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The Relationship between Board Diversity, ESG, and Financial Performance: A Nordic Study

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Abstract

This thesis examines the relationship between diversity on the board of directors and firm performance, as measured by ESG performance and financial performance (ROA and Tobin's Q). Using four different measures of board diversity across 223 publicly listed firms in the Nordic region from 2018-2021. We find that board diversity, measured by gender, cultural background, and independence, is positively associated with ESG performance, while age diversity is negatively related. The percentage of independent directors is found to be negatively associated with both financial performance measures. While we find a significant positive relationship between financial performance, as measured by Tobin's Q, and board cultural diversity, we also discover a negative association between board gender diversity and Tobin's Q. Finally, we find that ESG performance is positively associated with financial performance when measured by Tobin's Q. Our results remain robust when we modify our models and apply sub-samples.

Contents

1. Introduction

While financial performance remains fundamental for most firms around the world, the concept of environmental, social, and governance (ESG) performance has gained increasing attention as stakeholders recognize the importance of considering non-financial aspects in the evaluation of a company's performance. Furthermore, the importance of board diversity is generally highlighted and even regulated in some countries (Seierstad & Huse, 2017). However, we see varying empirical evidence from existing research on how diversity on the board of directors is related to both the highly topical ESG performance and the more traditional aspect of financial performance.

No matter what evidence we possess, the European Union recently passed a law for a quota of 40% women on the board of public firms, taking effect in 2026 (EU, 2022). While such legislation acknowledges the significance of board diversity, the empirical evidence on how diverse boards influence managerial decision-making is limited (Harjoto, Laksmana, & Lee, 2015). Moreover, these prior studies have largely focused on gender diversity and financial performance, and existing research on the relationship between board diversity and ESG performance is even more scarce. Implementing legislation without a full understanding of its potential effects may, not surprisingly, result in unexpected consequences. Furthermore, we believe that firm shareholders should make the most of their ownership by designing a board of directors according to their ESG and financial interests. As the Nordic governance model already allows the company shareholders to effectively control the business (Lekvall et al., 2014), insight on diversity in the board of directors will allow them to leverage their control better.

If board diversity has no significant relationship with corporate governance and performance, then the pursuit of diversity becomes primarily a public policy issue. However, if a positive relationship between board diversity and firm performance exists, the economic implications of board diversity become significant, making it a strategic business consideration. Conversely, if the relationship is negative, the potential costs associated with incorporating diverse

board members must be taken into account.

The Nordics, who have been traditionally good on measures such as gender diversity (Terjesen et al., 2015), may provide insight into the potential impact of quotas on diversity, either already in place, yet to be implemented, or under consideration. Just as importantly, insight from the Nordics may allow for well-informed choices to be made by company shareholders when they elect members to the board of directors. In other words, what will happen to a firm's ESG and financial performance once a diversity quota is implemented, and how should shareholders design the board of directors according to their ESG and financial interests?

This thesis aims to decrease the research gap and explore these concerns through three main research questions: (1) Is board diversity associated with higher ESG performance?; (2) Is board diversity associated with higher financial performance?; and (3) Is ESG performance associated with higher financial performance?

We measure board diversity in four dimensions: gender, cultural background, age, and independence. Following prior literature, we use ESG scores from Refinitiv Eikon as a proxy for ESG performance (Beji et al., 2020) and Return on Assets (ROA) and Tobin's Q as measures of financial performance (Velte, 2016; Carter et al., 2010). The main analysis is conducted using a panel data approach. The baseline models use ESG and financial performance as dependent variables, with diversity measures as independent variables. Some of the measures require manual data collection, such as cultural background and age. The hand-collected data is combined with data collected from existing databases. Furthermore, we control for other firm and board variables such as board size, firm size, leverage, CSR committees, CEO duality, and firm age.

From our sample of 223 publicly listed firms in the Nordic region, we find that all included measures of board diversity are associated with ESG performance. The measures for gender, cultural background, and board independence all have significant positive associations, while age diversity is negatively associated with ESG performance. In contrast to ESG performance, we find that board gender diversity and the percentage of independent directors have a negative and

significant association with financial performance. Additionally, board cultural diversity has a significant positive relationship with financial performance, as measured by Tobin's Q. ESG performance is positively associated with financial performance when we measure it by Tobin's Q, but we find no significant relationship between ESG and ROA.

Our study contributes to the growing body of research on board diversity and firm performance, as measured by ESG performance and financial performance. We consider our research to be of value as we explore four dimensions of board diversity, which require extensive manual data collection and is not common in the literature. The results show that increasing certain diversity measures implies a trade-off between performances. For gender diversity and board independence, the association is positive with ESG and negative with financial performance. Thus, changing the board composition on these measures, either voluntarily as shareholders or by complying with legislation, may have an impact on firm performance. With opposite relationships, shareholders and legislators should be aware of the potential outcomes and act according to their final interests. For age, which is only significantly associated with ESG performance, and cultural diversity, which has significant positive relationships with both performances, changes can be made with simpler considerations.

Additionally, we provide complementary results on firm ownership structure and its association with ESG and financial performance. This is especially interesting considering the Norwegian market and gender quota. We find that government-owned firms are associated with higher ESG performance and lower ROA compared to privately owned firms. Similarly, the results suggest that firms with foreign ownership are associated with higher ESG performance than locally owned firms.

In this paper, we first present relevant existing research and develop our hypotheses. This is followed by a detailed explanation of our data collection methods and empirical analysis. We then present our results, followed by additional analyses and robustness checks. Subsequently, we discuss the results and important limitations and suggest directions for future research. The paper concludes with a summary of our findings.

2. Research Question

Is board diversity associated with higher ESG performance?

We continue by investigating the next relationship with our second research question:

Is board diversity associated with higher financial performance?

After examining the relationship between diversity and both ESG and financial performance, we will look at the relationship between the different types of performance by proposing our third and final research question:

Is ESG performance associated with higher financial performance?

Limitations: The research questions are explored solely for our sample. Due to the extensive hand-collection of data, we are aware that errors may occur in the collection process. Additional limitations are explained further at a later stage in the thesis.

3. Prior Research and Hypotheses

3.1 Board Dynamics

The basic principle of corporate governance is that the shareholders elect the board of directors, who in turn select top management (John & Senbet, 1998). Furthermore, the Nordic corporate governance model allows the shareholder majority to effectively control and take long-term responsibility for the company that they own (Lekvall et al., 2014). This is contrary to traditional findings on board selection, where management and not stockholders, in practice, have a large influence on the selection of board nominees (Lorsch & Young, 1990; Mace, 1971). As the Nordic shareholders have a large degree of control, they can leverage their influence and take an active role in the board selection process.

While it may not be the case for all firms, board members should be deliberate about overseeing the overall ESG program as well as specific ESG objectives, risks, and opportunities (Deloitte, 2022). A more general and traditional view of board duties is to control and advise management (De Andres & Vallelado, 2008). Following the widely known agency theory perspective, directors monitor the management and should ultimately supervise management decisions on behalf of the shareholders' interests (Jensen & Meckling, 1976). Furthermore, according to upper echelon theory, different directors, such as male versus female, have different cognitive frames, which ultimately may affect firm performance (Hambrick, 2007). These two theories imply that the board of directors has a material influence on the company, and, importantly, the shareholders should be well informed on the protection of their interests in order to elect suitable board members. This thesis aims to understand the relationship between board diversity, ESG, and financial performance in a firm. In turn, we aim to allow the shareholders in the Nordic countries to design a board of directors according to their own preferences on ESG and financial performance.

3.2 Diversity and ESG Performance

Previous literature has tried to understand the relationship between diversity on the board of directors and ESG performance. While companies tend to prefer the broadest definitions of diversity (Robinson & Dechant, 1997), existing research typically focuses on a single or a few types of diversity. On the other hand, ESG can be measured by a variety of different indicators, like CSR reporting, CSR ratings, or charitable giving (Velte, 2017). This thesis uses ESG scores as the only measure of ESG performance, but we still see value in prior research using different terminology, measures, or versions of what we today know as the broad term ESG.

A commonly investigated relationship is between gender diversity and ESG performance. This measure is an important part of our thesis on the Nordic market, as the Global Gender Gap report for 2022 put the Nordic countries among the top-ranking countries, with 4 out of 5 countries in the global top 5 (WEF, 2022). A study on the Italian market shows a negative correlation between board gender diversity and ESG disclosure (Cucari et al., 2018), while a positive correlation between gender and CSR Disclosure is found in Jordanian companies (Ibrahim et al., 2016). For US-based companies, there is a positive correlation between women on the board of directors and sustainability performance (Hussain et al., 2018), and firms wanting to pursue sustainability objectives should prioritize the appointment of women on their boards (Kassinis et al., 2016). We note that Carpenter (2002) claims female directors have different knowledge and experiences and are more likely to hold a higher degree than their male counterparts (Dang et al., 2014; Hillman et al., 2002). Given these differences, which are in line with upper echelons theory (Hambrick, 2007), they are likely to influence board decisions (Hillman et al., 2007), thus possibly having a significant relationship with ESG performance. The existing results on gender diversity vary, and the studies tend to use different definitions of ESG. However, we see a global trend toward a positive correlation between gender diversity and ESG performance. There is limited existing research on the Nordic market, but following the general trend globally brings us to our first hypothesis:

Hypothesis 1: Board gender diversity is positively associated with ESG performance.

Cultural diversity is another diversity measure, but little prior research has looked at the relationship between cultural diversity on the board of directors and ESG performance. Using ethnicity as a proxy for cultural background, Haniffa & Cooke (2005) found ethnicity to be positively related to CSR disclosures for the Malaysian market, and in the US, board nationality diversity is positively associated with corporate social performance (Harjoto et al., 2018). Furthermore, a recently published study on emerging markets found that board cultural diversity has a positive effect on governance performance, while no significant results were found for social performance (Yilmaz et al., 2023). While the approaches of previous research differ from this thesis, we feel confident in proposing our second hypothesis:

Hypothesis 2: Board cultural diversity is positively associated with ESG performance.

One of the more widely used diversity measures in research is board member independence. Directors independent from the management are normally more sensitive to society's needs (Ibrahim & Angelidis, 1995) and are more concerned with ethical aspects than insider board members (Ibrahim et al., 2003). The majority of studies linking board member independence to corporate social responsibility, environmental CSR, and corporate social performance appear to find a positive relationship (Post et al., 2011; Hafsi & Turgut, 2013; Ibrahim & Angelidis, 1995). Furthermore, it is interesting to look at board independence in the light of agency theory. Independent directors are more likely to reduce agency issues, thus better representing shareholder interests (Adams et al., 2010). According to Eccles & Klimenko (2019), shareholders care increasingly more about sustainability. Thus, following agency theory, increased board independence may reduce agency issues,

allowing for shareholders' sustainability concerns to be prioritized. Our third hypothesis builds on prior research, and we are excited to further explore the angle of agency theory for independent directors:

Hypothesis 3: Board independence is positively associated with ESG performance.

Age is another diversity measure, but the research on age and ESG is limited. The average age of the board of directors shows no effect on ESG Performance (Giannarakis, 2014; Cucari et al., 2018), and this works as the foundation for your fourth hypothesis:

Hypothesis 4: Board age diversity is not associated with ESG performance

3.3 Diversity and Financial Performance

The relationship between board diversity and financial performance has been explored to a larger degree in prior research. The existing research often combines several measures of diversity, and we will leverage this to delve deeper into how different measures are related to financial performance, which in our thesis is represented by Return on Assets (ROA) and Tobin's Q.

In Fortune 1000 companies, the presence of women on the board of directors has a positive and significant relationship to firm value, measured by Tobin's Q (Carter et al., 2003). The same study finds gender diversity to increase with firm size, but fall as board member independence decreases. In another sample of US companies, female board directors are more likely to hold CEOs accountable for poor performance, but the effect on firm performance of board gender diversity is ultimately negative (Adams et al., 2009). This study claims that no evidence suggests that imposing gender quota policies will improve average firm performance. In the Netherlands and one of the Nordic countries, Denmark, there is no relation between board gender diversity and Tobin's Q as a measure of firm performance (Marinova et al., 2016). In East Asia,

female directors have a positive effect on Return on Equity, as a measure of firm performance (Low et al., 2015). However, the same study finds the effect to be smaller in countries with higher female empowerment. This is an interesting result, given the strong performance of the Nordic countries in the recent Global Gender Gap report (WEF, 2022). Finally, a study related to the Norwegian gender quota in 2003 found a negligible result on ROA (Dale-Olsen et al., 2013). With some conflicting results and, notably, no significant effect in Norway or Denmark, our fifth hypothesis is presented:

Hypothesis 5: Board gender diversity is not associated with financial performance.

Equal to the findings for gender, cultural diversity, which is measured by the presence of minorities on the board, has a significant and positive relationship to Tobin's Q for the Fortune 1000 companies (Carter et al., 2003). The additional findings are also similar to gender, where cultural diversity increases with firm size and board independence. In a smaller sample of US companies, board diversity, defined as women and minorities, is positively associated with ROA as a measure of financial performance (Erhardt et al., 2003). However, a more recent study found no significant relationship between ethnic minorities on the board and financial performance, measured by both ROA and Tobin's Q (Carter et al., 2010). The same study suggests that ethnic diversity on the board and the measures of financial performance are endogenous. Given the more recent findings by Carter and his co-authors, contradicting his earlier findings, we expect no significant findings and arrive at our sixth hypothesis:

Hypothesis 6: Board cultural diversity is not associated with financial performance.

In China, there is a positive relationship between board independence and financial performance (Liu et al., 2015). The effect was found to be stronger in government-owned firms. In a highly recognized paper by Bhagat & Black

(2001), a large sample of US companies shows board independence to have no effect on long-term firm performance. Given the stature of these results, we build on them for our seventh hypothesis:

Hypothesis 7: Board independence is not associated with financial performance.

There are mixed findings in prior research on the relationship between board age and financial performance. For the S&P/TSX Composite Index in Canada, moderate variation in the age of board members was correlated with firm performance (McIntyre et al., 2007). With average age as the measure, board age showed no effect on ROA in Japan and Australia (Bonn et al., 2004). Furthermore, a study on SMEs in the UK found a negative relationship between the diversity of board age and ROA. (Shehata et al., 2017). Research on diversity in the Nordic market tends to focus on gender, and we miss prior regional research on age to build our hypothesis on. Without any reason to favor a particular international study, our eight hypotheses expect neither a positive nor negative relationship:

Hypothesis 8: Board age diversity is not associated with financial performance.

