MASTER IN MANAGEMENT

MIM

MASTERS FINAL WORK

DISSERTATION

Does Gender Diversity on Boards Relate to ESG Performance?

ANNE SOPHIE GRÜBLER

MARCH 2024

MASTER IN MANAGEMENT

MIM

MASTERS FINAL WORK

DISSERTATION

Does Gender Diversity on Boards Relate to ESG Performance?

ANNE SOPHIE GRÜBLER

SUPERVISOR: PROF. MARIA JOÃO COELHO GUEDES

JURY:

PRESIDENT: PROF. MARIA EDUARDA SOARES

RAPPORTEUR: PROF. RICARDO RODRIGUES

SUPERVISOR: PROF. MARIA JOÃO COELHO GUEDES

ACKNOWLEDGEMENTS

First of all, I would like to thank my professor Dr Maria João Guedes, not only for her excellent supervision throughout the research process, but also for her insightful course and passionate sharing of her knowledge in the field of gender equality. She was a true inspiration and the key impetus for choosing my research topic. Additionally, I would like to extend my appreciation to all the women worldwide who, despite facing enormous obstacles, courageously and tirelessly advocate for more gender equality.

I am also incredibly grateful to my mother, to Mia and to my whole family for their unwavering support and patience, not only during the writing process of this thesis, but throughout my whole academic career. Their constant encouragement has made me the person I am today.

Last but not least, I am grateful to the entire ISEG community for fostering an environment of learning and growth and of course to all my fellow students, with a special thanks to Berni for his companion and support. I am deeply grateful for all the friendships formed, the diverse international experiences and all the unforgettable moments, be it in the library or outside the university campus. They have made my time in Lisbon an extraordinary journey.

RESUMO

Numa época marcada por agitação política, questões ambientais e dificuldades económicas, a responsabilidade das empresas está cada vez mais em foco. Apesar do reconhecimento crescente da sua importância para a justiça e o sucesso das empresas, as mulheres em posições de liderança ainda não são tratadas de forma igual. Esta discrepância não só representa uma profunda injustiça, como também ignora os impactos positivos da diversidade de género na gestão das empresas. Neste contexto, o presente estudo analisa a relação entre a presença de mulheres nos conselhos de administração e os resultados ESG (ambientais, sociais e de governação) das empresas. Utilizando uma amostra de 1,878 empresas europeias para o período 2012-2022 e o índice Gender-Balance-on-Boards (GBB) para medir a diversidade de género, a análise mostra uma relação positiva, mas não linear, entre a proporção de mulheres nos conselhos de administração e o desempenho ESG das empresas. Especificamente, verifica-se que o desempenho em termos de ESG atinge o seu máximo quando a proporção de mulheres no conselho de administração é de cerca de 60%. Estes resultados sublinham a importância de uma representação aproximadamente igual de ambos os sexos nos órgãos de liderança e fornecem informações valiosas para académicos, líderes empresariais e decisores políticos empenhados em promover um mundo empresarial sustentável e inclusivo.

ABSTRACT

In an era marked by political unrest, environmental issues, and economic difficulties, corporate responsibility is increasingly coming into focus. Despite growing recognition of their importance for justice and corporate success, women in leadership positions are still not treated equally. This discrepancy not only represents a deep injustice but also overlooks the positive impacts of gender diversity on corporate management. Against this backdrop, this study examines the relationship between the presence of women on boards and the ESG (Environmental, Social, Governance) outcomes of companies. Using a sample of 1,878 European companies for the period 2012-2022 and the Gender-Balance-on-Boards (GBB) Index to measure gender diversity, the analysis shows a positive, yet non-linear relationship between the proportion of women on boards and the ESG performance of companies. Specifically, it is found that ESG performance reaches its maximum when the proportion of female directors on the board is about 60%. These results underscore the importance of an approximately equal representation of both genders in leadership bodies and provide valuable insights for academics, business leaders, and policymakers committed to fostering a sustainable and inclusive business world.

Keywords: ESG, Gender Diversity, Board of Directors

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

BOD - Board of Directors

CEO - Chief Executive Officer

CSR - Corporate Social Responsibility

CSRD - Corporate Sustainability Reporting Directive

DbtE - Debt-to-Equity Ratio

ESG - Environmental, Social and Governance

EU - European Union

GBB Index - Gender-Balance-on-Boards Index

GDP - Gross Domestic Product

GICS - Global Industry Classification Standard

NFRD - Non-Financial Reporting Directive

SD - Standard Deviation

OLS - Ordinary Least Squares

ROA - Return on Assets

CHAPTER 1 - INTRODUCTION

We are living in times marked by various crisis - from political unrest, hunger and wars over economic struggles to the escalating climate crisis. These challenges are complex and encompassing, demanding a collaborative effort from all levels of society - including the corporate world.

In this context, the concept of Environmental, Social and Governance (ESG) practices in business became increasingly important. According to the Corporate Finance Institute (n.d.), ESG represents a framework for stakeholders to understand how companies address environmental, social and governance-related challenges and opportunities. With the increased importance of social and ecological responsibility in the corporate world (Sarfraz et al., 2023), ESG has emerged as a crucial tool for the evaluation of the sustainable and responsible performance of companies (Wu et al., 2024).

For the purpose of this study, it is important to note that the terms “board of directors”, “boards”, and “corporate boards” are used interchangeably to refer to the governing bodies of organizations or corporations.

For many companies, the integration of sustainability into their business strategies is not a matter of choice anymore but a mandatory requirement due to European legislation. With the regulations of the Corporate Sustainability Reporting Directive (CSRD) being applicable for the financial year 2024 for the first time, the range of companies obligated to disclose their sustainability efforts is increasing substantially.

An important element of the measures and objectives in these ESG practices is the integration of gender equality. In the “Social” dimension, this integration aids in fostering an inclusive work environment and tackling social inequalities. Meanwhile, in the “Governance” pillar, it enhances corporate leadership diversity, enriching decision-making processes and reinforcing strategic management.

As a result of growing concern about social and environmental issues, the quest for gender equality has been brought into sharper focus. But despite the significant progress that has been made in recent years, the journey towards full equality between women and men remains extensive. This is particularly evident when examining the composition of corporate boards. In 2023, only 33% of board members in the largest listed companies in the EU were women (EIGE, 2023). This statistic underscores the ongoing challenge of gender inequality, especially in leadership positions.

And this is despite the fact that gender equality is far more than a question of social justice. It plays a decisive role in improving a company's economic performance and can significantly strengthen its competitiveness (EIGE, 2016). The inclusion of women in companies and especially in board of directors (BOD) is crucial for promoting diverse perspectives (Kent Baker et al., 2020; Kolev & McNamara, 2020), for fostering innovation and flexibility (Miller & Triana 2009) as well as for improving the financial performance (Erhard et al., 2003; Post & Byron, 2015; Valls Martínez et al., 2019).

The relationship between gender diversity and its impact on financial performance and corporate organizational structures has been a subject of extensive study in academic literature. However, the connection between gender diversity and the ESG performance of companies remains somewhat elusive and not as comprehensively understood. There exists a divergence of opinions among authors on this subject, with no clear consensus emerging yet. This realization has given rise to the following research question, which will be explored and answered in the course of this study: *Does gender diversity on boards relate to ESG performance?*

Based on this question, the aim of the thesis is to investigate the relationship between the presence of women on BOD and the ESG performance of companies. To answer the research question, a sample of 1,878 companies in Europe was analysed, corresponding to 9,778 company observations in the period 2012-2022.

