cost of debt. This indicates that financial institutions deem firms' CSR activities as unnecessary costs rather than risk reducing factors. Their findings thus support the overinvestment theory. Similar results were also obtained by Sharfman et al. (2008) who found that increased environmental risk management contributes to a higher cost of debt capital using the data of S&P 500 firms.

Further evidence of CSR performance not being considered by creditors is provided by the findings of Menz (2010) who studied the effect of CSR on the pricing of European corporate bonds using the data retrieved from SAM Research. According to the results of his research firms with high CSR performance do not have a lower cost on debt that is acquired from the public debt market indicating that CSR performance is not incorporated in the prices of corporate bonds.

5. DATA AND METHODOLOGY

The purpose of this section is to comprehensively introduce the data and methodology used in this research. The first part of this chapter provides information on the data provider, the ESG scores and how the scores have been formed and evaluated. Moreover, descriptive statistics as well as data diagnostics are presented. Finally, the regression models are formed and described.

5.1. Description of data

To test the hypothesis of this study, the data are selected based on a few requirements. In order to be able to approximate the capital costs the firms need to be large publicly traded firms. Furthermore, being publicly traded allows a more transparent view on how the firms manage risks related to sustainability.

Based on the requirements, this thesis uses the data retrieved from the ASSET4 database of Thomson Reuters. The Thomson Reuters ASSET4 is a panel dataset that provides annual environmental, social and governance performance ratings for over 7000 publicly traded companies globally starting from year 2002. In Europe there are over 1200 companies that have been evaluated by Thomson Reuters. The assessment of the companies is done by research analysts who aim to present objective, transparent and comparable ESG information. Thus, all the data that is used in the evaluations is publicly available. Over 900 evaluation points are used for each firm to determine the firm's performance on sustainability issues and to create uniform scores that range from 0 to 100, with 100 being the highest possible score. This ensures that the data is up-to-date, comparable and valid for quantitative analysis. (Thomson Reuters 2019.) The same dataset has also been used by other studies related to corporate social responsibility such as Cheng et al. (2014) and Eccles et al. (2014).

In addition, other necessary financial and company variables needed in the research are obtained from Thomson Reuters Worldscope. The interest expense is acquired from the same database and it is calculated by dividing the interest expense on debt with the total debt.

The initial data set comprises of annual ESG measures for publicly listed firms over the

period of 2002-2018 in 7 European markets. The markets included in the research were chosen to include some of the most central European indices from Germany, France, United Kingdom, Sweden, Denmark, Norway and Finland. The data includes listed firms from Xetra, DAX 30, CAC 40, FTSE 100, Nasdaq Stockholm, Nasdaq Copenhagen, Nasdaq Helsinki and Oslo Stock Exchange.

Initially, the data set consists of 2056 firms, however, most of them have not been evaluated for their ESG performance and they lack an ESG score. Thus, these firms have not been considered in the research. The sample is further outlined by removing firms that do not have information on interest rates. Furthermore, firms with extreme values of over 100% in interest rates are left out of the sample in order to prevent the extreme values affecting the results of the research. In addition for controlling for the extremely high interest rates, 0.5% of the extremes of both the highest and lowest values of all variables are removed from the data. This is done in order to secure that the outcomes will not be biased due to possible outliers. To ensure that the data includes each firm only once, all of the indices and exchanges have been checked for duplicates. For example, all of the duplicate firms that are listed both in Xetra and DAX 30 have been removed. In addition, leaving the dead firms out of the final sample would create a significant survivorship bias. Therefore, all firms, both active and dead, with at least five years of ESG data are selected to the final sample, which includes altogether 346 unique firms. The final sample is an unbalanced panel dataset. Table 2 presents the description of sample with information of the initial and final sample.

Table 2. Description of sample.

	Number of listed firms	**Number of firms with ESG rating**
CAC 40	41	36
DAX 30	30	26
FTSE 100	100	92
Nasdaq Copenhagen	306	27
Nasdaq Helsinki	236	29
Nasdaq Stockholm	571	60
Oslo Stock Exchange	473	27
Xetra	299	49
Total	2056	346

Table 3 illustrates the distribution of ESG ratings across years. The number of ESG ratings increases steadily over the sample period. In year 2017 the amount of firms evaluated has almost doubled compared to year 2002, which is the first year of the data. However, in year 2018 ESG scores are not available for a large part of the firms compared to the previous years. This could be a consequence of the firms not having published their annual reports yet or that the analysis of Thomson Reuters is not yet available for all of the companies. Nevertheless, the rising amount of observations illustrates the increase in the attention that CSR issues and the implementation of such activities has received in the past decade.

Table 3. Distribution of ESG ratings across years.

Year	N
2002	179
2003	181
2004	238
2005	288
2006	293
2007	304
2008	314
2009	316
2010	326
2011	333
2012	336
2013	339
2014	338
2015	337
2016	331
2017	331
2018	120
Total	4904

Appendix 1 presents the descriptive statistics of the firms with ESG ratings in the sample by market and industry. The sectors of the firms are retrieved from the data based on which the firms are assigned to 10 industries according to the Industry Classification Benchmark (ICB). The highest ESG scores are found in the French stock market index

CAC 40 with the average overall ESG score being 86.07. The firms belonging to the stock exchanges of Xetra and Copenhagen have the lowest ESG scores, with the overall ESG score being 56.20 for Xetra and 56.92 for Copenhagen.

In addition to the ESG ratings, Appendix 1 also presents the mean cost of debt both based on the market as well as the industry. The mean cost of debt is calculated as the ratio between the interest expense of debt and total debt for each firm over the period 2002–2018. Out of all the markets the firms belonging to CAC 40 have the lowest mean cost of debt of 3.86%. The highest mean cost of debt, 7.91%, is found at the German exchange Xetra. Thus, it seems that the markets containing firms with overall lowest ESG scores, such as Xetra, have also the highest mean cost of debt. Similarly, the markets with the highest ESG scores, such as CAC 40, seem to have the lowest mean cost of debt. This suggests that the hypothesis is based on the right assumptions and an inverse relationship between the CSR performance and cost of debt can be expected.

As opposed to the markets, the differences in the levels of cost of debt are quite small between different industries. The lowest mean cost of debt is 4.83% in the industry of financials whereas the highest mean cost of debt is 6.86% in the industry of oil and gas. Based on this observation we assume that the impact of CSR performance on the cost of debt is correspondingly not significantly different between industries. Therefore, differences between industries are not studied separately in this research.

5.2. Regression variables

The regression variables used in this research are presented in this section. The ESG rating of each firm is the single most important explanatory variable. The rest of the variables used in this research are described in more detail in the following sections.

5.2.1. Dependent variables

Cost of debt (CoD)

The total debt used in this thesis consists of all interest bearing and capitalized lease obligations and it includes both short-term debt as well as long-term debt. The dependent variable, the cost of debt (CoD), is calculated as the ratio between the interest expense of debt and the total debt and expressed as an annual percentage. According to Erragragui (2018) the credit rating of a firm is not considered to be a suitable proxy for the cost of

debt because it is mostly used for credit risk pricing in the market for bonds. Thus, instead of using credit ratings the accounting cost of debt is utilized for both bank loans as well as corporate bonds. Cost of debt is expected to have a negative relationship with ESG ratings.

5.2.2. Independent variables

The independent variables used in this research are depicted in Figure 3 and include the overall ESG score as well as the three dimensions that the ESG score consists of, which are environmental, social and governance criteria. Furthermore, each dimension includes various sub-criteria that have been assessed separately by Thomson Reuters ASSET4 in order to get the final score. Each of the ESG scores are tested individually in order to find out, whether one factor has a more significant impact on how the creditors regard the risks of the firms, thus affecting the pricing of debt, compared to the others. These tests are based on the methodology of Erragragui (2018).