3.4 ESG and Financial Performance

The search for a relationship between environmental, social, and governance (ESG) criteria and corporate financial performance (CFP) can be traced back to the beginning of the 1970s (Friede et al., 2015). Even with some contradicting results, a majority of studies seem to lean towards ESG performance, in its current or previous form, having a positive effect on different proxies for financial performance. Aggregating results from about 2200 empirical studies, around 90% find a relationship between ESG and Corporate Financial

Performance that is nonnegative (Friede et al., 2015). Even with the majority of the studies presenting positive findings, there are mixed opinions on the effect. There is no shortage of researchers claiming the results to be ambiguous, inconclusive, or contradictory (Rowley & Bearmen, 2000; van Beurden & Gössling, 2008; Revelli & Viviani, 2015). As we are using both ROA and Tobin's Q as proxies for financial performance, we also note specific results on these measures. In Germany, ESG Performance has a positive impact on ROA but no impact on Tobin's Q (Velte, 2017). A study incorporating materiality on sustainability issues finds better ROA, among other measures, for firms with good performance on material sustainability issues. As Refinitiv selects the 186 most material measures on an industry level, their scoring aims to reflect material issues (Refinitiv, 2022). Without separating the two measures, for now, we stay with the majority of results and propose our ninth and final hypothesis:

Hypothesis 9: ESG performance is positively associated with financial performance.

4. Methodology

4.1 Sample selection and measurement of variables

The Nordic region was chosen for this study due to its commitment to sustainability and gender equality. The Nordic countries were among the first to initiate gender quota regulatory efforts and are pioneers in promoting gender diversity at the board level (Terjesen, Aguilera, & Lorenz, 2015). Furthermore, the Nordic nations are globally recognized as leaders in sustainability practices. As indicated in the 2020 Sustainable Development Report, these countries consistently rank in the top ten for their progress towards the United Nations' Sustainable Development Goals, with Sweden leading in the first place, Denmark in second, Finland in third, and Norway in sixth (Sachs et al., 2020).

Our sample consists of firm- and director-level data for publicly listed companies in the Nordic region. Initially, we employed two criteria for the selection of companies. First, the company must be based in the Nordics. Thus, we considered listed companies in Denmark, Finland, Iceland, Norway, and Sweden. Second, the company must be active and have an ESG score available in the Refinitiv Eikon database during the period 2018-2021. After the initial screening, we were left with 236 companies. Unfortunately, out of the 27 listed firms in Iceland, none had ESG ratings available for the sample period. Finally, after excluding companies that had missing financial data, the final sample was composed of 892 firm-year observations for 223 unique firms. Whereas 38 (17%) firms are based in Denmark, 30 (13%) firms are based in Finland, 49 (22%) firms are based in Norway, and 106 (48%) firms are based in Sweden. The percentage in parentheses represents the proportional distribution of firms across the four countries in our sample. Thus, given the number of listed firms in each country, the sample seems to be fairly balanced across the Nordic countries. Table 1 reports the distribution of firms within each of the 11 industries included in the sample.

Table 1 Industry distribution of firms

Industry	**Number of Companies**	**Percentage**
Communication Services	12	5%
Consumer Discretionary	23	10%
Consumer Staples	15	7%
Energy	15	7%
Financials	30	13%
Health Care	19	9%
Industrials	66	30%
Information Technology	12	5%
Materials	18	8%
Real Estate	9	4%
Utilities	4	2%
Total	**223**	**100%**

The data were collected from two databases. The data on ESG performance and board diversity, except for age diversity, were collected from the Refinitiv Eikon database. Refinitiv Eikon is a common database for ESG ratings used in recent firm performance studies (Shakil et al., 2021; Qureshi et al., 2020). All financial data were collected from the Refinitiv Eikon database as well. The data on age diversity were collected from BoardEx, a database provided by Wharton Research Data Services. BoardEx provides reliable and extensive data coverage on boards (Adams, 2016), and it is a commonly used database in the literature on boards of directors.

Although the availability of board diversity data is relatively high, about half of the data for board cultural diversity is still missing. Therefore, we complemented Refinitiv Eikon with individual director profile data from BoardEx. In addition, we hand-collected data on ethnicity from proxy statements, company websites, Facebook, LinkedIn, direct communication, and other external sources for directors who did not have information available on either the Refinitiv Eikon or BoardEx databases. As such, we adopted a stringent inclusion criterion for our sample, incorporating only those firms where the ethnicity of every board member could be determined. Despite potentially reducing our sample size, it ensured an improved assessment of each board's ethnic diversity.

4.2 Dependent variables

4.2.1 ESG performance

To examine the relationship between board diversity and ESG performance, we use the variable ESGP, which reflects the company's weighted average E, S, and G pillar scores and serves as a proxy for ESG performance (Harjoto, Laksmana, & Lee, 2015; Beji et al., 2020). According to Refinitiv's ESG score methodology, the scores are assigned from a total pool of 630 company-level ESG measures, where the 186 most comparable and material measures on the industry level are selected (Refinitiv, 2022). Furthermore, the selected measures are grouped into 10 categories, and the scoring of each category is done with the following formula:

$$\text{Score} = \frac{\text{no. of companies with a worse value} + \frac{\text{no. of companies with the same value included in the current one}}{2}}{\text{no. of companies with a value}}$$

The category scores are used to compute the pillar scores. The environmental pillar score is based on 3 of the categories, the social pillar on 4 categories, and the governance pillar on 3 categories. The three pillar scores make up the total ESG score for the company, where the weight between the social and environmental pillars is dependent on the industry and the governance weight is constant across all industries. The category weight calculation uses the following methodology:

$$\text{Category weight of industry group} = \frac{\text{Magnitude weight of a category}}{\text{Sum of magnitudes of all categories}}$$

The final score reflects the company's ESG performance, commitment, and effectiveness based on publicly reported information (Refinitiv, 2022).

4.2.2 Financial performance

We adopt two firm performance measures: an accounting-based measure and a market-based measure, both collected from the Refintiv Eikon database. Return on Assets (ROA) is used as the accounting-based performance measure and is a profitability ratio calculated by dividing the firm's net income by total

assets. ROA is a widely used financial measure in research that measures a company's profitability in relation to its total assets. It indicates how efficiently a company is using its assets to generate earnings. The higher the ROA, the more effectively the company converts its investment into profit. Moreover, some researchers argue that ROA is a superior metric compared to other accounting-based measures when examining the relationship between corporate governance and firm performance (Core et al., 2006).

We use Tobin's Q as the market-based performance measure, which is the market-to-book ratio of the firm. Tobin's Q has been widely used in prior literature and is commonly used to measure corporate financial performance (Darmadi, 2011; Carter et al., 2010; Adams & Ferreira, 2009; Velte, 2016). In academic research, Tobin's Q is often used as a proxy for a firm's existing assets (relative market valuation) and future growth potential. A Tobin's Q ratio greater than 1 may suggest that the firm is overvalued as its market value exceeds the book value of its assets. However, in certain instances, the market might be factoring in anticipated growth prospects or intangible assets, which are not easily captured by Tobin's Q.

4.3 Independent variables

To test our hypotheses, we use four independent variables as measures of board diversity. In line with prior studies on corporate governance and CSR, the independent variables included in the econometric models are board gender diversity, board cultural diversity, age diversity, and the percentage of independent directors. Table 2 provides a description of all the variables included in the model.

4.4 Control variables

We included six control variables in our study as they may affect our variables of interest, all measured for the period 2018-2021. Specifically, in line with existing literature, we control for board size, firm size, firm leverage, firm age, CEO duality, and CSR committee. First, the size of the board can have significant implications for corporate performance. Depending on agency theory

and resource dependency theory, the impact of board size on firm performance may be either positive or negative, as the link is unclear. Yermack (1996) finds a negative relationship between board size and firm performance. He argues that large boards can be inefficient due to communication and coordination problems. On the other hand, a larger board may increase the firm's ability to secure critical resources and expertise, contributing to positive corporate outcomes (Dalton et al., 1999).

Second, larger firms are more visible and may have more resources to allocate toward sustainability initiatives and manage ESG issues (McWilliams & Siegel, 2001; Cheng et al., 2014). Moreover, studies have shown that financial performance is related to market returns and that the size of assets is related to Tobin's Q (Fama & French, 1992; Faleye, 2007). In other words, size is expected to improve ESG and financial performance. To account for such effects, we have included the natural log of company market capitalization and total assets as firm size measures (Jo & Harjoto, 2011).

Third, based on agency theory, Jensen and Meckling (1976) argue that firms with higher leverage tend to provide voluntary disclosures. They suggest that these firms use this strategy to decrease agency costs, which in turn can reduce their cost of capital. However, prior studies suggest that, due to funding constraints, highly leveraged firms are associated with less ESG disclosure (Arayssi et al., 2019; Reverte, 2009).

Fourth, various studies have researched the relationship between firm age and performance. However, the results are mixed. Some researchers argue that older firms enjoy improved value and competitiveness due to having a more stable capital structure as well as more experience and human capital (Guo & Zhang, 2007). On the other hand, Loderer and Waelchli (2010) show a negative relationship between firm age and profitability. They contend that older businesses are more rigid, making it harder to execute change and keep up with the competition. Furthermore, they argue that older businesses typically have worse corporate governance.

Fifth, the CEO, who simultaneously serves as the chairperson, may divert the board's attention away from activities that are considered non-essential

(Galbreath, 2018). According to agency theory, the CEO duality structure systematically limits the board's ability to fulfill its governance function, and the combined CEO-chair may not serve in the shareholder's best interest (Rechner & Dalton, 1991). Therefore, we control for this by including a dummy variable to represent whether the CEO also serves as the chair of the board.

Sixth, having a dedicated CSR committee may not only be a symbolic approach (Rodrique & Magnan, 2013), but it can also facilitate supervision and planning related to environmental and social responsibilities (Mallin & Michelon, 2011; Shaukat et al., 2016), eventually contributing to improved ESG performance. To account for this, we include a dummy variable to represent whether the firm has a dedicated CSR committee or not.

Lastly, we incorporate 11 industry-specific dummy variables to account for ESG disclosure variance across industries (Tamini & Sebastianelli, 2017), recognizing inherent disparities in sustainability-related pressures among industries. Furthermore, the effect of carrying out ESG initiatives on performance differs depending on the industry (Hull & Rothenberg, 2008). Thus, the 11 dummy variables account for differences in firms in the communication services, consumer discretionary, consumer staples, energy, financials, health care, industrials, information technology, materials, real estate, and utility industries. Similarly, we also include year dummies in recognition that there may be temporal variations or trends affecting the sample firms irrespective of their specific characteristics. This ensures that our results, to a further extent, are not confounded by these time-dependent factors.

Table 2 Variable definitions

Variable	Description
Dependent Variables	
ESG performance (ESGP)	Score between 0 and 100 based on the firm's performance across the environmental, social, and governance dimensions
Return on Assets (ROA)	Net income/Total assets
Tobin's Q (TQ)	Market value/Book value
Independent Variables	
Board gender diversity (GEND)	The proportion of women on the board of directors of the firm. Calculated as the number of women directors on the board divided by the total number of board members
Board cultural diversity (CULD)	The proportion of members on the board of directors with backgrounds different from the location of the corporate headquarters. Calculated as the number of directors with a different cultural background on the board divided by the total number of board members
Age diversity (AGED)	Measured as the standard deviation of the population of the ages on the board
Board independence (IND)	The proportion of independent directors on the board. Calculated as the number of independent directors on the board divided by the total number of board members
Control Variables	
Board size (BSIZE)	The total number of members on the board at the end of the fiscal year
Company market capitalization (MKTCAP)	Measured as the log of the sum of market value for all relevant instrument level share types of the firm
Leverage (LEV)	The ratio of total debt to total assets
Total assets of the firm (TA)	Measured as the log of the total assets of the firm
Firm age (FAGE)	Measured as the log of the number of years of incorporation of the firm
CEO-chair duality (CEODUAL)	Dummy variable equal to 1 if the CEO of the firm is simultaneously the chairman of the board for the period, and equal to 0 otherwise
CSR committee (CSRCOM)	Dummy variable equal to 1 if the firm has a CSR committee, and equal to 0 otherwise

4.4.1 Model selection and specification

We propose two models given by equations (1) and (2) for studying the relationship between board diversity, ESG performance and financial performance. The equations are estimated through a panel data approach since the data has both cross-sectional and time-series dimensions (Brooks, 2019). Moreover, the data set is balanced as it has the same number of cross-sectional units at each point in time for our sample period. Note that the individual firm and year are represented by the sub-index i and t, respectively, while the error term ϵ_{it} is identically and independently distributed with zero variance and mean. For model (2), two equations are fitted, one for each financial performance measure for the firm (ROA and Tobin's Q).

$$\begin{aligned}(1)\ \mathrm{ESGP}_{it} = \alpha &+ \beta_1 \mathrm{GEND}_{it} + \beta_2 \mathrm{CULD}_{it} + \beta_3 \mathrm{AGED}_{it} + \beta_4 \mathrm{IND}_{it} \\ &+ \beta_5 \log(\mathrm{MKTCAP})_{it} + \beta_6 \mathrm{LEV}_{it} + \beta_7 \log(\mathrm{TA})_{it} \\ &+ \beta_8 \log(\mathrm{FAGE})_{it} + \beta_9 \mathrm{CEODUAL}_{it} + \beta_{10} \mathrm{CSRCOM}_{it} + \epsilon_{it}\end{aligned}$$

$$\begin{aligned}(2)\ \mathrm{FINP}_{it} = \alpha &+ \beta_1 \mathrm{ESGP}_{it} + \beta_2 \mathrm{GEND}_{it} + \beta_3 \mathrm{CULD}_{it} + \beta_4 \mathrm{AGED}_{it} \\ &+ \beta_5 \mathrm{IND}_{it} + \beta_6 \log(\mathrm{MKTCAP})_{it} + \beta_7 \mathrm{LEV}_{it} \\ &+ \beta_8 \log(\mathrm{TA})_{it} + \beta_9 \log(\mathrm{FAGE})_{it} + \beta_{10} \mathrm{CEODUAL}_{it} \\ &+ \beta_{11} \mathrm{CSRCOM}_{it} + \epsilon_{it}\end{aligned}$$

The equations serve as the baseline models, where ESG performance and financial performance are our dependent variables, while the board diversity measures are the independent variables. The baseline models are estimated through pooled Ordinary Least Squares (OLS) regressions. The reason for selecting a pooled regression over the two other panel approaches, fixed effects and random effects, is based on theoretical issues. First off, what makes the fixed effects approach attractive is that it controls for the effects of unobserved variables and may also reduce the threat of omitted variable bias. Although there are several benefits to using a fixed effects approach, there are also some severe disadvantages. Allison (2009) argues that fixed effects methods are essentially useless for estimating the effects of variables that do not change

over time. This feature is problematic for our study as we are interested in characteristics that are largely constant across the study period, namely our independent variables. The board diversity variables exhibit very low time variance within each firm, which could potentially be explained by the average tenure of directors on the board being 4.5 years for Nordic companies (SpencerStuart, 2022). In other words, the average tenure covers the whole study period. Consequently, the fixed effects approach may amplify the size of the standard errors and produce inconsistent estimates, thereby compromising the conclusions drawn from the results. Furthermore, even if fixed effects may remove some of the omitted variable bias, it also removes much of the useful information about the variables of interest (Angriest & Pischke 2008). With this in mind, fixed effects techniques may not be the appropriate empirical strategy (Hill et al., 2020).