This study is structured as follows: Chapter two begins with the literature review, which examines theoretical concepts that support the hypothesis under investigation. Here, the concept and significance of ESG, gender diversity on BOD and the link between the two are discussed. The third chapter describes the sample and the methodology. The results are then analysed in chapter four. Subsequently, chapter five engages in a comprehensive discussion of these findings, including the implications and the limitations of this work. Finally, in the last chapter the conclusion can be found, in which the most important results of the study are summarised.

CHAPTER 2 - LITERATURE REVIEW

2.1. ESG definition and its relevance

The evolving landscape of corporate responsibility and sustainability is increasingly being shaped by the topic of ESG. ESG stands for "Environmental, Social, and Governance" and is a framework for assessing the impact that a company has in these three key pillars. Originally rooted in the concept of corporate social responsibility (CSR), the framework took form under the guidance of the United Nations in 2004, signaling the beginning of its development into a significant marker of corporate impact (Chen et al., 2023).

Looking at the individual components, the environmental pillar assess a company's efforts to minimize its negative environmental impact, including assessment of carbon emissions, recycling efforts, and waste management (de Souza Barbosa et al., 2023). The social pillar, on the other hand, refers to relationships with internal and external stakeholders of companies (Becchetti et al., 2022). It includes social aspects such as human rights, equality, health and safety, community and product responsibility. The governance pillar relates to corporate management as well as to the structure, remuneration and functions of the management board (Cek & Eyupoglu, 2020).

The ESG framework is designed to evaluate the sustainability efforts of companies (Linnenluecke, 2022) and serves as an essential tool for both the reporting company itself as well as for their stakeholders, acting as a key indicator of the significance of ESG themes within the organization (Weber, 2014). It also guides investment decisions, enabling the identification of companies whose practices are considered sustainable and thus aimed at long-term viability (Meng et al., 2023). This reflects the underlying idea that companies with high ESG ratings potentially carry lower risk and are likely to achieve better financial performance in the long run. However, the motivation for ESG investments transcends financial objectives. ESG investments can also be driven by the desire to promote social or environmental change (impact investing) or to align investment portfolios with personal beliefs (value-based investing) (Giese et al., 2019).

The concept of ESG has gained considerable momentum in recent years, as evidenced by the significant increase in the reporting of ESG data and the growing interest of investors in sustainable investments (Amel-Zadeh & Serafeim, 2017). This observation aligns with

the research of Cohen et al. (2015), Dhaliwal et al. (2010) and Cao et al. (2022), who noted a rapid rise in interest in sustainable investments and highlighted the financial relevance of ESG data. The increasing trend is driven by both increased regulatory requirements and pressure from various stakeholders, including governments, customers and investors (Aldowaish et al., 2022).

Disclosing ESG information can yield advantages for both companies and stakeholders (Martha & Khomsiyah, 2023). These include, for example, improved risk management (X. Cheng & Feng, 2023) competitive advantages and long-term sustainability (Mohammad and Wasiuzzaman 2021) as well as and improved investment efficiency (Allman & Won, 2022). Additionally, ESG disclosures reduces information asymmetries between stakeholders and the company and might have a positive impact on corporate transparency (Chen & Xie, 2022).

In recent years, there has been a significant and ongoing increase in international academic research focusing on the impact of ESG considerations on a company's financial performance and its subsequent market value (Deng & Cheng, 2019; Duque-Grisales et al., 2021; Rodríguez-Fernández et al., 2019; Tarmuji et al., 2016; Velte, 2017). Several studies show that ESG performance and its sub-dimensions (Ihsani et al., 2023) have a positive impact on financial performance (Fu & Li, 2023; Velte, 2017; Zhao et al., 2018) and the profitability of companies (Aydoğmuş et al., 2022; Kim & Li, 2021). Furthermore, a significant positive association exists between ESG performance and a company's reputation, potentially attracting investors attention and offering a crucial competitive benefit (Meng et al., 2023). Companies are facing growing expectations of "*doing good*", rather than solely focusing on financial profit (Huang, 2021).

Given these positive impacts of ESG performance on various aspects of business, it becomes imperative to understand the factors that drive a strong ESG performance. There is already a large body of literature analyzing the various factors influencing ESG performance. Among these, a study by Birindelli et al. (2018) reveals that the governance structure of a company, including factors such as board size and composition and the existence of a CSR committee, is decisive for its ESG performance. In addition, the findings from Almaqtari et al (2023) indicate that board characteristics such as company size, diversity or independence of the directors, significantly impact the ESG performance of organizations. Furthermore, numerous studies show that country-specific factors such as economic and social development as well as the political and regulatory environment

influences the ESG performance of companies (Daugaard & Ding, 2022; Pinheiro et al., 2023).

When it comes to the measurement of the ESG performance, there are various ways that stakeholders can use. So called ESG scores, published by independent rating agencies, have emerged as a key tool, particularly for investors and asset managers, in designing and implementing ESG investment strategies (Ehlers et al., 2023). As a quantitative measure, they provide an objective assessment, simplifying the comparison of sustainability practices across different companies. These ratings utilize publicly accessible data and voluntary disclosures to calculate individual scores for Environmental, Social and Governance aspects, as well as an overall aggregated ESG score (Sahin et al., 2022). However, these scores frequently face criticism regarding their reliability and significance. Minutolo et al. (2019) emphasize the fundamental issue that ESG scores often do not measure a company's actual performance in environmental, social, and governance initiatives, but rather reflect the extent of data disclosure. This issue is further complicated by the significant variances in assessments provided by different third-party evaluators, as noted by Billio et al. (2021) and the dynamic nature of ESG evaluations, which can shift with new data releases, according to (Berg et al., 2021). Furthermore Linnenluecke (2022) points out that ESG scores might lack a comprehensive inclusion of the perspectives of various local stakeholders, whose interest are likely to be affected by a company's operations and thus ought to be considered. Clément et al. (2023) introduce an intriguing proposition into the discussion: ESG values should be viewed less as a direct measure of sustainability performance and more as an indicator of an organization's long-term viability.

In addition, many companies voluntarily publish their ESG data in sustainability reports or are obligated to do so. Since 2014, certain public-interest companies have been required to report on sustainability activities under the European Union (EU) Directive on Non-Financial Reporting (NFRD). With the implementation of the CSRD, effective as of January 5 2023, the scope of companies obligated to disclose their sustainability efforts has significantly increased (European Commission, n.d.). The European directives mark a crucial step towards standardizing sustainability reporting in the EU, aiming for a more uniform ESG data landscape. This comes in response to the diverse range of existing reporting standards, which have led to considerable variations in reporting practices in scope and detail.

All in all, it can be said that in synthesizing the literature, it becomes evident that the adoption and integration of ESG principles into corporate strategies are not only a response to regulatory and stakeholder pressures but also a strategic move towards sustainability and long-term viability.

2.2. Gender Diversity on Boards

The lack of female representation on corporate boards has received increased attention from the public and academics (Kirsch, 2018).

In the literature, there are three fundamental viewpoints that highlight and justify the importance of gender equality on boards. First, the utilitarian argument suggests that the presence of women on boards positively impacts the profitability of companies. Second, the ethical argument addresses issues such as discrimination and fairness (Kirsch, 2018). From this viewpoint, gender equality is seen as a goal itself, irrespective of the impact on the company's profitability (Valls Martínez et al., 2019).

And third, from a political or social justice perspective, it has been argued that gender equality on boards is a matter of democracy (Kirsch, 2018). All approaches explain the incentives for promoting gender-diverse board compositions in companies.

