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**Assessing ESG and Board Diversity's influence
on financial performance:**

A study on the Scandinavian and Emerging Markets

Bachelor thesis in Finance 15 credits

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Abstract

This study examines whether ESG and Board Diversity has a correlation with financial performance, in the form of return on equity. The analysis focuses on the Scandinavian and selected Emerging markets over the period 2013-2023, with the sample comprising firms listed in their respective countries' benchmark indices. Altogether, the Scandinavian market consists of 72 firms in Sweden, Norway and Denmark, whereas the Emerging market consists of 155 firms in Brazil, India and South Africa. The regression results from the final model featured differences between the Scandinavian and the Emerging markets. In the Scandinavian market, increased Environmental and Social scores were found to have a negative correlation with return on equity, while the effect of Board Diversity on financial performance increased with higher Social scores and decreased with higher Governance scores. In contrast, the Emerging markets unveiled that higher social scores corresponded with higher return on equity while increased Environmental score corresponded with lower return on equity. Hence, these results align with earlier research suggesting that the effect of ESG and women in Boards is rather ambiguous and depends on regional differences.

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1. Introduction

1.1 Background

With the rise of environmental, social and governance (ESG) awareness in stock market investing, examining whether gender equality on boards has an impact on ESG for Scandinavian and influential emerging markets is perceived as timely relevant research.

For definition purposes with regards to this thesis, Carlson (2025) states that the term *ESG investing* is defined as a way to align personal values with investments. Carlson describes ESG investing as a process that compares industry peers with regards to third-party scores on companies' Environmental, Social and Governance (ESG) pillars.

This thesis utilizes collected data provided by LSEG, which evaluates companies' ESG performance based on a number of parameters. LSEG Data & Analytics (2024) provides descriptions for each pillar:

- Environmental: resource use, product innovation and emissions.
- Social: human rights, product responsibility and workforce diversity.
- Governance: shareholders rights, management structure and compensations.

Building on these definitions, recent studies have revealed inconsistency regarding the relationship between firm's financial performance and climate awareness, however for those firms with high emissions there are indicators saying that they bear higher transition risk, also referred to as climate risk (Broccardo et al. 2024). At the same time, other indicators suggest that the ESG rating and return on assets has a positive influence on stock market performance (Gül & Altuntaş, 2024). The study by Gül & Altuntaş further argues that the Environmental and Social dimensions play a significant role in explaining stock market performance, whereas the Governance pillar shows no statistically meaningful correlation. However, the same study showed that particularly emerging markets might increase their market value by focusing on the ESG practices.

In addition to ESG performance, the topic of gender equality on corporate boards has also received increasing attention. While there might exist some consensus that higher gender equality is associated with good corporate governance, Fakoya and Malatji (2020) findings are that there exists an insignificant negative relationship between higher equality in

corporate boards and return on equity. Moreover, Sundarassen et al. (2024) discusses that a low representation by women in corporate boards might make it difficult to influence the board decisions with regards to ESG. A potential implication is that this phenomenon might be the same for influencing financial ratios, that a rather low minority of women might face difficulties influencing the board.

1.2 Problem description and problem analysis

In the Scandinavian region, ESG has arguably been increasing its influence in investors' decision-making. Increasing attention is being paid not only to financial returns, but also to the pressure on companies to contribute positively to society by not bringing harm through its operation. This stands in contrast to earlier periods, as such awareness was largely absent during industrialization, when several of the Scandinavian countries became wealthier, often at the expense of the environment.

A major change in the aspect of business operations is that women nowadays increase their influence in leadership positions. This development in the composition of corporate boards may correlate with the growing awareness of ESG factor. Followingly, the question arises whether there might exist a correlation between the increasing number of women in corporate boards in publicly listed firms and increasing ESG ratings for those firms.

To broaden the scope, Brazil, India and South Africa were included in the study, as they are major developing countries with large stock exchanges and a part of the G20 - a forum for economic cooperation (G20, n.d.) - as well as part of BRICS, a group of developing countries forming an economic organization (Kenny, 2025). A subsequent question is whether ESG and higher percentage of women in corporate boards correspond with having a wealthier population or depends on regional differences.

Regarding ESG and stock market return, there is several empirical research available with mixed results, However, the specific role of female board representation as a potential factor influencing both ESG performance and stock market return is not as widely investigated. Therefore, the question arises whether a higher percentage of women in boards corresponds with higher ESG ratings, which in turn contribute to stock market return?

1.3 Aim of the study

The aim of the study is to examine whether elements in ESG performance, specifically ESG pillar scores and gender diversity in corporate structures, correlate with financial performance. More in detail, to also investigate if the ESG pillar scores to some extent are dependent on gender diversity to influence financial performance, as shown by return on equity. Along with the overall ESG Score, ESG pillar scores and board gender diversity, there are three additional variables that will be used as control variables to isolate the effect of the recently mentioned variables.

Moreover, the values for the stated variables are collected from the major firms listed on the stock markets of the Scandinavian countries - Sweden, Norway and Denmark - as well as previously mentioned Emerging Markets of Brazil, India and South Africa. Thereby, the purpose is to also examine whether the potential correlation between the ESG, gender diversity and return on equity differ between these developing economies and the Scandinavian countries, which are generally known to have strong values for sustainability and gender equality. The firms from both regions will be examined on a yearly basis during the time period of 2013-2023. This is due to the rather recent phenomenon of reporting ESG ratings.

With that said, this study expands on existing research shifting focus away from broad ESG and market rate of return relations. Instead, examining if ESG factors and internal gender diversity correlate with financial performance at the firm-level, and whether these patterns differ across regions with varying levels of awareness and commitment to sustainability and social responsibility.

1.4 Hypothesis

Following describes the first hypothesis:

H_1 : There exists positive correlation effects between Environment, Social, or Governance-scores and percentage of Women employees on Return on Equity.

Following describes the second hypothesis:

H_1 : There is positive correlation between the percentage of Board Diversity and Return on Equity

2. Literature Review

2.1 Financial Performance and ESG across regions

Friede et al. (2015) conducted a comprehensive review on ESG and financial performance from over 2,000 empirical studies. The overall conclusion was that the relationship between ESG and financial performance is mostly positive or at least non-negative. More detailed, about 90% of the studies included in the analysis reported either positive or neutral results, with a majority leaning towards positive relationships. What makes their study especially interesting is that the results held up across different asset classes, regions, and time periods. The authors also highlight that non-portfolio studies, which look at individual firms, show especially strong positive effects.