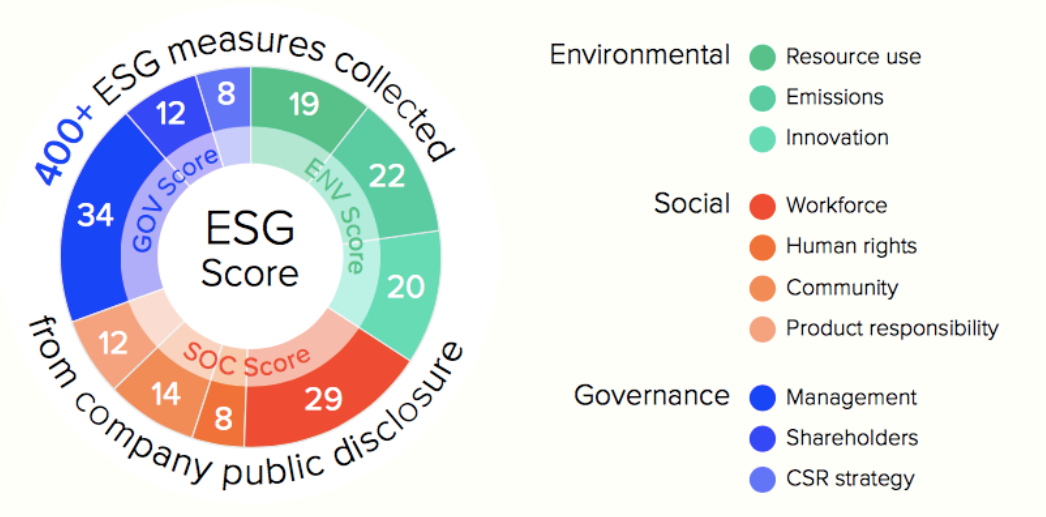

Figure 3. Summary of the ESG metrics. (Thomson Reuters 2019.)

ESG score

In order to test the overall ESG performance of a firm, each firm is assigned a ESG score based on the sub-criteria evaluations of the three dimensions; environmental, social and governance. The ESG score is an overall score that combines all of these three dimensions. (Thomson Reuters 2019.)

Environmental score

The environmental score assesses the effect that a firm has on the nature. In addition to evaluating the direct impact of the firm's actions on the environment the score measures the firm's capability of managing the risks related to environmental issues as well as taking advantage of environmental opportunities to be able to create value for the shareholders. The environmental score of Thomson Reuters ASSET4 consists of three categories that are resource use, emissions and innovation. (Thomson Reuters 2019). The environmental score includes data for example about energy consumption, sourcing of raw materials, water treatment, carbon emissions and pollution as well as waste management and recycling (Clark et al. 2015: 12; Erragragui 2018).

Social score

The social score assesses the relation between the firm and its employees, customers and society. The firm's ability to create shareholder value is measured in the trustworthiness and reputation of the firm. The Thomson Reuters ASSET4 environmental score is divided into four categories that are workforce, human rights, community and product responsibility. (Thomson Reuters 2019.) The social score includes data about relations with community and customers, employee turnover, health and safety policies including the amount of accidents and injuries, diversity of employees and the amount of training hours to mention a few (Clark et al. 2015: 12; Erragragui 2018).

Governance score

The governance score is used to evaluate firm's performance in matters related to corporate governance. It assesses the firm's management and reporting processes in order to ensure that the leadership acts according to the best interest of the owners of the firm. In the Thomson Reuters ASSET4 database the governance score is further divided into three categories which are management, shareholders and CSR strategy. (Thomson Reuters 2019.) Some of the measured factors include information about accounting and reporting controversies, board structure, executive compensation, transparency and bribery (Clark et al. 2015: 12; Erragragui 2018).

The categories of the environmental, social and governance scores described above contain numerous indicators that evaluate the performance of the firm on issues related to the category. The category score is determined as the equally-weighted sum of all relevant indicators for each industry. Furthermore, the weight of each category in the final

score is calculated by the amount of indicators in a category compared to the total amount of indicators evaluated in the score. (Thomson Reuters 2019.)

Figure 4 below depicts the evolution of the ESG scores from 2002 to 2018 for the whole sample. The scores presented in the table are calculated yearly as the average of all available scores. Overall, the figure shows that all the dimensions of ESG have significantly improved over the years which is an evidence of firms' growing attention towards sustainability issues. The improved ESG scores indicate that firms have increasingly invested in CSR activities. Moreover, the financial crisis of 2008 did not negatively impact any other scores except for the governance score. Nevertheless, the decline was relatively small, and already by the following year the score had increased by several points. These inferences are supported by the study of Jacob (2002) who found that partly due to the financial crisis, the firms were forced to become more transparent regarding their operations and activities. Consequently, improvements were seen in areas such as organizational governance, compensation policies and environmental policies. However, an aberration of the growth trend of the ESG scores can be noticed in year 2018. Due to a very limited amount of ESG scores in the year 2018 the average of the ESG scores cannot be viewed as a representation of a larger trend. In 2018 ESG scores were obtained for only 120 firms whereas in the preceding year there are scores for 331 firms.

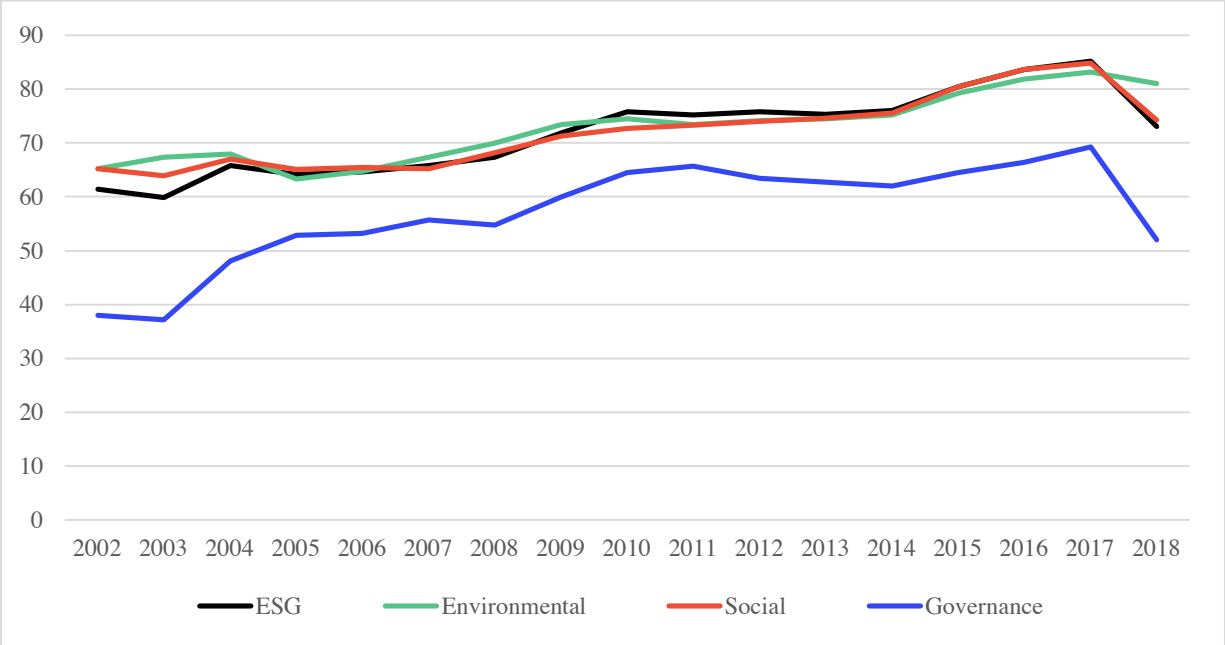

Figure 4. Evolution of ESG scores during 2002-2018.

5.2.3. Control variables

Based on earlier studies (Erragragui 2018; Magnanelli et al. 2017; Oikonomou et al. 2014; Cheng et al. 2014; Goss et al. 2011) a number of firm-specific control variables are included in the regression models. Several of these variables are associated with assessing the risk profile of a firm.

Leverage
Firm leverage is measured by dividing total debt with common equity capital. Firm leverage is considered in the model as a high degree of leverage is found to be correlated with an increased probability of bankruptcy. (Erragragui 2018; Oikonomou et al. 2014.)

Firm size
Firm size is measured by the natural logarithm of total assets (Erragragui 2018; Cheng et al. 2014). The size of a firm is controlled as previous studies (Goss et al. 2011) have presented evidence that large firms have a lower risk profile compared to smaller firms (Magnanelli et al. 2017).

Operating profitability
Operating profitability is expressed as the *Return on Investments* ($ROI_{i,t}$) ratio. Based on previous studies (Magnanelli et al. 2017) ROI is expected to be negatively correlated with the cost of debt.