In this context, extensive research has explored the relationship between gender diversity on corporate boards and the company's performance. There are many studies that have found a significant positive link between the number of women on boards and the financial performance of companies (e.g. Ahmadi et al., 2018; Brahma et al., 2021; Chen et al., 2023; Kılıç & Kuzey, 2016; Laskar et al., 2023; Reguera-Alvarado et al., 2017; Saha, 2023; Valls Martínez et al., 2019). To explain this positive effect, the resource dependence theory can be invoked, which posits that the behaviour of organisations is influenced by external resources (Pfeffer & Salancik, 1978). In the context of gender diversity, the resource dependency theory argues that diverse boards have superior resources because female board members provide resources that male board members cannot. (Carmo et al., 2022). Similarly, Kyaw et al., (2017) also highlight the crucial role of varied resources that diverse board members bring to the board's performance. Given that women and men offer distinct perspectives and skills, the inclusion of women introduces diverse resources to the board, potentially enriching the decision-making process (Hedija & Němec, 2021; Valls Martínez et al., 2019).

Carmo et al. (2022) confirm this positive impact on financial performance, but extend it by noting that it only materialises when a critical mass of women is reached. These results

align with the theory of critical mass, introduced by Kanter (1977), which posits that gender diversity will only boost board performance once the minority gender reaches a certain threshold within a team. However, the findings are inconsistent, as there are studies indicating no significant impact (Gruszczynski, 2020; Pletzer et al., 2015) or even a negative link (Adams & Ferreira, 2009; Ajaz et al., 2020; Shehata et al., 2017) between gender diversity and the financial performance of companies.

However, the advantages of gender diversity reach beyond mere financial indicators, with extensive research analysing its impact on a variety of other corporate dimensions. It has been found that companies with a gender balance on their boards tend to be more effective in upholding ethical standards and conducting business ethically (Garcia-Sanchez et al., 2014). Furthermore, female directors engage more in philanthropy and community Groysberg & Bell (2010) as well as positively impact the CSR performance of companies (Bear et al., 2010).

These findings suggest a potential avenue for investigating the influence of gender diversity on ESG performance, which will be further explored through a review of the existing literature in the subsequent chapter.

Looking at the governance of companies, numerous studies has demonstrated that gender-diverse boards enhance control mechanisms, improve monitoring (Farhan Jedi & Nayan, 2018; Gul et al., 2011; Lakhal et al., 2015) and contribute to better decision-making quality, underscoring their role in effective corporate governance (Lakhal et al., 2015). Furthermore, Abad et al. (2017) and Kirsch (2018) state that having female directors on the BOD leads to more stringent management oversight, given that women tend to be more independent and diligent than their male counterparts. The findings are in line with the agency theory, which emphasizes the crucial role of the BOD as an instrument for reconcile the interests of both shareholders and managers by serving as a monitoring and control mechanism (Jensen & Meckling, 1976). In the context of gender diversity, agency theory can be applied to explore if female directors assist boards in overseeing the company's management (Kirsch, 2018) with authors arguing that gender diversity can improve monitoring (Kirsch, 2018), decision making processes and reduce agency costs (Post & Byron, 2015).

In addition, the presence of women helps to optimize board dynamics, especially when it comes to mitigating default risk. However, also this effect only becomes significant when there is a critical mass of at least three women on the board and when these women hold a key leadership role on the board (Abinzano et al., 2023).

Moreover, research suggests that boards with greater gender diversity experience fewer conflicts, attributed to women's interpersonal conflict resolution skills and participatory leadership style (Nielsen & Huse, 2010).

From the perspective of signaling theory, which posits that decision-makers rely on observable signals from other parties (Spence, 1973), gender diversity on the BOD positively impacts a company's reputation by signaling non-discrimination and promoting a positive image (Kaur & Singh, 2018).

Despite significant empirical evidence supporting the financial and non-financial advantages of gender diversity on company boards, achieving complete gender equality between women and men in leadership positions remains a considerable challenge. As of 2023, women constituted just 28.2% of management positions in the workplace worldwide. If progress continues at this current rate, it is anticipated that women's share of management positions will only reach 30% by the year 2050 (United Nations, 2023).

However, a positive trend is noticeable (Carmo et al., 2022), accelerated by political and societal initiatives. Governments and regulatory bodies worldwide are taking steps to promote gender diversity in executive ranks - be it through quota regulations, guidelines for disclosing diversity policies, or voluntary measures (International Labour Organization, n.d.).

All in all, the existing literature reveals the need for efforts to break down systemic barriers and to promote an inclusive culture, ensuring gender diversity is recognized as a key driver for effective corporate governance and performance within an organization.

2.3. Gender Diversity on Boards and ESG Performance

The composition of the BOD is a key element in encouraging sustainable management practices (European Commission, 2012; Ferrero-Ferrero et al., 2015), with gender diversity gaining significant attention in recent years in this context.

According to Yahya (2023) there are two channels through which female leadership can influence the ESG performance of organisations. Either through the high risk avoidance preference or through the altruistic characteristics associated with women. In this context, increasing evidence suggests that a diverse makeup can positively impact corporate performance, primarily because men and women bring different experiences, skills, and knowledge to the board, enhancing company performance through diverse perspectives (Hedija & Němec, 2021; Post & Byron, 2015). This diversity of perspectives is particularly relevant when addressing complex challenges, such as those encountered in

ESG issues. The varying perspectives and opinions diverse boards offer can, for example, enhance both the environmental and the social performance of companies (Kyaw et al., 2017; Yahya, 2023) leading to an improvement in overall performance (Kyaw et al., 2017).

Studies show that there is a positive association between gender (female) and environmental attitudes and behaviours, with women tending to exhibit a higher concern for climate change (Barkan, 2014; Ciocirlan & Pettersson, 2012). In addition to the unique skills that female board members bring to the board, this fact results in female board members being more committed to effectively addressing environmental and social issues (Arayssi et al., 2020; Bazel-Shoham et al.,2023) and prioritising sustainability in their decision-making, leading to higher ESG performance (Heubeck, 2023).

According to Adams & Ferreira (2009), women have more caring characteristics than men, suggesting that in the context of making business decisions, women are more inclined to consider the welfare of others. Male and female directors carry distinct ethical responsibilities (Adams et al. 2015), and women are likely to build more trusting relationships and to prioritize extensive interaction with stakeholders compared to men (Alkayed et al., 2024). This tendency significantly contributes to enhancing the ESG performance of companies, as it introduces a compassionate perspective to corporate governance and sustainability initiatives (Yahya, 2023). Boulouta (2013) reinforces this view by emphasising that female board members are characterised by personality traits such as a commitment to transparency, risk aversion or a strong attachment to social and environmental goals, all of which contribute significantly to improving sustainable performance.

There are numerous studies that specifically explored this impact of gender diversity, as part of a company's corporate governance, on ESG performance. Many of them reveal a significant positive link (Almaqtari et al., 2024; Paolone et al., 2024; Velte, 2017; Wasiuzzaman & Wan Mohammad, 2020), suggesting that more balanced gender representation can improve companies' sustainability practices (Romano et al., 2020).

Sofiati & Mita (2024) likewise discover a positive link, but extend it by adding the requirement that companies must be rich in intellectual capital to achieve this favourable impact.

The research underscores that by strategically focusing on the gender composition of their boards, companies can significantly improve their ESG performance. Moreover, a study by Nguyen et al. (2023) shows that more female directors on the board improve not only

the ESG ratings but also the financial performance of a company, thus highlighting the mediating role of ESG performance. Nevertheless, the literature in this area has not yet produced fully conclusive results. Some studies show that women on board do not have a significant (Zaid et al., 2020) or even have a negative effect (Dong et al., 2023) on sustainability performance of a company.

