

A Work Project presented as part of the requirements for the Award of a Master's degree in
Finance (MiF) from the Nova School of Business and Economics

**The Impact of Sustainability Efforts on Companies' Cost of Debt:
Evidence from Europe and the US**

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Abstract

Adopting sustainable practices and responsible resource use is a pressing challenge involving the global economy, companies, and the financial sector. This study examines whether sustainability affects corporate borrowing costs and the rationale for banks to apply stricter sustainability criteria. Using multiple regressions, it analyzes ESG scores' influence on borrowing costs in European markets, compares them with the US market, and considers industry-specific and sectoral differences. Results show ESG scores generally reduce the cost of debt, though this effect strongly depends on sector and region. Future research here could focus on regulatory influences and provide deeper, sector-level insights into ESG-cost relationships.

Keywords: Cost of debt, ESG-Ratings, ESG-Pillars, Industry & Sector differences, Cross country differences

1 Introduction

The importance of sustainability in the global economy has grown significantly over the past decade, including the rising prominence of sustainability scores, commonly referred to as ESG (Environmental, Social, Governance) scores or CSR (Corporate Social Responsibility) scores. In theory, such scores enable the measurement of a company's sustainability efforts, making them comparable. With the continuous development and refinement of these metrics, it is becoming increasingly possible to better examine their impact on a company's performance and competitiveness. It is of particular interest to pay attention to differences between different industries and sectors and to draw appropriate conclusions from them.

1.1 Objectives of the Thesis

This research aims to demonstrate that investing in sustainability benefits not only the common good but also provides economic advantages for companies. I aim to demonstrate that this is especially evident in debt capital interest rates, which can make investments comparatively more cost-effective. The focus of my analysis lies on the European market, emphasizing the varying impacts across industries and sectors. Moreover, I provide a comparison with the S&P 500, which represents the US market on the sector level. To get a detailed view on those impacts, I isolate the multiple pillars of ESG, furthermore I also check for the impact of the emission score on the cost of debt and the difference of its impact in comparison to the ESG pillars. The data period begins in January 2016 and ends in December 2020. This serves to capture key developments in ESG scores and their influence on borrowing costs due to several reasons. First, this period follows the adoption of the Paris Climate Agreement in 2015 and the Sustainable Development Goals (SDGs), which

significantly elevated ESG criteria, particularly in environmental and social areas. Second, regulatory pressure and investor demand for sustainable finance grew substantially during these years, prompting firms to adapt their ESG practices in ways that could directly impact their cost of debt. Third, the period allows examination of pre-COVID market conditions, offering insight into the established impact of ESG activities on borrowing costs before the pandemic-driven ESG focus emerged. Furthermore, the importance of environmental transparency increased significantly as analysts increasingly included environmental factors in their valuations post Paris agreement, according to Bolognesi & Burchi (2023).

1.2 Structure of the thesis

The thesis begins with an introduction, followed by a concise literature review in Chapter 2 on existing research regarding the impact of ESG activities on the cost of equity and debt. Chapter 3 details the data and regression setup, along with data limitations. Chapter 4 analyzes the regression results, focusing on sector and industry differences and comparing the European and US markets. Chapter 5 discusses and concludes with key findings and outlooks for future research.

2 Current discourse on the Impact of ESG activities

A crucial aspect in the field of ESG activities and their potential impacts is the impact on a company's capital structure. As Cantino et al. (2017) showed in their meta-study, there is a lot of research on the relationship between ESG scores and the cost of equity but not as much on the relationship between the cost of debt and ESG scores. But one thing seems to be clear, the sustainability efforts of one firm, whether measured in ESG or CSR metrics, do have an impact on the cost of capital and therefore on the capital structure decision, at least in different industries and sectors.

2.1 Impact on the Cost of equity

Based on findings of Ng & Rezaee (2015), Ghoul et al. (2011), and Reverte (2012), ESG activities do reduce the cost of equity. This is likely due to several factors, such as reduced information asymmetry through regular ESG disclosures by companies, according to Ferris et al. (2017), Mathiesen & Salzmann (2015), and Ng & Rezaee (2015). Additionally, according to Sharfman & Fernando (2008), Borghesi et al. (2014), and Crifo & Forget (2015), increased ESG engagement is associated with better environmental risk management capabilities, which are positively rewarded by the capital markets, resulting in lower volatility and, consequently, lower costs. Moreover, Ferris et al. (2017) and Cohen et al. (2011) showed that higher social capital, which is part of the ESG score, enhances information sharing and thus also reduces the cost of equity. Moreover Lins & Servaes (2017) and Ferris et al., (2017) showed that social capital increased the company's value and their profitability especially during crises, mainly due to reduced information asymmetry and through increased trust and reputation, based on the trust establishing abilities of social capital in managerial competence and integrity. Furthermore, investors see investments as less risky when they have clear and reliable information.

2.2 Impact on the cost of debt

Looking at the impact of ESG activities of a company on the cost of debt, the relationship is more ambiguous than with the cost of equity according to Cantino et al (2017). One line of research focuses on analyzing the costs of corporate bonds and bond issuance, as explored in recent studies, such as Gigante & Manglaviti (2022), which used regression discontinuity models to examine the influence of ESG performance on corporate bond costs in European markets. They found no sig-

nificant impact of ESG scores on bond issuance costs, highlighting that bond investors may prioritize other financial metrics over ESG scores when evaluating credit risk in nonfinancial European corporations. In contrast, Apergis et al. (2022) identified a positive relationship between carbon emissions and the cost of debt across several industries, especially in high-emission sectors, where higher carbon risks result in a significant debt cost premium. Other research investigates private debt and bank loans. Studies such as Eliwa et al. (2021) focused on how ESG performance and transparency influence loan costs in Europe, showing that strong ESG disclosure can lower debt financing costs by reducing perceived reputational risks. The findings indicate that banks respond positively to robust ESG disclosures, particularly in stakeholder-focused regions, aligning with Manglaviti & Gigante's (2022) argument that social and governance factors can mitigate information asymmetry and improve trust between banks and borrowers in these areas. Furthermore, Bolognesi & Burchi (2023) highlighted that ESG scores have a differential impact on the cost of debt across sectors. For instance, firms in the Financial and Industrial sectors experience a stronger reduction in borrowing costs associated with high ESG scores compared to sectors such as Communications and Utilities, where the impact is less pronounced. This sector-specific sensitivity aligns with findings that debt costs reflect industry-specific environmental and social risk perceptions, where creditors evaluate each sector's unique operational challenges and ESG-related risks. The literature remains heterogeneous in its findings, with varying impacts of ESG factors across debt types and regions. For example, Apergis et al. (2020) revealed that environmental commitments increase debt costs in carbon-intensive sectors due to anticipated regulatory compliance expenses, while non-carbon-intensive industries do not experience this effect. This suggests a sector-specific approach by creditors when assessing environmental risks, contrasting with the findings of Manglaviti & Gigante (2022), who observed minimal influence of broad ESG scores on debt costs in European corporate bonds. Recent studies by Bolognesi & Burchi (2023) and Raimo et al.

(2021) also demonstrate a post-Paris Agreement shift in ESG weight, with environmental scores becoming more influential in reducing debt costs, reflecting heightened regulatory expectations around carbon risk management. This advancing area of sustainability credit scoring supports banks in developing more tailored, regionally focused lending strategies based on a company's ESG profile.

2.3 Impact of emission scores on the cost of debt

While I focus more on the European market J. Jung et al. (2018) showed for the Australian market that there is a positive relationship between emissions risk and borrowing costs: companies that have a higher emissions risk have significantly higher borrowing costs. The study shows that an increase in carbon emissions potentially leads to an increase in the cost of debt capital, as emissions risks signal potential future regulatory costs and risks. Moreover, their studies implied that companies that disclose their awareness of carbon risks through measures such as participation in the Carbon Disclosure Project (CDP) or the publication of carbon data can completely neutralize the increase in borrowing costs caused by emissions risks. This indicates that investors and lenders prefer companies with transparent and proactive carbon risk management strategies. Additionally, Caragnano et al. (2020), who also focused on the European market, showed that both high- and low-emission industries see cost of debt benefits from reducing carbon intensity, though high-emission firms have a greater starting debt cost.

3 Data description and Methodology

In this section I am going to describe my data, including their sources and the process of compiling them. Moreover, I give explanations on the most important variables and their roles.

3.1 Data composition and collection

My research is based on two primary datasets, which are two time series that I compiled independently using data sourced from LSEG DataStream. One is the EURO STOXX 50 dataset, which represents the European market, and the other one is the S&P 500 dataset, which represents the US market. Both are known for being best in class indicators for the development of the whole economies of their countries. My focus is on the European data set, while the US data set is only used for comparison purposes at certain points. The EURO STOXX 50 contains the 50 largest listed companies in the eurozone, while the S&P 500 contains the 500 largest listed companies in the USA. The size of the companies in both indices is based on their market capitalization. The two data sets have the same structure and start on 1 January 2016 and end on 31 December 2020. The data is retrieved monthly. All data, including ESG scores and industry and sector classifications, were sourced from the LSEG database to better analyze industry and sectoral differences. The following variables are in my European and American data set.

3.1.1 Independent Variables

The ESG scores (ESGS) of the respective companies include the indices and its components, i.e. the environmental pillar (EP), which evaluates a company's efforts and practices aimed at minimizing its environmental impact. It includes assessments of energy use, carbon emissions, waste management, resource conservation, and broader climate initiatives, focusing on the company's commitment to sustainable and eco-friendly practices. The social pillar (SP), which measures a company's engagement in fair and ethical practices regarding its workforce, suppliers, and communities. This includes factors such as employee welfare, diversity and inclusion, community re-

lations, and respect for human rights, reflecting the company's responsibility toward its social impact. The third one is the governance pillar (GP), which assesses the quality and effectiveness of a company's leadership and management practices. This includes board composition, executive compensation, shareholder rights, transparency, and adherence to regulatory standards, providing insight into the company's corporate governance structure and accountability. The ESG Controversies Score (ESGCS), independently evaluated by LSEG rather than self-reported by companies, provides a critical assessment of a firm's recent history of controversies related to ESG issues. This score captures incidents that could pose significant reputational or compliance risks, including regulatory breaches, legal disputes, or adverse publicity. Unlike the broader ESG scores, which largely rely on company-provided data, the ESGCS leverages rigorous external evaluations to deliver an unbiased perspective on a firm's exposure to ESG-related challenges. The emissions score (EMISS) evaluates a company's dedication and effectiveness in minimizing environmental emissions, such as greenhouse gases, throughout its production and operational processes. This score reflects how effectively a company minimizes its carbon footprint and manages its impact on climate change through sustainable production and operational practices. To check for other relevant impact factors of the cost of debt I retrieved additional control variables such as the beta of each company (Beta), the return on equity (RoE), the leverage (Lev), the price-to-book ratio (PB) and the market capitalization (MC). The mentioned control variables make sure that the effect of the independent variable on the dependent variable, here specifically the cost of debt, is measured correctly. A detailed methodology of all variables is in the appendix.