Book-to-market
Book-to-market ratio can be used as an indicator of firms' growth perspectives. Economic growth is seen as a sign of lower risk of default that could result in lower interest rates on debt. Book-to-market ratio is calculated by dividing common shareholders' equity by market capitalization. (Erragragui 2018.)

Fixed effects
Following Cheng et al. (2014) and Magnanelli et al. (2017) the model is also controlled for market, industry and year fixed effects. The market of a firm is considered in the models as the institutional pressure on the CSR reporting of a firm may vary between different countries in Europe. In this study the market is determined on the basis of the exchange where the firm is listed. Furthermore, the changing macroeconomic conditions could also have an impact on the cost of debt. (Carnevale & Mazzuca 2014.) The industry sector of a firm is also taken into account as there is previous evidence that banks could

impose higher interest rates on debt for firms that operate in industries with high risks despite the firm having alike credit ratings with a firm operating in a different industry sector (Magananelli et al. 2017; Longstaff & Schwartz 1995).

Table 4. Data description of the sample.

	Mean	**Median**	**SD (σ)**	**Min**	**Max**
ESG score	72.82	84.41	25.98	2.66	99.11
Environmental score	73.09	86.47	26.32	8.42	97.40
Social score	72.73	83.61	25.39	3.97	99.31
Governance score	58.79	63.04	26.43	1.87	97.94
Cost of debt	5.83 %	4.62 %	6.95 %	0.18 %	98.91 %
Leverage	129.42	64.50	225.42	-919.69	1 729.79
Firm size	16.50	16.39	1.89	10.62	21.70
Operating profitability	10.22 %	8.90 %	11.16 %	-45.39 %	67.26 %
Book-to-market	0.62	0.50	0.48	-0.08	3.90

Table 4 presents the regression variables and the descriptive statistics of the final sample of 346 firms.

5.3. Data diagnostics

To ensure that the hypothesis is tested with the right methods and regression models, data diagnostics is carried out on the sample. In order to form reliable ordinary least squares (OLS) regression models we need to certify that the underlying assumptions are not violated. One of these assumptions is that none of the independent variables is correlated with the error term. Therefore, random effects test is performed. If endogenous variables

would be detected, the model would fail the OLS assumptions. Another assumption of the model is that the error term has a constant variance, which means that the variance does not alter between observations. This condition is known as homoskedasticity and the violation of it is called heteroskedasticity. Thus, we need to run tests in order to confirm whether or not there are heteroskedastic residuals. Furthermore, the according to the assumptions of OLS the model cannot contain perfect multicollinearity. Perfect multicollinearity would occur if an independent variable is a perfect linear function of another explanatory variable. Therefore, a test for correlation between variables is performed. (Wooldridge 2012: 349–355.)

Before determining the most suitable regression method, it is essential to know whether the independent variables are endogenous. Therefore, cross-sectional dependence is tested using the Hausman specification test. Based on the results we can determine whether to use random or fixed effects in the model. The null hypothesis of the test is that the random effects model is valid. This implies that there is no correlation between the regressors and error terms. Conversely, fixed effects model should be used if the null hypothesis is rejected. (Hausman 1978.)

The results of the Hausman specification test are presented in Panel A in Table 5. The p-value of the test is smaller than 0.001 and thus the null hypothesis is rejected meaning that there is correlation between the regressors and error terms. Consequently, fixed effects will be implemented in the models used in this research.

Heteroskedasticity is tested with running the two most commonly used methods; the Breusch-Pagan test, which is based on the Lagrangian multiplier test, and the White test. These tests are used to examine the dependency of the variance of the standard errors on the values of the independent variables. If there is dependency between the two it is an indication of the presence of heteroskedasticity. The presence of heteroskedasticity may cause challenges in the form of biased standard error and inaccurate results, both of which will result in erroneous interpretation about the significance of the regression coefficients. Therefore, in the presence of heteroskedasticity it is important to utilize robust regression models. (Breusch & Pagan 1979; White 1980.)

The null hypothesis for both the Breusch-Pagan and the White test is that the variances for errors are all equal. The results for both tests are presented in Panel B in Table 5. As the p-values of both Breusch-Pagan and the White tests are smaller than 0.001 we reject the null hypothesis. In other words, heteroskedasticity is present in the data sample.

As previously mentioned, heteroskedasticity causes standard errors to be biased and inconsistent. Having robust standard errors eases the assumptions of having independent and identically distributed standard errors. Thus, robust standard errors are utilized in order to control for heteroskedasticity and cross-sectional dependency as they tend to be more reliable and consequently generate more trustworthy results even when the error terms are heteroskedastic. (Hoechle 2007.) Robust standard errors are applied in the construction of the regression models of this research.

Table 5. Results of the data diagnostics tests.

Panel A				
Hausman test				
	Fixed	Random	Var(Diff.)	Prob.
ESG score	-0,004	-0,010	0,000	0,000
Leverage	-0,004	-0,003	0,000	0,000
Firm size	-0,470	-0,469	0,000	0,806
Book-to-market	1,095	1,057	0,002	0,334
Operating profitability	0,077	0,079	0,000	0,135
X^2	70,56			
df	5			
Prob.	0,000			

Panel B				
	F-statistic	Obs*R^2	df	Prob.
Breusch-Pagan test	10,261	50,799	5	0,000
White test	5,407	106,118	20	0,000

In addition to conducting the tests for random effects and heteroskedasticity, the presence of multicollinearity needs to be tested. Correlation between variables is tested by running the Pearson correlation matrix, which is presented in the table found in Appendix 2.

Pearson correlation coefficient is calculated by dividing the covariance between two variables by the product of the standard deviations of the two variables. The correlation values vary between -1 and 1, where -1 signifies perfect negative linear correlation and 1 perfect positive linear correlation. The value of zero means that there is no linear correlation. The correlation matrix is used to determine whether there is multicollinearity in the sample. Multicollinearity is detected if two or more variables are highly correlated. (Wooldridge 2012: 95, 739.)

Expectedly, the results indicate that there is high correlation between the overall ESG score and its three dimensions, the environmental, social and governance scores. The correlations between the three dimensions and the overall ESG score range from 0.67 to 0.87. However, the correlations between the environmental, social and governance scores are smaller and not likely to cause multicollinearity problems. Therefore, the regression models are formed separately for the overall ESG score and the three dimensions that it consists of. All of the ESG scores are negatively correlated with the cost of debt, which suggests that higher CSR performance decreases the interest rate on debt.

5.4. Regression models

The regression models formed to test the relationship between firms' CSR performance and cost of debt are presented below. CSR performance is measured using the ESG ratings. Following the methodology of Erragragui (2018), Magnanelli et al. (2017) as well as Sengupta (1998) a lag time effect of one year is applied between the dependent variable of cost of debt and the independent variable of ESG rating. This is due to the assumption that changes in firms' CSR actions tend to have an impact in the long time period rather than immediately. Moreover, it takes at the minimum one year for financial institutions such as banks to assess and consider the impact of the changes in the CSR actions in their decision-making. In this thesis the dependent variable, cost of debt of a firm, is measured as the rate of interest paid. As stated before, this is calculated by dividing the interest expense on debt with total debt. The control variables included in the regression model are at time *t* as based on the assumptions of efficient market hypothesis there is an immediate impact in the same year in which the dependent variable, cost of debt, is applied (Maganelli et al. 2017). The result of the Hausman specification test supports the use of fixed effects estimation model contrasted with random effects model. Therefore, market, industry and year fixed effects are applied to all models.

The first regression model tests whether $ESG_{i,t-1}$explains the cost of debt at time t. In other words, it is used to test whether having a high ESG score in the previous year gives firms an advantage in the following year in the form of a lower interest rate on debt. The model assumes that there is a linear relationship. Following the research of Erragragui (2018), the relationship is examined with the following regression model,

$$(2) \quad CoD_{i,t} = \alpha_t + \beta 1_t \left(ESG_{i,t-1}\right) + \beta 2_t \left(Control\ variables_{i,t}\right) + Fixed\ effects + \varepsilon_{i,t}$$

where $CoD_{i,t}$ is the cost of debt issued in year *t*, measured by dividing the interest expense on debt with total debt, $ESG_{i,t-1}$ is the ESG score announced at the end of year *t-1*, a measure of ESG performance over a one-year period, *Control variables* control for leverage, firm size, operating profitability and book-to-market ratio and *Fixed effects* control for year, industry and market-specific effects.