Abdelkader et al. (2024) argue that female directors are confronted with prejudices and stereotypes, which can have a negative impact the ESG performance. Drawing on the critical mass theory, Yadav & Prashar (2023) show that there is a positive relationship between gender diversity on boards and ESG performance, but it depends on the number of women. While a relatively low percentage of female directors has little effect on ESG performance, the relationship becomes more favorable when there are at least three female directors. This observation is consistent with other studies, which show that the contribution of women to the strategic functions of the BOD increases significantly when a minimum number of three women is reached (Schwartz-Ziv, 2017; Torchia et al., 2010). On the other hand, the findings by Heubeck (2023) indicate that there might be a threshold level for BGD, after reaching which the beneficial influence on ESG performance starts to decline. These research findings suggest that the relationship between gender diversity and ESG performance might be complex and may go beyond a linear relationship.

This is supported by the findings of Menicucci & Paolucci (2022), who analysed the link between gender diversity and ESG performance in the Italian banking sector. Their results suggest that the presence of women on boards has a positive impact on the ESG performance of companies, but that the nature of this impact changes once a certain number of women on the board is reached. Once this critical mass is exceeded, a further increase in the number of female board members does not necessarily lead to a proportional improvement in ESG performance, but the relationship takes on a non-linear tendency (Menicucci & Paolucci, 2022).

Furthermore, the literature shows that the composition of the BOD might have an impact not only on ESG performance but also on ESG reporting and the quality of its disclosure. Various studies show a significant positive relationship between a balanced gender ratio on boards and the ESG disclosure score (Alkhawaja et al., 2023; Arayssi et al., 2020; Wasiuzzaman & Subramaniam, 2023) and shed light on the influential role of female board members in improving transparency and accountability in sustainability practices.

All in all, the academic landscape presents a broad spectrum of findings on the impact of gender diversity on various aspects of the ESG performance of companies. Many studies

and theories suggest a positive correlation between gender diversity and ESG performance, yet there are also findings that do not identify such a relationship. Given this mixed evidence, our work aims to bridge this gap and to provide valuable insights into the debate surrounding gender diversity and its effects on ESG performance.
Taken all together, the following hypothesis is formulated:

Hypothesis 1 (H1): The presence of female directors is positively related to ESG performance.

CHAPTER 3 - SAMPLE AND METHODOLOGY

3.1. Sample

The data set of this study comprises a sample of 1,886 companies located in Europe, resulting in 9,882 observational data points for the period 2012-2022. The data is primarily sourced through the Eikon database, supplemented with information from the World Bank. To ensure a robust and representative sample, companies from countries with less than ten observations were excluded, leading to an dataset of 9,865 observations. In addition, the final sample was further refined to include only those observations for which complete data were available for all relevant variables. The final sample therefore consists of 1,878 companies located in 25 different European countries, resulting in 9,778 observations. Appendix 1 shows the detailed composition of the sample by country.

3.2. Variables

The following section explains the variables used in the study, which are categorised into dependent, independent and control variables.

3.2.1 Dependent Variables

The ESG performance of companies is assessed using the ESG score, which is provided by the Refinitiv Eikon database. The aggregate ESG score for a company is determined based on over 630 self-disclosed data points and spans a scale from 0 to 100. The score encompasses three distinct pillars: Environment, Social, and Governance. Each of these pillars is composed of specific categories, which receive an individual category score. In the environmental pillar resource use, emissions and innovation are considered. The social pillar includes the factors workforce, human rights, community as well as product responsibility. The governance pillar is delineated into management, shareholders, and CSR strategy. The overall ESG rating for a company is determined by summarising the results of these individual categories, with the weighting being sector-specific. Furthermore, an additional factor is taken into account that includes corporate scandals and controversies that may influence the final ESG rating. (LSEG, 2023).

3.2.2 Independent Variables

The aim of this study is to examine the impact of gender diversity on the ESG performance of companies. Therefore, the independent variable is a measure of gender diversity. Gender diversity can be measured in various ways, whether by absolute numbers, ratios or dummies. However, absolute numbers and dummies neglect the size of boards, impacting the comparability of boards of different sizes. While ratios consider board size, they can be sensitive to variations in board size, potentially distorting results. For instance, a small board with only one female member may exhibit a high percentage ratio, giving a misleading impression of diversity. The same ratio might appear less representative in a larger board. Therefore, in this study, the Gender-Balance-on-Boards (GBB) Index, developed by Guedes & Casaca (2021), is used to measure the balance between women and men in corporate boards. The index ranges from zero, indicating a homogenous board consisting of only men or only women, to one, signifying a fully balanced board with 50% women and 50% men. The proposed GBB formula is presented in equation 1:

$$GBB\ Index = 4^{k} * (Percentage\ of\ Women)^{k} * (Percentage\ of\ Men)^{k} \qquad (1)$$

Where k represents the exponent variable that can be chosen based on theory, industry, or the phenomenon under investigation, leading to various types of results and curves. Following Guedes & Casaca (2021), the adopted value is k=2 to measure gender balance in boards. Thus, as presented in equation 2, the formula for the GBB Index used in this work is:

$$GBB\ Index = 4^{2} * (Percentage\ of\ Women)^{2} * (Percentage\ of\ Men)^{2} \qquad (2)$$

This quadratic calculation results in a non-linear relationship, which is reflected in an inverted U-shaped curve, reaching its maximum value of one at complete gender parity. If the proportion of women or men on the board is initially low, a small change in this proportion has a relatively small effect on the GBB Index. However, the closer the distribution approaches a balanced 50-50 ratio, the index becomes progressively more reactive, reflecting a greater sensitivity to shifts towards a balanced gender representation. Moreover, adding a new board member of the underrepresented gender consistently improves the index more than removing a member of the overrepresented gender.

Consequently, the index favors larger boards. The most effective way to increase the index value is to replace members of the overrepresented gender with members of the underrepresented gender, moving towards parity (Guedes & Casaca, 2021).

3.2.3 Control Variables

In the study, there are a set of control variables. The size of the corporate board (*BoardSize*), measured by the number of directors, is considered as a control variable. According to previous research, a high number of directors may decelerate the decision-making process and reduce the efficiency of boards (Cheng, 2008; Jensen, 1993).

On the other hand, a larger BOD could provide a broader range of opinions and resources (Post et al., 2011), which could potentially improve the company's ESG performance. Research findings by Menicucci & Paolucci (2022), Husted & Sousa-Filho (2019) as well as Gurol & Lagasio (2023) further suggest that a larger board can help to resolve representation conflicts within a company while providing a wealth of diverse expertise and encouraging innovation.

Larger companies often have more resources and greater public visibility, which might lead to greater pressure to meet ESG standards and to mitigate reputational risks (Barros et al., 2022). This idea is supported by numerous research findings that have found a positive association between a company's size and its ESG performance (Drempetic et al., 2020; Nekhili et al., 2021) as well as its sustainability disclosure practices (Brammer & Pavelin, 2004; Branco & Rodrigues, 2008; Dyer & Whetten, 2006; Haniffa et al., 2005). Therefore, the company size, measured by the natural logarithm of the number of employees *(lnsize)*, is taken into account as a control variable. The use of the natural logarithm was chosen to improve the interpretability of the results and to facilitate the analysis.

The financial performance of companies is measured by the return on assets *(ROA)*, serving as another control variable in this analysis. Companies exhibiting higher levels of profitability are likely to possess greater capital resources, which could be allocated towards ESG initiatives. ROA is calculated as a ratio of the net income after tax divided by the same periods total assets.