3.1.2 Dependent Variable

Since I unfortunately did not get access to the credit ratings of the rating agencies, I calculated the cost of debt generically based on Brealey, R. A., Myers, S. C., & Allen, F. (2017) in their book

Principles of Corporate Finance (12th ed.). McGraw-Hill Education for each company using the following formula

$$r_d = \frac{\text{Interest expense}}{\text{Long-term debt}} \quad (1)$$

Where:

- **Interest Expenses** represent the total amount of interest paid by the company on its debt during a given period.
- **Long-term Debt** includes all interest-bearing financial liabilities, except for those due within one year. The amounts are reported after accounting for any premiums or discounts.

I have deliberately used long term debt to calculate the interest on the pure credit portfolio of each company and not to include any other possible liabilities employees, tax office or minority interests that could distort the interest expenses in the result. Detailed definitions of those two variables are in appendix C.

3.2 Methodology

For my analyses I used a quantitative research design based on multivariate regressions for each of my data sets. The regressions are divided into two steps, first on an industry level and then on sector level. Then checking on both levels for the ESG and ESGCS score impact, where on the industry level I focus also on the impact of each of the pillars of the ESG score and particularly on the EMISS score impact. The regression coefficients are clustered after the different industries within the market, which grants us 11 generic industries, with 42 sectors based on LSEGs industry clustering methodology, and inspired by available literature where in most of them the analyses are

clustered into industries, such as for example Sharfman M. et al (2007), Lins K. et al. (2017) or Hoepner et al. (2016). Table 1 shows the generic industries, while a detailed table of all sectors is in appendix A.

Table 1: Industry Overview

This table outlines the eleven industries used to categorize the datasets for regression analysis.

Industry	I- Cluster
Basic Materials	1
Consumer Discretionary	2
Consumer Staples	3
Energy	4
Financials	5
Health Care	6
Industrials	7
Real Estate	8
Technology	9
Telecommunications	10
Utilities	11

Regressions for the European industry level follow the eight models below. Starting with regressing all ESG factors including emission factors and control variables at the same time. Then, step by step, individual factors are eliminated and considered in isolation. I carried out and analyzed these seven steps for each industry. Checking impacts across the 11 industries I used the seven models stated below. With model one I want to get a first overall picture and see how all the independent variables act together. Starting to isolate different variables models two and three are the most important because they do not only compound all the three pillars, but they do also show the gap between reported scores by the companies themselves and independent assessed scores. Isolating the pillars shows which areas in detail within those ESG scores drive the impact the most and which are less important. Lastly, I used the emission score to specifically check for environmental emission mitigation efforts and their impact on the companies borrowing rate in contrast to

the environmental pillar of the ESG score which also considers other environmental activities like innovation and resource use and therefore grant no clear picture on the impact of purely emission mitigation as itself. Whereas for the sector analyses I only used model two and three for simplicity reasons, due to the high numbers of sectors.

$$\mathbf{All:} \text{CoDLT}_i = \alpha + \beta_1 \text{ESGS} + \beta_2 \text{ESGCS} + \beta_3 \text{EMISS} + \beta_4 \text{EP} + \beta_5 \text{SP} + \beta_6 \text{GP} + \beta_7 \text{Control variables} + \varepsilon_i$$

(All Fac)

$$\mathbf{ESG:} \text{CoDLT}_i = \alpha + \beta_1 \text{ESGS} + \beta_7 \text{Control variables} + \varepsilon_i$$

(ESGS)

$$\mathbf{ESGCS:} \text{CoDLT}_i = \alpha + \beta_2 \text{ESGCS} + \beta_7 \text{Control variables} + \varepsilon_i$$

(ESGCS)

$$\mathbf{EP:} \text{CoDLT}_i = \alpha + \beta_4 \text{EP} + \beta_7 \text{Control variables} + \varepsilon_i$$

(EP)

$$\mathbf{SP:} \text{CoDLT}_i = \alpha + \beta_5 \text{SP} + \beta_7 \text{Control variables} + \varepsilon_i$$

(SP)

$$\mathbf{GP:} \text{CoDLT}_i = \alpha + \beta_6 \text{GP} + \beta_7 \text{Control variables} + \varepsilon_i$$

(GP)

$$\mathbf{EMISS:} \text{CoDLT}_i = \alpha + \beta_3 \text{EMISS} + \beta_7 \text{Control variables} + \varepsilon_i$$

(EMISS)

Where control variables are Beta, Return on Equity, Leverage, Price to book ratio and Market Capitalization. CoDLT stands here for the Cost of Debt based on the long-term debt of the companies (1) as described in chapter 3.1.2. To prevent heteroskedasticity I used robust standard errors. I also checked for multicollinearity by using simple correlation matrix as well as variance inflation factor (VIF) tests for both data sets. Further, I assume that there are no strong reasons to assume that my observations are correlated within groups, such as industries or sectors, based on their

correlation matrices. To obtain a simple and clear analysis of the sub-sectoral differences, I added the sub-sectors as control variables in my second analysis to measure the differences between them. I did this once for the S&P 500 and once for the EURO STOXX 50 data set. For EURO STOXX 50 there are no companies related to the Real Estate industry (8) and for that reason there is no analysis for this industry in the European market.

3.3 Methodologic Limitations

With my approach of conducting multivariate regressions for each of the 11 industries using seven different models, I aim to capture the relationships between ESG activities and the cost of debt as accurately as possible, given my resources. However, it is important to note that the underlying mechanisms are highly complex, and therefore my models have certain limitations in explaining these relationships. First, as already mentioned in chapter 3.1.2 I had data limitations in terms of getting the credit ratings of the companies, so I had to calculate the cost of debt generic. Another notable limitation is potential endogeneity, where ESG activities and the cost of debt may mutually influence one another. For instance, if companies with lower debt costs would tend to invest more in ESG, this could lead to biased estimates. Additionally, since I analyze each industry within the indices separately and have chosen to use robust standard errors, I do account for correlations within the individual industry groups but not between those groups, which could distort results if correlations exist across industries and time periods. Furthermore, it is important to recognize that my control variables may not account for all other potential factors that could impact the cost of debt. Macroeconomic variables like interest rates or inflation could also play a role, as could the company's credit ratings. However, the most important factors should be covered, based on widely recognized papers on these topics, such as Farris et al. (2017) or Hoepner et al. (2016). Lastly, it is crucial to note that, within the indices themselves, such as the Stoxx50, which includes companies

from various European countries, different legal and market conditions exist. This is particularly relevant when comparing my results with those from the US market. These factors should be considered when interpreting and analyzing my results, as they may impact the comparability of the findings.

4 Results

This section presents key findings and interpretations from my analysis across various industries, primarily focusing on the European market with selective US comparisons for context. Sections 4.1.1 and 4.1.2 examine within European market differences, while 4.1.3 highlights sectoral contrasts between Europe and the US Full regression tables are available in appendix B.

4.1 Summary statistics and observations

Putting all variables together grants us the following two overviews of the different markets.

Table 2 & 3: Summary Statistics for EURO STOXX 50 and S&P 500:

This tables show the summary statistics for EURO STOXX 50 & S&P 500 during the whole period, starting 01.01.2016 and ending 31.12.2020. All Variables are on the left column and the table shows for each of them the number of observations, mean, standard deviation, minimum & maximum as well as the 1st and 99th percentile. All control variables are winsorized at the 1st and 99th percentile and normalized. Appendix gives a detailed description of all variables

Table 2.

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99
CoDLT	3000	.206	1.435	0	16.113	0	3
EP	3000	78.628	19.991	0	99.05	0	98.19
SP	3000	80.549	18.633	0	98.2	0	97.75
GP	3000	70.774	20.254	0	98.56	0	96.62
ESGS	3000	68.594	18.46	0	95.73	0	93.19
ESGCS	3000	62.228	36.514	0	100	0	100
EMISS	3000	83.941	19.13	0	99.87	0	99.81
Beta	3000	1.017	1.106	-55.382	7.981	0	1.942
RoE	3000	13.892	20.365	-27.99	265.95	-21	73.77
Lev	3000	136.066	156.598	0	781.14	0	759.23
PB	3000	2.73	3.372	0	40	0	17.245
MC	3000	59887.06	53950.61	0	452000	0	337000

Table 3

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99
CoDLT	30180	.159	3.836	0	162.333	0	.178
EP	30180	52.177	27.614	0	98.25	0	94.39
SP	30180	61.229	21.777	0	98.26	0	95.92
GP	30180	60.264	21.631	0	99.43	0	94.37
ESGS	30180	56.242	19.051	0	92.39	0	88.16
ESGCS	30180	81.616	31.922	0	100	0	100
EMISS	30180	57.336	32.016	0	99.82	0	99.44
Beta	30180	.997	.522	-18.042	5.052	0	2.336
RoE	30180	36.708	865.348	-24850	31560	-57.29	312.29
Lev	30180	67.383	1584.076	-50600	42210	-1177.5	1234.18
PB	30180	2.135	78.431	-2452.52	1120.73	-61.28	71.33
MC	30180	45447.44	91503.25	0	2294819	0	367000