The second model tests the impact of previous year's environmental, social and governance scores on the cost of debt separately. This regression is formed with the aim of finding out whether any of these scores has a larger and more significant effect compared to the others. In order to discover whether creditors pay more attention to certain responsibility issues when issuing a loan, the following regression model is formed,

$$(3) \quad CoD_{i,t} = \alpha_t + \beta 1_t \left(E_{i,t-1}\right) + \beta 2_t \left(S_{i,t-1}\right) + \beta 3_t \left(G_{i,t-1}\right) + \beta 4_t \left(Control\ variables_{i,t}\right) + Fixed\ effects + \varepsilon_{i,t}$$

where $CoD_{i,t}$ is the cost of debt issued in year *t*, $E_{i,t-1}$ is the environmental score at the end of year *t-1,* a measure of environmental performance over a one-year period, $S_{i,t-1}$ is the social score at the end of year *t-1,* a measure of social performance over a one-year period, $G_{i,t-1}$ is the governance score at the end of year *t-1,* a measure of governance performance over a one-year period, *Control variables* control for leverage, firm size, operating profitability and book-to-market ratio and *Fixed effects* control for year, industry and market-specific effects.

The third and fourth model of this research are built on a method adopted from the research of Humphrey et al. (2012) where portfolios are constructed using an approach of best and worst firms of sector. This means identifying the best and the worst ESG performing firms in each of the 10 ICB industries. Including all of the industry sectors certifies that there is no systematic exclusion of any industry. In order to test the hypotheses, the third and fourth models are tested with a binary logistic regression model. This method is suitable for testing data which contains a binary independent variable. A binary variable has only two possible outcomes, either pass or fail, which are expressed with the numbers 1 and 0. The binary logistics regression model tests how varying one of the independent variables while keeping the other independent variables fixed impacts the dependent variable, which in this research is the cost of debt.

In the third model, two independent variables are used in the model, which are a high overall ESG score, which indicates whether the ESG score is in the top 25% in or a low overall ESG score, which indicates whether the ESG score is in the bottom 25% of the sample. The binary variables are created in a manner where the best and worst performing 25% of the firms in the same industry get the value equal to 1. The other firms that do not fill the above-mentioned requirements get a value equal to 0. Comparing firms with their peers takes into account the different characteristics between industries. The impact of being among the top or bottom overall ESG performers in the preceding year on the cost of debt is studied with the following regression model,

$$(4) \quad CoD_{i,t} = \alpha_t + \beta 1_t \left(High\ ESG_{i,t-1}\right) + \beta 2_t \left(Low\ ESG_{i,t-1}\right) + \beta 3_t \left(Control\ variables_{i,t}\right) + Fixed\ effects + \varepsilon_{i,t}$$

where $CoD_{i,t}$ is the cost of debt issued in year *t*, $ESG_{i,t-1}$ is the ESG score announced at the end of year *t-1*, *High* is a binary variable that is equal to one if the variable is in the top 25% of the sample, and equal to zero if the variable is not in the top 25% of the sample, *Low* is a binary variable that is equal to one if the variable is in the bottom 25% of the sample, and equal to zero if the variable is not in the bottom 25% of the sample, *Control variables* control for leverage, firm size, operating profitability and book-to-market ratio and *Fixed effects* control for year, industry and market-specific effects.

The fourth regression model tests the effect of each of the three ESG criterion, environmental, social and governance, separately on the cost of debt. This model aims at

finding out whether any of the individual criterion have a more significant impact on the cost of debt compared to the others. The binary variables are used for the top and bottom 25% of each category's (environmental, social and governance) performers as in the third model. If the firm's performance in either environmental, social or governance issues is in the top or bottom 25%, the binary variable gets a value equal to 1. If not, the binary variable gets a value equal to zero. Whether being among the top or bottom performers in any of the three categories in the previous year impacts the cost of debt is examined with the following regression model,

$$(5) \quad CoD_{i,t} = \alpha_t + \beta 1_t \left(High\ E_{i,t-1}\right) + \beta 2_t \left(Low\ E_{i,t-1}\right) + \beta 3_t \left(High\ S_{i,t-1}\right) + \beta 4_t \left(Low\ S_{i,t-1}\right) + \beta 5_t \left(High\ G_{i,t-1}\right) + \beta 6_t \left(Low\ G_{i,t-1}\right) + \beta 7_t \left(Control\ variables_{i,t}\right) + Fixed\ effects + \varepsilon_{i,t}\ ,$$

where $CoD_{i,t}$ is the cost of debt issued in year *t*, $E_{i,t-1}$ is the environmental score at the end of year *t-1*, $S_{i,t-1}$ is the social score at the end of year *t-1*, $G_{i,t-1}$ is the governance score at the end of year *t-1*, *High* is a binary variable that is equal to one if the variable is in the top 25% of the sample, and equal to zero if the variable is not in the top 25% of the sample, *Low* is a binary variable that is equal to one if the variable is in the bottom 25% of the sample, and equal to zero if the variable is not in the bottom 25% of the sample, *Control variables* control for leverage, firm size, operating profitability and book-to-market ratio and *Fixed effects* control for year, industry and market-specific effects.

The following chapter presents the results and an analysis of the findings.

6. EMPIRICAL ANALYSIS AND RESULTS

This part presents the results and analysis from the regression models that are created in order to understand the effect that ESG ratings have on the cost of debt in the European market. The four models specified in the previous section are tested for the whole sample. As several of the firms included in the sample do not have ESG ratings for all of the years included in the time period of the sample, the panel data is unbalanced. Therefore, the impact of ESG scores on the cost of debt of a firm is tested using pooled OLS regressions for 346 firms listed in 7 European markets. Out of the whole sample 16 firms are considered as sin stocks.

6.1. Regression results

Following the methods of previous studies (Oikonomou et al. 2014) the models are tested using pooled OLS regressions. The first regression tests how the overall ESG score is correlated with the cost of debt. The results presented in Table 6 demonstrate that the overall ESG performance of a firm does not have an impact on the cost of debt. Even if the overall ESG score did not provide significant results in the first model, the effect of the individual scores is tested in the second model. Consistently, the majority of the individual scores do not have significant effects on the cost of debt. Exceptionally, the governance score is significant at the 5% level and inversely correlated with the cost of debt, which means that an increase in the governance score results in a lower cost of debt. The impact is -0.01 percentage points meaning that if the governance performance of a firm increases by 10 points, the cost of debt decreases by 0.1 percentage points. However, the effect is quite small and only valid when the model is fixed for year and industry effects.

All the control variables, which include firm leverage, firm size, operating profitability and book-to-market, are highly significant at the 1% level. Based on the results of previous studies, this outcome was expected.

Table 6. Regression results for ESG scores.

	(2)		(3)	
Intercept	12.798***	13.939***	12.815***	14.413***
	(1.003)	(1.275)	(1.019)	(1.305)
ESG score (-1)	0.003	-0.003		
	(0.004)	(0.004)		
Environmental score (-1)			0.003	0.001
			(0.007)	(0.006)
Social score (-1)			0.001	0.007
			(0.006)	(0.006)
Governance score (-1)			0.001	-0.010**
			(0.005)	-0.004
Leverage	-0.003***	-0.003***	-0.003***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.001)
Firm size	-0.517***	-0.645***	-0.525***	-0.687***
	(0.067)	(0.084)	(0.069)	(0.086)
Operating profitability	0.077***	0.073***	0.077***	0.073***
	(0.015)	(0.015)	(0.015)	(0.015)
Book-to-market	1.186***	0.832***	1.189***	0.859***
	(0.197)	(0.193)	(0.193)	(0.190)
Fixed effects				
Year	Yes	Yes	Yes	Yes
Market	Yes	No	Yes	No
Industry	No	Yes	No	Yes
R^2	0.11	0.11	0.11	0.11
Adjusted R^2	0.11	0.11	0.11	0.11
N	4447	4447	4446	4446

Robust standard errors are marked below the corresponding correlation coefficient in parentheses.
Levels of significance: * = 0.1, ** = 0.05, *** = 0.01

The results for the third and fourth regression models are presented below in Table 7. The third model uses two binary independent variables, high and low ESG, which are constructed using the overall ESG scores of the firms that are among the best and worst performing 25% of the sample. The coefficients in both models are negative but high statistical significance is only found in high ESG performance, which results in 0.54

percentage points lower cost of debt. In other words, the cost of debt of a firm belonging to the top 25% of the overall ESG performers decreases by 0.54 percentage points.