The debt-to-equity ratio *(DbtE)* serves as an additional control variable in this study, reflecting companies' debt levels. The calculation of the variable is conducted by dividing the total debt by the common equity for the respective period. A higher DbtE might

negatively correlate with ESG performance, as companies with greater indebtedness may face more financial constraints, limiting their capacity to invest in ESG initiatives.

The number of independent board members *(IndepBoard)* indicates the percentage of independent directors, that are without close personal or business ties to the organization. This independence is often seen as a key factor in effective corporate governance, as it enables the board to monitor business practices more effectively (Liao et al., 2015). Several studies report that corporate sustainability performance is positively and significantly associated with a higher proportion of independent directors on the board (Aksoy et al., 2020; Bigelli et al., 2023; Husted & Sousa-Filho, 2019; Kumari et al., 2022; Shahbaz et al., 2020).

Furthermore, the model includes the binary variable Chief Executive Officer (CEO) chairman duality *(CEODuality)* as a control variable, which indicates whether the positions of CEO and chairman of the board are held by the same person or not. If they are the same person, this is referred to as a CEO-Chairman dual function. Regarding the effects of a CEO's dual function in companies, two different theoretical approaches can be recognised. According to the agency theory, the dual role of a CEO negatively impacts company performance as it complicates decision-making processes and increases both conflicts of interest and agency costs (Yu, 2023). However, the stewardship theory posits that the dual function of an individual as both CEO and chairman of the board can promote more efficient and effective corporate management, aligning with shareholder interests (Hassan et al., 2023). Regarding the impacts on ESG performance, these two distinct perspectives are also evident. A substantial number of papers conclude that CEO duality enhances agency conflict, impeding corporate transition to ESG practices (Bhat et al., 2023; Güngör & Şeker, 2022; Naciti, 2019; Romano et al., 2020). However, proponents of the stewardship theory argue that CEO duality is found to enhance overall ESG performance and CSR disclosure (Fahad & Rahman, 2020; Nekhili et al., 2021; Tamimi & Sebastianelli, 2017).

Furthermore, the study includes country-specific control variables, namely the inflation rate *(Inflation)* and the Gross Domestic Product (GDP) per capita, for interpretation purpose measured by the natural logarithm of GDP per capita *(lnGDP).* Both of them reflecting macroeconomic conditions, which are expected to influence the ESG performance of companies (Daugaard & Ding, 2022; Sanches Garcia et al., 2017).

Finally, variables relating to the sector in which the company operates *(Industry)* as well as to the reporting year *(Year)* are being taken into account. It is expected that a

company's ESG performance will vary depending on its location (Daugaard & Ding, 2022; Pinheiro et al., 2023; Sanches Garcia et al., 2017) and sector (C. Chen et al., 2023), as well as over the course of the study period (Daugaard & Ding, 2022).

*3.3. **Model***

A multiple regression model with robust standard errors was chosen to control for potential heteroskedasticity. The model used is presented in equation 3:

$$ESGScore_{i,t} = \beta_0 + \beta_1 GBBIndex_{i,t} + \beta_2 BoardSize_{i,t} + \beta_3 lnCompanySize_{i,t} + \beta_4 ROA_{i,t} + \beta_5 DbtE_{i,t} + B_6 IndepBoard_{i,t} + \beta_7 CEODuality_{i,t} + \beta_8 lnGDP_t + \beta_9 Inflation_t + \sum \beta_{10} Industry_i + \sum \beta_{11} Year_t + \varepsilon_{i,t} \quad (3)$$

The index "i" represents each respective company in the sample (i = 1, 2, ..., 1878), while the index "t" corresponds to each respective year (t = 2012, 2013, ..., 2022). The coefficient "β" illustrates the estimated effects of their respective independent variables on the dependent variable. "β_0" depicts the intercept or constant term, which is the estimated value of the dependent variable when all the independent variables are equal to zero. The dependent variable $ESGScore_{i,t}$ indicates the ESG score for company i in period t, measuring the company's sustainability performance. The independent variable $GBBIndex_{i,t}$ represents the GBB Index for company i in period t, which is a measure for the gender balance on the boards of directors. When it comes to the control variables, the $BoardSize_{i,t}$ indicates a company's size of the BOD in period t. As mentioned above, larger boards may offer more diverse expertise and perspectives (Post et al., 2011), which could promote ESG standards, but increased conflicts and more difficult decision-making could outweigh these advantages (Nguyen & Faff, 2006). The variable $lnCompanySize_{i,t}$ on the other hand shows the natural logarithm of the size of company i in period t, used to assess the effects of a company's size on the ESG score. The rationale behind this is that larger companies, due to their resources and public profile, may be under greater pressure to meet higher ESG standards. As explained before, this presumed positive link between a company's size and its ESG performance is supported by several academic, such as the research conducted by Drempetic et al. (2020) and Nekhili et al. (2021). Consequently, the size of a company is considered a crucial control variable within this regression model. Looking at the financial variables, $ROA_{i,t}$ displays the Return on Assets for company i in period t, while $DbtE_{i,t}$ shows the Debt-to-Equity ratio for company i in period t. Both are

considered in the model as they provide insight into the company's financial stability and risk tolerance, which could indirectly influence its ability and willingness to invest in ESG initiatives.

In terms of governance-related metrics, the variable $IndepBoard_{i,t}$ quantifies the number of independent directors on the board of company i in period t, highlighting the level of external oversight and independence within the board's structure. The binary variable $CEODuality_{i,t}$ captures whether the positions of CEO and chairman within company i in period t are held by the same person. Both governance variables are critical as they reflect the internal structures and control systems, which can be key drivers of ESG performance.

With the country-specific variables, $lnGDP_{i,t}$ illustrates he natural logarithm of the GDP for the respective company in period t. One might expect that countries with higher economic growth, shown in their GDP, are more likely to invest more financial resources in ESG practices. However, there are some studies showing that there is a negative correlation between a country's GDP and its ESG performance (Al Amosh & Khatib, 2023; Alandejani et al., 2023; Buallay, 2019). Furthermore the variable $Inflation_{i,t}$ shows the inflation rate for the country in period t, in which the respective company has its headquarter. A high inflation rate as a sign of economic instability could have a negative impact on ESG performance, as companies may have less funds available for ESG initiatives. In order to take these possible relationships into account, both macroeconomic variables are included in the regression model.

The dummy variables $Industry_{i,t}$ and $Year_t$ categorize companies by their respective sectors using the Global Industry Classification Standard (GICS) and identify the specific year to which the data pertains, respectively. As highlighted earlier, prior research illustrates that a company's ESG performance varies depending on its industry (C. Chen et al., 2023). Some industries naturally face greater ESG challenges due to negative environmental impacts or specific industry regulations. Similarly, ESG performance is likely to vary from year to year (Daugaard & Ding, 2022), as external conditions such as recessions or crises might lead to a general decline in ESG performance across various companies. Consequently, this model accounts for these variables to ensure a nuanced and accurate analysis.

Finally, the term $\varepsilon_{i,t}$ represents the error term that captures the unexplained variability of the ESG score that is not accounted for by the independent variables of the model.

Table 1 contains definitions and detailed descriptions of all variables used in this model.