The choice between a pooled OLS model versus a random effects model was based on the Hausman test, which was conducted using the statistical software R and the PLM package (Croissant & Millo, 2008). The Hausman test checks whether the individual characteristics are correlated with the regressors (Greene, 2008). For all specifications, we got a p-value of less than 0.05, which would suggest that a pooled OLS is more appropriate. Keep in mind that because we employ a pooled OLS regression, it is implicitly assumed that the average values of our variables and the relationship between them are constant over the four years and across all of the firms in the sample. On a similar note, since our independent variables are largely constant across time within each firm, the results will be mostly driven by variations across firms rather than within-firm variations.

5. Results

5.1 Developments in time-series data

In this section, we provide a comprehensive overview of our dependent and independent variables' behavior across the four-year study period (2018-2021). The focal point of this section is to examine how these variables have developed across the sample period for each country. This elucidation serves to illuminate the contextual background against which the subsequent analysis is set, thereby providing a more comprehensive understanding of our results.

Figure 1 illustrates the developments in ESG performance. This indicates that there has been a noticeable upswing in ESG performance for all countries under consideration. This consistent trend points towards an increasing emphasis on environmental, social, and governance dimensions in the management and strategic direction of firms in the Nordic region. In particular, we observe that Finnish firms generally have a higher degree of ESG performance compared to other Nordic countries.

Comparably, we notice a similar but more moderate trajectory for Tobin's Q across the years, as illustrated by Figure 2. There has been an overall and steady increase in market-based performance for all countries, except for a slight dip in 2020 for Norwegian publicly listed firms. This could indicate a potential alignment in the trend of ESG performance and market-based performance, a noteworthy observation given the growing discourse surrounding the interplay of ESG and financial performance. The ROA trend line presents a divergent picture. The overall trend for ROA across all the countries has been descending over the four-year period, denoting a reduction in accounting-based performance for the firms. This is illustrated by Figure 3.

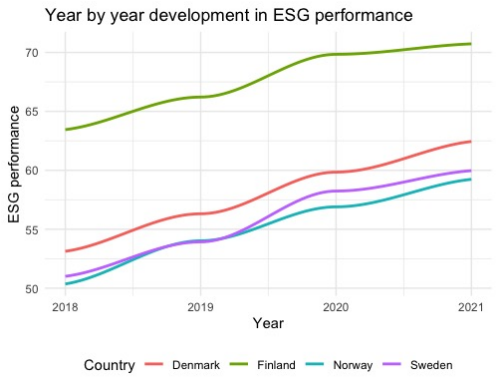

Figure 1

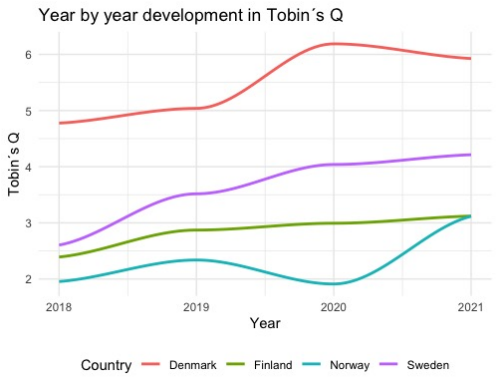

Figure 2

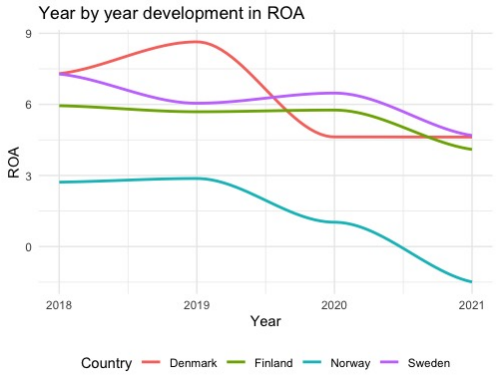

Figure 3

Figure 4 illustrates the year-by-year development of board gender diversity. We observe that firms in Norway and Sweden have a generally flat but increasing trend line, while firms in Finland have a slightly decreasing trend line. These firms already have a high percentage of board gender diversity, at around 36 percent. On the other hand, firms' board gender diversity was notably lower in Denmark compared to the other countries, starting at about 25 percent in 2018. However, these firms have seen an overall steep increase in the percentage of women on boards up until 2020, settling at about 30 percent.

Figure 5 illustrates the year-by-year development of board cultural diversity. The graph displays a slightly increasing trend across the years for firms in Denmark and Finland. The trend is rather flat for Norway. Interestingly, Swedish companies exhibit a slight downward trend, indicating a decrease in board cultural diversity over time. In contrast, Figure 6 illustrates an overall decreasing trend in the year-by-year developments in board age diversity except for Denmark, which is increasing. Lastly, Figure 7 shows the development of the percentage of independent directors on boards. Here, the trend line remains quite flat for all countries, indicating little change over the years. However, one

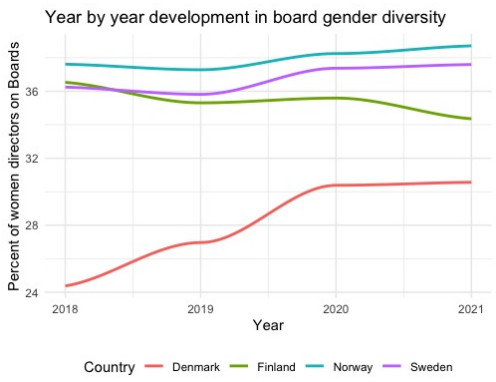

Figure 4

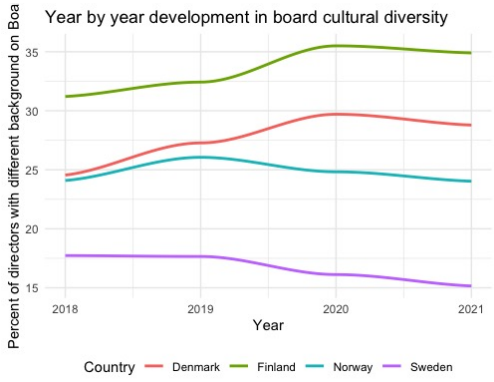

Figure 5

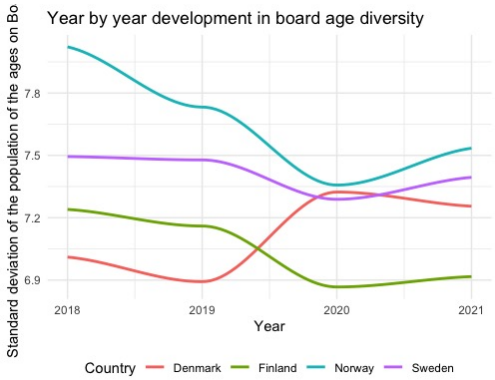

Figure 6

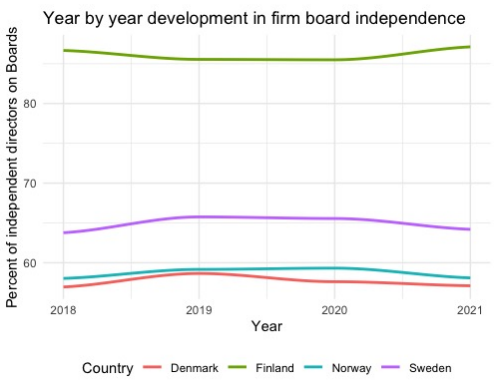

Figure 7

notable aspect is that Finnish firms have a significantly higher proportion of independent directors, about 85 percent, compared to Denmark, Norway, and Sweden, where the percentage of independent directors hovers around +/- 60 percent.

Table 3 Mean of dependent and independent variables by country

Country	**ESGP**	**ROA**	**TQ**	**GEND**	**CULD**	**AGED**	**IND**
Denmark	57.9	5.88	5.48	28.1	27.6	7.12	57.6
Finland	67.6	5.28	2.84	35.4	33.5	7.05	86.2
Norway	55.1	2.05	2.33	38.0	24.7	7.66	58.7
Sweden	55.8	5.93	3.59	36.8	16.7	7.41	64.8

Notes: This table reports per country means of firm's ESG performance, ROA, Tobin's Q, board gender diversity, board cultural diversity, board age diversity, and percentage of independent directors

Table 3 provides the mean values for the dependent and independent variables for each of the four countries in our sample. The table offers a comparative overview of the average values for each variable across the different countries. Moreover, the tabulated statistics also serve to underscore the observed graphical trends. As corroborated by the empirical data, the average values show that Finland outperforms the other countries in terms of ESG performance. Finland also

has the highest degree of board cultural diversity and the highest percentage of independent directors. As expected, the results show that Norway has the highest degree of board gender diversity, as Norway is the only country among the four that has implemented specific gender quotas (40%). The other three countries generally encourage voluntary measures and have set guidelines or recommendations for gender balance on boards. On the other hand, Norwegian firms also generally exhibit the lowest accounting- and market-based performance, as measured by ROA and Tobin's Q.

5.2 Descriptive statistics

Table 4 presents the descriptive statistics for our sample, with an average ESG score of 57.59, signifying that our sample firms typically occupy the third quartile. This suggests good relative ESG performance and an above-average degree of transparency in reporting material ESG data publicly (Refinitiv, 2022). The scores span from a low of 1.28 to a high of 93.19, with a standard deviation of 18.20, indicative of moderate variability in ESG performance among sample firms. Notably, the left skewness of the distribution is signaled by a median value exceeding the mean.

As for the financial performance measures, they display wide-ranging results but generally point towards financial success across the sample over the four-year span. The average Tobin's Q is 3.54, indicating that the market generally perceives the firms to have significant growth potential or intangible assets not reflected on the balance sheet. However, the variation is significant, as the minimum Tobin's Q is -56.96 and the maximum is 39.28, indicating some extreme outliers. The ROA reveals a similar variation but to a higher degree. The mean ROA is 4.98, indicating that the firms are generally profitable over the period, with the minimum ROA being -91.89 and the maximum being 171.57.

Over the four years of our sample, on average, 35.37% of directors on Nordic firms' boards are women, and 22.57% are ethnic minorities. Notably, despite Norway being the only country within our sample to enforce specific gender quotas, women still comprise almost two-fifths of the average board. The

Table 4 Descriptive Statistics

Variable	Mean	Median	Min	Max	SD	Skewness	Kurtosis
ESGP	57.59	59.74	1.28	93.19	18.20	-0.43	2.64
ROA	4.98	4.84	-91.89	171.57	11.60	2.21	59.05
TQ	3.54	2.16	-56.96	39.28	5.02	0.27	38.18
GEND	35.37	37.50	0.00	75.00	12.27	-0.43	3.43
CULD	22.57	16.67	0.00	100.00	23.31	1.37	4.76
AGED	7.37	7.30	1.80	15.60	2.19	0.49	3.59
IND	65.11	63.64	0.00	100.00	22.19	-0.38	3.29
BSIZE	8.66	8.00	3.00	17.00	2.43	0.49	2.92
MKTCAP	21.74	21.75	14.86	27.49	1.62	-0.11	3.72
LEV	25.67	24.00	0.00	256.80	17.81	2.89	34.03
TA	21.85	21.83	15.98	27.27	1.71	0.31	3.83
CEODUAL	0.11	0.00	0.00	1.00	0.32	2.44	6.96
CSRCOM	0.68	1.00	0.00	1.00	0.47	-0.79	1.63
FAGE	3.47	3.37	0.00	5.35	0.96	-0.38	2.92

Notes: This table reports the descriptive statistics of the dependent, independent, and control variables included in our study.

variation in board cultural diversity is also relatively high compared to the variation in gender diversity. The average age dispersion is 7.37, indicating that the typical age of the director on the board lies in the interval of 7.37 years younger or older than the average director age of 56.4 years.

The average percentage of independent directors on the board is 65.11% which is a satisfactory level for Nordic firms as independence is typically viewed as a positive governance feature. The average board in the sample generally tends to have about 8 to 9 members. This suggests that the average board has about 3 women, 2 ethnic minorities, and 6 independent directors.

The average firm in our sample has a total asset value (natural log) of 21.85, or approximately $18.73 billion, and a market cap (natural log) of 21.74, or approximately $10.66 billion. On average, firms have a debt ratio of about 25%, meaning a quarter of their assets are financed by debt. Around 11% of firms have a CEO who also serves as the chair on the board, and 68% of firms have a CSR committee. Finally, the average firm age value (natural log) in our sample is 3.47, or approximately 48 years.

When positioning our findings in a broader, international context, we encounter a striking contrast. On the one hand, as indicated by the Spencer Stuart Board Index 2019, about half of the S&P 500 companies have combined chair and CEO roles. However, within our sample of Nordic firms, this corporate governance

model is significantly less prevalent, as a mere 11% of our sample firms have a combined chair and CEO. On the other hand, the firms in our sample display a notably elevated representation of women on boards in comparison to S&P 500 companies. Our data shows an average board gender diversity of approximately 35%, almost 10 percentage points greater than the approximately 26% average observed amongst the S&P 500 firms. Lastly, when comparing the proportion of independent directors with the study conducted by Terjesen et al. (2015), which comprised 3,876 firms across 47 countries, our sample exhibits a considerably higher percentage. The aforementioned study reported an average independent director representation of 56%, whereas our results suggest a noticeably larger proportion of approximately 65%. Highlighting these stark differences underscores the unique corporate governance of public Nordic firms.

5.2.1 Handling outliers

We have identified several observations in our sample that can be described as extreme outliers. The outliers are observed for the dependent variables ROA and TQ, as reflected by the values in the last two columns in Table 4. Skewness quantifies the degree of asymmetry in the sample distribution, which indicates whether it is skewed to the left or right. On the other hand, kurtosis measures the concentration of data in the tails of the distribution, thereby indicating the presence of outliers and the shape of the tails. For example, the maximum observed value for ROA is over 120 percentage points higher than the second-highest observed value, while the minimum value of ROA is over 40 percentage points lower than the second-lowest value.