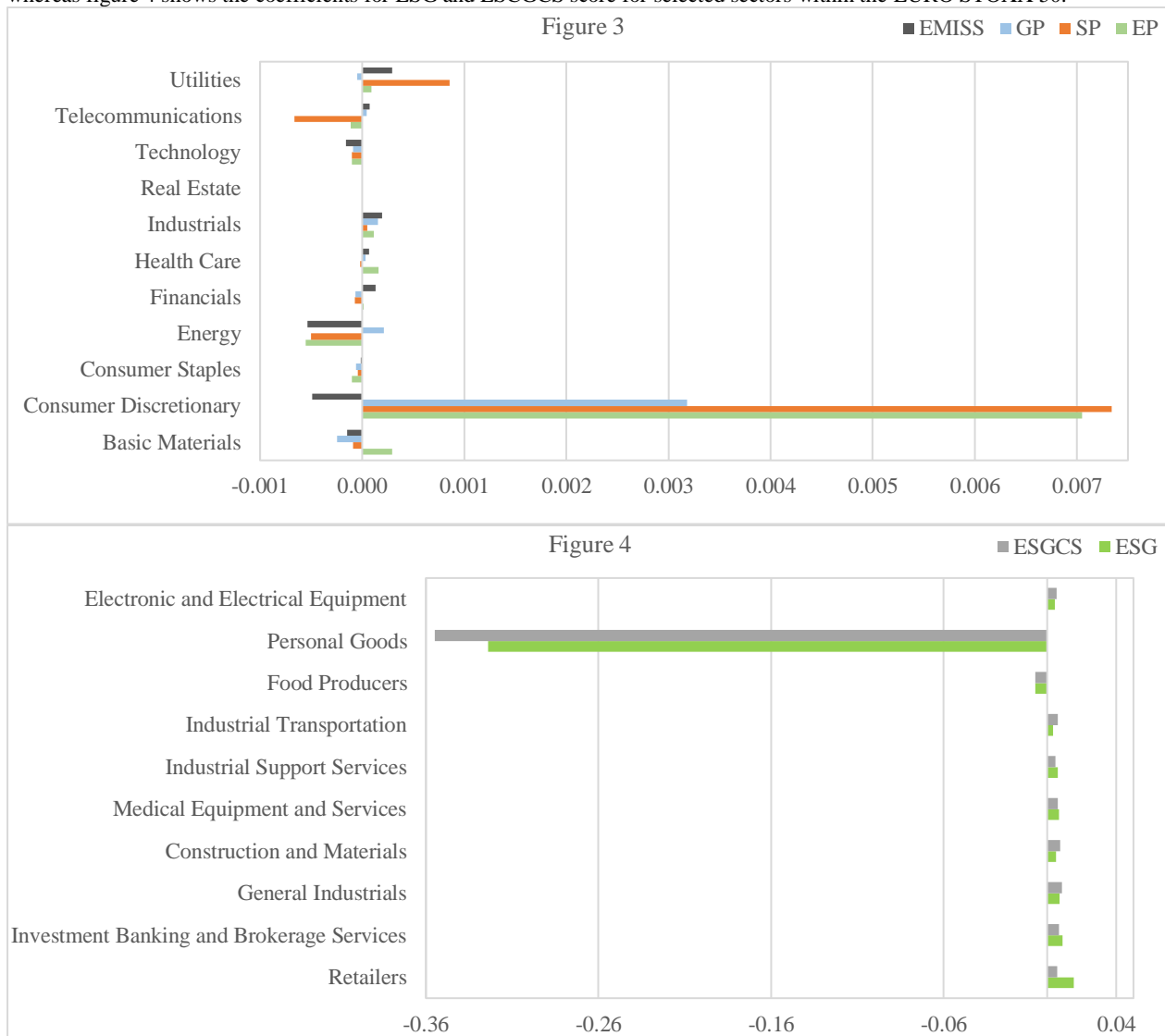
In general, the ESG and Emission scores are measured on a scale from 0-100, looking at the data shows at first glance higher mean EP, SP, GP, EMISS and ESG score in the European market than in the US one, which could imply the tendency of higher ESG engagement of European companies than of US ones. Whereas in the S&P 500 there is a higher mean ESG Controversies and a lower EMISS score than in the Stoxx 50. Another interesting observation is that the cost of debt seems to be lower on average in the US market than in the European one. Whereas at the same time, median leverage seems higher in the European market than in the US. Meanwhile, the cost of debt appears lower on average in the US, despite US companies experiencing higher levels of ESG controversies, which may suggest differing investor pressures and market dynamics between the regions. Looking at Figure 1 in Appendix A we can see those industries with the highest median cost of debt within the European market are Consumer Staples, Energy, Telecommunications and Utilities. The lowest seem to be Financials, Industrials and Technology. Where an interesting observation is the cost of debt of Consumer Discretionary, which seems to have many outliers above 10%. Whereas in Figure 2 in Appendix A, representing the US market, the analysis shows that Basic Materials and Telecommunications have the highest median borrowing costs, while Consumer Discretionary and Health Care have the lowest. Notable outliers appear in Consumer Staples,

Real Estate, and Utilities, indicating that some companies in these sectors experience significantly higher debt costs. This variability suggests that sector-specific factors impact both the typical borrowing costs and consistency of debt pricing across industries.

4.2 ESG Results for Euro Stoxx 50

Figure 3 & 4: EURO STOXX 50 Industry & Sector Regression Coefficients Summary:

Figure 3 shows the coefficients for each of the pillars and the emission score for each industry within the EURO STOXX 50 whereas figure 4 shows the coefficients for ESG and ESGCS score for selected sectors within the EURO STOXX 50.



4.2.1 Results by industry

Below, I will summarize the impacts of ESGS and ESGCS scores on the Consumer Discretionary, Health Care, and Telecommunications industries, due to the high coefficients of up to 0.007 in Consumer Discretionary, also Health Care and Telecommunications also demonstrate high significance levels ($p < 0.01$) as well as high R-squared values exceeding 0.6.

Starting with the **Consumer Discretionary** industry, it shows the highest coefficients (up to 0.007) and strong significance levels, with R-squared values exceeding 0.6. ESG investments in this sector, particularly in environmental and social performance, increase borrowing costs, as creditors may see these initiatives as adding financial risk. Environmental and Social Performance (EP, SP) both have a significant positive effect on the cost of debt (CoD), and Governance Performance (GP) also correlates positively with CoD in some models. In the **Health Care** industry, environmental performance (EP) similarly raises CoD, indicating higher perceived financial risk. However, social performance (SP) reduces CoD, suggesting creditors reward strong social practices. Governance performance (GP) has mixed effects, with a negative impact in some models (lowering CoD) and slight positive effects in others. In **Telecommunications**, Social performance (SP) consistently lowers CoD, while Environmental performance (EP) has mixed effects. Governance performance (GP) also shows varied impacts, increasing or reducing CoD depending on the model. Strong ESG scores and larger market capitalization reliably lower borrowing costs across all sectors, emphasizing the financial benefits of strong ESG performance.

4.2.2 Results by sector

Higher ESGS scores generally reduce the cost of debt (CoD) in most industries, such as Basic Materials, Consumer Staples, and Financials, demonstrating the financial benefits of strong ESG

performance. However, sectoral differences exist, with mixed or weaker effects in industries like Energy and Telecommunications. I will take a closer look at the Personal Goods sector, which shows the highest coefficients of up to -0.324, as well as the Media, Food Producers, Investment Banking and Brokerage Services, and General Industrials sectors due to their high significance ($p < 0.01$). I will further examine these sectors in the ESGCS results section. Notably, the **Personal Goods** sector exhibits the highest coefficients (up to -0.324), indicating a 0.324% reduction in CoD per unit increase in ESG score, as lenders reward firms with strong ESG performance. In the **Food Producers** sector, ESGS scores also reduce CoD significantly but with smaller coefficients (-0.00676*** and -0.00679***), reflecting the importance of sustainability in resource-dependent industries. Likewise, in **Investment Banking & Brokerage Services**, ESGS scores significantly lower borrowing costs (0.00886*** and 0.00682***), likely reflecting enhanced trust and reduced perceived risks. Lastly, in **General Industries**, strong ESG scores result in substantial CoD reductions (0.00726*** and 0.00842***), highlighting the cross-sectoral financial advantages of robust ESG practices.

4.3 ESGCS results for Euro Stoxx 50

4.3.1 Results by industries

In the **Consumer Discretionary** sector, the ESG Controversies Score (ESGCS) has a positive impact on CoD, indicating that companies involved in ESG controversies face higher borrowing costs due to reputational risks (Fig. 3, detailed appendix A, table 1-11). This “penalty” effect shows that controversies surrounding ESG practices lead to increased CoD, as creditors may view such companies as riskier. In the **Health Care** industry, ESG Controversies Score (ESGCS) similarly increases CoD, with significant effects. This suggests that companies facing ESG controversies in

Health Care incur higher borrowing costs, likely reflecting the reputational risks associated with these issues. Emissions (EMISS) also play a role here, with mixed impacts across models—showing a negative effect on CoD in the All Fac model (indicating lower CoD with reduced emissions) but a positive shift in the EMISS model. In the **Telecommunications** industry, ESGCS scores exhibit a consistent and significant negative relationship with the cost of debt (CoD), as seen in the ESGCS model with a coefficient of -0.347^{***} . This indicates that stronger ESGCS performance reduces borrowing costs, reflecting creditor preference for companies with robust overall ESG practices. Additionally, emissions (EMISS) seem to increase CoD, as seen in the significant coefficient of 0.000319^{***} in the EMISS model, suggesting that lower emissions are rewarded by creditors.

4.3.2 Results by sector

The ESGCS score in the **Personal Goods** sector also shows a significant negative effect on the cost of debt, with a coefficient of -0.355 (significant at the 1% level). A 1-unit increase in ESGCS score reduces the cost of debt by 0.355%, potentially reflecting lenders' preference for companies with broader sustainability practices and transparency. Similarly, in the **Food Producers** sector, ESGCS scores have a consistent and highly significant negative impact on CoD, with coefficients of -0.00676 and -0.00679 indicating that robust ESGCS performance reduces borrowing costs, likely due to improved sustainability perceptions.

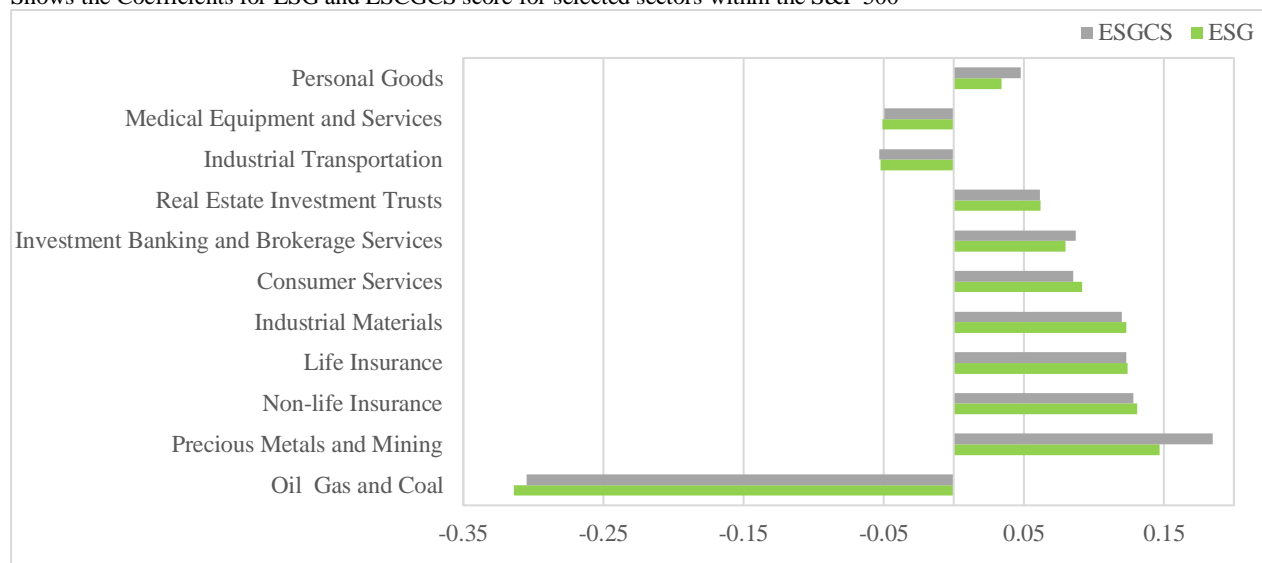
In contrast, the **Investment Banking and Brokerage Services** sector shows a positive relationship between ESGCS scores and CoD, with coefficients of 0.00886 and 0.00682 . This suggests that stronger ESGCS performance might increase borrowing costs, potentially due to higher transpar-

ency or compliance expenses. Meanwhile, in the **General Industrials** sector, ESGCS scores significantly lower CoD, with coefficients of 0.00726 and 0.00842. These results emphasize the potential of ESGCS performance to reduce risk perceptions and improve access to cheaper debt financing.