Table 1: Labels and Descriptions of the Variables

VARIABLE	Variable Label	Description
ESG Score	ESG Score	ESG Score
GBBIndex	4^2 x (WomenOnBoardPercent/100)^2 x (MenOnBoardPercent/100)^2	Calculated Gender Balance on Boards Index based on board gender diversity
WomenOnBoard	Board Gender Diversity, Percent	Percentage of female members in the Board of Directors
GDP	GDP per Capita	Gross Domestic Product divided by the number of inhabitants of the country
Inflation	Inflation	Rate of change in the consumer price index
IndepBoard	Independent Board Members, Percent	Percentage of independent board members in the Board of Directors
BoardSize	Board Size	Size of the board of directors, measured by the number of board members
CEODuality	CEO Chairman Duality	A dummy variable that takes the value "1" if the CEO and chairman roles are held by the same person, and "0" otherwise
lnCompanySize	ln (NumberOfEmployees)	Company size, measured by the natural logarithm of the total number of employees
ROA	Net Income After Tax / Total Assets	Return on assets (ROA), measured by Net Income After Tax divided by Total Assets
DbtE	Total Debt / Common Equity Total	Debt-to-Equity ratio (DbtE) i.e. the ratio of total debt to total common equity
lnGDP	ln (GDP per Capita)	Natural logarithm of the Gross Domestic Product divided by the number of inhabitants of the country
Industry	GICS Industry Name	Two-digit industry dummies based on the Global Industry Classification Standard
Year	Year	Binary yearly dummies

*3.4. **Descriptives***

Table 2 shows the descriptive statistics of the model variables.

Table 2: Descriptive Statistics

VARIABLE	N	Mean	SD	Min	Max
ESGScore	9,778	55.68	19.50	0.63	95.91
GBBIndex	9,778	0.59	0.32	0	1
WomenOnBoard	9,778	27.40	14.33	0	100
BoardSize	9,778	9.60	3.70	1	30
lnCompanySize	9,778	8.71	1.95	0	13.50
ROA	9,778	0.07	0.07	0	2.52
DbtE	9,778	1.10	10.20	-53.42	820.26
IndepBoard	9,778	55.78	26.09	0	100
CEODuality	9,778	0.23	0.42	0	1
lnGDP	9,778	10.53	0.46	7.16	11.51
Inflation	9,778	2.25	2.55	-2.10	48.70
SocialPillarScore	9,778	58.81	22.60	0.26	98.35
GovernancePillarScore	9,778	54.44	21.93	0.46	98.56
EnvironmentalPillarScore	9,778	51.41	25.81	0	99.14

When examining the descriptive statistics of the independent variable, one can conclude that the sample has an average ESG score of 55.68 on a scale of 0 to 100. This suggests a moderate level of ESG performance among the surveyed companies. However, a considerable standard deviation (SD) of 19.50 indicates significant variability in the companies' ESG performance. The range of 0.63 to 95.91 illustrates that companies' commitment to ESG issues varies greatly. Some companies are barely involved in ESG efforts, while others achieve significant success in these areas. This heterogeneity highlights substantial room for improvement, particularly for companies at the lower end of the scale. Nevertheless, it is important to note that the ESG score is a composite of all three dimensions and does not provide specific insights into which areas a company performs well or poorly. A weaker performance in one area could be offset by stronger performance in another.

Analysing the scores of the individual ESG pillars, it becomes evident that all three exhibit moderate values. Companies achieve the highest average score in the social pillar, with a score of 58.81, followed by the governance score at 54.4, and the environmental

pillar with 51.41. This highlights the similarity in scores across all three pillars, suggesting that the companies in the sample might maintain a balanced ESG performance without a significant emphasis on any particular pillar.

When looking at the GBB Index, which measures the representation of women on company boards on a scale of 0 to 1, we can find average value of 0.59. As a value of 1 represents perfect gender parity, with 50% of board members being women, this average value of 0.59 emphasises the considerable gender imbalance on the surveyed companies' boards. With a minimum value of 0 and a maximum value of 1, it can be concluded that the proportion of women on the boards of directors varies greatly. Some companies achieve full parity, while others have entirely male or female boards. This finding is reinforced when looking at the descriptive statistics of the percentage of women on the BOD. With a mean of 27.4%, it becomes evident that the average corporate board in the sampled companies is dominated by men, indicating a gender imbalance. Our sample's gender diversity lags behind the 30.7% European average, as indicated by Deloitte's annual Women in the Boardrooms study (Deloitte, 2022). The dataset’s range, extending from 0% to 100%, illustrates the presence of both all-male and all-female boards within the sample. This heterogeneity could be due to divergences in the company policies and corporate cultures, as well as specific circumstances in the respective countries or industries.

Looking at the control variables, it can be said that the companies in the sample have an average number of 27,765 employees and an average board size of 10 board members. In relation to the financial control variables, an average return on assets of 7% and an average debt-equity ratio of 1.1 can be recognised.

With regard to the country-related control variables, the average annual inflation of the sample is 2.25 % and the GDP per capita is 41001.81 EUR.

CHAPTER 4 - DATA ANALYSIS

4.1. Multiple Regression

The following section presents the results of the regression analysis, using robust standard errors to account for possible heteroscedasticity. The aim of the analysis is to understand the relationship of gender diversity on the ESG score of the companies in our sample. Furthermore, an additional analysis of the impact of each individual ESG pillar was conducted to enhance the accuracy of the findings. Table 3 presents the regression results, using the Ordinary Least Squares (OLS) method with robust standard errors.

Table 3: Regression Results for OLS

VARIABLE	ESG Score	Environmental Pillar Score	Social Pillar Score	Governance Pillar Score
GBBIndex	10.89***	14.64***	9.723***	9.816***
	(0.518)	(0.697)	(0.647)	(0.645)
BoardSize	1.069***	1.368***	1.256***	0.382***
	(0.0547)	(0.0715)	(0.0661)	(0.0686)
lnCompanySize	5.244***	6.205***	5.877***	3.573***
	(0.114)	(0.151)	(0.142)	(0.140)
ROA	0.241	2.043	-0.739	0.299
	(1.706)	(2.613)	(2.427)	(2.573)
DbtE	-0.00410	0.00809	0.00217	-0.0204
	(0.00491)	(0.0149)	(0.00694)	(0.0150)
IndepBoard	0.172***	0.115***	0.126***	0.281***
	(0.00593)	(0.00809)	(0.00751)	(0.00733)
CEODuality	-1.291***	1.861***	0.950**	-7.007***
	(0.358)	(0.492)	(0.450)	(0.467)
Inflation	-0.709***	-0.759***	-0.870***	-0.520***
	(0.132)	(0.165)	(0.171)	(0.173)
lnGDP	1.790***	2.814***	2.320***	-0.00154
	(0.428)	(0.568)	(0.565)	(0.488)
Constant	-45.39***	-67.97***	-56.51***	-7.656
	(4.869)	(6.509)	(6.358)	(5.688)
Observations	9,778	9,778	9,778	9,778
R-squared	0.533	0.486	0.445	0.359