For the European equity market, Assael et al. (2023) examined whether Environment, Social and Governance Scores could explain price returns that were not accounted for by classical equity factors. They found that better ESG scores were associated with increased price returns for large capitalization companies. When conducting this study Assael et al. did not use lagged ESG scores but argued that the appropriate was to use the ESG profile and return for the firm during the same year.

Naveed et al. (2022) conducted an analysis of the 100 most influential studies with regards to the Environmental Kuznets Curve developed by Simon Kuznet, which is an inverted U-shaped relationship for environmental decline and economic development. The Environmental Kuznets Curve suggests that in the early stage of economic development the emissions increase, but after a certain point emissions decrease as well as income rises. The results of the study by Naveed *et al.* (2022) stated that the The Environmental Kuznets Curve often depends on the region examined as it could have different shapes in contrast to the original U-shape.

Gibson et al. (2022) reviewed the different outcomes with regards to ESG scores for institutional investors that announce that they follow the Principles for Responsible Investment (PRI) and those that do not join the initiative. The study found that for those institutional investors that signed the PRI they performed better ESG scores on average. Furthermore, it was concluded that there existed geographical differences with regards to

Institutional investors ESG scores after joining the PRI initiative. In particular, PRI signatures outside of the US performed better ESG scores than institutional investors in the US, which the authors discuss as a potential greenwashing. Furthermore, the argument of greenwashing stems from the fact that “We find that US institutions receive higher investor flows of 9% of a standard deviation after joining the PRI and are more likely to sign the PRI when they recently underperformed” (Gibson et al. 2022). The authors suggest that this pattern might be due to opportunistic commercial moves by US institutional investors, which flow benefits are not found for institutional investors outside of the US.

2.2 National Institutions Impact on ESG- and Financial Performance Across Regions

Ioannou and Serafeim (2012) examine how national-level institutions influence corporate social performance (CSP), which in simple terms refers to how well companies meet their social and environmental responsibility in practice. Their study looked at data from 42 countries and found that companies in countries with stronger institutions, such as effective political systems, less corruption, and more engaged labor markets, tend to have higher levels of CSP. Cultural traits also matter, where firms in more individualistic societies are more likely to voluntarily take action regarding social and environmental issues.

Furthermore, Gül and Altuntaş (2024) conducted an empirical study covering 347 companies from both developed and emerging stock markets between 2010 and 2022. Their results showed that overall ESG scores have a positive and statistically significant effect on stock returns, though the effect varied depending on the region. A positive relationship between ESG ratings and stock returns were found in emerging markets, while in contrast they found a negative relationship between ESG scores and returns for developed markets. Interestingly, when they broke down ESG into its components, the Environmental (E) and Social (S) scores were positively linked to stock performance, but the Governance (G) component showed no significant effect. Thus, suggesting that the ESG factors may not be equally influential when in terms of market performance.

2.4 Corporate Governance: The influence of Culture and Board Gender Diversity

Gillian et al. (2021) review a large amount of academic research on ESG and CSR within the field of corporate governance. They show that ESG activities are linked to several factors, such as the country a firm operates in, its leadership structure, and the type of ownership. For

example they highlight that firms with female leaders or board members tend to have higher ESG scores, and that even personal traits like a CEO having a daughter can influence their behaviour towards ESG. The authors also emphasize that country-level characteristics like legal origin, culture, and economic development are significant predictors of a firm's ESG performance. In terms of ownership, the relationship between institutional investors and ESG is still debated and can either help or hurt ESG outcomes. Overall, the review underlines that ESG can reduce firm risk and might be linked to better financial performance, but not all studies agree. The results across studies are mixed, suggesting that the impact of ESG also depends on the context and various surrounding factors.

Moreover, Sundarassen et al. (2024) performed a large-scale bibliometric analysis of academic research that connects board gender diversity with ESG reporting. Their study looked at over 380 articles and found that companies with more women on their boards tend to perform better when it comes to ESG disclosures. However, they also highlight that this relationship may not be the same everywhere - it also depends on cultural and institutional factors in different geographical regions. For example, in countries with stronger social norms around gender equality and sustainability, the positive effects of having a gender-diverse board are more noticeable. A concept discussed is the idea of a "critical mass", meaning that only one or two women on the board may not be enough to influence board decisions and in turn impact ESG disclosures positively.

3. Theoretical Framework

3.1 Market Efficiency

In the work of Ackert and Deaves (2010, p. 28-30), a detailed explanation of the Market Efficiency theory is described from the original work from Eugene Fama. The efficiency market theory implies that all information available is fully reflected in prices, which in turn should provide accurate investment decisions. With regards to all available information, there are three versions of market efficiency. The first version is the weak-form, for which prices are reflected by all the information concerning historical returns.

Furthermore, the semi-strong form is described as prices reflect all publicly available information, which could be earnings forecasts, historical earnings, and all information that can be seen as relevant for available for the general public. Finally, the strong form is described as prices reflect insider information that is not available for the general public. However, since prices reflect information, which by definition is unpredictable, prices are also unpredictable and follow a so-called random walk. This implies that the best prediction of where the next step will land, or the following price movement, is where you are today.

In particular to this thesis, the Scandinavian market might reflect Environmental, Social, and Governance scores in prices more effectively than the Emerging markets due to the potentially more mature cultural awareness of ESG which in turn affects return on equity.

3.2 Agency Theory

The Agency Theory is thoroughly explained by Ackert and Deaves (2010, p. 31-32), as they define the agency relationship, agency problem and optimal compensation contract. Beginning with the agency relationship, it is described as when someone (the principal) has a contract with another party (the agent) to represent and take actions on behalf of the principal's interests. In that regard, the agent has permission to make decisions for the principal. However, if the agent's and principal's interests do not align, an agency problem arises.

Moreover, Ackert and Deaves (2010, p. 31-32) further emphasize that particularly owners and managers of large corporations might experience conflicts of interests due to the common separation of ownership from the management. Since the shareholders are the owners and elect a board of directors which in turn appoint the management, a potential higher risk of principal-agent problem arises the larger the corporation. The authors mention the Coca-Cola company as an example of the difficulties of frequent interactions between owners and managers for which there were at the time of publication approximately 300 000 shareholders.

Nevertheless, Ackert and Deaves (2010, p. 31-32) points out that if managers (agents) act in the interest of owners (principals), the agency relationship can enable businesses to flourish. To achieve desire, an optimal compensation contract is to strive for which includes both rewards and penalties to motivate managers to maximize the value of the firm in the interest of the owners.