We observe for ROA that the skewness is positive (2.207), indicating a right-skewed distribution. The kurtosis is high (59.052), suggesting heavy tails and outliers in the data. For TQ, we note that the skewness is close to zero (0.267), indicating a roughly symmetric distribution, while the kurtosis is moderately high (38.179), indicating some degree of heavy tails in the data.

Due to the relatively small sample size, we winsorize ROA and TQ at the 1 percent and 99 percent levels to mitigate the effect of the extreme outliers and to smooth the tails of the distribution. Table 5 reports the summary statistics

for ROA and TQ after the winsorization process. For ROA, the results show that the skewness is negative (-0.706), indicating a left-skewed distribution. However, the kurtosis is still relatively high (8.394), suggesting some degree of heavy tails even after winsorization. For TQ, we observe that the skewness is positive (2.522), indicating a right-skewed distribution. The kurtosis is still rather high (9.982), suggesting heavy tails even after winsorization. As such, it is important to note that the kurtosis remains relatively high for both variables even after winsorization, suggesting the presence of heavy tails in the distributions.

The results indicate that after winsorizing, the mean and median of ROA have slightly decreased, and the range of values has become narrower. Additionally, the skewness has decreased from positive to negative, indicating a shift toward symmetry. The kurtosis has also decreased, suggesting less extreme tail behavior. Similarly, for TQ, the winsorized values show a decrease in mean and median, a narrower range, and a decrease in positive skewness and kurtosis. Overall, winsorizing has improved the quality of the sample by mitigating the influence of outliers and making the distributions more symmetric and less heavy-tailed.

Table 5 Descriptive Statistics after mitigating outliers

Variable	**Mean**	**Median**	**Min**	**Max**	**SD**	**Skewness**	**Kurtosis**
ROA	4.90	4.84	-34.61	32.99	9.11	-0.71	8.39
TQ	3.56	2.16	-0.07	21.15	3.92	2.52	9.98

5.3 Correlation results

Table 6 shows the Pearson correlation coefficient matrix for the dependent, independent, and control variables, as well as their significance. The variance inflation factors (VIF) are reported in the last column. In our sample, we find that every measure of board diversity except for age is positively correlated with ESG performance, as suggested by the positive coefficient estimates and their significance.

Table 6 Pearson Correlation Coefficient Matrix with VIF

Variables	**ESGP**	**ROA**	**TQ**	**GEND**	**CULD**	**AGED**	**IND**	**BSIZE**	**MKTCAP**	**LEV**	**TA**	**CEODUAL**	**CSRCOM**	**FAGE**	**VIF**
ESGP	1.000	0.032	-0.037	0.151***	0.173***	-0.213***	0.159***	0.397***	0.106***	0.043	0.168***	-0.092***	0.534***	0.160***	1.119
ROA	0.032	1.000	0.252***	0.008	-0.025	-0.036	-0.028	0.003	0.142***	0.052	-0.061*	0.030	-0.004	0.041	1.903
TQ	-0.037	0.252***	1.000	-0.102***	0.042	0.032	-0.099***	0.023	0.061*	-0.232***	-0.099***	0.102***	-0.080**	-0.083**	1.901
GEND	0.151***	0.008	-0.102***	1.000	-0.058*	-0.060*	0.089***	-0.014	-0.013	0.118***	0.142***	0.016	0.024	-0.075**	1.853
CULD	0.173***	-0.025	0.042	-0.058*	1.000	-0.094***	0.131***	-0.037	0.018	-0.016	0.107***	-0.070**	0.150***	-0.101***	1.875
AGED	-0.213***	-0.036	0.032	-0.060*	-0.094***	1.000	-0.155***	-0.003	-0.025	-0.075**	-0.058*	0.037	-0.125***	-0.050	1.869
IND	0.159***	-0.028	-0.099***	0.089***	0.131***	-0.155***	1.000	-0.308***	0.017	-0.030	-0.081**	0.023	0.030	-0.036	1.756
BSIZE	0.397***	0.003	0.023	-0.014	-0.037	-0.003	-0.308***	1.000	0.102***	-0.155***	0.295***	-0.122***	0.210***	0.345***	1.596
MKTCAP	0.106***	0.142***	0.061*	-0.013	0.018	-0.025	0.017	0.102***	1.000	-0.017	0.127***	-0.022	0.036	0.099***	1.898
LEV	0.043	0.052	-0.232***	0.118***	-0.016	-0.075**	-0.030	-0.155***	-0.017	1.000	0.080**	-0.121***	0.081**	-0.086***	1.892
TA	0.168***	-0.061*	-0.099***	0.142***	0.107***	-0.058*	-0.081**	0.295***	0.127***	0.080**	1.000	0.006	0.087***	0.271***	1.904
CEODUAL	-0.092***	0.030	0.102***	0.016	-0.070**	0.037	0.023	-0.122***	-0.022	-0.121***	0.006	1.000	-0.069**	-0.029	1.904
CSRCOM	0.534***	-0.004	-0.080**	0.024	0.150***	-0.125***	0.030	0.210***	0.036	0.081**	0.087***	-0.069**	1.000	0.082**	1.479
FAGE	0.160***	0.041	-0.083**	-0.075**	-0.101***	-0.050	-0.036	0.345***	0.099***	-0.086**	0.271***	-0.029	0.082**	1.000	1.903

Notes: This table reports the correlation coefficients for the variables included in our analysis. The significance levels are computed as two-tailed p-values: *p<0.1; **p<0.05; ***p<0.01

The results also show that there is a positive relationship between ESG performance and accounting-based performance and a negative relationship with market-based performance. Thus, the results indicate that firms with a higher level of ESG performance have a higher degree of profitability and lower market performance. This is consistent with prior research. BSIZE, MKTCAP, LEV, TA, CSRCOM, and FAGE are all positively correlated with ESG performance, while CEODUAL is negative. This indicates that larger boards, large firms, leveraged firms, older firms, and firms with a dedicated CSR committee should expect higher ESG ratings, and firms with a combined CEO-chair should expect a reduced ESG score.

ROA and Tobin's Q are positively correlated, which is expected due to both being measures of financial performance. All board diversity variables except board gender diversity have a negative relationship with ROA, indicating that firms with overall higher levels of board diversity across the measures should expect lowered profitability. On the other hand, the correlation matrix shows that CULD and AGED have a positive correlation with TQ, which suggests that the higher the level of cultural and age diversity, the higher the market performance. Furthermore, the results indicate that firms with a larger board size, market cap, firm age, and combined CEO-chair have a high level of financial performance. However, firms with a CSR committee, higher leverage, and higher total assets have lower accounting-based and market-based performance.

The correlation matrix shows that the correlation between the variables is not strong, as all coefficients are well below the threshold of 0.7. To determine the severity of multicollinearity, we calculated the variance inflation factors for the individual coefficients. As a rule of thumb, if the VIF is below 5, multicollinearity is generally assumed to be negligible, whereas if it is greater than or equal to 5, the problem is sufficiently serious that some corrective action is warranted (Brooks, 2019). In our study, multicollinearity should not pose a severe threat as none of the VIF exceeds 5.

To summarize, the correlation coefficient matrix shows that our independent variables exhibit a statistically significant correlation at the 1 percent level with ESG performance. Specifically, the GEND and IND variables exhibit

significant associations with Tobin's Q. Notwithstanding, none of these variables display any significant relationship with ROA. Thus, the independent variables could support our study's hypotheses, suggesting the presence of relationships between the independent variables and ESG performance as well as market performance as gauged by Tobin's Q for certain board diversity measures. It should be noted that while the results of the correlation matrix are compelling in the context of ESG performance and market performance, the non-significant results for ROA highlight the nuanced nature of these relationships.

5.4 Regression results

We first estimate three separate pooled OLS regressions with the dependent variables ESG performance, ROA, and Tobin's Q without industry dummies and year dummies. Then we re-estimate the baseline regressions with industry dummies and year dummies. We performed the Bresuch-Pagan test for all models fitted, which revealed heteroskedasticity. Additionally, the Wooldridge test indicates that there is potential autocorrelation present in our panel data, as the p-values for the tests were significantly less than 0.005 for all models. Nonetheless, these factors are commonly present in panel regressions (Hoechle, 2007). While Driscoll-Kraay standard errors are consistent with heteroskedasticity, autocorrelation, and cross-sectional dependence, they work best when T is large. However, our dataset would typically be considered to have a large N and a small T due to the number of firms compared to the number of years. Thus, for corrective measures, we use Newey-West standard errors, which are robust to both autocorrelation and heteroskedasticity (Gujarati & Porter, 2009).

Table 7 reports the pooled OLS regression results. In the first three columns of the table, we examine the relationship between board diversity and performance as measured by ESG, ROA, and Tobin's Q. The associated R^2 for models 1A, 1B, and 1C are 0.53, 0,23, and 0.48, respectively, suggesting that they explain 53%, 23%, and 48% of the variance in the dependent variables. This indicates a moderate to strong fit for the first and third models but a weaker fit for the second model.

Table 7 Pooled ordinary least square regressions

Independent variables:	*Dependent variable:*								
	ESGP (1A)	ROA (1B)	TQ (1C)	ESGP (2A)	ROA (2B)	TQ (2C)	ESGP (3A)	ROA (3B)	TQ (3C)
ESGP		-0.011	-0.002		0.023	0.016*		0.036	0.014*
		(0.022)	(0.008)		(0.024)	(0.008)		(0.024)	(0.008)
GEND	0.114***	-0.001	-0.008	0.163***	-0.030	-0.020**	0.157***	-0.029	-0.020**
	(0.035)	(0.023)	(0.008)	(0.033)	(0.023)	(0.008)	(0.032)	(0.023)	(0.008)
CULD	0.060***	-0.020	0.010***	0.034*	-0.008	0.007*	0.036**	-0.009	0.008*
	(0.019)	(0.012)	(0.004)	(0.018)	(0.012)	(0.004)	(0.018)	(0.012)	(0.004)
AGED	-0.885***	-0.108	-0.002	-0.883***	-0.093	0.051	-0.887***	-0.086	0.048
	(0.197)	(0.128)	(0.045)	(0.179)	(0.126)	(0.044)	(0.176)	(0.125)	(0.044)
IND	0.163***	-0.022	-0.017***	0.131***	-0.029**	-0.020***	0.132***	-0.030**	-0.019***
	(0.021)	(0.014)	(0.005)	(0.019)	(0.014)	(0.005)	(0.019)	(0.014)	(0.005)
BSIZE	1.938***	-0.328**	0.051	1.429***	-0.354**	-0.028	1.482***	-0.372**	-0.018
	(0.226)	(0.151)	(0.053)	(0.215)	(0.153)	(0.053)	(0.213)	(0.152)	(0.054)
MKTCAP	2.255***	3.769***	2.046***	0.655*	4.256***	2.109***	0.364	4.410***	2.092***
	(0.382)	(0.250)	(0.088)	(0.379)	(0.264)	(0.092)	(0.378)	(0.264)	(0.093)
LEV	0.061**	0.001	-0.001	-0.004	0.017	0.011*	-0.023	0.028*	0.009
	(0.026)	(0.017)	(0.006)	(0.024)	(0.017)	(0.006)	(0.024)	(0.017)	(0.006)
TA	1.286***	-2.337***	-1.925***	4.581***	-3.264***	-2.014***	4.803***	-3.490***	-1.992***
	(0.376)	(0.243)	(0.086)	(0.454)	(0.334)	(0.116)	(0.450)	(0.334)	(0.118)
CEODUAL	-1.123	-0.486	0.760**	-0.572	0.004	0.753**	-0.750	0.118	0.740**
	(1.360)	(0.874)	(0.308)	(1.242)	(0.864)	(0.301)	(1.226)	(0.855)	(0.301)
CSRCOM	13.628***	-0.929	-0.438*	10.536***	-1.263*	-0.256	9.796***	-1.063	-0.288
	(0.982)	(0.696)	(0.245)	(0.914)	(0.683)	(0.238)	(0.913)	(0.678)	(0.239)
FAGE	-0.327	0.501	-0.202*	-0.111	0.460	-0.243**	-0.253	0.525*	-0.254**
	(0.491)	(0.315)	(0.111)	(0.455)	(0.316)	(0.110)	(0.449)	(0.313)	(0.110)
Constant	-55.397***	-20.894***	2.948*	-81.351***	-16.484***	3.572**	-81.386***	-14.726***	3.413*
	(6.754)	(4.501)	(1.585)	(6.856)	(5.140)	(1.793)	(6.786)	(5.109)	(1.802)
Year dummies	No	No	No	No	No	No	Yes	Yes	Yes
Industry dummies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	892	892	892	892	892	892	892	892	892
R^2	0.531	0.229	0.483	0.633	0.292	0.534	0.644	0.310	0.536
Adjusted R^2	0.525	0.218	0.476	0.624	0.274	0.522	0.634	0.290	0.523
F Statistic	90.437***	21.747***	68.401***	71.324***	16.307***	45.264***	65.251***	15.584***	40.020***

Note: All regressions include Newey-West standard errors. Robust standard errors are in parentheses. ROA and Tobin's Q are winsorized at the 1 percent and 99 percent levels. *, **, and *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively

Model 1A reveals that the coefficients for all board diversity variables are statistically different from zero at the 1 percent level. All board diversity variables are positively related to ESG performance, except for age, which is negative. In other words, we find evidence of a significant link between ESG performance and the components of board diversity: gender, ethnicity, age, and independence. These results provide support for *H1*, *H2*, and *H3*. However, to our surprise, we fail to keep *H4* as we find a significant and negative link between board age diversity and ESG performance.

For model 1B, none of the independent variables are significant. Notably, all of the independent variables show negative coefficient signs as well. Thus, the results indicate there is a negative relationship between board diversity and financial performance, as measured by ROA, although this relationship is nonsignificant. Model 1C also exhibits a similar negative coefficient for the proportion of independent board members (IND), but it is now significant at the 1 percent level. However, we also observe that board cultural diversity (CULD) is positively and significantly associated with Tobin's Q. This indicates that firms with ethnic minority directors have greater market-based performance, while firms with a higher proportion of independent directors have lower market-based performance.

Models 2A, 2B, and 2C are estimated with the inclusion of industry dummies. The results only differ slightly for model 2A, with the only sizable difference being a loss of a significance level for the variable CULD and some changes in coefficient estimates. This indicates that the positive association with board diversity is not only present in certain industries but has an overall effect. When we introduce industry dummies in model 2B, the results are similar to those of model 1B, except that IND is negative and significant at the 5 percent level. Additionally, we observe that ESGP has switched from a negative to a positive sign but is still not significant. All other coefficient signs remain the same as in model 1B. As such, the results do support *H5*, *H6*, *H5*, and *H8*, but we reject *H7* and *H9* when we use ROA as the dependent variable, based on the empirical evidence.