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Looking at the relationship between the GBB Index and the ESG score of the companies, we can see that it is positive and statistically significant at a significance level of 1%. ($p < 0.01$). Accordingly, a higher GBB Index has a positive influence on the ESG score of the companies in our sample, providing support for hypothesis 1. The findings align with

prior research that underscores a positive impact of gender diversity on boards on a company's ESG performance (García Martín & Herrero, 2020; Romano et al., 2020). This positive link may be attributable to the distinct perspectives and life experiences that women bring to the table, differing significantly from those of their male counterparts (Post & Byron, 2015). This is also confirmed by the results of the individual ESG pillars. The environmental pillar score, the social pillar score and the governance pillar score are all statistically significant at a significance level of 1% ($p < 0.01$) and exert a positive influence on the GBB index and therefore on gender diversity on corporate boards. The results for the individual ESG pillars are therefore also in line with existing literature, suggesting that female board members are inclined to prioritize and effectively tackle social and environmental matters (Arayssi et al., 2020; Ciocirlan & Pettersson, 2012) as well as that they are playing a pivotal role in enhancing corporate governance (Lakhal et al., 2015). These factors might have contributed to enhancing both the distinct dimensions as well as the comprehensive ESG performance of the companies in our dataset. Building on the work of Guedes & Casaca (2021), that proposes the GBB Index as a non-linear, this non-linear nature of the relationship between gender diversity and ESG performance can be also provided in this study. This non-linearity can be attributed to the inherent characteristics of our chosen metric, the GBB Index, which follows an inverted U-shaped pattern. The low representation of one gender and a high representation of the other, or vice versa, can produce equally favourable or unfavourable outcomes in terms of the ESG performance. Therefore, the findings not only underscore the potential for a positive association between gender diversity and ESG performance but also accentuate the presence of a non-linear effects that should be further explored. This result of nonlinearity extends the discussion around the critical mass theory. While the theory, states that gender diversity will only exert influence in a company once the minority gender comprises a certain number (Kanter, 1977), the findings above suggest that there might be a point where further increase in the minority gender no longer lead to linear improvements. It could imply that achieving a minimum number of female board members is crucial for unlocking positive effects, but it also indicates the importance of avoiding an overly dominant presence of any one gender to realize the optimal impact on ESG performance. Thus, it might not just be about achieving a "critical mass" but also about maintaining a "critical balance" that addresses both the underrepresentation of women and avoids overrepresentation, to ensure the most positive effects on ESG performance.

Overall, the model has a multiple R-squared of 53.27%, indicating that approximately 53% of the variance in the ESG score can be explained by the independent variables. This suggests that the model demonstrates a good fit to the data.

4.2. ***Robustness Tests***

To ensure the solidity of the presented results, subsequent robustness analyses were conducted using alternative regressions. First, a fixed-effects (FE) model was used to account for the impacts of industry and time effects within the sample, thereby gaining a deeper understanding of the determinants of the ESG score while controlling for these effects. The results are presented in Table 4.

Table 4: Regression Results, Fixed Effects

VARIABLE	**ESG Score**
GBBIndex	4.594***
	(0.7.65)
BoardSize	0.160
	(0.112)
lnCompanySize	2.116***
	(0.595)
ROA	-3.803*
	(2.292)
DbtE	-0.0133
	(0.0111)
IndepBoard	0.0837***
	(0.0127)
CEODuality	-0.957
	(0.713)
Inflation	-0.231***
	(0.0879)
lnGDP	0.742
	(4.069)
Constant	11.86
	(42.42)
Observations	9,778
Number of ID	1,865
R-squared	0.483

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results show that the relationship between the GBB Index and the ESG score remains statistically significant ($p < 0.01$). This confirms the results of the OLS regression,

emphasising the consistently positive effect of the GBB Index on the ESG score. Consistent results can also be observed for the control variables.

Second, to further test the robustness of the results, another alternative linear regression was performed. In this model, the GBB Index was replaced by the percentage of women on the corporate board (*WomenOnBoard*) as an independent variable. Tabel 5 presents the regression results, using the robust standard errors method, using an alternative independent variable.

Table 5: Regression Results, WomenOnBoard

VARIABLE	**ESG Score**
WomenOnBoard	0.229***
	(0.0117)
BoardSize	1.099***
	(0.0551)
lnCompanySize	5.259***
	(0.114)
ROA	0.158
	(1.719)
DbtE	-0.00355
	(0.00498)
IndepBoard	0.176***
	(0.00596)
CEODuality	-1.367***
	(0.360)
Inflation	-0.698***
	(0.132)
lnGDP	1.839***
	(0.428)
Constant	-46.62***
	(4.871)
Observations	9,778
R-squared	0.531

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results show a positive and significant relationship between of the ESG and the percentage of women on boards. Consistent results can also be observed for the control variables. This supports the results of our multiple regression analysis and thus speaks in favour of hypothesis 1. Furthermore, this uniformity of results is evidence of the effectiveness and reliability of the GBB Index as a valid measure of gender diversity.

Third, in order to confirm the baseline results, a non-linear effect was tested using a quadratic term of the proportion of women on the board instead of the GBB Index as an independent variable.

Tabel 6 presents the regression results, using a quadratic term of the proportion of women on the board instead of the GBB Index as an independent variable.

Table 6: Regression Results, Non-linear Effects

VARIABLE	**ESG Score**
WomenOnBoard	0.430***
	(0.0350)
c.WomenOnBoard#c.WomenOnBoard	-0.00367***
	(0.000582)
BoardSize	1.039***
	(0.0552)
lnCompanySize	5.276***
	(0.114)
ROA	0.292
	(1.727)
DbtE	-0.00504
	(0.00483)
IndepBoard	0.169***
	(0.00602)
CEODuality	-1.211***
	(0.360)
Inflation	-0.703***
	(0.130)
lnGDP	1.681***
Constant	-46.31***
	(4.870)
Observations	9,778
R-squared	0.533

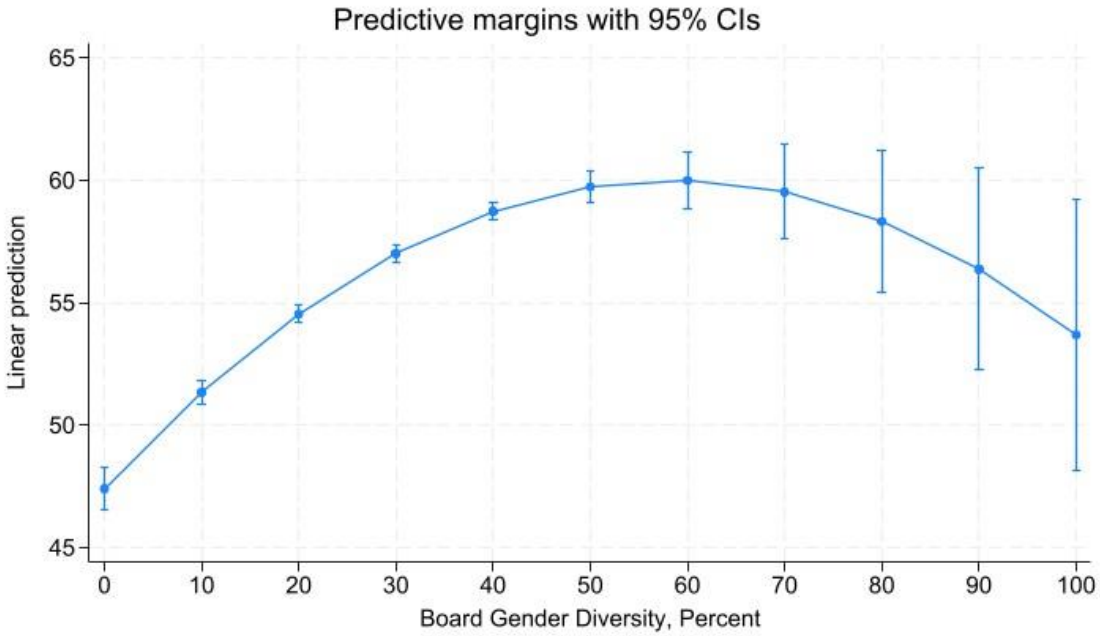
Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

In support of the non-linear nature of gender diversity as claimed by the authors of the GBB Index, the results show a positive coefficient for the proportion of women on the board, which is statistically significant at a significance level of 1 %. The results are thus consistent with the previous findings, indicating that an increasing proportion of women is associated with a higher ESG performance. However, the quadratic term, which has a negative coefficient of -0.0037, indicates that this trend reverses as soon as a certain proportion is exceeded. This strengthens the assumption that the relationship between the

proportion of women on the board and the ESG scores is not linear. If the proportion of women on the board is already high, a further increase may not yield the same positive effect, as indicated by the negative coefficient. This suggests that the impact of increasing gender diversity may decrease or even become negative and that there might be an optimum level of gender diversity, where the ESG performance of the companies is maximized.