Binary variables are also used in the fourth model to test the impact of the best and worst performing 25% of the sample in each dimension of the ESG score on the cost of debt. The findings show that out of twelve variables four are found to be statistically significant. The results for high social performance are nearly equal in both models, varying between -0.638 and -0.645 and both highly significant. This means, that high social performance results in 0.64 percentage points lower cost of debt. Interestingly, some inconsistent results are also obtained. Similar to high social performance also low social performance seems to lead to lower cost of debt of 0.54 percentage points when fixed effects include year and industry. Firms with both highest and lowest social scores gaining financial benefit in the form of equally lower cost of debt is quite contradictory. However, for the lowest performing firms the significance of the results is only at the 10% level, whereas for the best performing firms the significance is at the 1% level in both models. In addition, the model with fixed effects for year and industry suggests that also firms with high governance performance obtain loans with a cost that is 0.28 percentage points lower. The result is significant at the 10% level. Significant results are not found neither for high environmental performance nor low environmental performance, which suggests that environmental factors do not greatly affect the loan decisions of creditors.

In order to test whether the lag time effect of one year was sufficient, the regressions were also tested with a lag time effect of two years. The results were not altered even if a lag time effect of two years was applied in order to test if the performance scores would be reflected later in the creditors' decisions than originally assumed by the model. This suggests, that the creditors obtain new information relatively quickly and apply it in the following year. Due to the dataset containing a limited number of sin stocks, only 16 firms, it was not possible to examine sin stocks separately.

The adjusted R-squared, which is the percentage of total variance of the dependent variables explained by the regression model, is low, around 11%, for all the four models presented in Table 6 and Table 7. This is an indication of a weak linear fit for the model. However, even if the adjusted R-squared is low, the low p-values are still an indication of a significant relation between the dependent variable and the significant predictors. Furthermore, the adjusted R-squared is on the same level as in the research of Erragragui (2018).

Table 7. Regression results for high and low ESG scores.

	(4)		(5)	
Intercept	13.683***	13.958***	13.736***	14.398***
	(1.062)	(1.292)	(1.091)	(1.350)
High ESG (-1)	-0.059	-0.538***		
	(0.162)	(0.159)		
Low ESG (-1)	-0.395	-0.120		
	(0.275)	(0.255)		
High Environmental score (-1)			0.058	-0.027
			(0.192)	(0.191)
Low Environmental score (-1)			-0.264	-0.229
			(0.327)	(0.318)
High Social score (-1)			-0.638***	-0.645***
			(0.144)	(0.146)
Low Social score (-1)			-0.420	-0.539*
			(0.320)	(0.312)
High Governance score (-1)			0.128	-0.277*
			(0.198)	(0.166)
Low Governance score (-1)			-0.189	0.365
			(0.278)	(0.254)
Leverage	-0.003***	-0.003***	-0.003***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm size	-0.535***	-0.622***	-0.525***	-0.637***
	(0.067)	(0.067)	(0.069)	(0.073)
Operating profitability	0.079***	0.078***	0.081***	0.079***
	(0.014)	(0.014)	(0.014)	(0.014)
Book-to-market	1.089***	0.808***	1.079***	0.819***
	(0.188)	(0.187)	(0.188)	(0.189)
Fixed effects				
Year	Yes	Yes	Yes	Yes
Market	Yes	No	Yes	No
Industry	No	Yes	No	Yes
R^2	0.11	0.11	0.12	0.11
Adjusted R^2	0.11	0.11	0.12	0.11
N	4911	4911	4911	4911

Robust standard errors are marked below the corresponding correlation coefficient in parentheses.

Levels of significance: * = 0.1, ** = 0.05, *** = 0.01

6.2. Analysis of the results

Over the past two decades there has been a steady increase in the amount of yearly ESG observations, which is a clear indication of firms' growing attention towards CSR practices. Furthermore, the scores have improved consistently indicating increased investments in CSR activities. However, it can be challenging for firms to distinguish the adequate level of investments in CSR activities where the benefit gained is more significant compared to the expense.

The findings of this thesis suggest that superior CSR performance is reflected on the cost of debt. The majority of the significant results were found for firms belonging to the top 25% of the best performing firms. Firms belonging to the 25% of the firms with the best overall ESG scores are found to receive a 0.54 percentage points lower interest rate on debt.

In addition to the high ESG performers, the results suggest that especially social performance is rewarded with a 0.64 percentage points lower cost of debt. This leads to the conclusion that firms wanting to gain benefits from CSR should invest particularly in social matters as doing so leads to an equally low cost of debt as having a high overall ESG score. Presumably, having a high overall ESG score requires considerably more investments in CSR activities in all three dimensions than having solely a high social score.

Intriguingly, some inconsistency occurs in the results between the high social performers and the low social performers as also low social performance is found to result in a lower cost of debt of 0.54 percentage points. This implies that the financial benefit is almost of equal magnitude between the best and the worst performers. However, the result for the low social performers is only significant at the 10% level, while the result for the high social performers is highly significant at the 1% level. One explanation for the contradictory result could be that the perceived importance of the social performance when assessing firms' financial standing and creditworthiness varies between creditors. In reference to the theories of CSR, this result suggests that some creditors consider high social performance an overinvestment and a waste of firm's resources, which leads them to reward low social performance, while others regard high social performance as a risk mitigating factor, which is rewarded as a lower interest rate on debt. However, this is the only of the significant results that supports the overinvestment theory as none of the other

significant results suggests that firms with low ESG scores would accordingly have a lower cost of debt.

Having high governance scores is also found to be beneficial, but the impact on the cost of debt is smaller compared to the high ESG score and the high social score. Contrary to expectations, superior performance in environmental issues does not have any impact, neither positive or negative, on the cost of debt.

The outcome is similar to the findings of Hsu et al. (2015) and Goss et al. (2011) who find that firms with high CSR performance have a lower cost of debt compared to firms with low CSR performance. However, the results differ from the findings of Erragragui (2018) who finds that superior performance especially in environmental and governance issues leads to a lower cost of debt. The findings related to the environmental score are also in contrast with the results of Hamrouni et al. (2019) who find that the disclosure of environmental information is the only dimension of ESG that lowers the cost of debt. Furthermore, the results of low social score are also supported by their findings according to which social performance increases the cost of debt. Moreover, the results of this thesis indicate that ESG factors are priced effectively in the debt market as creditors seem to consider new CSR information rather quickly when making loan decisions.

The results also support the conclusion of Goss et al. (2011) that banks regard CSR concerns as an increased financial risk. Thus, high CSR performance reduces the financial risk and consequently the cost of debt decreases. The reduction in the cost of debt can also be seen to result from the improved information asymmetry between the internal and external stakeholders that the publishing of CSR reports induces. Therefore, the outcome of this thesis supports the conflict resolution theory that states that the increased transparency reduces the information asymmetry between the firm and its stakeholders such as the creditors. Furthermore, the decline in the levels of information asymmetry results in decreased agency costs. As more information, both financial and non-financial, is available of the firm and its practices, it is less challenging for creditors to assess the risks related to the firm.

Support for the overinvestment theory is only found in the results for low social performance. Most of the results with significance find that superior CSR performance is rewarded with a lower cost of debt. Therefore, it seems that in general superior CSR performance is not considered an overinvestment but rather a risk mitigating factor that has potential to reduce the information asymmetry between the firm and its creditors. To

conclude, the hypothesis of high ESG ratings being inversely related to cost of debt is supported by the findings of this thesis.

6.3. Limitations

Some limitations regarding this research can be identified. It is conceivable that firms could try to affect their ESG ratings. This however is rather unlikely as the evaluations of Thomson Reuters ASSET4 are based on several sources and the company-reported data, which comprises of annual reports, CSR reports and company websites, is only one of these sources. Other third-party sources used include NGO websites, stock exchange filings and news sources (Thomson Reuters 2019). It would be difficult for a single firm to affect all of these third-party sources in an attempt to improve its ESG scores.