For model 2C, the results are quite different from model 1C. The explanatory variables ESGP and GEND have now gained statistical significance at the 10

percent and 5 percent levels, respectively. Interestingly, we also observe that board age diversity (AGED) has switched from a negative to a positive sign. Anyhow, the variable is still not significant. The other variables remain largely and statistically unchanged. ESG performance (ESGP) exhibits a positive relationship with Tobin's Q, while board gender diversity (GEND) exhibits a negative association. The estimates indicate that higher ESG performance translates into better market performance, while greater gender diversity reduces market-based performance. Hence, the results support *H8* and *H9*, but we do not find support for *H5*, *H6*, and *H7* when we use Tobin's Q as the performance measure due to the significant relationships.

The last three columns of the table contain the regressions with time dummies added. These models are the preferred ones. After including these dummy variables, the adjusted R^2 for the models has increased to 0.65, 0.31, and 0.54, respectively. This indicates that these models explain approximately 65%, 31%, and 54% of the variance in the dependent variables, suggesting a better fit to the data compared to the original models. Furthermore, the results remain substantively unchanged from models 2A, 2B, and 2C, which only included industry dummies. However, we observe that the ESGP variable in model 3C experienced a slight increase in the level of statistical significance, moving from the 10 percent level to the 5 percent level after we introduced time dummies. Hence, we are allowed to maintain the same conclusions about the postulated hypotheses.

Unsurprisingly, the results show that having a CSR committee is associated with increased ESG performance, which is significant at the 1 percent level. Furthermore, we find that firm size has a positive and significant relationship to ESG performance. This is expected and consistent with prior research. Moreover, we also find support for the idea that highly leveraged firms (LEV) have higher ESG performance, consistent with the idea based on agency theory. Lastly, for ESG performance, we find a positive link with board size (BSIZE), suggesting that a larger board may have access to more resources and expertise.

Interestingly, the results show that the company's market capitalization has a positive and significant association with ROA, while total assets have a negative and significant relationship. Moreover, we observe that leverage

(LEV) is positively and significantly associated with ROA, indicating that highly leveraged firms are more profitable. On the other hand, the relationship between board size (BSIZE) and ROA is negative and significant, suggesting that firms with larger boards are less profitable. Lastly, we also observe that firm age (FAGE) is significant and positively associated with ROA, which indicates that older firms are more profitable.

Both firm size measures exhibit the same significance and signs for Tobin's Q as they did for ROA. However, leverage and board size are not associated with market-based performance. Conversely, we observe that firm age has a negative and significant association with Tobin's Q, indicating that older firms are associated with lower market-based performance. Moreover, the results show that CEO duality (CEODUAL) has a positive and significant association with Tobin's Q at the 5 percent level, indicating that combined CEO-chair is value-enhancing.

Table 8 summarizes the expected and actual signs of the estimated coefficients for each hypothesis. Hypotheses 1, 2, 3, and 9 align with expectations, showing positive relationships. Hypothesis 8 is also supported since we found no significant relationship. However, the empirical evidence from our study does not support all of our initial hypotheses. Specifically, the actual signs of the estimated coefficients for Hypotheses 4, 5, 6, and 7 do not align with our initial expectations, suggesting that we fail to uphold these hypotheses.

Table 8 Summary of hypotheses

Hypotheses	Expected Sign	Actual Sign
H1	+	+
H2	+	+
H3	+	+
H4	none	-
H5	none	-
H6	none	+
H7	none	-
H8	none	none
H9	+	+

5.5 Additional analysis

While the problem specification in our thesis focuses on answering our initial hypotheses, we have gained valuable insight throughout the process and consequently conducted a few additional analyses from our collected data.

5.5.1 Ownership structure

The first analysis is based on ownership structure, as we have noticed that several companies in our sample show government ownership and foreign ownership structures. More specifically, we want to compare state-owned firms versus privately owned firms and foreign-owned firms versus locally owned firms. We will look at state ownership in the first phase of this analysis, then look at the role of foreign ownership in the second phase.

Governance structures in Nordic countries, especially Norway, place a strong emphasis on the representation of diverse perspectives on company boards. As indicated by the principles of the Norwegian Government, a board's expertise is of paramount importance, and diversity is actively promoted as a way to enrich this expertise (Norwegian Government, 2023). This perspective has also led to policy measures such as the Norwegian gender quota, which seeks to ensure a balance of genders in board compositions (Seierstad & Huse, 2017). Thus, we are inclined to believe that government-owned firms will be better at meeting diversity quotas than private firms, but we hope our data will provide insight on the matter. More specifically, as the data is readily available, we want to examine the relationship between state ownership and performance (ESG, ROA, and Tobin's Q).

For the purpose of this analysis, we regard a firm as being state-owned if public authorities own at least 30% of the shares. Conversely, those firms that are not identified as government-owned are considered private. While the Government may not hold a majority in the companies, we know that Nordic shareholders in general effectively control the companies they own (Lekvall et al., 2014), and the Nordic governance model indicates that the government can effectively leverage a minority interest to some degree of control.

Table 9 Mean values per government and private ownership

Ownership	ESGP	ROA	TQ	GEND	CULD	AGED	IND
Government	74.63	2.31	2.44	38.35	25.18	7.01	70.53
Private	56.52	5.04	3.62	35.20	22.42	7.39	64.80

Table 9 reports the average values for our performance measures and board diversity measures by ownership form. We observe that government-owned firms (SOE) display overall higher board diversity attributes and ESG scores than private firms. Moreover, our data show a relative imbalance in the number of SOEs compared to private firms. Thus, to estimate the impact of government ownership on firm performance as measured by ESG, ROA, and Tobin's Q, we employ a propensity score matching technique. This method allows for more accurate comparisons as it constructs an artificial control group (private firms) by matching each treated unit (SOE) with a non-treated unit based on similar characteristics in observational studies. Additionally, propensity matching can help reduce selection bias and strengthen causal arguments (Austin, 2011). The technique was performed in R, following Randolph et al. (2014). The matched results show that there are 12 unique SOEs and 48 firm-year observations in the sample. All SOEs were matched with private firms. The remaining 199 unique private firms were unmatched.

Figure 8 in the appendix visualizes the distribution of propensity scores for the matched treated units, matched control units, and unmatched control units. Note that propensity score matching may not be appropriate if there is no satisfactory overlap in the distribution between the matched treatment and control groups. However, this should not be an issue for our study, as revealed by the plot.

Figure 9 in the appendix provides a visualization of the balance in propensity scores and all covariates, both before and after the process of matching. We observe that there is a substantial difference in the covariates between SOEs and NSOEs before matching. After matching, the standardized mean difference is close to zero for the majority of the covariates, indicating a fairly good balance.

Following the output shown in Table 10, the results indicate that the ESG

performance among government-owned firms is 6.94 points higher than that of private firms, which is significant at the 1 percent level. Moreover, we observe that the Return on Assets for government-owned firms is 2.11 points lower than that of non-government-owned firms, which is significant at the 10 percent level. Lastly, the results indicate that there is no significant effect of ownership status on the outcome of Tobin's Q. The coefficients were fitted using cluster-robust standard errors. These findings are consistent with Phi et al. (2019), who show that government-owned firms (SOEs) tend to be less profitable than private-owned firms, and the OECD (2020), who find that SOEs do indeed, on average, have better ESG performance compared to their private-owned counterparts.

Table 10 Regression Results

	Dependent variable:		
	ESGP	ROA	TQ
SOE	6.9432***	-2.1147*	0.053447
	(2.2939)	(1.1641)	(0.397515)
Constant	67.6909***	5.0541***	2.341068***
	(2.3403)	(0.7109)	(0.224417)

Notes: *p<0.1; **p<0.05; ***p<0.01

Foreign shareholders often bring distinct perspectives and expertise to corporations, playing a potentially pivotal role in operating efficiency and promoting transparency and governance. In some contexts, foreign ownership has been associated with enhanced ESG disclosures (Guo & Zheng, 2021), while others report no relationship or even a negative impact (Saini & Singhania, 2019). Similarly, foreign ownership might introduce diversity to board composition, reflecting a broader range of experiences and perspectives, which is essential to communicating the firm's legitimacy to foreign investors and protecting their interests (Kang & Kim, 2010). Also, the literature on the relationship between foreign ownership and firm performance is mixed. However, Jensen and Meckling (1976) argue that foreign ownership in the ownership structure of a firm has a positive influence on financial performance. For this analysis, we have identified a firm as being foreign-owned if over 30% of the shares are held by individuals or companies that are not nationals or headquartered in that country.

Table 11 reports the descriptive statistics for both foreign- and locally-owned firms.

Table 11 Mean values per foreign and local ownership

Ownership	ESGP	ROA	TQ	GEND	CULD	AGED	IND
Foreign	66.68	5.38	3.22	31.86	42.95	6.94	75.41
Local	55.66	4.80	3.63	36.11	18.25	7.46	62.95

The descriptive statistics from the table report the average values for the dependent and independent variables by ownership structure. The statistics show that firms with foreign ownership exhibit a higher degree of ESG performance, ROA, board cultural diversity, and proportion of independent directors. Notably, the percentage of foreign directors on the board is considerably higher for the average foreign-owned firm in our sample. Both of these observations are expected based on prior research. Furthermore, both ownership structures are very similar in relation to financial performance as measured by ROA and Tobin's Q.

In a similar fashion to the previous sub-analysis, we employ a propensity score matching technique to estimate the impact of foreign ownership on performance. The figures for the distribution of propensity scores and the standardized mean difference can be found in the appendix (Figure 10 and Figure 11). The plots display satisfactory results. The matched results show that there are 39 unique foreign-owned firms in our sample and, thereby 156 firm-year observations. All foreign-owned firms were matched with local-owned firms.

Table 12 Regression Results

	Dependent variable:		
	ESGP	ROA	TQ
Foreign ownership	4.228**	-0.727	-0.065
	(1.829)	(1.055)	(0.613)
Constant	62.454***	6.103***	3.281***
	(1.233)	(0.866)	(0.568)

Notes: *p<0.1; **p<0.05; ***p<0.01

The regression results reported in Table 12 indicate that the ESG performance is 4.23 points higher for firms with foreign ownership compared to locally owned firms, which is significant at the 5 percent level. Although the results

suggest that foreign-owned firms are associated with lower ROA and Tobin's Q, the relationship is nonsignificant. All three models were fitted using cluster-robust standard errors. Our findings are in line with those of Amosh and Khatib (2022), among others, who also find a positive and significant impact of foreign ownership on ESG performance. Nevertheless, our analysis does not provide evidence to support the assertion that foreign ownership is associated with superior financial performance, especially when compared to domestic ownership.

5.5.2 ESG and Tobin's Q trends

The second additional analysis dives into the development of Tobin's Q for top ESG performers. As noted in the section about developments in our time-series data, we noticed that ESG performance and Tobin's Q were exhibiting similar behavior. Moreover, we find that ESG performance is positively and significantly associated with financial performance when measured by Tobin's Q. On the same note, about 90% of 2200 previous empirical studies find a non-negative relationship between ESG and financial performance (Friede et al., 2015). However, in this additional analysis, we want to explore how the best companies in terms of ESG performance are valued in the market. This was conducted by sorting the companies in our sample into percentiles for ESG scores before calculating the average Tobin's Q per year for the top percentile.

We were particularly interested in the development from 2020 to 2021, as we expected ESG to be rewarded in the markets. While 2021 saw increased inflows to ESG funds, 2022 saw the lowest inflow since 2018 (Morningstar, 2023). As our data stretches to the end of 2021, we were interested to see the early developments of what could turn out to be a peak. When illustrating the data below in Figure 12, we quickly notice developments in line with our expectations. The average Tobin's Q saw a large increase in 2021, telling us that the top ESG performers in 2020 were heavily rewarded in the market by the end of 2021. Without concluding that this drastic increase was due to good ESG performance, we await the availability of data for the end of 2022 to further explore the developments in market valuations.

Figure 12

Based on these observations, we are interested in analyzing which firms were likely to benefit from the spike in Tobin's Q. In other words, we are interested in investigating whether the board characteristics are associated with a more pronounced spike in Tobin's Q in 2021 among the firms with top ESG performance. Moreover, we are also interested in whether changes in ESG performance are associated with changes in Tobin's Q. We hypothesize that companies showing an upward trend in ESG scores might be better positioned to benefit from the Tobin's Q spike between 2020 and 2021. Our specific focus is on top performers who increased their ESG commitment, potentially gaining increased valuations. Thus, based on our existing model, we propose the following equation:

$$\begin{aligned}\Delta\text{TQ}(2021)_{it} = \alpha &+ \beta_1 \Delta\text{ESGP}_{it} + \beta_2 \text{GEND}_{it} + \beta_3 \text{CULD}_{it} + \beta_4 \text{AGED}_{it} \\ &+ \beta_5 \text{IND}_{it} + \beta_6 \log(\text{MKTCAP})_{it} + \beta_7 \text{LEV}_{it} \\ &+ \beta_8 \log(\text{TA})_{it} + \beta_9 \log(\text{FAGE})_{it} + \beta_{10} \text{CEODUAL}_{it} \\ &+ \beta_{11} \text{CSRCOM}_{it} + \epsilon_{it}\end{aligned}$$

$\Delta\text{TQ}(2021)_{it}$ represents the change in Tobin's Q from 2020 to 2021 for top ESG quartile firm i. The independent variables and control variables remain unchanged. The results are reported in the appendix (Table 13).

First, we observe that the coefficient for change in ESG performance is negative, although nonsignificant. Anyhow, this indicates that an increase in ESG

performance from 2020 to 2021 is associated with a decrease in the change in Tobin's Q over the period 2020 to 2021. Thus, we do not find any evidence that suggests that top performers who improved their ESG score in 2021 were more likely to benefit from the spike in Tobin's Q. Therefore, it could be the case that the top ESG-performing firms in 2020 achieved a high Tobin's Q in 2021 due to market trends or changes in the economic environment, among other things.

Second, the results suggest a positive and significant association between board gender diversity and the change in Tobin's Q from 2020 to 2021. This indicates that firms with more gender diversity on their boards tended to see a greater increase in Tobin's Q in 2021.

Third, we observe a negative and significant association between board cultural diversity and the change in Tobin's Q. This implies that firms with greater cultural diversity on their boards tended to see a smaller increase in Tobin's Q in 2021.