4.4 Differences between Europe (EU) & the United States (US)

Figure 5: S&P 500 Sector Regression Coefficients – Summary:

Shows the Coefficients for ESG and ESGCS score for selected sectors within the S&P 500



Tailoring Debt Management Approaches for S&P 500 and EURO STOXX 50: The analysis (Fig. 5, indicators ESG and ESGCS, detailed appendix B, table 11 & 12) demonstrates that in the S&P 500 market, strong ESG performance significantly lowers borrowing costs, while involvement in ESG controversies increases them, particularly in consumer-facing subsectors. Conversely, in the STOXX Europe 50 market, ESG factors have a weaker or negligible impact on the cost of debt, suggesting that investors there prioritize other sector-specific risks over ESG considerations. A detailed regression table is in Appendix B.

Impact of ESG Scores on Cost of Debt: Starting with the impact of ESG scores on the cost of debt, we observe notable differences between the S&P 500 and EURO STOXX 50 datasets (Fig.

5, indicators ESG and ESGCS, detailed appendix B, table 11 & 12). In the S&P 500 dataset, the general ESG score—which reflects overall ESG performance—has a significant and statistically meaningful impact on the CoD across several subsectors. Companies with higher ESG scores, especially those that interact directly with end-consumers, such as those in the consumer goods and construction subsectors, tend to enjoy lower borrowing costs. This suggests that investors in the S&P 500 market reward companies with better ESG practices by offering them lower costs of debt. For instance, firms in these consumer-related subsectors benefit from reduced CoD due to their superior ESG performance, indicating that good ESG practices are being duly compensated. In contrast, the EURO STOXX 50 dataset shows smaller amplitudes and fewer significant results concerning ESG scores. This suggests that, for companies listed on EURO STOXX 50, a strong ESG performance does not translate into significantly lower borrowing costs. In other words, investors and creditors in the European market may place less emphasis on ESG performance when determining the CoD for companies within this index. However, there is an exception when considering environmental factors: notably, in the European market, there is a strong relationship between emission scores and the CoD. Higher emission scores seem to increase the CoD by 0.006 and 0.007 for the Basic Materials and Consumer Staples sectors, respectively. This indicates heightened investor sensitivity to environmental risks in these sectors within Europe.

Impact of ESG Controversies Scores (ESGCS) on Cost of Debt: The S&P 500 dataset reveals a significant positive association between ESG Controversies Scores (ESGCS) and the cost of debt (CoD), indicating that companies involved in more ESG controversies, particularly in subsectors like Household Goods and Home Construction, face higher borrowing costs (Fig. 5, indicators ESG and ESGCS, detailed appendix B, table 11 & 12). This suggests that firms in these consumer-related industries are penalized due to perceived reputational risks. Combined consumer goods

sectors in the S&P 500 market similarly show a strong relationship between ESG controversies and increased CoD, underscoring investor sensitivity to these issues. In contrast, the EURO STOXX 50 dataset shows fewer significant effects of ESG controversies on CoD, with consumer goods sectors displaying insignificant coefficients. For example, the Leisure Goods subsector has a negligible ESG controversy impact, suggesting that EURO STOXX 50 investors are less concerned with ESG controversies as a driver of borrowing costs. This trend reflects lower sensitivity to reputational risks in the EURO STOXX 50 market, where sector-specific risks may carry more weight.

Overall, the US market shows stronger sector sensitivity to both ESG scores and controversies in determining CoD, while the EURO STOXX 50 market displays weaker or insignificant subsector effects, with investors there possibly prioritizing other financial or sector-specific risks.

5 Discussion

In analyzing the relationship between ESG factors and borrowing costs, my findings align with multiple streams of literature, highlighting both industry-specific impacts and regional differences.

First, the impact of ESG factors on borrowing costs is highly industry and sector-specific (Fig. 4 & 5, indicators ESG and ESGCS). In the US as well as in Europe capital-intensive industries like Aerospace and Utilities, high ESG engagement often raises borrowing costs, likely due to perceived financial risks by creditors. Conversely, sectors like Food Producers and Technology benefit from higher ESG scores with reduced borrowing costs, as creditors seem to favor sustainable practices there. ESG controversies generally increase borrowing costs across most sectors, except in Retail, where the impact is minimal. Creditors' perceptions of financial and reputational risks related to ESG initiatives significantly influence borrowing costs by industry. These findings go

along with Broadstock, D. C. et al. (2021) who show that ESG performance affects borrowing costs across different industries, finding that sectors with high capital needs (such as Manufacturing) may not see reduced borrowing costs due to ESG efforts, likely due to creditors' risk concerns. Or even Apergis et al. (2022) who find that differences in how ESG factors affect debt costs heavily depend on the specific industry.

Second the US market demonstrates overall stronger sensitivity to ESG factors in determining the cost of debt, while the European market places more emphasis on sector-specific risks, with some sensitivity to environmental factors. EURO STOXX 50 (Fig. 4, indicators ESG and ESGCS) shows a weaker link between ESG scores and borrowing costs. While ESG performance generally does not reduce debt costs, environmental factors play a role: higher emissions increase borrowing costs for instance in the Basic Materials and Consumer Staples sectors. ESG controversies however in European consumer goods sectors seem to have minimal impact on borrowing costs, suggesting European investors prioritize other sector-specific concerns over ESG issues, which is aligned with findings from Gigante & Manglaviti (2022). In contrast to the S&P 500 (Fig. 5, Indicators ESG and ESGCS), where strong ESG scores significantly lower borrowing costs, especially in consumer-facing sectors like consumer goods and construction, as investors reward solid ESG practices. Conversely, companies involved in ESG controversies, particularly in sectors like Household Goods and Home Construction, face higher borrowing costs due to reputational risks. This indicates a clear creditors sensitivity in the US to both ESG performance and controversies. These go hand in hand with Hoepner et al. (2016) and Apergis et al. (2022), who showed that the US market is more sensitive to firm-level ESG scores, reducing borrowing costs as a reward for high ESG performance and that European creditors place more weight on sector-specific risks.

Third, besides in the consumer discretionary industry governance improvements seem to consistently lower borrowing costs in the European market. This is particularly the case in consumer staples, utilities and basic materials industry as shown in Figure 3, indicator GP, which is supported by Eliwa et al. (2021) who emphasized that strong governance within the ESG framework is crucial for reducing debt cost especially in the European market. Similarly, Menz (2010) found that firms with strong governance mechanisms benefit from lower credit spreads, further confirming that governance is a critical factor in lowering the cost of debt across various sectors.

Fourth, the mixed role of social performance in different industries in the European market (Fig. 3, indicator SP). For example, it lowers borrowing costs in Financials but increases them in Utilities, echoing the findings of Margolis and Walsh (2003), who explored the ambiguous relationship between social responsibility and financial outcomes. This mixed result may indicate that social factors are weighed differently by creditors based on the specific risks and operational profiles of the industry, as Eliwa et al., (2021) stated. Additionally, I found a punctual strong relationship between emission score (Fig. 3, indicator EMISS) and the cost of debt in the European market, implying that European investors and creditors seem to be particularly sensitive to emissions risk, perceiving companies with higher emissions as riskier borrowers. This aligns with research from Ghoul et al. (2011) and Caragnano et al. (2020) emphasizing the importance of environmental risk management in Europe, driven by stricter emissions regulations and a focus on sustainability. Lastly, differences in R-squared values between the EURO STOXX 50 and S&P 500 datasets highlight the varying explanatory power of non-ESG factors in European markets compared to the more significant role of ESG controversies in US markets. In line with McWilliams and Siegel (2000) and Bolognesi and Burchi (2023) who discuss how different markets, and sectoral factors affect

the explanatory power of financial models, supporting the observation that sector-specific risks dominate in Europe, while reputational risks linked to ESG issues are more critical in the US.

5.1 Contribution to theory

In this thesis I examined the potential different effects of ESG activities on the cost of debt across different industries, sectors and partially on different markets. Through quantitative analyses, this study underscored three important theoretical contributions that enhanced ESG activities do have an impact on the cost of debt.

ESG controversies score seems to significantly impact the cost of debt in specific sectors

One of the most significant findings is that ESG controversies (ESGCS) have a pronounced effect on the cost of debt, particularly in consumer-related sectors such as Household Goods and Home Construction, for both the European and the US market. This finding adds to the growing literature by showing that sectors highly reliant on public visibility and consumer trust are more sensitive to ESG controversies. This finding emphasizes the sector-specific nature of ESG impacts on financial outcomes, adding nuance to general claims about the financial benefits of ESG practices.

S&P 500 companies seem to be more sensitive to ESG factors than EURO STOXX 50 ones

Another key contribution is the differentiation between S&P 500 and EURO STOXX 50-listed companies in their sensitivity to ESG factors. S&P 500-listed firms show a stronger relationship between both overall ESG performance and ESG controversies with borrowing costs, which could be due to more strict policy landscapes within the EU which forces investors to price in risk for all market players irrespective of ESG factors. This finding supports the idea that market expectations

and investor scrutiny may be higher for companies listed in the S&P, reinforcing the argument that institutional and market structures influence how ESG factors are priced in the cost of debt.

ESG performance seem to lower debt costs in high-sensitivity sectors

The analysis shows that in several sectors, particularly those exposed to consumers, good ESG performance can lead to lower borrowing costs. This finding supports the theory that ESG practices provide risk mitigation and reputation management, which are rewarded by financial markets, particularly in sectors where reputation and environmental/social responsibility are critical to long-term performance. It adds to the understanding that ESG is not just a "soft" metric but a financially relevant factor.

5.2 Limitations and future work

Key limitations include among others a potential overemphasis on ESG's role in sectors under heavy public scrutiny, potentially overlooking its impact in less visible industries. Additionally, the analysis covers 2016-2020, missing more recent developments, particularly the post-2020 surge in ESG awareness, limiting insights into how evolving standards and global shifts, such as COVID-19, might influence debt costs. The study also lacks a full exploration of market and institutional contexts; while it compares S&P 500 and EURO STOXX 50 companies, it doesn't deeply examine how factors like market size, investor base, or regulatory pressures might shape ESG's impact on financing. Moreover, it is important to mention that there are several providers of ESG scores with different methodologies of their scores. I only used the LSEG ones here, meaning that scores from different provider could lead to different results Future research could explore recent ESG dynamics post-COVID, the regulatory landscape's effect on ESG-cost of debt relationships, and provide more in-depth, sector-specific analyses.