Moreover, another potential drawback concerning the reliability of the data would occur if the ESG ratings would be biased based on the analysts' erroneous perceptions and judgements. The objectivity of the data is important so that the data are comparable across companies and markets. In order to ensure the quality and objectivity of the data, Thomson Reuters has implemented a process to standardize and continuously improve the information. This involves both algorithmic as well as human actions throughout the processing of data. These processes include for example built-in error check logics for various data points when gathering ESG data, independent audits and management reviews. Furthermore, the analysts operate in different locations across the world and speak local languages which decreases the chances of linguistic misperceptions. (Thomson Reuters 2019.)

Overall, the data of this study includes a large dataset of 346 companies operating in various industries in 8 European markets, which significantly reduces the chances that the results would represent only a certain industry or a firm. Moreover, the data covers 16 years during the time period of 2002–2018.

7. CONCLUSIONS

The European consumers' awareness regarding sustainability issues has increasingly spread in the past two decades changing the attitudes as well as consumption habits. Consumers consider the environment very important and they are ready to act in order to preserve it. Furthermore, they insist on businesses and institutions to participate and do their share by implementing CSR activities in their operations. (European Commission 2017.) This thesis aims to contribute to the existing literature on corporate social responsibility by examining the effect that CSR performance has on the cost of debt. Regardless of the growing interest towards CSR, there are still varying findings on whether creditors consider the CSR performance of firms alongside financial factors when giving out loans. The main focus of this research is to examine whether a superior CSR performance measured with ESG scores results in financial benefit in the form of a lower cost of debt capital in the European market. In other words, is acting according to social norms financially beneficial and rewarded by creditors with a lower interest rate. This thesis utilizes the ESG data provided by Thomson Reuters ASSET4. The impact of ESG ratings on the cost of debt of a firm is examined by studying 346 listed firms from 8 European stock exchanges during the time period from 2002 to 2018. The study is conducted by running pooled OLS regressions on an unbalanced panel dataset.

Previous research has largely concentrated on studying the impact of ESG on the cost of debt in the U.S. The findings of previous research suggest that there is a relationship between CSR performance and cost of debt. However, the results on whether higher responsibility scores are negatively or positively related to cost of debt vary. The results of several previous studies (Hamrouni et al. 2019; Erragragui 2018; Hsu et al. 2015; Goss et al. 2011) suggest that firms benefit from having high CSR performance scores in the form of a lower cost of debt. These results support the conflict resolution theory, which explains the lower cost of debt with high CSR performance increasing transparency which in turn decreases the levels of information asymmetry and the firms' risk of going bankrupt (Cheng et al. 2014; Sun et al. 2014). However, the results are not as coherent when it comes to the effects of the single dimensions of ESG. Erragragui (2018) and Hamrouni (2019) find that strong environmental performance lowers the cost of debt whereas the results of Sharfman et al. (2008) indicate that increased environmental risk management is correlated with a higher cost of debt. Similarly contrasting results are also found for governance and social performance. Furthermore, some studies (Magnanelli et al. 2017; Sharfman et al. 2008) find evidence supporting the overinvestment theory,

which suggests that high CSR performance increases the cost of debt as investments in CSR activities are considered a waste of resources.

In general, the results of this thesis align with the results of previous studies and suggest that CSR performance is reflected on the cost of debt. Especially firms that are among the 25% of the best overall ESG performers are found to receive a lower cost on debt. In addition to the high ESG performers, also high social performance is rewarded with a lower interest rate. The impact on the cost of debt is of equal size which indicates that a firm wanting to obtain savings on cost of debt through CSR should specifically focus investments in social matters in order to achieve a high social performance instead of aspiring to reach a superior performance in all three dimensions of ESG. Reaching a high overall ESG score is likely to require substantially more investments on CSR than reaching a high rating on just one of the dimensions.

Firms with high governance scores are also found to benefit from their superior performance but the impact on the cost of debt is smaller in comparison to the high ESG score and the high social score. The results of this thesis do not find evidence of environmental score having any significant impact on the cost of debt.

Overall, the results suggest that CSR investments can be justified as a way of increasing transparency and thus reducing the levels of asymmetrical information. For the most part, the findings of this thesis support the conflict resolution theory based on which high levels of CSR should lower the interest rate on debt as more information of the firm is available for creditors.

However, partial support for overinvestment theory is also found. Interestingly, inconsistency is found between the results for high and low social performance as the worst social performers seem to gain a similarly lower cost of debt as the best social performers. The contradictory results could be due to differences in how creditors value social performance and its relation to the creditworthiness of a firm. This observation indicates that some creditors regard high social performance an unnecessary cost for the firm and thus an overinvestment, whereas other creditors perceive the value of social performance as a risk mitigating factor. Similar differences are not found in other dimensions which indicates that the importance of high social performance divides opinions between creditors more than any other dimension.

In conclusion, the results of this thesis suggest that especially listed firms with very high CSR performance benefit in the form of a lower cost of debt. The findings have particular importance as debt in the form of bank loans and corporate bonds are a significant source of external financing for a firm and the size of the debt market surpasses the size of the equity market. Furthermore, this thesis uses data collected from the European markets whereas previous studies have predominantly examined the matter with data from the U.S. markets. Contrary to the U.S., the European firms obtain debt largely from the private debt market in the form of bank loans. Due to this difference it is important to understand how CSR information is considered by European creditors when pricing debt.

The limitations of this study, such as the reliability of the data, are discussed in the thesis. It is unlikely that firms would be able to distort the data as the data are collected from several sources and the data reported by the firm, such as annual reports and the websites of the firm, is only one of the sources. Moreover, the dataset used is large and includes firms from several markets as well as different industries, which decreases the risk of the results representing solely a specific industry or firm.

Finally, a few suggestions and ideas for future research emerged during this research. As this study concentrated only on the European markets, future research could investigate various markets in order to find out whether there are differences between markets in how ESG criteria is implemented in loan decisions. Additionally, the data used in this research only contained the ESG scores without more information of whether the scores are constituted of positive or negative actions or even the lack of CSR actions. Thus, future research could take into account both positive CSR actions as well as CSR controversies of the firms. Furthermore, due to the dataset containing a limited number of sin stocks, only 16 firms, it was not possible to examine sin stocks separately. This presents an interesting opportunity for future researchers to study the impact of ESG ratings on the cost of debt of sin stocks.

REFERENCES

Accenture (2016). *UN Global Compact Study* [online]. Available from World Wide Web: <https://www.accenture.com/fi-en/insight-un-global-compact-ceo-study>.

Ackerman, Robert W. & Raymond A. Bauer (1976). *Corporate Social Responsiveness.* Reston, Virginia: Reston Publishing.

Al-Hadi, Ahmed, Bikram Chatterjee, Ali Yaftian, Grantley Taylor & Mostafa Monzur Hasan (2017). Corporate social responsibility performance, financial distress and firm life cycle: evidence from Australia. *Accounting and Finance* 59:2, 961–989.

Allen, Linda, Hongtao Guo & Joseph Weintrop (2004). The information content of quarterly earnings in syndicated bank loan prices. *Asia-Pacific Journal of Accounting & Economics* 15:2, 91–121.

Altman, Edward, Andrea Resti, & Andrea Sironi (2004). Default recovery rates in credit risk modelling: a review of the literature and empirical evidence. *Economic Notes* 33:2, 183–208.

Backman, Jules (1975). *Social Responsibility and Accountability*. New York: New York University Press.

Bailey, Jonathan, Vincent Bérubé, Jonathan Godsall & Conor Kehoe (2014). *Short-termism: Insights from Business Leaders* [online]. Available from World Wide Web:<https://www.fcltglobal.org/docs/default-source/default-document-library/20140123-mck-quarterly-survey-results-for-fclt-org_final.pdf?sfvrsn=5078258c_0>.

Barnea, Amir & Amir Rubin (2010). Corporate social responsibility as a conflict between shareholders. *Journal of Business Ethics* 97:1, 71–86.

Bharath, Sreedhar T., Jayanthi Sunder & Shyam V. Sunder (2008). Accounting quality and debt contracting. *Accounting Review* 83:1, 1–28.