Fourth, there is a positive and significant association between board age diversity and the change in Tobin's Q. This suggests that firms with a wider age range among their board members experienced a greater increase in Tobin's Q in 2021. Lastly, we find no significant association between the proportion of independent board members and the change in Tobin's Q between the periods.

5.6 Robustness check

We conduct several sensitivity analyses to assess whether the results of our main analysis are robust. First, we address potential endogeneity concerns arising from omitted, unobservable firm characteristics (Adams & Ferreira, 2009). Hermalin and Weisbach (1998) argue that firm performance and board composition are endogenous. For instance, a typical issue that studies of boards often neglect is that firm performance is in itself a result of actions taken by the firm's previous directors, which may subsequently affect the choice of succeeding directors. As such, we believe that it is unlikely that the independent variables included in our models are truly exogenous. A common way to address this issue of reverse causality in the literature is to lag the independent variable by

one period. The intuition behind this technique is that lagging the variables can address the contemporaneous relationship between the error term and independent variables. Thus, we follow Frank and Goyal (2009) and lag our explanatory variables by one year. The equations are given by:

$$(1)\ \text{Performance}_{it} = \alpha + \beta\text{Board diversity variables}_{it-1} + \gamma\text{Control variables}_{it} + \epsilon_{it}$$

Three equations with lagged independent variables are fitted based on the preferred models with both industry and year dummies, one for each performance measure: ESG, ROA, and Tobin's Q. The results are shown in the appendix (Table 14).

We find that the results using lagged board diversity variables are highly consistent with previous models. For models L1, L2, and L3, all independent variables keep their original signs. For model L1, all variables keep their significance except for board cultural diversity, which is no longer significant at any of the conventional significance levels. Similarly, the board's cultural diversity and the percentage of independent board directors are no longer significant at the 10 percent level in models L3 and L2, respectively. Lastly, the control variables show consistent significance levels and signs as in previous models. As such, we find that our results remain robust.

Second, we examine whether the results hold using a different measure of ESG performance. Considering that the board diversity measures are constructed from board characteristics, we exclude the governance pillar from ESG performance to avoid spurious correlations that may arise between the board diversity measures and governance performance. Thus, we replace ESG performance with environmental and social (ES) performance and re-estimate the model. For the models with ROA and Tobin's Q as dependent variables, we decompose the ESG score into individual pillar scores. The results are reported in Table 15 in the appendix.

We find that board gender diversity and board age diversity are significantly and positively associated with environmental performance (EP) at the 1 percent level. However, when we use environmental performance as the dependent variable, board cultural diversity and the proportion of independent directors

lose their significance at the conventional levels. On the other hand, all board diversity measures except for board cultural diversity are significantly associated with social performance (SP). Hence, the board diversity measures showcase an overall significant relationship with environmental and social performance.

For ROA, the results are consistent with previous models. However, the estimates reveal that environmental performance has a negative sign while social performance has a positive sign, although both are non-significant. Lastly, the Tobin's Q model is consistent with previous models, as board gender diversity and board independence remain negative and significant at the 5 percent and 1 percent levels, respectively. All other variables also remain unchanged with respect to coefficient signs and significance. Interestingly, we observe that environmental performance is significant and positively associated with market performance at the 5 percent level. On the other hand, the coefficient for social performance is negative and significant at the 10 percent level. Furthermore, we should also note that environmental performance has a larger coefficient than social performance, indicating that environmental performance improves market performance more than social performance reduces said performance, holding all other variables constant. Given these results, we believe our findings are consistent and remain robust when excluding the governance category from ESG performance.

Lastly, we re-estimate the models by excluding firms in the financial sector, as banks may operate under a set of different regulatory conditions and may be subject to certain forces different from firms in other industries. Due to these unique aspects, we excluded these firms to ensure a more homogeneous and directly comparable sample. Hence, our sample is reduced by 30 firms and 120 firm-year observations. The results reveal qualitatively similar results and remain robust.

5.7 Discussion

Our results show that all board diversity measures are associated with ESG performance, while only certain of them are associated with financial performance. Additionally, the one-year lagged results are highly consistent

according to the main models. One of the most consistent variables is board independence, which is positively related to ESG performance but has a negative relationship to financial performance as measured by ROA and Tobin's Q. The association of board independence with ESG performance is in line with Meniucci and Paolucci (2022), as we find a positive and significant relationship, but in contrast with prior studies (Ortiz-de-Mandojana & Aragon-Correa, 2015; Chau & Gray, 2010). Nevertheless, empirical evidence supports the idea that independent board members are expected to be more likely to represent shareholders' interests. In this regard, a higher percentage of independent directors on the board may reduce agency issues and thus improve ESG performance, as we observe that shareholders are increasingly paying attention to sustainability (Eccles & Klimenko, 2019). For the relationship between board independence and financial performance, the results contradict Bhagat & Black (2001) but are in line with Agrawal and Knoeber (1996), Bebchuk and Cohen (2005), and Terjesen et al. (2015), who also find a negative and significant relationship. These results can potentially be explained by the fact that independent directors may negatively affect firm value due to intense monitoring (Faleye et al., 2011).

Apart from the board independence measure, another interesting and consistent variable is board gender diversity. We find that board gender diversity has a positive and significant association with ESG performance. Drawing from upper echelon theory, which highlights that gender is an important characteristic that affects the top management's decision-making (Gómez et al., 2018), we interpret the positive influence as being a result of cognitive variety in the corporate hierarchy. That is, women are associated with higher levels of environmental and social concern (Casey & Scott, 2006), which is likely to be reflected in their leadership style. Interestingly, we find that board gender diversity is negatively related to financial performance as measured by Tobin's Q. This result contrasts prior studies that highlight that board gender diversity contributes to financial performance (Carter et al., 2003; Gómez et al., 2018). However, our results are consistent with Adams and Ferreira (2009), who find that a higher proportion of women on the board is negatively associated with financial performance. This is in line with the argument that heterogeneous boards are less effective

decision-makers (Bøhren & Strøm, 2007) and that gender-diverse boards are tougher monitors.

Second, we find evidence of a positive association between board cultural diversity and performance as measured by ESG and Tobin's Q. Erhardt et al. (2003) argue that board diversity in terms of minorities on the board enhances creativity, quality decision-making, and innovation at the individual and firm levels. This argument is the same as discussed earlier for board gender diversity and supports upper echelon theory. In that sense, a more culturally diverse board is more likely to address and understand a broader range of stakeholders, including those in a different geographical location. This positive and significant relationship between the presence of minorities on the board and financial performance, as measured by Tobin's Q, is consistent with Carter, Simkins, and Simpson (2003). Although the literature linking board cultural diversity and ESG performance is scarce, the results are in line with previous research, confirming a positive relationship with ESG performance (Rao & Tilit, 2016; Khan, 2010) and Tobin's Q (Carter et al., 2003).

Contrasting prior literature, we find a negative relationship between board age diversity and ESG performance (Giannarakis, 2014; Cucari et al., 2018). This is contrary to the belief that younger directors have more innovative management styles, which could improve ESG performance. This can be explained by the premise of group dynamics, where diverse groups sometimes face challenges in decision-making due to differences in experience and perspectives (Sommers, 2006). In other words, boards with a greater age dispersion are possibly more ineffective in reaching a consensus, including on issues related to ESG. Additionally, it may also be that there is a generational divide in terms of focus on short-term versus long-term goals (Serafeim et al., 2014). Younger board members may be more inclined to pursue long-term sustainability goals, while older board members might prioritize short-term returns.

Counterintuitively, our empirical analysis suggests a positive and significant relationship between ESG performance and Tobin's Q despite the negative correlation coefficient initially observed. This is in line with the aggregate results from about 2200 empirical studies (Friede et al., 2015), where the relationship between ESG and financial performance is found to be nonnegative in 90%

of the studies. Moreover, it is consistent with Velte (2017), although we find the relationship to be significant. On the other hand, we also find contrasting results to Velte, as we postulate a positive, nonsignificant link between ESG performance and ROA. Interestingly, the results give weight to stakeholder theory. That is, the positive relationship between ESG performance and market-based performance suggests that firms with good ESG initiatives are valued by investors. In other words, these firms undertake ESG activities to create value and signal their commitment to sustainable practices to stakeholders.

As far as the rest of the independent variables are concerned, their relation to financial performance is not statistically significant. Interestingly, only the percentage of independent directors on the board is significantly associated with account-based performance (ROA). Although a higher level of board diversity in terms of gender, ethnicity, and age can be valuable for firms, we find that these measures are not entirely important in explaining the degree of financial performance as measured by ROA. As such, we offer possible explanations for the insignificant relationships.

Prior research has shown mixed results regarding board diversity's relationship with financial performance. For example, a later study by Carter et al. (2010) found no significant relationship between board cultural diversity or gender diversity on the board and financial performance, measured by ROA and Tobin's Q. Thus, our results are partially consistent with the author's, as we also find no significant association between the same measures of board diversity and ROA. A possible explanation for this is that the Nordic corporate governance model is characterized by its robustness. Therefore, strong governance structures can minimize the potential influence of diversity on performance. This aligns with the argument emphasized by Adams and Ferreira (2009), who argue that strong governance structures might be a more important driver for firm performance than board diversity.

Secondly, the influence of board diversity on firm performance might be more pronounced in the long term than in the short term. That is, ROA is typically calculated based on a single year's financial data, so it might not fully capture the possible long-term benefits of having a diverse board. Lastly, board diversity in the Nordics has been largely driven by governmental and regulatory pressure.

Therefore, companies may be more inclined to achieve diversity for compliance purposes than as a driver of performance. As such, boards would be merely "window-dressing" (Helland & Sykuta, 2004), resulting from tokenism behavior. Therefore, this "tick-box" approach might not yield the same benefits as a more holistic approach to diversity.

Finally, we can use the same arguments made in the previous section as a possible explanation for the lack of a relationship between age diversity and both measures of financial performance. Additionally, the relationship between the variables is not well established in the existing literature, with some studies finding a positive or negative relationship while others find no significant link at all. This suggests that other contextual factors could be missing from our model that plays a role in establishing the relationship between age diversity and firm performance (Rao & Tilt, 2016).

5.8 Limitations and future research

Our methodology and the availability of data have come with a set of limitations, which we need to be aware of. This is especially important if the results are to be used in practice, such as board selection processes, or in future research.

Firstly, an important limitation and acknowledgment is the fact that our sample is not certain to represent the entire population. Our initial sample, of all listed firms in the Nordic countries, was heavily reduced due to variations in data availability. This especially applied to the ESG scores, as many companies had no scores or some missing data points through our sample period in the Eikon Refinitiv database. Thus, we have not established an entirely random selection process (Stock & Watson, 2015), and we consequently cannot be certain that our sample is representative of the entire population.

Secondly, we should also be aware of reverse causality as a source of endogeneity. Our results do not necessarily mean that our independent variables affect the dependent variable, such as gender diversity having a positive effect on ESG Performance. It could very well be the other way around, where firms with high ESG Performance elect more women to the board of directors. For example, Hermalin and Weisbach (1998) suggest that poor performance leads to an

increase in the proportion of independent directors. Thus, in a cross-section, this effect may lead to more independent directors on the boards of firms that have historically had bad performance. While we are aware of the limitation, we are not able to use instrumental variables to determine the direction of causality (Di Giuli & Kostovetsky, 2014). Another way to tackle it could be using experiments, but the selection of companies and randomly assigning diverse board members to the companies would make it hard to generalize the results and is not likely to be feasible (Adams, 2016).

We must also note that because of extensive hand-collection, we are aware that errors may have occurred during the process.

As mentioned, our results depend on the manual collection of data as well as data from the databases Eikon Refinitiv, Bloomberg, and BoardEx. With data availability increasing with time, we see potential in future research using a larger sample of companies in the Nordics as the coverage grows. This also applies to the sample period, which can likely be extended as data availability becomes more consistent for most listed companies. This indicates that there is considerable potential for improvement in the research design in future empirical studies. While we believe the Nordic region is particularly interesting in terms of diversity research, we also see the potential for a similar methodology being applied to other countries or regions.

6. Conclusion

Board diversity and ESG have emerged as critical concerns for publicly listed companies. Especially in the Nordic regions, regulatory bodies advocate for enhanced diversity in board composition, while stakeholders and the public call for companies to demonstrate greater environmental and social responsibility. Furthermore, the importance of fostering diverse perspectives within company boards is underscored by various policies and regulations that aim to enrich the board's expertise. The board's expertise is critical for making informed decisions that can drive value creation. In other words, a critical factor in effective corporate governance seems to be the relationship between shareholder value creation and the diversity of the board of directors.

Our thesis examines the relationship between board diversity and firm performance in the Nordic region, as measured by ESG and financial performance. We postulate that greater board diversity could bolster a firm's ability to address and manage the interests of various stakeholder groups, thereby suggesting a likely positive relationship between board diversity and ESG performance. Our thesis measures board diversity in four dimensions: gender, cultural background, age, and independence. We use ESG scores from Refinitiv Eikon as a proxy for ESG performance and Return on Assets (ROA) and Tobin's Q as measures of financial performance.

We find that diversity on the board of directors is associated with ESG performance. The measures of gender, culture, and independence have a positive association, while board age diversity is negatively related to ESG. While all diversity measures are associated with ESG performance, we find that only some have a significant association with financial performance. More specifically, we find that the percentage of independent directors is negatively associated with both financial measures. Additionally, while board gender diversity is negatively associated with Tobin's Q, board cultural diversity shows a positive association. However, the empirical results suggest no significant relationship between board gender, ethnicity, age diversity, and financial performance as measured by ROA.

On the one hand, the positive association between gender, cultural, and independence diversity with ESG performance indicates that these types of diversity may enhance a company's ability to meet ESG goals. On the other hand, in terms of financial performance, the results indicate that the relationship with board diversity is more nuanced. The negative association between the percentage of independent directors and financial performance suggests that a higher proportion of independent directors may not necessarily lead to better financial outcomes. Similarly, while board gender diversity is negatively associated with Tobin's Q, board cultural diversity shows a positive association, indicating that cultural diversity on the board may contribute to higher firm value. However, the lack of a significant relationship between most board diversity measures and ROA suggests that these aspects of diversity may not directly influence accounting-based financial performance. This could imply that the benefits of board diversity may be more pronounced in areas such as ESG performance and firm valuation than traditional accounting measures.

The results are interesting, with some diversity measures having opposing associations with ESG performance and financial performance. Thus, these findings have implications for both practitioners and policies. The empirical evidence indicates a trade-off in the composition of the boards, and both shareholders and legislators must consider the specific impacts of different types of diversity on various aspects of firm performance. The findings in our analysis do support the business case for a more diverse corporate board in relation to ESG performance. Simultaneously, the relationship with financial performance is more nuanced. More specifically, while the results may not support the business case for increasing female representation on corporate boards, they conversely support the business case for the inclusion of ethnic minorities.