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7 Appendix

7.1 Appendix A: Sector clustering and correlation matrices for each dataset

Appendix A refers to section 3 “Data description and Methodology” and 4 “Results

Table 4: Industry and Sector Clustering methodology

Sector	I- Cluster	S-Cluster
Aerospace and Defense	7	10
Alternative Energy	4	20
Automobiles and Parts	2	30
Banks	5	40
Beverages	3	50
Chemicals	1	60
Construction and Materials	7	70
Consumer Services	2	80
Electricity	11	90
Electronic and Electrical Equipment	7	100
Finance and Credit Services	5	110
Food Producers	3	120
Gas, Water and Multi-utilities	11	130
General Industrials	7	140
Health Care Providers	6	150
Household Goods and Home Construction	2	160
Industrial Engineering	7	170
Industrial Materials	1	180
Industrial Metals and Mining	1	190
Industrial Support Services	7	200
Industrial Transportation	7	210
Investment Banking and Brokerage Services	5	220
Leisure Goods	2	230
Life Insurance	5	240
Media	2	250
Medical Equipment and Services	6	260
Non-life Insurance	5	270
Oil, Gas and Coal	4	280
Personal Care, Drug and Grocery Stores	3	290
Personal Goods	2	300
Pharmaceuticals and Biotechnology	6	310
Precious Metals and Mining	1	320

Real Estate Investment and Services	8	330
Real Estate Investment Trusts	8	340
Retailers	2	350
Software and Computer Services	9	360
Technology Hardware and Equipment	9	370
Telecommunications Equipment	10	380
Telecommunications Service Providers	10	390
Tobacco	3	400
Travel and Leisure	2	410
Waste and Disposal Services	11	420

Table 5: Correlation matrix Euro Stoxx 50

This table shows the correlation matrix of all variables for the EURO STOXX 50 dataset. The values in parentheses are the p-values, which indicate the statistical significance of these correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CoDLT	1.000											
(2) EP	0.083 (0.000)	1.000										
(3) SP	0.099 (0.000)	0.796 (0.000)	1.000									
(4) GP	-0.064 (0.000)	0.495 (0.000)	0.532 (0.000)	1.000								
(5) ESGS	0.086 (0.000)	0.571 (0.000)	0.628 (0.000)	0.498 (0.000)	1.000							
(6) ESGCS	0.113 (0.000)	-0.080 (0.000)	-0.033 (0.073)	-0.024 (0.185)	0.493 (0.000)	1.000						
(7) EMISS	0.074 (0.000)	0.795 (0.000)	0.706 (0.000)	0.486 (0.000)	0.532 (0.000)	0.049 (0.008)	1.000					
(8) Beta	-0.033 (0.071)	0.208 (0.000)	0.191 (0.000)	0.151 (0.000)	0.120 (0.000)	-0.005 (0.793)	0.192 (0.000)	1.000				
(9) RoE	0.061 (0.001)	-0.238 (0.000)	-0.270 (0.000)	-0.249 (0.000)	-0.109 (0.000)	0.134 (0.000)	-0.219 (0.000)	-0.025 (0.171)	1.000			
(10) Lev	-0.108 (0.000)	0.239 (0.000)	0.070 (0.000)	0.133 (0.000)	0.033 (0.073)	-0.123 (0.000)	0.040 (0.027)	0.173 (0.000)	0.000 (0.998)	1.000		
(11) PB	0.147 (0.000)	-0.194 (0.000)	-0.177 (0.000)	-0.161 (0.000)	-0.092 (0.000)	0.193 (0.000)	-0.001 (0.976)	-0.029 (0.111)	0.090 (0.000)	-0.228 (0.000)	1.000	
(12) MC	0.081 (0.000)	0.113 (0.000)	0.085 (0.000)	0.041 (0.026)	0.008 (0.676)	-0.084 (0.000)	0.075 (0.000)	-0.002 (0.893)	-0.089 (0.000)	0.339 (0.000)	0.038 (0.038)	1.000

Table 6: Correlation matrix S&P 500

This table shows the correlation matrix of all variables for the EURO STOXX 50 dataset. The values in parentheses are the p-values, which indicate the statistical significance of these correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CoDLT	1.000											
(2) EP	-0.008 (0.185)	1.000										
(3) SP	0.003 (0.560)	0.738 (0.000)	1.000									
(4) GP	0.011 (0.048)	0.431 (0.000)	0.440 (0.000)	1.000								
(5) ESGS	-0.020 (0.000)	0.759 (0.000)	0.807 (0.000)	0.684 (0.000)	1.000							
(6) ESGCS	-0.017 (0.004)	-0.090 (0.000)	0.005 (0.349)	0.144 (0.000)	0.292 (0.000)	1.000						
(7) EMISS	-0.006 (0.261)	0.871 (0.000)	0.710 (0.000)	0.429 (0.000)	0.714 (0.000)	-0.078 (0.000)	1.000					
(8) Beta	-0.015 (0.007)	0.099 (0.000)	0.154 (0.000)	0.168 (0.000)	0.152 (0.000)	0.115 (0.000)	0.103 (0.000)	1.000				
(9) RoE	-0.001 (0.804)	0.033 (0.000)	0.021 (0.000)	0.015 (0.008)	0.020 (0.001)	-0.010 (0.085)	0.018 (0.001)	-0.040 (0.000)	1.000			
(10) Lev	0.000 (0.989)	0.009 (0.109)	0.011 (0.064)	-0.029 (0.000)	-0.001 (0.805)	-0.017 (0.002)	0.028 (0.000)	0.027 (0.000)	0.075 (0.000)	1.000		
(11) PB	0.001 (0.841)	0.001 (0.910)	0.007 (0.253)	-0.025 (0.000)	-0.007 (0.239)	-0.019 (0.001)	0.018 (0.002)	0.036 (0.000)	0.111 (0.000)	0.490 (0.000)	1.000	
(12) MC	-0.005 (0.368)	0.253 (0.000)	0.265 (0.000)	0.134 (0.000)	0.076 (0.000)	-0.390 (0.000)	0.249 (0.000)	-0.001 (0.804)	0.027 (0.000)	0.009 (0.109)	0.024 (0.000)	1.000

Figure 1: Cost of debt boxplots per Industry for EURO STOXX 50:

This table presents the median cost of debt for different industries within the European market. The y-axis represents the cost of debt in %. Data for the real estate industry is missing, as there are no companies from the Real Estate sector included in the Euro Stoxx 50 index

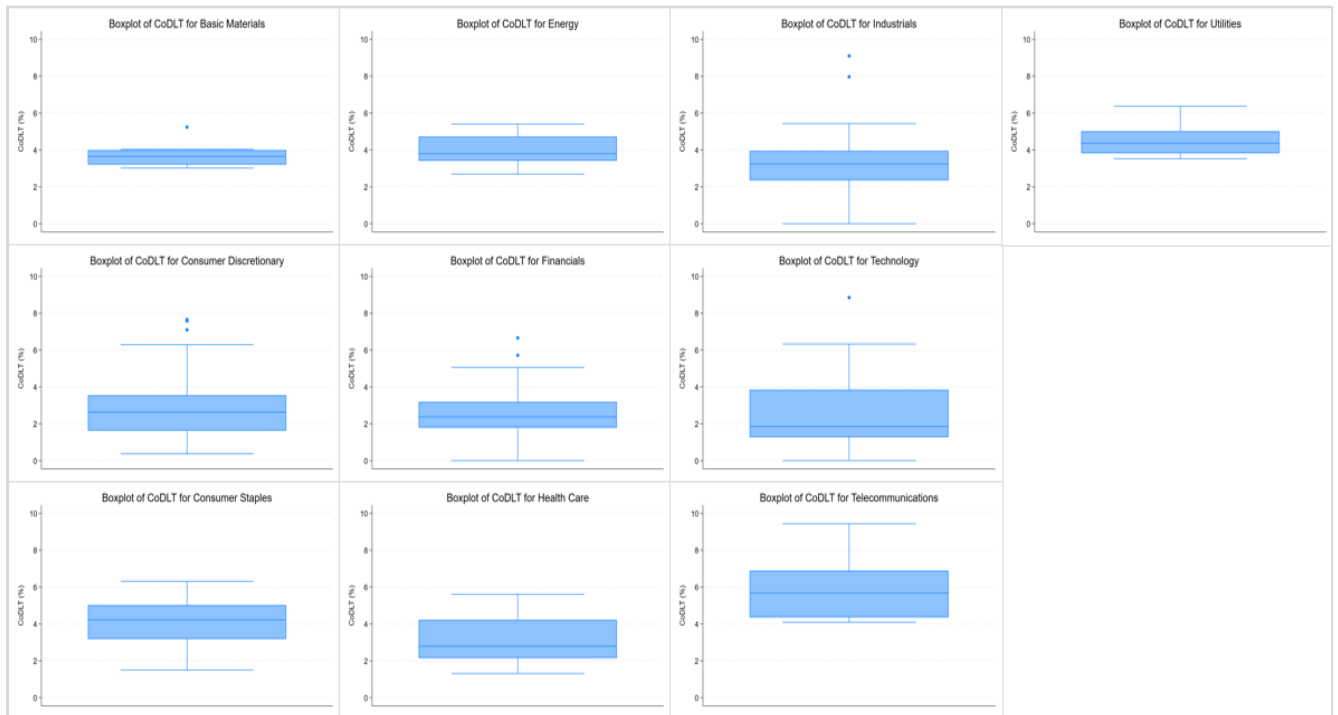
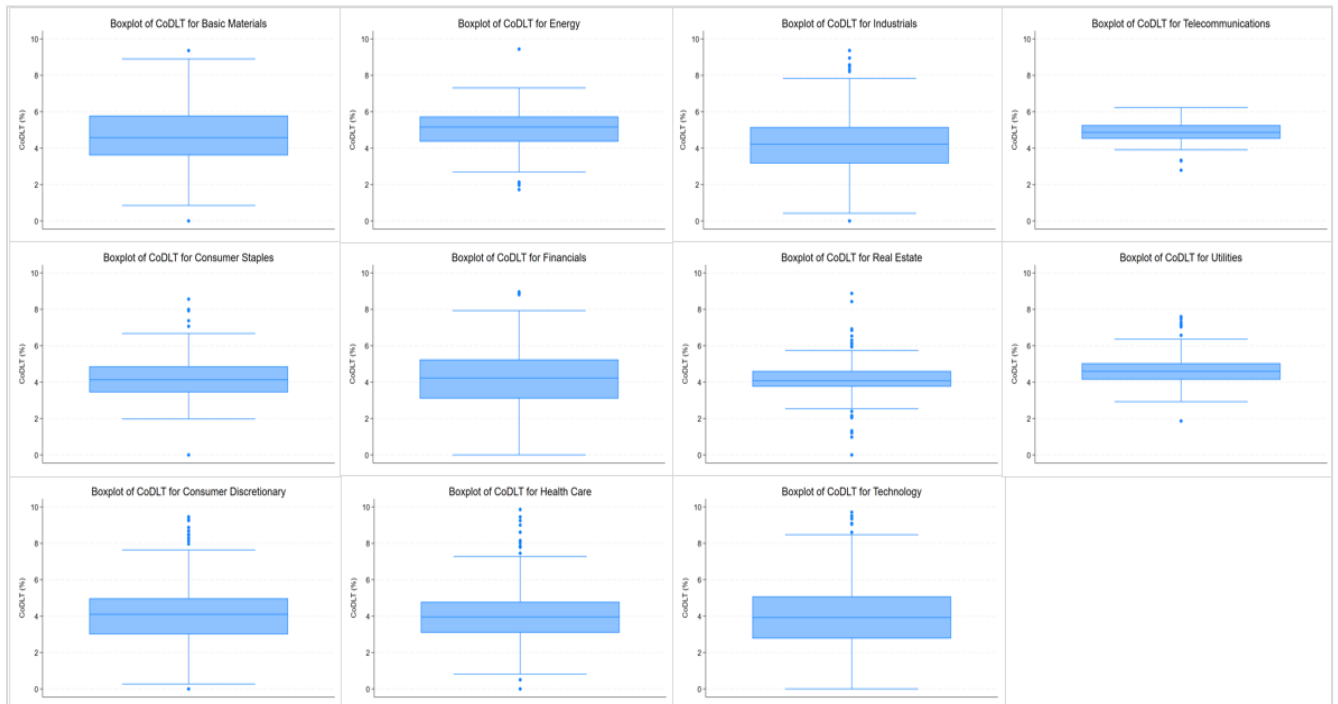