In particular to this thesis, there might exist a conflict of interest by which the shareholders expect that the firm operates with awareness of environmental issues, however the management might be more concerned with short-term profitability that do not align with the interests of shareholders.

4. Methodology

As previously stated, the purpose of the study is to examine how ESG performance and gender diversity relate to financial performance, measured by return on equity (ROE). These relationships were examined using linear regression models for panel data, consisting of firm-year observations from 2013 to 2023. The structure of panel data enables analysis of how a company's performance and characteristics changes over time, while also capturing differences across companies. As for the method, inspiration was drawn from multiple prior research, with the most influential being the study by Gül & Altuntaş (2024).

4.1 Model Specification

The following regression equation was used to examine the relationship between ESG performance, Gender Diversity and financial performance in equation 1:

$$\begin{aligned} ROE_{i,t} = & \beta_0 + \beta_1 ESG_{i,t} + \beta_2 E_{i,t} + \beta_3 S_{i,t} + \beta_4 G_{i,t} + \beta_5 BD_{i,t} \\ & + \beta_6 ExBD_{i,t} + \beta_7 SxBD_{i,t} + \beta_8 GxBD_{i,t} \\ & + \beta_9 CV_{i,t} \end{aligned}$$

Where return on equity (ROE) is the dependent variable. ESG and its three pillars (E, S, G) represent sustainability performance. BD is the metric for board diversity. ExBD, SxBD and GxBD capture the interaction terms with the ESG pillar scores and the board diversity. CV includes the control variables: In Market Cap, Debt/Equity and EPS.

4.2 Use of Lagged and Unlagged ESG Scores

In order to better understand the relationship between ESG and financial performance, two regressions were conducted using different approaches and forms of ESG variables: An ESG variable that was lagged by one year (ESG_{t-1}), and an unlagged ESG variable, referring to the same year as the measurement of financial performance (ROE).

Applying lagged ESG scores enables determination if the ESG performance in one year influences the financial performance (ROE) in the subsequent year. It is regularly used in previous literature, since it reduces the risk of simultaneity bias and reverse causality, the risk of not knowing which variable is influencing the other. (Khan et al. 2016)

A regression with an unlagged ESG score was also conducted, where ESG and ROE are both measured in the same year. Using unlagged ESG scores enables the analysis of whether firms ESG performance influences financial performance within the same year, focusing on potential short-term correlations. The use of unlagged ESG scores when analysing financial performance for large-cap companies is supported by recent studies, such as Assal et. al. (2023). They argue that for large-cap companies, ESG information is typically updated and available throughout the fiscal year. Since the dataset in this study consists of firms listed in major stock market indices, where disclosure and monitoring from investors and media generally are high, it is reasonable to assume that ESG activities can be observed prior to the closure of the year and may therefore influence investor behavior and financial performance in the same year.

4.3 Estimation Strategy

The regressions were conducted in Stata using fixed-effects linear regression models for panel data, which control for company characteristics that remain constant over time. The analysis was conducted on the full dataset, as well as separately for the two regional subsamples, in order to identify potential differences across the markets. These subsamples include the Scandinavian market, comprising Sweden, Norway and Denmark, and the emerging markets of Brazil, India and South Africa.

The linear regression estimation used in this study relies on the assumptions of Ordinary Least Squares (OLS). These assumptions include linearity, no perfect multicollinearity, exogeneity, homoscedasticity and no autocorrelation. Given the panel structure of the data there is a potential risk of serial correlation and heteroscedasticity within firms over time, which can result in biased standard errors and unreliable statistical inference. As noted by Cameron et al. (2015), default standard errors may overstate the estimator precision. To address these concerns, the robustness of the results was evaluated by clustering standard errors at the firm level and comparing these results with the corresponding unclustered regression outcomes.

To further explore the relationship between ESG performance, board diversity, and financial performance, three regression models were applied to each sample. The first model (model 1)

includes the overall ESG score, the individual pillar scores for Environmental, Social, and Governance dimensions, and board diversity. The second model (model 2) extends this regression by incorporating interaction terms between the ESG pillar scores and gender diversity. Finally, the third model (model 3) incorporates control variables to better isolate the impact of ESG, board diversity, and their interaction terms on return on equity, while mitigating the risk of omitted variable bias.

5. Data

5.1 Sample and Data Source

The empirical analysis is based on a panel dataset consisting of 227 companies across the six countries: Sweden, Denmark, Norway, Brazil, India and South Africa. Firms were selected based on their inclusion in the respective countries benchmark indices, ensuring high market capitalization, availability of data, and investor relevance. All data were obtained from the London Stock Exchange Group (LSEG) database using annual firm-level data. The firm distribution by country and index are presented below, Table 1.

Table: 1
Firm Distribution by Country and Index

Country	Index	Number of Co	Country	Index	Number of Co
Sweden	OMXS30	27	Brazil	BOVESPA	68
Denmark	OMXC25	24	South Africa	JTOPI	39
Norway	OBX	21	India	NIFTY 50	48
Total Scandinavian Market		72	Total Emerging Market		155

Note: This table provides descriptions of the firm distribution by country and index for which the dataset is based on.

5.2 Variables and Construction

The dependent variable is return on equity (ROE), which serves as a measure of financial performance for a company in a given year. The independent variables include the overall ESG score, the individual ESG pillar scores - Environmental (E), Social (S) and Governance (G), as well as board diversity (BD), which represents the percentage of women on the board. In particular, the decision of using return on equity as the dependent variable was based on the study by Sahu et al. (2025). The authors conducted a study in the Malaysian market revealing that ESG performance positively impacts return on equity, as well as concluding that increasing board diversity had a positive influence on firm performance.

To analyze the potential interaction effect, three interaction terms are constructed - ExBD, SxBD, and GxBD. These represent the interaction between the respective ESG pillar scores and board diversity and explains whether the correlation between each ESG pillar (Environmental, Social, and Governance) and financial performance varies depending on the level of female representation on the board. These interaction variables were also used in the study by Sahu et al. (2025) revealing a moderate link between female representation with higher ESG for improving firm performance.

The control variables ($CV_{i,t}$) consists of company-specific financial metrics, which captures different aspects of return on equity. The natural logarithm of market capitalization acts as a measure of size, while the debt-to-equity ratio operates as a measure of financial leverage and risk. Lastly, earnings per share (EPS) is included as an indicator of profitability. All variable definitions and codes are presented in table 2 and 3 below.