Bharath, Sreedhar T., Sandeep Dahiya, Anthony Saunders & Anand Srinivasan (2011).

Lending relationships and loan contract terms. *The Review of Financial Studies* 24:4, 1141–1203.

Blitz, David & Frank J. Fabozzi (2017). Sin stocks revisited: Resolving the sin stock anomaly. *Journal of Portfolio Management* 44:1, 105–111.

Bollen, Nicolas P. B. (2007). Mutual fund attributes and investor behavior. *Journal of Financial and Quantitative Analysis* 42:3, 683–708.

Boot, Arnoud W.A. (2000). Relationship banking: what do we know? *Journal of Financial Intermediation* 9:1, 7–25.

Booth, James R. & Lena Chua Booth (2006). Loan collateral decisions and corporate borrowing costs. *Journal of Money, Credit and Banking* 38:1, 67–90.

Brealey, Richard A., Stewart C. Myers & Franklin Allen (2011). *Principles of Corporate Finance.* 10. ed. Berkshire: McGraw-Hill Education. 875 p. ISBN 978-0-07-353073-4.

Breusch, Trevor S. & Adrian R. Pagan (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica* 47:5, 1287–1294.

Carnevale, Concetta & Maria Mazzuca (2014). Sustainability report and bank valuation: Evidence from European stock markets. *Business Ethics: A European Review* 23:1, 69–90.

Carroll, Archie B. (1979). A three-dimensional conceptual model of corporate performance. *The Academy of Management Review* 4:4, 497–505.

Cellier, Alexis & Pierre Chollet (2016). The effects of social ratings on firm value. *Research in International Business and Finance* 36, 656–683.

Champagne, Claudia & Frank Coggins (2012). Common information asymmetry factors in syndicated loan structures. *Journal of Banking & Finance* 36:5, 1437–1451.

Chen, Long, David A. Lesmond & Jason Wei (2007). Corporate yield spreads and bond liquidity. *Journal of Finance* 62:1, 119–149.

Cheng, Beiting, Ioannis Ioannou & George Serafeim (2014). Corporate social responsibility and access to finance. *Strategic Management Journal* 35:1, 1–23.

Choi, Jaepil & Heli Wang (2009). Stakeholder relations and the persistence of corporate financial performance. *Strategic Management Journal* 30:8, 895–907.

Clark, Gordon L., Andreas Feiner & Michael Viehs (2015). *From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance* [online]. Available from World Wide Web: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2508281>.

CNBC (2019). *Global Stock Markets Gained $17 Trillion in Value in 2019* [online]. Available from World Wide Web: <https://www.cnbc.com/2019/12/24/global-stock-markets-gained-17-trillion-in-value-in-2019.html>.

Crane, Andrew, Dirk Matten & Laura J. Spence (2014). *Corporate Social Responsibility: Readings and Cases in a Global Context.* 2.ed. Milton Park: Routledge. 596 p. ISBN 978-0-415-68324-1.

Davis, Keith (1960). Can business afford to ignore social responsibilities? *California Management Review* 2:3, 70–76.

De Colle, Simone & Jeffrey G. York (2009). Why wine is not glue? The unresolved problem of negative screening in socially responsible investing. *Journal of Business Ethics* 85: 83–95.

Denis, David J. & Vassil T. Mihov (2003). The choice among bank debt, non-bank private debt, and public debt: evidence from new corporate borrowings. *Journal of Financial Economics* 70:1, 3–28.

Dhaliwal, Dan S., Oliver Zhen Li, Albert Tsang & Yong George Yang (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86:1, 59–100.

Eccles, Robert G. & George Serafeim (2013). The performance frontier: Innovating for a sustainable strategy. *Harvard Business Review* 91:5, 1–10.

Eccles, Robert G., Ioannis Ioannou & George Serafeim (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science* 60:11, 2835–2857.

Edwards, Amy K., Lawrence E. Harris & Michael S. Piwowar (2007). Corporate bond market transaction costs and transparency. *Journal of Finance* 62:3, 1421–1448.

El Ghoul, Sadok, Omrane Guedhami, Chuck C. Y. Kwok & Dev R. Mishra (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance* 35:9, 2388–2406.

Erragragui, Elias (2018). Do creditors price firms' environmental, social and governance risks? *Research in International Business and Finance* 45, 197–207.

Escrig-Olmedo, Elena, María Jesús Muñoz-Torres, María Ángeles Fernández-Izquierdo & Juana María Rivera-Lirio (2014). Lights and shadows on sustainability rating scoring. *Review of Managerial Science* 8:4, 559–574.

European Commission (2011). *A Renewed EU Strategy 2011-14 for Corporate Social Responsibility* [online]. Available from World Wide Web: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0681&from=EN>.

European Commission (2017). *Special Eurobarometer 468: Attitudes of European Citizens Towards the Environment* [online]. Available from World Wide Web: <https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Survey/getSurveyDetail/instruments/SPECIAL/surveyKy/2156>.

Fabozzi, Franck J. (2008). *Handbook of Finance Volume 1: Financial Markets and Instruments*. New Jersey: John Wiley & Sons. 1008 p. ISBN 978-0-470-39107-5.

Fabozzi, Frank J., K.C. Ma & Becky J. Oliphant (2008). Sin stock returns. *Journal of Portfolio Management* 35:1, 82–94.

Fama, Eugene F. & Kenneth R. French (2015). A five-factor asset pricing model. *Journal of Financial Economics* 116:1, 1–22.

Fombrun, Charles & Mark Shanley (1990). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal* 33:2, 233–258.

Freeman, R. Edward (1984). *Strategic Management: A Stakeholder Approach.* Boston: Pitman.

Friedman, Milton (1970). *The Social Responsibility of a Business is to Increase its Profits* [online]. *The New York Times Magazine*. Available from World Wide Web: < https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html>.

Godfrey, Paul C. (2005). The relationship between corporate philanthropy and shareholder wealth: A risk management perspective. *Academy of Management Review* 30:4, 777–798.

Goss, Allen & Gordon S. Roberts (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking & Finance* 35:7, 1794–1810.

Governance & Accountability Institute (2018). *Flash Report: 85% of S&P 500 Index Companies Publish Sustainability Reports in 2017* [online]. Available from World Wide Web: <https://www.ga-institute.com/press-releases/article/flash-report-85-of-sp-500-indexR-companies-publish-sustainability-reports-in-2017.html>.

Global Reporting Initiative (2020). *The GRI Standards: The Global Standards for Sustainability Reporting* [online]. Available from World Wide Web: <https://www.globalreporting.org/standards/media/2458/gri_standards_brochure.pdf>.

Hamrouni, Amal, Ali Uyar & Rim Boussaada (2019). Are corporate social responsibility disclosures relevant for lenders? Empirical evidence from France. *Management Decision* 58:2, 267–279.

Hausman, Jerry A. (1978). Specification tests in econometrics. *Econometrica* 46:6, 1251–1271.

Hay, Robert D., Edmund R. Gray & James E. Gates (1976). *Business and Society.*

Cincinnati: South Western Publishing.

Hoechle, Daniel (2007). Robust standard errors for panel regressions with cross-sectional dependence. *The Stata Journal* 7:3, 281–312.

Hong, Harrison & Marcin Kacperczyk (2009). The price of sin: The effects of social norms on markets. *Journal of Financial Economics* 93:1, 15–36.

Hsu, Feng Jui & Yu-Cheng Chen (2015). Is a firm's financial risk associated with corporate social responsibility? *Management Decision* 53:9, 2175–2199.

Humphrey, Jacquelyn E., Darren D. Lee & Yaokan Shen (2012). Does it cost to be sustainable? *Journal of Corporate Finance* 18:3, 626–639.

Institute of International Finance (2019). *Global Debt Monitor: November 2019* [online]. Available from World Wide Web: <http://files.clickdimensions.com/iifcom-ai7nn/files/globaldebtmonitor_november_vf.pdf >.

Institute of International Finance (2020). *January 2020 Global Debt Monitor: Sustainability Matters* [online]. Available from World Wide Web: < https://www.iif.com/Portals/0/Files/content/Global%20Debt%20Monitor_January 2020_vf.pdf>.

Jacob, Christine K. (2012). The impact of financial crisis on corporate social responsibility and its implications for reputation risk management. *Journal of Management and Sustainability* 2:2, 259–275.