Figure 2: Cost of debt boxplots per industry for S&P 500:

This table presents the median cost of debt for different industries within the US market. The y-axis represents the cost of debt in %.



7.2 Appendix B: Regression outputs

Appendix B refers to section 4 “Results and Evaluation”

Table 1: Multivariate Regression STOXX50, Industry 1 – Basic Materials

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.000261*** (3.65e-05)			0.000292*** (5.60e-05)			
SP	0.000303*** (6.10e-05)				-9.19e-05*** (2.10e-05)		
GP	0.000456*** (0.000150)					0.000247*** (5.13e-05)	
ESGS	0.000177*** (2.96e-05)	7.07e-05*** (1.94e-05)					
ESGCS	-9.89e-05*** (1.43e-05)		-4.20e-06 (9.43e-06)				
EMISS	-8.10e-05*** (2.95e-05)						0.000148*** (3.05e-05)
norm_winsor_Beta	-0.00878** (0.00368)	0.00137 (0.00264)	0.00400* (0.00232)	0.000102 (0.00224)	-0.00203 (0.00231)	0.00102 (0.00229)	0.0121*** (0.00303)
norm_winsor_RoE	0.0127*** (0.00333)	0.00739*** (0.00125)	0.00895*** (0.00162)	0.0225*** (0.00306)	0.00213 (0.00170)	0.00684*** (0.00120)	0.00686*** (0.00114)
norm_winsor_Lev	-0.0567*** (0.0153)	-0.113*** (0.0126)	-0.0914*** (0.0236)	-0.0966*** (0.0108)	-0.178*** (0.0234)	-0.175*** (0.0210)	-0.0353*** (0.0118)
norm_winsor_PB	0.0956*** (0.0204)	0.0263*** (0.00618)	0.0386*** (0.00476)	0.162*** (0.0251)	0.0489*** (0.00713)	0.0844*** (0.0124)	0.0201*** (0.00440)
norm_winsor_MC	-0.0673*** (0.0126)	-0.0481*** (0.00760)	-0.0280*** (0.00937)	-0.119*** (0.0177)	-0.0394*** (0.00637)	-0.0649*** (0.00930)	-0.0308*** (0.00408)
Constant	-0.0156* (0.00938)	0.0191*** (0.00243)	0.0154*** (0.00331)	-0.00963* (0.00539)	0.0366*** (0.00463)	0.0462*** (0.00621)	0.0213*** (0.00227)
Observations	120	120	120	120	120	120	120
R-squared	0,898	0,477	0,398	0,507	0,5	0,524	0,533

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 2: Multivariate Regression STOXX50, Industry 2 - Consumer Discretionary

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.00562*** (0.00106)			0.00705*** (0.00110)			
SP	0.00453*** (0.000768)				0.00734*** (0.000814)		
GP	0.00230*** (0.000518)					0.00318*** (0.000514)	
ESGS	-0.000436 (0.000401)	0.00414*** (0.000508)					
ESGCS	0.00276*** (0.000408)		0.000883*** (0.000261)				
EMISS	-0.00138 (0.00109)						-0.000491 (0.00122)
norm_winsor_Beta	-0.423*** (0.0748)	-0.378*** (0.0780)	-0.476*** (0.0882)	-0.805*** (0.114)	-0.670*** (0.0964)	-0.482*** (0.0776)	-0.560*** (0.0882)
norm_winsor_RoE	0.482*** (0.0780)	0.320*** (0.0403)	0.165*** (0.0488)	0.673*** (0.0854)	0.651*** (0.0689)	0.449*** (0.0523)	0.268*** (0.0765)
norm_winsor_Lev	-0.314*** (0.112)	-0.494*** (0.0745)	-0.501*** (0.0748)	-0.426*** (0.0955)	-0.340*** (0.0856)	-0.743*** (0.0950)	-0.583*** (0.0995)
norm_winsor_PB	-0.288*** (0.0753)	-0.291*** (0.0777)	-0.441*** (0.0810)	-0.390*** (0.0890)	-0.277*** (0.0870)	-0.448*** (0.0779)	-0.444*** (0.0778)
norm_winsor_MC	0.548*** (0.101)	0.532*** (0.0816)	0.507*** (0.0851)	0.446*** (0.0854)	0.451*** (0.0777)	0.692*** (0.0924)	0.523*** (0.0948)
Constant	-0.849*** (0.204)	-0.0566 (0.0792)	0.330*** (0.0637)	-0.251* (0.130)	-0.380*** (0.107)	0.0597 (0.0679)	0.437*** (0.148)
Observations	720	720	720	720	720	720	720
R-squared	0,389	0,276	0,237	0,309	0,332	0,258	0,232

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 3: Multivariate Regression STOXX50, Industry 3 - Consumer Staples

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.000426*** (2.87e-05)			-9.83e-05*** (1.41e-05)			
SP	4.75e-05** (2.03e-05)				-4.38e-05* (2.53e-05)		
GP	-3.85e-05*** (7.08e-06)					-5.85e-05*** (7.68e-06)	
ESGS	-5.87e-05*** (1.68e-05)	-3.55e-05*** (1.24e-05)					
ESGCS	7.92e-05*** (1.04e-05)		1.63e-05* (9.19e-06)				
EMISS	0.000221*** (2.14e-05)						-1.53e-05 (1.30e-05)
norm_winsor_Beta	0.0154*** (0.00104)	0.00458*** (0.00124)	0.00619*** (0.00138)	0.00976*** (0.000992)	0.00410*** (0.00157)	0.00637*** (0.00147)	0.00635*** (0.00112)
norm_winsor_RoE	0.0157*** (0.00287)	-0.00637** (0.00246)	-0.00513** (0.00219)	-0.00809*** (0.00197)	-0.00240 (0.00366)	-0.00300* (0.00175)	-0.00840*** (0.00213)
norm_winsor_Lev	-0.0326*** (0.00240)	-0.0595*** (0.00197)	-0.0583*** (0.00231)	-0.0578*** (0.00165)	-0.0584*** (0.00219)	-0.0537*** (0.00212)	-0.0606*** (0.00203)
norm_winsor_PB	-0.0279*** (0.00586)	-0.0484*** (0.00372)	-0.0557*** (0.00388)	-0.0179*** (0.00604)	-0.0503*** (0.00390)	-0.0621*** (0.00338)	-0.0453*** (0.00729)
norm_winsor_MC	0.00705*** (0.00255)	0.0120*** (0.00164)	0.0177*** (0.00189)	0.00221 (0.00168)	0.0117*** (0.00190)	0.0152*** (0.00121)	0.0125*** (0.00165)
Constant	0.0220*** (0.00139)	0.0292*** (0.00131)	0.0244*** (0.00169)	0.0298*** (0.000931)	0.0290*** (0.00159)	0.0296*** (0.000985)	0.0275*** (0.00112)
Observations	240	240	240	240	240	240	240
R-squared	0,944	0,831	0,829	0,849	0,829	0,866	0,828

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 4: Multivariate Regression STOXX50, Industry 4 - Energy

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.00259*** (0.000260)			0.000554*** (5.63e-05)			
SP	-0.00108*** (6.51e-05)				0.000500*** (3.49e-05)		
GP	0.00111*** (9.97e-05)					0.000212** (0.000106)	
ESGS	0.000975*** (0.000111)	0.000110*** (1.18e-05)					
ESGCS	0.000930*** (0.000121)		0.000173*** (1.43e-05)				
EMISS	-0.00511*** (0.000509)						0.000538*** (6.65e-05)
norm_winsor_Beta	-0.00365 (0.00301)	0.000767 (0.00405)	0.00505 (0.00407)	-0.0197*** (0.00599)	-0.000855 (0.00359)	-0.00674 (0.00613)	-0.0183*** (0.00528)
norm_winsor_RoE	0.00564 (0.00515)	-0.0213*** (0.00463)	-0.0244*** (0.00450)	-0.0141*** (0.00425)	0.0191*** (0.00340)	0.00143 (0.00475)	-0.0162*** (0.00549)
norm_winsor_Lev	0.0273* (0.0164)	-0.134*** (0.0178)	-0.110*** (0.0164)	-0.0210 (0.0146)	0.0684*** (0.0133)	-0.0158 (0.0216)	-0.0757*** (0.0203)
norm_winsor_PB	-0.0865*** (0.0237)	0.0248 (0.0210)	0.0234 (0.0234)	-0.168*** (0.0230)	0.0912*** (0.0302)	0.0285 (0.0299)	-0.0759*** (0.0246)
norm_winsor_MC	0.0310*** (0.00779)	0.00908** (0.00365)	0.0149*** (0.00336)	0.0891*** (0.00782)	-0.00414 (0.00356)	0.0167*** (0.00492)	0.0518*** (0.00592)
Constant	0.240*** (0.0196)	0.0317*** (0.00242)	0.0243*** (0.00215)	0.0615*** (0.00548)	0.0439*** (0.00341)	-0.00594 (0.00798)	0.0734*** (0.00826)
Observations	120	120	120	120	120	120	120
R-squared	0,894	0,637	0,677	0,592	0,666	0,305	0,491