Table: 2
Variable descriptions from LSEG Workspace

Variables	Description	Variable name (code)
ROE	Return On Equity Calculated based on original balance sheet data unless restated interim data is disclosed. (Earnings Per Share / Average of Last Year's and Current Year's Book Value Per Share) × 100	WC08301
ESG	Environmental Social Governance Numerical score that assesses a firm's environmental, social, and governance performance	TRESGS
E	Environmental Weighted average relative rating of a company based on reported environmental information and category scores	ENSCORE

S	<p style="text-align: center;">Social</p> <p>Weighted average relative rating of a company based on reported social information and category scores</p>	SOSCORE
G	<p style="text-align: center;">Governance</p> <p>Weighted average relative rating of a company based on reported governance information and category scores</p>	CGSCORE
BD	<p style="text-align: center;">Board Diversity</p> <p>Percentage of female board members in a company.</p>	CGBSO03V
MarketCap	<p style="text-align: center;">Market Capitalization</p> <p>Represents the closing price of the company's stock at fiscal year-end. For companies with more than one share class, this represents the total market value.</p> <p>Market Price-Year End × Number of Common Shares Outstanding</p>	WC08001
Debt/Equity	<p style="text-align: center;">Debt-to-Equity</p> <p>Represents the Leverage of a company. For insurance companies, policyholders' equity is used if common equity is not available.</p> <p>$((\text{Long-Term Debt} + \text{Short-Term Debt and Current Portion of Long-Term Debt}) / \text{Common Equity}) * 100$</p>	WC08231
EPS	<p style="text-align: center;">Earnings Per Share</p> <p>Net income available to common shareholders divided by the weighted average number of common shares outstanding.</p> <p>Earnings / Shares outstanding</p>	WC05201

Note: This table provides information about the variables used in the regressions with their short variable names, description and code.

Table 3:
Detailed description of the ESG-pillars from LSEG Data & Analytics (2024)

Pillar	Categories
Environmental	<ul style="list-style-type: none"> - Emissions: including <i>waste, Environmental management systems, and Biodiversity.</i> - Innovation: including <i>Product innovation, Green revenues, Research and development (R&D), and Capital expenditures (CapEx).</i> - Resource use: including <i>Water, Energy, Sustainable packaging, and Environmental supply chain.</i>
Social	<ul style="list-style-type: none"> - Community: overall commitment for the company to be a good citizen. - Human rights: a company’s effectiveness in terms of respecting fundamental human rights conventions. - Product responsibility: including <i>Responsible marketing, Product quality, and Data privacy.</i> - Workforce: including <i>Diversity and inclusion, Career development and training, working conditions, and Health and safety.</i>
Governance	<ul style="list-style-type: none"> - Corporate Social Responsibility (CSR) strategy: including <i>ESG reporting and Transparency.</i> - Management: including <i>Structure (independence, diversity, committees) and Compensation.</i> - Shareholders: including <i>Shareholder rights, and Takeover defenses.</i>

Note: This table provides descriptions of the categories that contribute to the scores of each Environmental, Social and Governance which sum creates the overall ESG score for the firm. Important to note is that the weights of the pillar scores differ depending on the industry the firm operates in LSEG Data & Analytics (2024).

5.3 Data Cleaning and Descriptive Statistics

Due to varying levels of data availability across firms and years, an unbalanced panel dataset was utilized to maximize the number of observations. As the number of missing values were small relative to the total number of observations, these were imputed using the overall mean of the respective variable. Additionally, to reduce influence of extreme values, winsorization was applied at the 1st and 99th percentiles. Descriptive statistics for the final model's variables are presented separately for the Scandinavian and Emerging Markets samples. See table 4 and 5 below.

Table: 4
Descriptive Statistics for the Scandinavian markets

variable	observations	mean	sd	min	max
ROE	792	.1481647	.2144901	-.6402	1.0393
ESG	792	63.88721	15.48822	15.28	91.89
E	792	65.28734	22.11081	1.69	99
S	792	69.03245	17.60134	9.81	97.42
G	792	62.09072	19.97711	12.98	96.42
BD	792	.3302594	.1206171	0	.5714
ExBD	792	21.79256	11.25545	0	53.83159
SxBD	792	23.05172	10.0906	0	48.55757
GxBD	792	20.91741	10.52817	0	49.38411
lnMarketCap	792	15.7928	1.454663	11.74932	18.4063
Debt/Equity	792	1.441823	2.397568	0	11.5278
EPS	792	1.369882	2.255806	-3.185238	10.06048

Note: This table provides the Scandinavian market's descriptive statistics for the final model's variables. Within the table there is information about the variable names, number of observations, mean value, standard deviation, minimum value and maximum value.

Table: 5
Descriptive Statistics for the Emerging markets

variable	count	mean	sd	min	max
ROE	1705	.1595293	.2056731	-.6402	1.0393
ESG	1705	59.29809	18.15455	15.28	91.89
E	1705	75.61722	28.70419	1.69	100
S	1705	79.16301	24.61358	9.81	100
G	1705	76.72317	26.28548	12.98	100
BD	1705	.1714243	.1111385	0	.5714
ExBD	1705	13.91308	11.21838	0	57.14
SxBD	1705	14.34722	11.05252	0	57.14
GxBD	1705	14.20789	11.19044	0	57.14
ln(MarketCap)	1705	15.67204	1.27984	11.74932	18.4063
Debt/Equity	1705	1.195852	1.63902	0	11.5278
EPS	1705	.4971523	1.1225	-3.185238	10.06048

Note: This table provides the Emerging market's descriptive statistics for the final model's variables. Within the table there is information about the variable names, number of observations, mean value, standard deviation, minimum value and maximum value.

6. Empirical results

In this chapter the reader is first presented with the initial model, using one-year lag for the variables of interest. Thereafter, the final model without lagged variables is presented with a more detailed description of the results for the Total market, Scandinavian markets, and the Emerging markets. Finally with that said, the analysis of the results will be provided in more detail in the discussion.

6.1 Initial model

In contrast to the final model, the initial model was conducted using a one-year lag to examine whether this design would enhance the explanatory power of the variables of interest: ESG, Environmental, Social, Governance, and the interaction variables. The regressions with one-year lag were conducted using a panel data model that accounts for the variability over time, using fixed-effects and dummy variables for the Scandinavian- and Emerging Markets.

The final model, by comparison, displays equivalent significance levels or, in most cases, improved significance, along with additional significant variables. This is the case for the total market, Scandinavian market, and the Emerging Market which will be presented in the following section (5.2).