Finally, the outcomes of our research should be interesting to a wide range of entities, including policymakers, regulators, shareholders, and stakeholders. Thus, we believe our thesis has provided valuable insight into the relationship between board diversity, ESG, and financial performance for the future.

7. Appendix

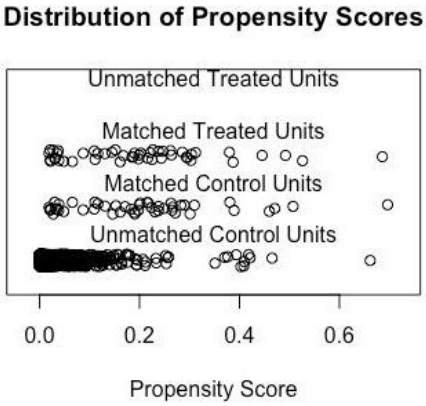

Figure 8

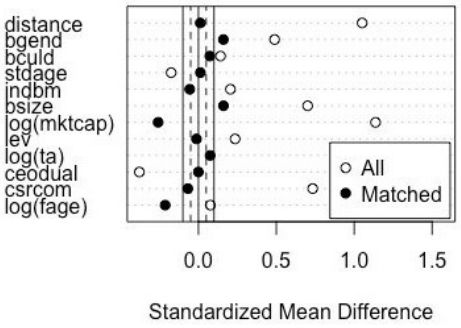

Figure 9

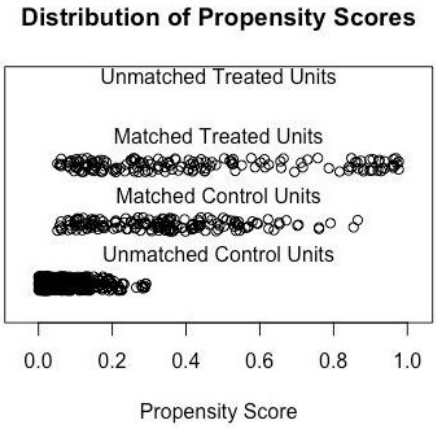

Figure 10

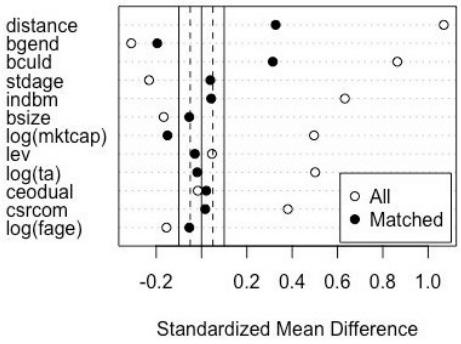

Figure 11

Table 13 Regression results from additional analysis

	Dependent variable:
	ΔTQ(2021)
ΔESGP	-0.031
	(0.032)
GEND	0.025*
	(0.014)
BCULD	-0.012**
	(0.005)
AGED	0.072
	(0.046)
IND	0.009
	(0.006)
BSIZE	-0.034
	(0.052)
MKTCAP	0.134
	(0.216)
LEV	-0.001
	(0.010)
TA	0.024
	(0.244)
CEODUAL	0.365
	(0.766)
CSRCOM	0.435
	(0.486)
FAGE	-0.031
	(0.112)
Constant	-5.481**
	(2.493)
Observations	44
R^2	0.703
F Statistic	2.264**

Note: The regression include Newey-West standard errors. Robust standard errors are in parentheses. *, **, and *** indicate statistically significant at the 10, 5, and 1 percent level, respectively

Table 14 Regression results using lagged independent variables

Independent variables:	*Dependent variable:*		
	ESGP	ROA	TQ
	(L1)	(L2)	(L3)
LESGP		0.017	0.017*
		(0.027)	(0.010)
LGEND	0.139***	−0.031	−0.019**
	(0.036)	(0.026)	(0.009)
LCULD	0.031	−0.010	0.008
	(0.020)	(0.014)	(0.005)
LAGED	−0.880***	−0.154	0.072
	(0.205)	(0.148)	(0.053)
LIND	0.122***	−0.025	−0.023***
	(0.022)	(0.016)	(0.006)
BSIZE	1.431***	−0.419**	−0.052
	(0.239)	(0.174)	(0.063)
MKTCAP	0.284	4.420***	2.172***
	(0.426)	(0.301)	(0.108)
TA	4.869***	−3.196***	−2.055***
	(0.516)	(0.390)	(0.140)
LEV	−0.015	0.030	0.010
	(0.027)	(0.019)	(0.007)
CEODUAL	−1.643	0.181	0.662*
	(1.392)	(0.985)	(0.356)
CSRCOM	9.182***	−1.468*	−0.326
	(1.073)	(0.801)	(0.289)
FAGE	−0.344	0.592	−0.257*
	(0.530)	(0.375)	(0.135)
Constant	−76.905***	−21.180***	3.400
	(7.729)	(5.954)	(2.150)
Observations	669	669	669
R^2	0.629	0.320	0.539
Adjusted R^2	0.615	0.295	0.523
Residual Std. Error	10.917	7.722	2.793
F Statistic	47.447***	12.639***	34.289***

Note: L stands for lagged. All regressions include Newey-West standard errors. Robust standard errors are in parentheses. *, **, and *** indicate statistically significant at the 10, 5, and 1 percent levels, respectively

Table 15 Regression results using ES performance and individual pillar scores

	Dependent variable:			
	EP	SP	ROA	TQ
	(1)	(2)	(3)	(4)
EP			0.008	0.015**
			(0.018)	(0.006)
SP			0.038	−0.014*
			(0.025)	(0.007)
GP			−0.019	0.009
			(0.018)	(0.006)
GEND	0.195***	0.100**	−0.027	−0.021**
	(0.048)	(0.045)	(0.023)	(0.009)
CULD	0.016	0.024	−0.010	0.009**
	(0.024)	(0.025)	(0.014)	(0.004)
AGED	−1.520***	-0.828***	−0.104	0.061
	(0.271)	(0.255)	(0.114)	(0.048)
IND	−0.007	0.053*	−0.019	−0.021***
	(0.031)	(0.030)	(0.016)	(0.005)
BSIZE	0.622*	1.761***	−0.309**	−0.024
	(0.345)	(0.304)	(0.140)	(0.053)
MKTCAP	−0.415	0.219	4.431***	2.099***
	(0.638)	(0.550)	(0.373)	(0.152)
LEV	−0.92**	−0.037	0.028	0.011*
	(0.041)	(0.046)	(0.034)	(0.006)
TA	9.581***	4.595***	−3.481***	−2.049***
	(0.741)	(0.696)	(0.447)	(0.152)
CEODUAL	−1.208	0.699	0.143	0.723*
	(1.618)	(1.362)	(1.049)	(0.381)
CSRCOM	8.773***	8.980***	−0.838	−0.305
	(1.667)	(1.346)	(0.667)	(0.273)
Constant	−157.772***	-65.453***	−14.643**	4.111*
	(10.256)	(9.430)	(5.839)	(2.108)
Observations	892	892	892	892
R^2	0.566	0.477	0.312	0.537
Adjusted R^2	0.552	0.463	0.291	0.523
F Statistic	49.260***	34.396***	15.084***	38.529***

Note: EP, SP, and GP denote the scores for the environmental pillar, social pillar, and governance pillar, respectively. All regressions include Newey-West standard errors. Robust standard errors are in parentheses. *, **, and *** indicate statistically significant at the 10, 5, and 1 percent levels, respectively

8. References

Adams, R. B. (2016). Women on boards: The superheroes of tomorrow?. The Leadership Quarterly, 27(3), 371-386.

Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. Journal of economic literature, 48(1), 58-107.

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. Journal of financial economics, 94(2), 291-309.

Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. Journal of financial and quantitative analysis, 31(3), 377-397.

Ahern, K. R., & Dittmar, A. K. (2012). The changing of the boards: The impact on firm valuation of mandated female board representation. The quarterly journal of economics, 127(1), 137-197.

Al Amosh, H., & Khatib, S. F. (2022). Ownership structure and environmental, social and governance performance disclosure: the moderating role of the board independence. Journal of Business and Socio-Economic Development, 2(1), 49-66.

Allison, P.D. (2009) Fixed Effects Regression Models. Sage, Thousand Oaks.

Angrist, J. D., & Pischke, J. (2008). Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press.

Arayssi, M., Jizi, M., & Tabaja, H. H. (2020). The impact of board composition on the level of ESG disclosures in GCC countries. Sustainability Accounting, Management and Policy Journal, 11(1), 137-161.

Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. Multivariate behavioral research, 46(3), 399-424.

Baltagi, B. H., & Baltagi, B. H. (2008). Econometric analysis of panel data (Vol. 4). Chichester: Wiley.

Bebchuk, L. A., & Cohen, A. (2005). The costs of entrenched boards. Journal of financial economics, 78(2), 409-433.

Beji, R., Yousfi, O., Loukil, N., & Omri, A. (2021). Board diversity and corporate social responsibility: Empirical evidence from France. Journal of Business Ethics, 173, 133-155.

Bhagat, S., & Black, B. (2001). The non-correlation between board independence and long-term firm performance. J. CorP. l., 27, 231.

Bøhren, Ø., & Strøm, R. Ø. (2007, February). Aligned, informed, and decisive: Characteristics of value-creating boards. In EFA 2007 Ljubljana Meetings Paper.

Bonn, I., Yoshikawa, T., & Phan, P. H. (2004). Effects of board structure on firm performance: A comparison of Japan and Australia. Asian Business and Management, 3(1), 105.

Brooks, C. (2019). Introductory Econometrics for Finance (4th ed.). Cambridge: Cambridge University Press.

Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The gender and ethnic diversity of US boards and board committees and firm financial performance. Corporate Governance: An International Review, 18(5), 396-414.

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. Financial review, 38(1), 33-53.

Casey, P. J., & Scott, K. (2006). Environmental concern and behaviour in an Australian sample within an ecocentric–anthropocentric framework. Australian Journal of Psychology, 58(2), 57-67.

Chau, G., & Gray, S. J. (2010). Family ownership, board independence and voluntary disclosure: Evidence from Hong Kong. Journal of International Accounting, Auditing and Taxation, 19(2), 93-109.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. Strategic management journal, 35(1), 1-23.

Clark, G. L., Feiner, A., & Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. Available at SSRN 2508281.

Cordeiro, J. J., Profumo, G., & Tutore, I. (2020). Board gender diversity and corporate environmental performance: The moderating role of family and dual-class majority ownership structures. Business Strategy and the Environment, 29(3), 1127-1144.

Croissant, Y., & Millo, G. (2008). Panel Data Econometrics in R: The plm Package. Journal of Statistical Software, 27(2), 1–43.

Cruz, C., Justo, R., Larraza-Kintana, M., & Garces-Galdeano, L. (2014). Are family firms really more socially responsible?. Entrepreneurship Theory and Practice, 38(6), 1295-1316.

Cucari, N., Esposito de Falco, S., & Orlando, B. (2018). Diversity of board of directors and environmental social governance: Evidence from Italian listed companies. Corporate Social Responsibility and Environmental Management, 25(3), 250-266.

Dale-Olsen, H., Schøne, P., & Verner, M. (2013). Diversity among Norwegian boards of directors: Does a quota for women improve firm performance?. Feminist Economics, 19(4), 110-135.

Dalton, D. R., Daily, C. M., Johnson, J. L., & Ellstrand, A. E. (1999). Number of directors and financial performance: A meta-analysis. Academy of Management journal, 42(6), 674-686.

Dang, R., Bender, A. F., & Scotto, M. J. (2014). Women on French corporate board of directors: How do they differ from their male counterparts?. Journal of Applied Business Research (JABR), 30(2), 489-508.

Darmadi, S. (2011). Board diversity and firm performance: The Indonesian evidence. Corporate ownership and control Journal, 8.

De Andres, P., & Vallelado, E. (2008). Corporate governance in banking: The role of the board of directors. Journal of banking & finance, 32(12), 2570-2580.

Deloitte (2022). The role of the board in overseeing ESG. Retrieved from https://www2.deloitte.com/us/en/pages/center-for-board-effectiveness/articles/role-of-the-board-in-overseeing-esg.html

Di Giuli, A., & Kostovetsky, L. (2014). Are red or blue companies more likely to go green? Politics and corporate social responsibility. Journal of Financial Economics, 111(1), 158-180.

Eccles, R. G., & Klimenko, S. (2019). The investor revolution. Harvard Business Review, 97(3), 106-116.

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. Management science, 60(11), 2835-2857.

Eichholtz, P., Holtermans, R., Kok, N., & Yönder, E. (2019). Environmental performance and the cost of debt: Evidence from commercial mortgages and REIT bonds. Journal of Banking & Finance, 102, 19-32.

Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. Corporate governance: An international review, 11(2), 102-111.

European Union. (2022). Directive (EU) 2022/2381 Improving the gender balance among directors of listed companies and related measures. Official Journal of the European Union. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX

Faleye, O. (2007). Classified boards, firm value, and managerial entrenchment. Journal of financial economics, 83(2), 501-529.

Faleye, O., Hoitash, R., & Hoitash, U. (2011). The costs of intense board monitoring. Journal of Financial Economics, 101(1), 160-181.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. the Journal of Finance, 47(2), 427-465.

Fernández-Temprano, M. A., & Tejerina-Gaite, F. (2020). Types of director, board diversity and firm performance. Corporate Governance: The International Journal of Business in Society.

Ferrero-Ferrero, I., Fernández-Izquierdo, M. Á., & Muñoz-Torres, M. J. (2016). Diversity and business performance: A critical overview. International Journal of Production Economics, 171, 251-261.

Filatotchev, I., Jackson, G., & Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. Asia Pacific Journal of Management, 30(4), 965-986.

Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: which factors are reliably important?. Financial management, 38(1), 1-37.

Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of sustainable finance & investment, 5(4), 210-233.

Galbreath, J. (2018). Is board gender diversity linked to financial performance? The mediating mechanism of CSR. Business & Society, 57(5), 863-889.

Galema, R., Plantinga, A., & Scholtens, B. (2008). The stocks at stake: Return and risk in socially responsible investment. Journal of Banking & Finance, 32(12), 2646-2654.

Giannarakis, G. (2014). The determinants influencing the extent of CSR disclosure. International Journal of Law and Management, 56(5), 393-416.