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 5: Multivariate Regression STOXX50, Industry 5 - Financials

This table shows the results of the multivariate Regression for the financials industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	1.23e-05 (1.51e-05)			1.59e-05 (1.35e-05)			
SP	0.000192*** (2.23e-05)				-6.91e-05*** (2.02e-05)		
GP	-4.34e-05*** (1.29e-05)					-6.59e-05*** (1.14e-05)	
ESGS	0.000101*** (2.04e-05)	6.36e-05*** (1.30e-05)					
ESGCS	-1.57e-05* (8.61e-06)		2.76e-05*** (4.91e-06)				
EMISS	0.000189*** (2.34e-05)						0.000132*** (2.07e-05)
norm_winsor_Beta	0.0110*** (0.00194)	0.00987*** (0.00177)	0.0111*** (0.00176)	0.0106*** (0.00191)	0.00959*** (0.00178)	0.0115*** (0.00184)	0.0107*** (0.00166)
norm_winsor_RoE	-0.00677** (0.00298)	-0.00354 (0.00327)	-0.00477 (0.00325)	-0.00582 (0.00361)	-0.00508 (0.00328)	-0.00818** (0.00340)	-0.00455 (0.00312)
norm_winsor_Lev	-0.0156*** (0.00142)	-0.0149*** (0.00130)	-0.0155*** (0.00122)	-0.0159*** (0.00127)	-0.0160*** (0.00124)	-0.0174*** (0.00129)	-0.0143*** (0.00116)
norm_winsor_PB	-0.0169*** (0.00495)	-0.00123 (0.00506)	-0.000171 (0.00527)	0.00313 (0.00563)	-0.0102* (0.00552)	0.00539 (0.00534)	0.00338 (0.00527)
norm_winsor_MC	0.0130*** (0.00108)	0.0111*** (0.000984)	0.0110*** (0.000997)	0.0111*** (0.00108)	0.00998*** (0.000995)	0.0110*** (0.000979)	0.0127*** (0.00103)
Constant	0.00316 (0.00316)	0.00203 (0.00139)	0.00473*** (0.00113)	0.00575*** (0.00174)	0.0144*** (0.00233)	0.0131*** (0.00161)	-0.00592*** (0.00218)
Observations	660	660	660	660	660	660	660
R-squared	0,484	0,361	0,364	0,335	0,346	0,368	0,38

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 6: Multivariate Regression STOXX50, Industry 6 – Health Care

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.00116*** (9.85e-05)			0.000158*** (4.56e-05)			
SP	-0.000470*** (4.39e-05)				-2.01e-05 (2.42e-05)		
GP	-8.42e-05*** (2.78e-05)					3.01e-05* (1.56e-05)	
ESGS	-6.03e-05*** (2.03e-05)	5.58e-05*** (1.34e-05)					
ESGCS	1.65e-05* (9.49e-06)		3.84e-05*** (7.63e-06)				
EMISS	-0.000284*** (5.61e-05)						6.83e-05*** (2.07e-05)
norm_winsor_Beta	0.0102*** (0.00166)	0.0105*** (0.00235)	0.0171*** (0.00228)	0.0114*** (0.00233)	0.0145*** (0.00266)	0.0157*** (0.00219)	0.0163*** (0.00220)
norm_winsor_RoE	0.00272 (0.00240)	0.0241*** (0.00165)	0.0250*** (0.00167)	0.0202*** (0.00202)	0.0245*** (0.00178)	0.0238*** (0.00172)	0.0243*** (0.00164)
norm_winsor_Lev	-0.0201* (0.0110)	0.0732*** (0.00740)	0.0730*** (0.00680)	0.0396*** (0.00772)	0.0573*** (0.00600)	0.0500*** (0.00592)	0.0504*** (0.00551)
norm_winsor_PB	0.0893*** (0.00667)	0.0378*** (0.00476)	0.0441*** (0.00376)	0.0565*** (0.00627)	0.0458*** (0.00436)	0.0469*** (0.00414)	0.0506*** (0.00466)
norm_winsor_MC	-0.0328*** (0.00324)	-0.0185*** (0.00204)	-0.0120*** (0.00185)	-0.0260*** (0.00324)	-0.0152*** (0.00196)	-0.0174*** (0.00189)	-0.0234*** (0.00287)
Constant	-0.0121*** (0.00161)	-0.0102*** (0.00145)	-0.0134*** (0.00165)	-0.0165*** (0.00283)	-0.00720*** (0.00204)	-0.0108*** (0.00164)	-0.0137*** (0.00201)
Observations	180	180	180	180	180	180	180
R-squared	0,9	0,821	0,829	0,821	0,803	0,805	0,812

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 7: Multivariate Regression STOXX50, Industry 7 - Industrials

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.000112*** (2.32e-05)			0.000113*** (1.64e-05)			
SP	0.000119*** (1.47e-05)				4.98e-05*** (1.91e-05)		
GP	6.93e-05*** (1.63e-05)					0.000154*** (9.34e-06)	
ESGS	8.28e-05*** (1.53e-05)	0.000120*** (9.14e-06)					
ESGCS	-1.32e-05*** (4.65e-06)		4.72e-05*** (3.50e-06)				
EMISS	0.000229*** (4.13e-05)						0.000193*** (1.33e-05)
norm_winsor_Beta	0.00579** (0.00258)	0.00908*** (0.00225)	0.0139*** (0.00192)	0.00852*** (0.00259)	0.0121*** (0.00306)	0.0101*** (0.00203)	5.47e-05 (0.00181)
norm_winsor_RoE	0.00423*** (0.00162)	0.00536*** (0.00162)	0.00761*** (0.00174)	0.00706*** (0.00191)	0.00588*** (0.00193)	0.0104*** (0.00131)	0.00406** (0.00167)
norm_winsor_Lev	-0.0104*** (0.00145)	-0.0181*** (0.00207)	-0.00858*** (0.00214)	-0.0250*** (0.00238)	-0.0159*** (0.00232)	-0.0154*** (0.00217)	-0.0206*** (0.00162)
norm_winsor_PB	0.00725*** (0.000923)	0.0109*** (0.00175)	0.00605*** (0.00158)	0.0110*** (0.00175)	0.00798*** (0.00192)	0.00974*** (0.00154)	0.0117*** (0.00113)
norm_winsor_MC	-0.0158*** (0.00302)	0.000376 (0.00242)	0.00854*** (0.00256)	-0.00818*** (0.00255)	-0.00215 (0.00269)	-0.0176*** (0.00250)	-0.0210*** (0.00260)
Constant	-0.00251*** (0.000858)	-0.00407*** (0.00104)	-0.00417*** (0.00117)	-0.00286** (0.00118)	-0.000961 (0.00106)	-0.00612*** (0.00102)	-0.00365*** (0.00103)
Observations	480	480	480	480	480	480	480
R-squared	0,719	0,53	0,468	0,479	0,406	0,588	0,632

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 8: Multivariate Regression STOXX50, Industry 9 - Technology

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	-4.70e-05 (5.85e-05)			0.000102*** (2.72e-05)			
SP	-1.48e-07 (3.88e-05)				0.000101*** (2.67e-05)		
GP	0.000162*** (5.40e-05)					-9.17e-05*** (2.91e-05)	
ESGS	0.000182*** (2.33e-05)	-4.65e-05 (3.18e-05)					
ESGCS	6.79e-06 (1.44e-05)		5.33e-05*** (1.78e-05)				
EMISS	0.000417*** (4.83e-05)						0.000158*** (2.18e-05)
norm_winsor_Beta	-0.00622 (0.00700)	-0.00412 (0.00776)	-0.0181** (0.00818)	0.000695 (0.00564)	0.00474 (0.00602)	9.19e-05 (0.00639)	0.00527 (0.00439)
norm_winsor_RoE	0.00860** (0.00395)	0.00745* (0.00398)	0.00775** (0.00383)	0.00721* (0.00392)	0.00723* (0.00406)	0.00732* (0.00391)	0.00751* (0.00390)
norm_winsor_Lev	0.0382 (0.0246)	0.0136 (0.0248)	0.0327 (0.0318)	0.0299 (0.0202)	0.00747 (0.0225)	0.0250 (0.0210)	0.0254 (0.0193)
norm_winsor_PB	0.000959 (0.00794)	-0.0191** (0.00816)	-0.0198** (0.0100)	-0.0175*** (0.00610)	-0.0194*** (0.00610)	-0.0259*** (0.00828)	-0.0170*** (0.00471)
norm_winsor_MC	-0.00412 (0.00690)	-0.00214 (0.00510)	-0.00463 (0.00451)	-0.00323 (0.00355)	0.000206 (0.00417)	0.00704 (0.00626)	0.00632 (0.00387)
Constant	0.0137*** (0.00334)	0.0148*** (0.00330)	0.0139*** (0.00312)	0.0149*** (0.00321)	0.0155*** (0.00341)	0.0148*** (0.00320)	0.0149*** (0.00319)
Observations	240	240	240	240	240	240	240
R-squared	0,52	0,38	0,395	0,412	0,409	0,401	0,452

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 9: Multivariate Regression STOXX50, Industry 10 - Telecommunications

This table shows the results of the multivariate Regression for the Telecommunications industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	0.00260*** (3.30e-05)			-0.000110 (0.000286)			
SP	-0.00174*** (2.23e-05)				0.000661*** (6.30e-05)		
GP	0.000289*** (5.51e-06)					4.52e-05** (1.98e-05)	
ESGS	-6.99e-05*** (2.31e-06)	-3.74e-05** (1.69e-05)					
ESGCS	-3.42e-05*** (5.46e-07)		-3.47e-05*** (4.59e-06)				
EMISS	0.000319*** (1.08e-05)						7.50e-05 (5.23e-05)
norm_winsor_Beta	0.000584* (0.000337)	0.0240*** (0.00156)	0.0263*** (0.00123)	0.0230*** (0.00362)	0.0217*** (0.00118)	0.0212*** (0.00151)	0.0225*** (0.00154)
norm_winsor_RoE	0.109*** (0.00100)	0.0417*** (0.00441)	0.0398*** (0.00420)	0.0422*** (0.00804)	0.0555*** (0.00404)	0.0429*** (0.00462)	0.0459*** (0.00428)
norm_winsor_Lev	0.0415*** (0.000794)	-0.00471*** (0.00169)	-0.00558*** (0.00181)	-0.00698 (0.00423)	0.00624*** (0.00222)	-0.00966*** (0.00276)	-0.00394* (0.00211)
norm_winsor_PB	0.00338 (0.00349)	0.0816*** (0.0237)	0.0384* (0.0231)	0.0892** (0.0380)	0.0805*** (0.0197)	0.0790*** (0.0232)	0.0874*** (0.0236)
norm_winsor_MC	0.00483 (0.00359)	-0.0499*** (0.0164)	-0.0249 (0.0165)	-0.0593*** (0.0220)	-0.0913*** (0.0137)	-0.0386* (0.0200)	-0.0606*** (0.0152)
Constant	-0.130*** (0.00297)	-0.00316* (0.00182)	-0.00322** (0.00128)	0.00486 (0.0262)	0.0550*** (0.00609)	-0.00857*** (0.00194)	-0.0122** (0.00521)
Observations	120	120	120	120	120	120	120
R-squared	0,999	0,894	0,913	0,892	0,92	0,893	0,893