6.2 Final model

Table 7 below presents the regression results based on a panel data model that incorporates the variability over time, using fixed-effects and dummy variables for the Scandinavian Market and the Emerging Markets. The results will be presented in text format, while the interpretation will be provided in the discussion chapter.

Table 7:
Unlagged Regression Results

VARIABLES	Total Market			Scandinavian Markets			Emerging Markets		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
ESG	-0.001 (-1.293)	-0.000 (-1.008)	-0.001** (-2.112)	0.003 (1.378)	0.003 (1.303)	-0.001 (-0.528)	-0.001 (-1.167)	-0.001 (-1.326)	-0.000 (-0.856)
E	-0.001*** (-2.911)	-0.000 (-0.424)	-0.000 (-0.659)	-0.002*** (-2.656)	-0.001 (-0.813)	0.000 (0.080)	-0.001*** (-2.659)	-0.001 (-0.989)	-0.001 (-1.415)
S	0.001** (2.212)	-0.000 (-0.530)	-0.000 (-0.482)	0.000 (0.512)	-0.003** (-2.213)	-0.003** (-1.961)	0.001** (2.327)	0.001 (1.357)	0.001 (1.003)
G	0.001** (2.226)	0.001*** (2.659)	0.001*** (2.846)	-0.001 (-1.353)	0.001 (0.862)	0.002* (1.715)	0.000 (1.413)	0.000 (0.930)	0.001 (1.603)
BD	-0.006 (-0.123)	0.023 (0.183)	0.039 (0.357)	-0.018 (-0.239)	-0.328 (-1.328)	-0.214 (-1.015)	0.007 (0.116)	0.230 (1.332)	0.236 (1.530)
ExBD		-0.004* (-1.865)	-0.003 (-1.447)		-0.002 (-0.681)	-0.002 (-0.814)		-0.004 (-0.788)	0.000 (0.082)
SxBD		0.007** (2.493)	0.005** (2.083)		0.013*** (3.290)	0.011*** (3.242)		0.001 (0.267)	-0.001 (-0.199)
GxBD		-0.003* (-1.681)	-0.004** (-2.181)		-0.006* (-1.873)	-0.006** (-2.205)		-0.001 (-0.184)	-0.003 (-0.919)
lnMarketCap			0.031*** (5.099)			0.015* (1.813)			0.029*** (5.318)
Debt/Equity			-0.010*** (-2.609)			-0.024*** (-4.721)			-0.001 (-0.335)
EPS			0.060*** (21.849)			0.044*** (15.296)			0.082*** (17.844)
Observations	2,497	2,497	2,497	792	792	792	1,705	1,705	1,705

R-squared	0.006	0.010	0.229	0.008	0.029	0.313	0.005	0.006	0.246
Number of ID	227	227	227	72	72	72	155	155	155

Note: This table shows regression results for the firms in Sweden, Norway, Denmark, Brazil, India and South Africa with Return on Equity (ROE) as the dependent variable. Column 1-3 represents the total market, column 4-6 represents the Scandinavian market, and column 7-9 represents the Emerging markets. The t-values are shown within parentheses as well as ***, **, and * demonstrate significance at the 1%, 5%, and 10% level for the variables.

To begin with, Enders (2025) explains that the R-squared reflects how much of the variation of the dependent variable is explained by the independent variables in the regression output. With that said, a pattern can be noticed for improved R-square from the simple model 1 to model 3 with control variables. This indicates that by including interaction variables and control variables, the model improves in explaining the variation in the return on equity.

6.2.1 Total Market

Beginning with the first regression, which includes both the Scandinavian and the Emerging markets combined, model 1 displays a negative coefficient for Environmental at a significance level of 1%. Furthermore, there is a positive coefficient for Social and Governance at a significance level of 5%, as well as all three variables Environment, Social and Governance have coefficients of approximately (-)0.001. This contradicts previous research by Gül and Altuntaş (2024) proposing that improving Environmental scores correspond with positive financial performance.

In model 2, interaction terms are introduced between the ESG pillars and Board Diversity. The regression output shows that there is still a positive coefficient of 0.001 for Governance, however at an improved significance level of 1%. With regards to the interaction terms, the variable Social with Board Diversity has a positive coefficient with a value of 0.007 at a significance level of 5%. In contrast, Environmental and Governance with Board Diversity have negative coefficients of -0.004 and -0.003 respectively at a significance level of 10%. These findings can, to some extent, be connected to the findings of Gillian et al. (2021), who suggest that a higher percentage of women in boards tend to prioritize ESG and that this can reduce the firm risk and be linked to financial performance, however the findings are rather ambiguous and regionally dependent.

However, in model 3 when adding the control variables (lnMarketCap, Debt/Equity, and EPS), the combined ESG score shows a negative coefficient of -0.001 at a significance level of 5%. This contradicts previous research by Friede et al. (2015) arguing that ESG and financial performance has a non-negative relationship.

As with the first two models, model 3 shows a positive coefficient of 0.001 for Governance at a significance level of 1%. With that said, just as in model 2, the interaction term Social with Board Diversity remains positive and significant at the 5% level, but with a slightly lower coefficient 0.005. In addition, the interaction term Governance with Board Diversity displays a negative coefficient, slightly higher (-0.004), with an improved significance at a level of 5%. Thereby, the findings are rather ambiguous as the social score aligns with Gillian et al. (2021), though Governance score contradicts with the authors saying that higher percentage of women in boards tend to prioritize ESG scores and that this work might be connected to financial performance.

Important to add is that all the control variables are significant at a level of 1% and contributed to improving the significance score of the variables of interest.

6.2.2 Scandinavian Market

With regard to the Scandinavian Market, consisting of Sweden, Norway and Denmark the baseline model 1 displays a negative coefficient of -0.002 for the Environmental score at a significance level of 1%. However, model 2, which includes interaction terms for Environment, Social and Governance with Board Diversity, shows that the Social score has a negative coefficient of -0.003 at a significance level of 5%. These findings contradict Gül and Altuntaş (2024) which states that Environmental and Social scores are positively linked to financial performance, however in the form of stock performance.

Furthermore, when including an interaction term for Social with Board Diversity, the variable has a positive coefficient of 0.013 at a significance level of 1%. Model 2 also indicates that the interaction term Governance with Board Diversity has a negative coefficient of -0.006 at a significance level of 10%. Commenting on the social interaction variable, statistically significant at the 1% level, this results aligns with the argument by Gillian et al. (2021)

regarding the possible link between women in boards, increasing ESG, and possible improvement of financial performance.