Gibson, K. (2019). The corporate social performance and corporate financial performance debate twenty-five years of incomparable research. Business & Society, 58(2), 197-230.

Greene, W.H. (2008) Econometric Analysis. 6th Edition, Pearson Prentice Hall, Upper Saddle River.

Guo, M., & Zhang, P. (2007). Empirical research on enterprise age, R&D investment and performance–evidence from empirical data of a-share listed companies in Zhejiang province. Communication of Finance & Accounting, 36.

Guo, M., & Zheng, C. (2021). Foreign ownership and corporate social responsibility: evidence from China. Sustainability, 13(2), 508.

Hafsi, T., & Turgut, G. (2013). Boardroom diversity and its effect on social performance: Conceptualization and empirical evidence. Journal of business ethics, 112, 463-479.

Hambrick, D. C. (2007). Upper echelons theory: An update. Academy of management review, 32(2), 334-343.

Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. Journal of accounting and public policy, 24(5), 391-430.

Harjoto, M. A., Yang, Y., & Laksmana, I. (2018). Board nationality and educational background diversity and corporate social performance. Corporate Governance: The International Journal of Business in Society, 18(5), 607-626.

Harjoto, M., Laksmana, I., & Lee, R. (2015). Board diversity and corporate social responsibility. Journal of business ethics, 132, 641-660.

Helland, E., & Sykuta, M. (2004). Regulation and the evolution of corporate boards: Monitoring, advising, or window dressing?. The Journal of Law and Economics, 47(1), 167-193.

Hermalin, B. E., & Weisbach, M. S. (1998). Endogenously chosen boards of directors and their monitoring of the CEO. American Economic Review, 96-118.

Hermalin, B. E., & Weisbach, M. S. (2003). Boards of directors as an endogenously determined institution: A survey of the economic literature. Federal Reserve Bank of New York Economic Policy Review, 9(1), 7-26.

Hill, T. D., Davis, A. P., Roos, J. M., & French, M. T. (2020). Limitations of fixed-effects models for panel data. Sociological Perspectives, 63(3), 357–369.

Hillman, A. J., Shropshire, C., & Cannella Jr, A. A. (2007). Organizational predictors of women on corporate boards. Academy of management journal, 50(4), 941-952.

Hillman, A. J., Cannella Jr, A. A., & Harris, I. C. (2002). Women and racial minorities in the boardroom: How do directors differ?. Journal of management, 28(6), 747-763.

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives?. Journal of Financial Economics, 108(3), 822-839.

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

Hussain, N., Rigoni, U., & Orij, R. P. (2018). Corporate governance and sustainability performance: Analysis of triple bottom line performance. Journal of business ethics,

149(2), 411-432.

Ibarra, H. (1992). Homophily and differential returns: Sex differences in network structure and access in an advertising firm. Administrative Science Quarterly, 37(3), 422-447.

Ibrahim, A. H., & Hanefah, M. M. (2016). Board diversity and corporate social responsibility in Jordan. Journal of Financial Reporting and Accounting.

Ibrahim, N. A., Howard, D. P., & Angelidis, J. P. (2003). Board members in the service industry: An empirical examination of the relationship between corporate social responsibility orientation and directorial type. Journal of Business Ethics, 47(4), 393-401.

Ibrahim, N. A., & Angelidis, J. P. (1995). The corporate social responsiveness orientation of board members: Are there differences between inside and outside directors?. Journal of business Ethics, 14, 405-410.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. The Journal of Finance, 48(3), 831-880.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of financial economics, 3(4), 305-360.

Jiang, F., & Xu, K. (2015). Does board gender diversity improve corporate dividend policy?. Journal of Corporate Finance, 35, 265-278.

Jo, H., & Harjoto, M. A. (2011). Corporate governance and firm value: The impact of corporate social responsibility. Journal of business ethics, 103, 351-383.

John, K., & Senbet, L. W. (1998). Corporate governance and board effectiveness. Journal of banking & Finance, 22(4), 371-403.

Kang, J. K., & Kim, J. M. (2010). Do foreign investors exhibit a corporate governance disadvantage? An information asymmetry perspective. Journal of International Business Studies, 41, 1415-1438.

Kassinis, G., Panayiotou, A., Dimou, A., & Katsifaraki, G. (2016). Gender and environmental sustainability: A longitudinal analysis. Corporate Social Responsibility and Environmental Management, 23(6), 399-412.

Khan, H. U. Z. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting: Empirical evidence from private commercial banks of Bangladesh. International Journal of Law and Management, 52(2), 82-109.

Klein, A. (1998). Firm performance and board committee structure. The Journal of Law and Economics, 41(1), 275-303.

Kotter, J. P., & Heskett, J. L. (1992). Corporate culture and performance. Free Press.

Krishnan, H. A., & Park, D. (2005). A few good women—on top management teams. Journal of Business Research, 58(12), 1712-1720.

Lekvall, P., Gilson, R. J., Hansen, J. L., Lønfeldt, C., Airaksinen, M., Berglund, T., ... & Sjöman, E. (2014). The Nordic corporate governance model. The Nordic Corporate Governance Model, Per Lekvall, ed., SNS Förlag, Stockholm, 14-12.

Liu, Y., Miletkov, M. K., Wei, Z., & Yang, T. (2015). Board independence and firm performance in China. Journal of corporate Finance, 30, 223-244.

Liu, Y. (2013). Gender diversity on corporate boards: Do women influence firm risk?. Journal of Corporate Finance, 20, 1-18.

Loderer, C. F., & Waelchli, U. (2010). Firm age and performance. Available at SSRN 1342248.

Lorsch, J., & Young, J. (1990). Pawns or potentates: The reality of America's corporate boards. Academy of Management Perspectives, 4(4), 85-87.

Low, D. C., Roberts, H., & Whiting, R. H. (2015). Board gender diversity and firm performance: Empirical evidence from Hong Kong, South Korea, Malaysia and Singapore. Pacific-Basin Finance Journal, 35, 381-401.

Luo, X., Wang, L., & Zhang, J. (2019). Corporate social responsibility, the cost of debt, and institutional ownership: Evidence from China. Journal of Business Ethics, 159(1), 143-165.

Mace, M. L. (1971). Directors: Myth and reality.

Mallin, C. A., & Michelon, G. (2011). Board reputation attributes and corporate social performance: An empirical investigation of the US best corporate citizens. Accounting and Business Research, 41(2), 119-144.

Mallin, C., & Ow-Yong, K. (2015). Corporate governance, board diversity, and firm value. The European Journal of Finance, 21(3), 183-202.

Marinova, J., Plantenga, J., & Remery, C. (2016). Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms. The International Journal of Human Resource Management, 27(15), 1777-1790.

Marquis, C., & Huang, Y. (2010). Corporate social responsibility and reputational risk. Strategic Management Journal, 31(1), 110-120.

McGregor, J. (2022, March 8). Why board diversity is key to company success. BBC. Retrieved from https://www.bbc.com/news/business-61163382

McIntyre, M. L., Murphy, S. A., & Mitchell, P. (2007). The top team: examining board composition and firm performance. Corporate Governance: The international journal of business in society.

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

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. Academy of management review, 26(1), 117-127.

Menicucci, E., & Paolucci, G. (2023). ESG dimensions and bank performance: An empirical investigation in Italy. Corporate Governance: The International Journal of Business in Society, 23(3), 563-586.

Menz, M., & Scheuch, C. (2017). Why does the gender composition of corporate boards differ across countries? The influence of societal and firm-specific factors. Corporate Governance: An International Review, 25(4), 231-249.

Moreno-Gómez, J., Lafuente, E., & Vaillant, Y. (2018). Gender diversity in the board, women's leadership and business performance. Gender in Management: An International Journal.

Morningstar. (2023) "Morningstar Direct U.S. Asset Flows Commentary for December 2022", Retrieved from https://www.morningstar.com/lp/fund-flows-direct

Nekhili, M., Gatfaoui, H., & Yousfi, O. (2016). Does board gender diversity increase dividend payouts?. Journal of Corporate Finance, 41, 26-42.

Nielsen (2022). Consumers are willing to pay more for sustainable brands. Retrieved from https://www.nielsen.com/us/en/insights/article/2022/consumers-are-willing-to-pay-more-for-sustainable-brands/

Norwegian Government. (2023). How the state owns. Government of Norway. https://www.regjeringen.no/en/topics/business-and-industry/state-ownership/hvordan-staten-eier/id2009187/?expand=factbox2678972

OECD. (2020). State-owned enterprises, sustainable finance and resilience. In OECD Business and Finance Outlook 2020: Sustainable and Resilient Finance.

Ortiz-de-Mandojana, N., & Aragon-Correa, J. A. (2015). Boards and sustainability: The contingent influence of director interlocks on corporate environmental performance. Business Strategy and the Environment, 24(6), 499-517.

Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the black box: An analysis of work group diversity, conflict, and performance. Administrative Science Quarterly, 44(1), 1-28.

Phi, N. T. M., Taghizadeh-Hesary, F., Chuc, A. T., Yoshino, N., & Kim, C. J. (2019). Performance differential between private and state-owned enterprises: An analysis of profitability and leverage.

Post, C., Rahman, N., & Rubow, E. (2011). Green governance: Boards of directors' composition and environmental corporate social responsibility. Business & society, 50(1), 189-223.

Preston, L. E., & O'Bannon, D. P. (1997). The corporate social-financial performance relationship. Business & Society, 36(4), 419-429.

Qureshi, M. A., Kirkerud, S., Theresa, K., & Ahsan, T. (2020). The impact of sustainability (environmental, social, and governance) disclosure and board diversity on firm value: The moderating role of industry sensitivity. Business Strategy and the Environment, 29(3), 1199-1214.

Randolph, J. J., & Falbe, K. (2014). A step-by-step guide to propensity score matching in R. Practical Assessment, Research & Evaluation, 19.

Rao, K., & Tilt, C. (2016). Board composition and corporate social responsibility: The role of diversity, gender, strategy and decision making. Journal of business ethics, 138, 327-347.

Rechner, P. L., & Dalton, D. R. (1991). CEO duality and organizational performance: A longitudinal analysis. Strategic management journal, 12(2), 155-160.

Refinitiv. (2022). Environmental, Social and Governance (ESG) Scores from Refinitiv. Retrieved from https://www.refinitiv.com/en/sustainable-finance/esg-scores

Revelli, C., & Viviani, J. L. (2013). The link between SRI and financial performance: effects and moderators. Management international, 17(2), 105-122.

Reverte, C. (2009). Determinants of corporate social responsibility disclosure ratings by Spanish listed firms. Journal of business ethics, 88, 351-366.

Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. Academy of Management Journal, 47(2), 255-266.

Robinson, G., & Dechant, K. (1997). Building a business case for diversity. Academy of Management Perspectives, 11(3), 21-31.

Rodrigue, M., Magnan, M. & Cho, C.H. Is Environmental Governance Substantive or Symbolic? An Empirical Investigation. J Bus Ethics 114, 107–129 (2013).

Rowley, T., & Berman, S. (2000). A brand new brand of corporate social performance. Business & society, 39(4), 397-418.

Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2020). The Sustainable Development Goals and COVID-19. Sustainable Development Report 2020. Cambridge: Cambridge University Press.

Saini, N., & Singhania, M. (2019). Performance relevance of environmental and social disclosures: The role of foreign ownership. Benchmarking: An International Journal, 26(6), 1845-1873.

Seierstad, C., & Huse, M. (2017). Gender quotas on corporate boards in Norway: Ten years later and lessons learned. Gender Diversity in the Boardroom: Volume 1: The Use of Different Quota Regulations, 11-45.

Shakil, M. H. (2021). Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity. Resources Policy, 72, 102144.

Sharma, V. M., & Yetton, P. W. (2003). The contingent effects of management support and task interdependence on successful IS implementation. Information & Management, 41(5), 585-598.

Shaukat, A., Qiu, Y., & Trojanowski, G. (2016). Board attributes, corporate social responsibility strategy, and corporate environmental and social performance. Journal of Business Ethics, 135, 569-585.

Shehata, N., Salhin, A., & El-Helaly, M. (2017). Board diversity and firm performance: evidence from the UK SMEs. Applied Economics, 49(48), 4817-4832.

Sommers, S. R. (2006). On racial diversity and group decision making: identifying multiple effects of racial composition on jury deliberations. Journal of personality and social psychology, 90(4), 597.

Spencer Stuart. (2022). Board composition (2022 Nordic Board Index).

Stock, J. and Watson, M. (2015). Introduction to Econometrics (Fourth edition.; Global ed., The Pearson Series in Economics. Harlow: Pearson.

Stuart, T. E., Hoang, H., & Hybels, R. C. (1999). Interorganizational endorsements and the performance of entrepreneurial ventures. Administrative Science Quarterly, 44(2), 315-349.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. The social psychology of intergroup relations, 33(47), 74.

Tamimi, N., & Sebastianelli, R. (2017). Transparency among S&P 500 companies: An analysis of ESG disclosure scores. Management Decision, 55(8), 1660-1680.

Terjesen, S., Aguilera, R. V., & Lorenz, R. (2015). Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors. Journal of Business Ethics, 128, 233-251.

Van Beurden, P., & Gössling, T. (2008). The worth of values–a literature review on the relation between corporate social and financial performance. Journal of business

ethics, 82, 407-424.

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. Journal of Global Responsibility.

Velte, P. (2016). Women on management board and ESG performance. Journal of Global Responsibility.

Wang, D. (2020). Do female directors affect corporate tax avoidance? Evidence from China. International Journal of Economics, Commerce and Management, 8(3), 198-210.

Wang, S., & Wang, L. (2017). Gender diversity in the boardroom and risk management: A case of R&D investment. Journal of Business Research, 77, 41-52.

Wang, Y., & Stassen, R. (2018). The effect of board diversity on firm risk-taking: A spatial econometric approach. Corporate Governance: An International Review, 26(6), 450-466.

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. Econometrica: journal of the Econometric Society, 817-838.

Wooldridge, J. M. (2019). Introductory Econometrics: A Modern Approach (7th ed.). Cengage Learning.

World Economic Forum. (2022). The Global Gender Gap Report 2022. Geneva, Switzerland: World Economic Forum.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors. Journal of Financial Economics, 40(2), 185-211.

Yilmaz, M. K., Hacioglu, U., Tatoglu, E., Aksoy, M., & Duran, S. (2023). Measuring the impact of board gender and cultural diversity on corporate governance and social performance: evidence from emerging markets. Economic Research-Ekonomska Istraživanja, 36(2), 2106503.

Zhang, J., Song, Y., & Wang, Y. (2019). Do female directors improve financial performance of firms? Evidence from China. Journal of Business Ethics, 154(2), 527-542.