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 10: Multivariate Regression STOXX50, Industry 11 - Consumer Staples

This table shows the results of the multivariate Regression for the consumer staples industry related companies within the Euro Stoxx 50, for each of my defined Models (1-7). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
EP	2.31e-05 (3.46e-05)			9.13e-05 (6.13e-05)			
SP	0.00213*** (0.000135)				0.000855*** (0.000109)		
GP	0.000596*** (2.52e-05)					-4.63e-05 (3.86e-05)	
ESGS	0.000282*** (1.56e-05)	0.000122*** (1.77e-05)					
ESGCS	-2.14e-05*** (5.33e-06)		2.57e-05*** (6.98e-06)				
EMISS	0.000862*** (0.000105)						0.000293*** (8.32e-05)
norm_winsor_Beta	0.0109*** (0.00156)	0.0199*** (0.00264)	0.0308*** (0.00303)	0.0290*** (0.00289)	0.0205*** (0.00259)	0.0310*** (0.00304)	0.0304*** (0.00303)
norm_winsor_RoE	-0.0290*** (0.00241)	-0.0394*** (0.00661)	-0.0273*** (0.00680)	-0.0206*** (0.00655)	-0.00786* (0.00440)	-0.0199*** (0.00726)	-0.0152*** (0.00530)
norm_winsor_Lev	-0.0104 (0.0140)	0.0890*** (0.00528)	0.0828*** (0.00561)	0.0867*** (0.00650)	0.0665*** (0.00538)	0.0897*** (0.00820)	0.119*** (0.0107)
norm_winsor_PB	0.141*** (0.0295)	-0.209*** (0.0256)	-0.232*** (0.0251)	-0.268*** (0.0278)	-0.282*** (0.0220)	-0.255*** (0.0306)	-0.330*** (0.0329)
norm_winsor_MC	-0.0950*** (0.0182)	0.144*** (0.0157)	0.154*** (0.0153)	0.160*** (0.0171)	0.159*** (0.0154)	0.151*** (0.0197)	0.196*** (0.0210)
Constant	-0.0707*** (0.00506)	-0.00997*** (0.00167)	-0.00858*** (0.00210)	-0.0154** (0.00624)	-0.0818*** (0.00959)	-0.00490* (0.00266)	-0.0426*** (0.0104)
Observations	120	120	120	120	120	120	120
R-squared	0,982	0,824	0,803	0,779	0,837	0,776	0,798

Robust standard errors in parentheses

***p<0.01, **p<0.05, *p<0.1

Table 11: Multivariate Regression STOXX50, Subsector analyses

This table shows the results of the multivariate Regression for the different subsectors as control variables within the Euro Stoxx 50, for the defined Models (3 & 4). Whereas ***, **, and * stand for the significance level at 1%, 5%, and 10%. Numbers in parentheses are standard errors. Robust standard errors are robust against heteroscedasticity. Accounting variables are winsorized both at the 1st and 99th percentile and normalized.

VARIABLES	CoD	11-M2	11-M3	12-M2	12-M3	13-M2	13-M3	14-M2	14-M3	15-M2	15-M3	16-M2	16-M3	17-M2	17-M3	18-M2	18-M3	19-M2	19-M3	10-M2	10-M3	11-M2	11-M3	11-M4	
ESXS	0.00122***	-4.20e-06	0.00232***	0.00232***	0.00232***	6.44e-05***	0.000332	-0.000173***	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332
ESXS	7.07e-05***	(9.43e-06)	0.00238***	0.00238***	0.00238***	6.20e-05***	(8.96e-06)	-0.000110***	(1.43e-05)	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332	0.000332
norm_winsor_Beta	0.00400	0.000137	0.00400**	-0.731***	-0.731***	0.00807***	0.00739***	0.000767	0.00805	0.00999***	0.0111***	0.00954***	0.0137***	0.0147***	0.0173***	-0.00956	-0.0183*	0.0240***	0.0259***	0.0199***	0.0199***	0.0308***	0.0308***	0.0308***	0.0308***
norm_winsor_Beta	0	(0.00264)	(0.00232)	(0.111)	(0.118)	(0.00135)	(0.00145)	(0.00405)	(0.00407)	(0.00158)	(0.00158)	(0.00226)	(0.00315)	(0.00315)	(0.00315)	0.00765*	0.0078***	0.027***	0.0370***	0.0304***	0.0304***	0.0304***	0.0304***	0.0304***	
norm_winsor_ROE	0.00755	0.00759***	0.00895***	0.322***	0.132**	0.0144***	0.0248***	-0.0213***	-0.0344***	0.00752***	0.00599**	0.0175***	0.0183***	0.0108***	0.01366***	0.00765*	0.0078***	0.027***	0.0370***	0.0304***	0.0304***	0.0304***	0.0304***	0.0304***	0.0304***
norm_winsor_Lev	0	(0.00125)	(0.00162)	(0.0397)	(0.0616)	(0.00244)	(0.00363)	(0.00463)	(0.00459)	(0.00246)	(0.00264)	(0.00191)	(0.00186)	(0.00190)	(0.00147)	(0.00398)	(0.00384)	(0.00428)	(0.00417)	(0.00661)	(0.00680)	(0.00680)	(0.00680)	(0.00680)	
norm_winsor_PB	0	(0.0126)	(0.0236)	(0.114)	(0.117)	(0.00198)	(0.00251)	(0.0178)	(0.0234)	(0.00115)	(0.00125)	(0.00098)	(0.00812)	(0.00151)	(0.00164)	(0.0235)	(0.0304)	(0.00202)	(0.00180)	(0.00528)	(0.00561)	(0.00561)	(0.00561)	(0.00561)	
norm_winsor_MC	0.0103	-0.0481***	-0.0280***	0.821***	0.799***	0.00307**	0.0109***	0.00908**	0.0149***	0.00734***	0.00713***	-0.0351***	-0.0305***	-0.00561	-0.000542	0.0172	-0.00149	-0.0647**	0.0260	0.144***	0.144***	0.144***	0.144***	0.144***	
norm_winsor_MC	0	(0.00760)	(0.00937)	(0.0884)	(0.0922)	(0.00128)	(0.00226)	(0.00356)	(0.00336)	(0.000869)	(0.000933)	(0.00304)	(0.00320)	(0.00516)	(0.00529)	0.01833	(0.0215)	(0.0270)	(0.0266)	(0.0157)	(0.0157)	(0.0157)	(0.0157)	(0.0157)	
Chemicals																									
Electricity																									
Non-life Insurance																									
Technology Hardware and Equipment	0.00112																								
Media																									
Personal Goods																									
Retailers																									
Food Producers																									
Personal Care, Drug and Grocery Stores																									
Investment Banking and Brokerage Services																									
Medical Equipment and Services																									
Pharmaceuticals and Biotechnology																									
Construction and Materials																									
Electronic and Electrical Equipment																									
General Industrials																									
Industrial Support Services																									
Industrial Transportation																									
Telecommunications Service Providers																									
Constant	0.00149	0.01919***	0.0154***	0.291***	0.540***	0.00109***	0.00588***	0.0317***	0.0235***	-0.00587***	-0.00114	-0.00406**	-0.00708***	-0.0120***	-0.0145***	0.0139***	0.0139***	-0.00351*	-0.0291**	-0.00977**	-0.00673**	-0.00838***	-0.00838***	-0.00838***	
Observations	240	120	120	720	720	240	240	120	120	660	660	180	180	480	480	240	240	120	120	120	120	120	120	120	
R-squared	0.477	0.398	0.428	0.418	0.915	0.931	0.931	0.637	0.677	0.470	0.449	0.843	0.833	0.652	0.647	0.387	0.395	0.895	0.916	0.916	0.824	0.803	0.803	0.803	
Number of groups	1																								

7.3 Appendix C: Variables Overview

This overview provides a detailed description of all variables used in my dataset

Variable	Description	Source
<i>ESG Score</i>	Refinitiv's ESG Score is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars.	LSEG Datastream
<i>ESG Controversies score</i>	ESG controversies category score measures a company's exposure to environmental, social and governance controversies and negative events reflected in global media.	LSEG Datastream
<i>Environmental pillar</i>	Refinitiv's Environment Pillar Score is the weighted average relative rating of a company based on the reported environmental information and the resulting three environmental category scores.	LSEG Datastream
<i>Social pillar</i>	Refinitiv's Social Pillar Score is the weighted average relative rating of a company based on the reported social information and the resulting four social category scores.	LSEG Datastream
<i>Governance pillar</i>	Refinitiv's Governance Pillar Score is the weighted average relative rating of a company based on the reported governance information and the resulting three governance category scores.	LSEG Datastream
<i>Emission score</i>	Emission category score measures a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes.	LSEG Datastream
<i>Cost of debt</i>	Own calculation following the formula of interest expenses/long-term debt	Own calculation based on LSEG DataStream data
<i>Long term debt</i>	Represents all interest-bearing financial obligations, excluding amounts due within one year. It is shown net of premium or discount.	LSEG Datastream

<i>Interest expense</i>	INTEREST EXPENSE ON DEBT represents the service charge for the use of capital before the reduction of interest capitalized. If interest expense is reported net of interest income, and interest income cannot be found the net figure is shown.	LSEG Datastream
<i>Return on equity (RoE)</i>	(Net Income – Bottom Line - Preferred Dividend Requirement) / Average of Last Year's and Current Year's Common Equity * 100 For Insurance companies, Policyholders' Surplus is substituted where Net Income – Bottom Line is not available and Policyholders' Equity where Common Equity is not available.	LSEG Datastream
<i>Leverage</i>	(Long Term Debt + Short Term Debt & Current Portion of Long-Term Debt) / (Total Capital + Short Term Debt & Current Portion of Long-Term Debt) * 100	LSEG Datastream
<i>Price to book ratio</i>	This is the share price divided by the book value per share.	LSEG Datastream
<i>Market Capitalization</i>	Market Price-Year End * Common Shares Outstanding Market price – year end represents the closing price of the company's stock at 31 December for US Corporations. For non-US corporations, this item represents the closing price of the company's stock at their fiscal year end. For companies with more than one type of common/ordinary share, market capitalization represents the total market value of the company.	LSEG Datastream