Proceeding with model 3 that includes the control variables (lnMarketCap, Debt/Equity and EPS), the Social score still shows a negative coefficient of -0.003 at a significance level of 10%. However, consistent with model 2, the interaction term for the Social pillar with Board Diversity remains positive, though slightly lower at 0.011, and is significant at the 1% level. Finally, the interaction term Governance with Board Diversity continues to show a negative coefficient of -0.006, however at an improved significance level of 5%.

As with the total market, these findings of a negative coefficient for the Governance pillar with Board Diversity contradicts with Gillian et al. (2021) saying that higher percentages in boards tend to improve ESG scores and possibly lead to improved financial performance. However, the result could be connected to Gül and Altuntaş (2024) findings of the rather ambiguous effect of Governance on financial performance.

With regards to the control variables, lnMarketCap and EPS are significant at a level of 1%, while the Debt/Equity had a significance level of 10%. All three control variables contributed to improving the overall significance scores of the variables of interest.

6.2.3 Emerging Market

Concerning the Emerging market that consists of Brazil, India and South Africa the baseline model 1 displays negative coefficient of -0.001 for the Environmental score at a significance level of 1%. Also, model 1 shows a positive coefficient of 0.001 for the Social score at a significance level of 5%. The result of the Environmental score contradicts previous findings by Gül and Altuntaş (2024). However, their study aligns with the Social score, which they suggest is expected to have a positive relationship with financial performance.

With that said, model 2 and model 3 do not show significant coefficients for the variables of interest: ESG, the individual pillars, nor the interaction terms. Regarding the control variables, Debt/Equity and EPS are significant at a level of 1%, while lnMarketCap was found to be insignificant.

All things considered, the presented results represent the major findings with regards to the aim of the study. Further discussion and comparison between the Scandinavian and Emerging markets will be provided in the upcoming chapter 6.

6.3 Robustness test

As explained in the work by Cameron et al. (2015), default standard errors can possibly overstate estimator precisions. Regressions with Clustered-robust standard errors were therefore conducted to assess the reliability and robustness of our final model's result.

Beginning with the Total market, the regression output of the clustered robust standard errors displays similar coefficient sign as well as statistical significance for all variables, except for the interaction variable Governance with Board diversity, which is on the verge of being statistically significant.

For the Scandinavian market the regression output with clustered standard errors were largely similar to the final model, showing the same coefficient signs and statistical significance for most of the variables, except for the Environmental score, which becomes statistically insignificant in Model 2.

Finally, the final model for the Emerging markets displayed rather ambiguous results over the three models. However, statistical significance is shown for the environmental score, as well as the social score in model 1. Notably, the regression output with clustered standard errors also displayed a statistically significant Governance score, which differs from the result in the final model.

In summary, the robustness test revealed an overall consistency with the result of the final model, aside from a few deviations. This implies that the main results concluded are to a large extent stable and not profoundly influenced by how standard errors are estimated, which strengthens the reliability of the study's regression results and the conclusions drawn from them.

7. Discussion

7.1 Results

As the results in the final model for the Total market, Scandinavian market, and Emerging market differ, the hypothesis must be evaluated respectively. To repeat, the first hypothesis states that: *There exists positive correlation effects between Environment, Social, or Governance- scores and percentage of Women employees on Return on Equity.* The second hypothesis states that: *There is positive correlation between the percentage of Board Diversity and Return on Equity.*

With that stated, the upcoming sections will discuss the results in detail, however what can be said is that for the Total market the results indicates that there is rather strong evidence to reject the first null hypothesis, the Scandinavian market shows intermediate evidence to reject the first null hypothesis, and the Emerging markets does not provide evidence to reject the first null hypothesis. However, the results for Total market, the Scandinavian market, and the Emerging markets do not show evidence to reject the second null hypothesis.

For clarifying purposes, the coefficients for the individual ESG pillars represent percentage points. For example, a coefficient of 0.001 corresponds to a 0.1 percentage point increase of return on equity. For the interaction terms, if the coefficient is 0.001, each unit increase in the pillar score corresponds with increasing the effect of Board Diversity on return on equity by 0.1 percentage points.

7.1.1 Total Market

For the first model in the total market there is statistical significance that Environmental score has a negative coefficient of -0.001. This indicates that a higher Environmental score corresponds with lower return on equity. The Environmental pillar consists of a firm's emissions, innovations and resource use. It is commonly known that most industries still have a great amount of work with regards to resource use. A potential explanation for the result is that the major companies in the Scandinavian and Emerging markets are heavily dependent on material use to conduct their operations. Therefore, as of the time period 2013-2023, a firm that prioritized improving their Environmental scores may not have used shareholders' equity effectively to generate profit, as measured by return on equity.

Furthermore, the opposite can be said about the Social and Governance pillar which shows a positive coefficient of 0.001 at a significance level of 5%. The Social pillar consists of human rights, community, product responsibility, and workforce, while the Governance pillar consists of shareholders rights, management structure, and transparency. Perhaps these two pillars have greater importance for stakeholders, which would contribute to a pressure on firms to perform well on these metrics. By performing well on the Social and Governance pillar, a firm may be perceived as more attractive to investors. The coefficient for the Social pillar score aligns with Gül and Altuntaş (2024) study on developed and emerging markets, stating that Social scores were positively linked with stock performance, while the authors found a rather ambiguous result for the Governance pillar.

Furthermore, in model 2 the Governance pillars significance improves to 1% level with the same value for the coefficient of 0.001. This might indicate that including the interaction terms helps isolate the effect of Governance. Regarding the interaction terms, both Environmental and Governance is significant at a 10% level, with negative coefficients of -0.004 and -0.003 respectively. This indicates that higher Environmental and Governance scores are associated with a stronger negative relationship between Board Diversity and return on equity.

With regards to the Environmental score, investments for increasing the score may lead to less capital being available for the board to allocate toward practices that generate improved return on equity. This could also be due to the diminishing marginal effect of higher Governance score on return on equity, where the increased reporting leads to difficulties for a more diversified board to accomplish great financial performance.

The opposite can be said about the interaction variable for the Social pillar with Board Diversity which has a positive coefficient of 0.007 at a significance level of 5%. This implies that the positive effect of Board Diversity on return on equity increases, when the Social score is higher. One possible explanation for these results is that a higher percentage of women in boards improves the work of inclusion of different individuals in the workforce, a parameter in the Social pillar, which in turn might attract more investors and a more motivated workforce. With that said, that more women in boards corresponds with improved

performance for ESG disclosure aligns with the results from the study by Sundarassen et al. (2024).