Jensen, Michael C. (2002). Value maximization, stakeholder theory, and the corporate objective function. *Business Ethics Quarterly* 12:2, 235–256.

Jensen, Michael C. & William H. Meckling (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3:4, 305–360.

Jo, Hoje & Maretno A. Harjoto (2012a). The causal effect of corporate governance on corporate social responsibility. *Journal of Business Ethics* 106:1, 53–72.

Jo, Hoje & Haejung Na (2012b). Does CSR reduce firm risk? Evidence form controversial industry sectors. *Journal of Business Ethics* 110:4, 441–456.

Kim, Dong-young & JeongYeon Kim (2014). Effects of corporate social responsibility and governance on its credit ratings. *The Scientific World Journal,* 1–6.

Kim, Irene & Mohan Venkatachalam (2011). Are sin stocks paying the price for accounting sins? *Journal of Accounting, Auditing & Finance* 26:2, 415–442.

Li, Yiwei, Mengfeng Gong, Xiu-Ye Zhang & Lenny Koh (2018). The impact of environmental, social and governance disclosure on firm value: The role of CEO power. *The British Accounting Review* 50:1, 60–75.

Lin, Hai, Junbo Wang & Chunchi Wu (2011). Liquidity risk and expected corporate bond returns. *Journal of Financial Economics* 99:1, 628–650.

Longstaff, Francis A. & Eduardo S. Schwartz (1995). A simple approach to valuing risky fixed and floating rate debt. *Journal of Finance* 50:3, 789–819.

Lopatta, Kerstin, Frerich Buchholz & Thomas Kaspereit (2016). Asymmetric information and corporate social responsibility. *Business & Society* 55:3, 458–488.

Magnanelli, Barbara Sveva & Maria Federica Izzo (2017). Corporate social performance and cost of debt: the relationship. *Social Responsibility Journal* 13:2, 250–265.

Manne, Henry G. & Henry C. Wallich (1972). *The Modern Corporation and Social Responsibility.* Washington, D.C.: American Enterprise Institute for Public Policy Research.

McGuire, Joseph W. (1963). *Business and Society.* New York: McGraw-Hill.

Menz, Klaus-Michael (2010). Corporate social responsibility: is it rewarded by the corporate bond market? A critical note. *Journal of Business Ethics* 96:1, 117–134.

Minor, Dylan & John Morgan (2011). CSR as reputation insurance: Primum non nocere. *California Management Review* 53:3, 40–59.

Nandy, Monomita & Suman Lodh (2012). Do banks value the eco-friendliness of firms in their corporate lending decision? Some empirical evidence. *International Review of Financial Analysis* 25: 83–93.

Ng, Anthony C. & Zabihollah Rezaee (2015). Business sustainability performance and cost of equity capital. *Journal of Corporate Finance* 34, 128–149.

Oikonomou, Ioannis, Chris Brooks & Stephen Pavelin (2014). The effects of corporate social performance on the cost of corporate debt and credit ratings. *The Financial Review* 49:1, 49–75.

Orens, Raf, Walter Aerts & Denis Cormier (2010). Web-based non-financial disclosure and cost of finance. *Journal of Business Finance and Accounting* 37:9–10, 1057–1093.

Renneboog, Luc, Jenke Ter Horst & Chendi Zhang (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance* 32:9, 1723–1742.

Santos, João A. C. & Andrew Winton (2008). Bank loans, bonds, and information monopolies across the business cycle. *Journal of Finance* 63:3, 1315–1359.

Saunders, Anthony (1999). *Credit Risk Measurement: New Approaches to Value at Risk and Other Paradigms*. 2 ed. New York: John Wiley & Sons. 319 p. ISBN 978-0-471-21910-1.

Sengupta, Partha (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review* 73:4, 459–474.

Sethi, Suresh P. (1975). Dimensions of corporate social responsibility. *California Management Review* 17:3, 58–64.

Sharfman, Mark P. & Chitru S. Fernando (2008) Environmental risk management and the cost of capital. *Strategic Management Journal* 29:6, 569–592.

Sheehy, Benedict (2015). Defining CSR: Problems and solutions. *Journal of Business Ethics* 131:3, 625–648.

SIFMA (2020). *2020 Outlook: Trends in the US Capital Markets* [online]. Available from World Wide Web: <https://www.sifma.org/wp-content/uploads/2019/12/2020-SIFMA-Outlook.pdf>.

Sun, Wenbin & Kexiu Cui (2014). Linking corporate social responsibility to firm default risk. *European Management Journal* 32:2, 275–287.

Thomson Reuters (2019). *Thomson Reuters ESG Scores* [online]. Available from World Wide Web: <https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf>.

UNEP FI (2019). *Banking* [online]. Available from World Wide Web: <https://www.unepfi.org/banking/banking/>.

UNPRI (2019). *Principles for Responsible Investment* [online]. Available from World Wide Web: <https://www.unpri.org>.

Van Beurden, Pieter & Tobias Gössling (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.

Weber, Olaf, Roland W. Scholz & Georg Michalik (2010). Incorporating sustainability criteria into credit risk management. *Business Strategy and the Environment* 19:1, 39–50.

White, Halbert (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48:4, 817–838.

Willis, Alan (2003). The role of the Global Reporting Initiative's sustainability reporting guidelines in the social screening of investments. *Journal of Business Ethics* 43:3, 233–237.

Wooldridge, Jeffrey M. (2012). *Introductory Econometrics: A Modern Approach.* 5.ed. Mason (Ohio): South-Western. 881 p. ISBN 978-1-111-53104-1.

Zeidan, Rodrigo & Heiko Spitzeck (2015). The sustainability delta: Considering sustainability opportunities in firm valuation. *Sustainable Development* 23:6, 329–342.

Appendix 1. Descriptive statistics by market and industry.

	ESG score	Environmental score	Social score	Governance score	Number of firms	Mean CoD
Market						
CAC 40	86.07	86.80	87.63	64.67	36	3.86 %
DAX 30	80.85	85.37	82.89	48.75	26	5.75 %
FTSE 100	81.88	76.62	78.35	78.53	92	5.69 %
Nasdaq Copenhagen	56.92	61.51	59.62	43.58	27	5.98 %
Nasdaq Helsinki	77.72	77.67	72.21	58.72	29	4.87 %
Nasdaq Stockholm	67.98	71.29	66.52	54.36	60	5.67 %
Oslo Stock Exchange	59.13	54.60	58.45	56.52	27	6.61 %
Xetra	56.20	62.23	65.59	31.53	49	7.91 %
Total	70.84	72.01	71.41	54.58	346	5.79 %
Industry						
Basic Materials	78.11	80.34	79.01	59.62	40	6.31 %
Consumer Goods	77.91	81.87	79.70	57.54	45	5.77 %
Consumer Services	75.42	71.67	75.37	62.99	43	6.06 %
Financials	69.97	68.84	67.48	59.78	62	4.83 %
Healthcare	67.32	68.66	69.08	50.67	26	5.52 %
Industrials	69.67	73.66	68.92	54.38	72	6.04 %
Oil & Gas	62.44	54.90	61.88	64.00	19	6.86 %
Technology	69.88	64.55	71.57	61.20	17	6.25 %
Telecommunications	83.60	81.28	81.57	68.17	11	6.53 %
Utilities	84.18	83.72	86.15	65.29	11	5.22 %
Total	73.85	72.95	74.07	60.36	346	5.94 %

Appendix 2. Correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cost of debt	1.00								
ESG score	-0.10***	1.00							
Environmental score	-0.09***	0.85***	1.00						
Social score	-0.10***	0.87***	0.75***	1.00					
Governance score	-0.09***	0.67***	0.42***	0.47***	1.00				
Leverage	-0.18***	-0.01	-0.02	0.03**	-0.01	1.00			
Firm size	-0.21***	0.31***	0.32***	0.32***	0.16***	0.40***	1.00		
Operating profitability	0.16***	0.02	-0.06***	-0.02*	0.01	-0.20***	-0.22***	1.00	
Book-to-market	-0.03**	-0.05***	0.02	-0.04***	-0.02	0.15***	0.27***	-0.45***	1.00

Levels of significance: * = 0.1, ** = 0.05, *** = 0.01