Moreover, when including the control variables (lnMarketCap, Debt/Equity and EPS), the Governance pillar continues to show a positive coefficient of 0.001, significant at the 1% level. Being significant for all three models shows a robustness in the results of the Governance pillars positive impact on return on equity. For the interaction terms, the Social pillar with Board Diversity is still significant at 5% and has a slightly lower positive coefficient of 0.005. However, for the interaction term Environmental with Board Diversity, the variable becomes insignificant, suggesting that the interaction variable does not have as strong of an impact return on equity.

On the other hand, for the interaction term of the Governance pillar with Board Diversity the coefficient is still negative with a value of -0.004, but with an improved significance to a 5% level. This strengthens the argument that the negative effect of Board Diversity on return on equity increases when the Governance score is higher. A potential argument for this is that a firm with a high reporting transparency and inclusive structure might face firm-specific bureaucratic problems that lead to slower decision-making, which in turn harms financial performance. Consequently, the effect of Governance score on stock market return can for some cases be rather ambiguous which the study by Gül and Altuntaş (2024) shows, where the Environmental and Social pillar shows positive relationship with stock return but no significant effect for the Governance pillar.

Lastly, what is different from model 2 is that the combined ESG variable shows negative coefficient of -0.001 at a significance level of 5%. This indicates that higher combined ESG scores correspond with lower return on equity. This may be influenced by the weighting of the individual pillar scores used to construct the combined ESG score. As explained by the report from LSEG Data & Analytics (2024), the weights of the pillar scores differ depending on the industry that the firm operates in.

7.1.2 Scandinavian Market

With regards to the Scandinavian market, which includes the major companies in Sweden, Norway and Denmark, the first model shows significance at a 1% level for the Environmental pillar with negative coefficient of -0.002. This implies that higher Environmental practices

correlates with lower return on equity. As for the argument in the Total Market, a reason for this might be that the major companies are heavily resource dependent for which during their use of water, energy as well as the green revenues might have scope for improvement.

Continuing with model 2, the social pillar becomes significant at a level of 5% with a negative coefficient of -0.003. This negative coefficient for the social pillar is a rather unexpected result for the Scandinavian market. A possible explanation is that the Scandinavian market is already heavily invested in human rights, community, product responsibility, and workforce for which the cost of the marginal improvement of the Social score is more than the generated profits from the operations. Therefore the effectiveness of the use of the shareholders equity does not generate more profit in the form of return on equity.

Moreover, with regards to interaction terms the Social pillar with Board Diversity shows a positive coefficient of 0.013 at a significance level of 1%. In contrast to the social pillar alone, the interaction term suggests that the Board Diversity contribute more to return on equity when the firm performs well on the social pillar. Thereby, when the firm has prioritized the work on the social pillar score, then the positive effect of higher board diversity on return on equity increases.

This result in the Scandinavian market is highly adaptable to the first hypothesis that *There exists interaction effects between Environment, Social, or Governance- scores and percentage of Women employees on Return on Equity*. A possible argument for this is that a firm perceived as highly inclusive will also encourage diversified boards to influence financial performance. This argument aligns with the discussion by Sundarasan et al. (2024) of a “critical mass” which implies that if there are few women in the board it is difficult to influence the board decisions, however the results indicates that if a firm is perceived as striving for inclusion the critical mass is achieved and women can influence the board.

With that said, model 2 also displays that for the Governance pillar interacted with Board Diversity there is a negative coefficient of -0.006 at a significance level of 10%. This results suggests that the Board Diversity contributes negatively to return on equity when the firm performs well on the Governance pillar. A possible reason for this is that for a firm that already performs well on the Governance pillar it does not achieve more efficiency by

increasing the diversity in boards. The strategy might instead steal time from making fast and profitable decisions in a rapidly changing external environment.

Finally, model 3 differs from model 2 by an improved significance for the interaction variable of Governance with Board Diversity at a significance level of 5%. Also, the model differs by now having a positive coefficient for the Governance pillar of 0.002 at a significance level of 10%. These opposite coefficient signs might indicate that firms work towards Governance practices such as shareholder rights, management structure and transparency improves financial performance. However, firms that already have great Governance will not improve their return on equity by increasing board diversity and Governance even more. This suggests that the marginal effect diminishes as well as there might be a time when it is actually harmful to improve Governance and Board Diversity. This rather ambiguous effect of Governance aligns with the study by Gül and Altuntaş (2024) which did not find significant effects of Governance on developed and emerging markets.

7.1.3 Emerging Market

Concerning the Emerging Market that consists of Brazil, India, and South Africa the model 1 displays a negative coefficient for the Environmental pillar of -0.001 at a significance level of 1%, which negative relationship is in line with the Total market and the Scandinavian market.

This result might be due to the lack of market incentives from stakeholders to prioritize environmental practices as a consequence of it requiring significant investments. These significant investments may not provide effects in the short run for the emissions or resources used nor for the return on equity as it seems from the results. However, this is a rather contradictory finding from the study by Friede et al. (2015) that reviewed 2,000 empirical studies stating that the relationship between ESG and financial performance was in most cases positive or at least not negative.

Furthermore, in the study by Naveed et al. (2022) it is argued that in contrast to the classical U-shaped Environmental Kuznets Curve, which suggests that in the early stage of economic development the emissions increase but after a certain point emissions decrease and income rises, the shape of the curve could take on other forms. With regards to the Scandinavian Market, which displayed negative coefficients for the Environmental variable, another shape than the one suggested by the original Environmental Kuznets Curve could perhaps be

appropriate. This is due to the fact that the Scandinavian market most likely should have passed the point of decreasing emissions and increasing income. One might argue however that increasing income might not by definition be precisely applicable to return on equity for firms, however the argument of a different shape of the curve might still be relevant.

Furthermore, with regards to the Emerging market the theory of the U-shaped Environmental Kuznets Curve might still be apparent as the market might still not have reached the turning point. What can be said is that further research for the regional differences and the application of the Environmental Kuznets Curve is to be recommended.

With that said, model 1 displays a positive coefficient of 0.001 for the Social pillar at a significance level of 5%. This indicates that an improved score for the Social pillar corresponds with better financial performance. Perhaps productivity increases for firms that self control working conditions more than the regulatory requirements. It might be the case that the marginal cost of investing to improve the social pillar is offset by greater productivity and stakeholder trust which increases return on equity.

Finally, when including interaction terms for the ESG-pillars in model 2, none of the variables are significant. This can also be said for model 3, which adds the control variables $\ln\text{MarketCap}$, Debt/Equity , but does not display significant variables. This might indicate that in the simplified model 1 the return on equity was more sensitive to the dimensions alone and while adding more variables, their combination diminished the effect of the Environmental and Social variables.

7.2 Limitations

With regards to potential limitations of this study, there is the aspect of difficulty to generalize the results to the entire market of the countries the study is investigating. This is due to the limited company selection to only major publicly traded companies with highly traded shares. Concerning smaller firms on the markets they might not face the same expectations as the large companies, which might lead to that the relationship between Environmental, Social, Governance with return on equity might not be as applicable.

Moreover, there is a limitation that the total market might not provide the correct picture of the Scandinavian Market and the Emerging Market due to the different number of company weights for each market. This becomes evident when the Social coefficient in the Total Market is positive, whereas it is negative in the Scandinavian market. This is due to the fact that there are more observations in the Emerging Market where the Social coefficient is positive.

Moreover, it is important to note that even if the regression output shows significant coefficient, it does not by definition imply causality between the dependent and independent variables. With that said, it would take a vast amount of time to investigate each firm and each year during the time period which in turn might not provide an answer to the causality. Thereby, the results should be interpreted as significant results showing relationships but not necessarily causality.

Furthermore, the final model does not incorporate lagged scores for combined ESG, Environmental, Social, or Governance. This might result in simultaneity bias for which independent variables correlate with the error term and omitted variable bias for which unobservable factors influencing both the dependent and the independent variables are left out of the model. Such potential factors that influence both ESG and return on equity could be corporate culture, leadership, employees motivation to work harder for a cause they perceive as important. A potential consequence of this is that it might be difficult to tell which variable is influencing the other.

Thereby, a so-called reversed causality could be apparent which in this study could imply that firms that are performing high returns on equity have more capital to allocate to performing well on ESG metrics. With that said, there are studies indicating that the most appropriate way to conduct research on financial performance and ESG for large market capitalization companies is to incorporate the values of both the dependent and the independent variable during the same fiscal year (Assael et al. 2023). A potential argument is that for the largest companies their present work with regards to Environmental, Social, and Governance is reflected in the stock price as these companies are under regular surveillance of stakeholders and media coverage.

Another potential limitation in this study with regards to Board Diversity is that there might exist norms of the minimum percentage of women in boards. This might be one of several decisions with the aim of the firm to be perceived as having a positive impact on equality and being a good citizen though prioritizing ESG-scores. Thereby there might also exist omitted variable bias that influences both the independent variables and the dependent variable.

8. Conclusion

By coming to a conclusion it is helpful to connect to the original aim of the study which was to examine if elements in ESG performance and Board Diversity correlate with financial performance. By approaching the problem at the firm-level between the regions of Scandinavia and Emerging markets, with commonly known different awareness to corporate sustainability, this study explores a rather less researched gap.

Concerning the major findings in comparison for the both markets, it can be said that the Emerging Market showed results confirming the first hypothesis of the study for the simple model 1, where an increase in a unit of Environmental score corresponds with a decrease of return on equity by 0.1 percentage point, while for the Social pillar score a unit increase corresponds with an increase of the return on equity by 0.1 percentage points. On the other hand, the Scandinavian Market had several findings that can be connected to the first hypothesis. With exception for the interaction term Environmental with Board Diversity, all the variables of interest had significant coefficients. Improving Environmental and Social pillar scores corresponds to a negative effect on return on equity, while improving Governance pillar scores corresponded with a positive effect on return on equity. For the interaction terms, Social with Board Diversity had a positive impact on return on equity while Governance with Board Diversity had a negative effect on return on equity.

What can be said is that the ESG-pillars had different signs and sizes of the impact on return on equity, however a solid conclusion is that there exists interaction effects between the ESG pillars and percentage of women employees on return on equity for the Scandinavian market. This contributes to the existing literature demonstrating that ESG pillars and higher percentage of women in boards can contribute to financial performance. However, in relation to existing literature it was not expected that the interaction term of Governance and Board Diversity had a negative effect on return on equity in the Scandinavian market.

As of these findings, there is potential for further investigation in the Scandinavian Market, especially regarding the explanatory factor behind why a higher percentage of women in corporate boards, alongside increasing Governance scores, seems to negatively affect return on equity. Potentially there might be excessive regulations and bureaucracy hindering the potential of taking advantage of a board with different gender perspectives.

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Appendices

Pearson Correlation Matrix

The correlation matrix below describes the relationship between the variables included in the thesis. The stars are indicating whether the correlation is significant at the 10%, 5%, and 1% level assigned as *, **, *** with respective significance levels. With that said, the correlation coefficient indicates that when one of the variables increases, the other increases simultaneously, whereas the other viable decreases for negative coefficients.

Table 8:
Pearson Correlation Matrix

	ROE	ESG	E	S	G	BD	ln(MarketCap)	Debt/Equity	EPS
ROE	1.0000								
ESG	-0.0081	1.0000							
E	-0.0131	0.4172***	1.0000						
S	0.0506**	0.4503***	0.8774***	1.0000					
G	-0.0123	0.3598***	0.7777***	0.8014***	1.0000				
BD	-0.0020	0.3075***	0.0789***	0.0576***	0.0920***	1.0000			
lnMarketCap	0.2552***	0.2885***	0.1449***	0.1421***	0.0381*	0.1019***	1.0000		
Debt/Equity	-0.2043***	0.0506**	0.1168***	0.0042	0.0404**	-0.0137	-0.0337*	1.0000	
EPS	0.5341***	0.0556***	-0.0364*	-0.0446**	-0.0782***	0.2093***	0.3826***	-0.0417**	1.0000

Note: This table provides information about the correlation for the variables for all the firms included in the study.

Use of Artificial Intelligence

In the writing of the thesis, the artificial intelligence tool ChatGPT by OpenAI was used as a tool with regards to assisting in programming, language refinements and structural guidance. ChatGPT assisted in programming by solving code errors and providing guidance in format for the data to be used in STATA for regression outputs. Furthermore, ChatGPT provided synonyms for specific words to enhance the readability and understanding of the sentence,

while the tool was not used to write entire sentences. Language refinements and structural guidance are rather closely linked as ChatGPT assists in providing synonyms for specific words in section titles and headings.

With that said, the use of ChatGPT was in line with the University of Gothenburg's guidelines of artificial intelligence as well as the content of the thesis is fully our own work.