This calculation allowed, for the measurement of the expected change in the ESG score with a gradual increase in the proportion of women on boards, thereby gaining an understanding of how changes in gender diversity affect the ESG performance of companies. Figure 1, displays these predicted marginal ESG scores and the percentage of women on boards showing the predictive margins with 95% confidence intervals.

Figure 1: Marginal Effects of Board Gender Diversity on ESG Scores



The horizontal axis represents the percentage of women on the BOD, while the vertical axis shows the predicted ESG score. According to Figure 1, as the proportion of women increases, the ESG score initially rises until an optimum is reached at a proportion of 60% - seen at the highest point of the curve - with a predicted marginal ESG score of 60.11. Beyond this point, the estimated ESG score begins to decline, until it reaches a value of about 53.80 at a 100% female board representation. These findings suggest that there is an optimal level of board gender diversity at which the ESG score is maximized, which

is very close to 50% and beyond parity, as suggested by Guedes and Casaca (2021). This implies that gender diversity in leadership positions is favorable for a company's ESG performance up to a certain limit, while excessive dominance of one gender may be correlated with lower ESG performance. The presence of non-linearity indicates that the relationship between board gender composition and corporate ESG performance is complex and emphasizes the importance of a differentiated view of board gender diversity.

The analyses and robustness tests presented in this chapter illustrate the significant influence that gender diversity at board level has on the ESG performance of companies. However it becomes clear, that the relationship between gender diversity on boards and ESG performance is not linear, but that there is an optimal ratio between women and men at which ESG performance peaks.

CHAPTER 5 - DISCUSSION

Following the results from the empirical analysis, it can be concluded that gender diversity has a positive influence on a companies' ESG performance. Therefore, hypothesis 1 is supported. This result provides valuable insights into the dynamics between board composition and sustainable corporate governance. This finding is in line with previous research that emphasizes the positive effects of diversity on corporate performance and especially on sustainability aspects (García Martín & Herrero, 2020; Romano et al., 2020).

Furthermore, our findings indicate a non-linear relationship between board gender diversity and ESG performance. This result is particularly relevant in light of the discussion around a "critical mass" for women in leadership positions as discussed by Schwartz-Ziv (2017) and Yadav & Prashar (2023). Both found out that the positive impact of gender diversity on ESG performance only becomes significant above a certain threshold. However, our findings partially contradict the critical mass theory, but instead suggest that beyond a certain point, additional female board members do not further improve ESG performance. With an increasing share of women on the board, companies' ESG performance initially improves, reaching an optimum at a 60% female representation. Beyond this critical point, the ESG score begins to decline. This result is confirmed by the consideration of the quadratic term of the variable *WomenOnBoard*, which accounts for potential nonlinearities and limits the threshold of female directors. Hence, an increasing number of women on boards does not necessarily imply a positive effect on enhancing ESG performance beyond the mentioned threshold. The outcomes suggest that there is an optimal ratio of women to men on boards that maximizes ESG performance and emphasize the importance of a balanced ratio. These results align with those of (Menicucci & Paolucci, 2022) who also identified a nonlinear relationship in this context. It becomes clear that a balanced gender distribution on the board can improve ESG performance up to a certain extent, but may not offer additional benefits beyond that. This insight emphasizes the importance of developing diversity strategies that go beyond quantity and aim for a high-quality inclusion of women in leadership positions. Understanding this nonlinear pattern is crucial for companies aiming to optimize their ESG performance through improved board composition, shedding new light on the discussion around the critical mass theory and enhancing the understanding of the impact of board diversity.

5.1. Managerial and Political Contributions

This research provides several key implications for both managers as well as for public institutions. The results suggest that CEOs and managers should pay more attention to corporate governance, especially gender diversity on boards, in order to improve ESG performance. However, since the relationship between gender diversity and ESG performance is not linear but exhibits an optimum, management should not solely focus be on maximizing the number of female board directors, but rather on achieving this optimal balance of gender diversity that fosters the most effective ESG performance. In this regard managers should consider gender diversity as an integral part of the corporate strategy and should create a company culture that values and actively promotes gender diversity. Such measures could include training programs, mentoring initiatives, and flexible working conditions, contributing to an environment where employees, regardless of their gender, can thrive.

In the light of the implementation of legal gender quotas, fostering companies to greater gender diversity, the findings of this study are very promising. They suggest that adhering to gender quotas can boost ESG performance and thus provide a competitive advantage. However, the identified non-linear relationship implies that while a certain level of gender diversity should be encouraged, a policy aiming for maximum diversity without considering an optimum might be counterproductive. Instead, given that this optimum level of gender diversity where ESG performance can be maximized may differ across countries and industries, it would be advisable to ascertain this optimum for various locations and sectors. With the EU directives mandating gender quotas by 2026, listed companies are required to ensure significant female representation on their boards. This policy mandates at least 40% of non-executive board positions or 33% of all board positions be filled by women (European Parliament and Council of the European Union, 2022). Arguably, for ESG performance optimization, instead of using these uniform quotas, it might be beneficial to adapt these percentages to industry or country-specific optima instead of utilizing uniform quotas. However, the pursuit of gender diversity extends beyond just ESG performance and is fundamentally rooted in issues of fairness and equal rights. Regardless of whether specific optima for ESG performance exist in different contexts, standardized quotas are essential to overcome structural inequalities and ensure fair representation of all genders.

*5.2. **Limitations***

This study offers valuable insights but also has several limitations. Firstly, it relies on the assumption that ESG scores are an effective indicator of a company's sustainability performance. However, literature has highlighted significant criticism of these scores. Different ESG rating agencies may yield vastly varied scores for the same company due to their distinct criteria and weightings (Billio et al., 2021). The quality and availability of data used in ESG evaluations are often inadequate, especially for small companies or those in emerging markets. Moreover, the complexity and diversity of a company's social or environmental impacts are challenging to capture through metrics alone. While ESG scores can make critical factors like carbon emissions transparent, sustainability encompasses many crucial aspects that are difficult to measure, such as the development of a company culture that promotes diversity (Edmans, 2021). ESG scores may not accurately reflect a compan's true performance in environmental, social, and governance efforts but rather the extent of information disclosure (Minutolo et al., 2019). In addition, ESG scores often provide only a short-term perspective, potentially overemphasizing short-term risks or achievements at the expense of long-term sustainability impacts (Edmans, 2021). ESG metrics are useful for providing insights into a company's sustainability efforts but should be complemented with qualitative information and deeper analysis for a comprehensive understanding. Therefore, this study's reliance on ESG scores as an indicator of sustainability performance can be seen as a limitation.

Secondly, the GBB Index represents an innovative measure for gender diversity, whose validity and reliability should be further investigated across various contexts. A potential limitation arises from the flexibility in choosing the exponent k. While this flexibility allows for adjusting the index's sensitivity to different research scenarios, it may also raise concerns regarding standardization and comparability of results. Additionally, the index has a tendency to favor larger boards, which could affect the interpretation of gender diversity. These factors should be considered when evaluating the outcomes and should be the subject of further research to enhance our understanding of how gender diversity impacts ESG performance.

Furthermore, the identification of the non-linearity and optimal thresholds presents a methodological challenge and constitutes a limitation of this study. Although the study suggests a nonlinear relationship, pinpointing the exact inflection point proves to be

challenging and requires sensitive analytical methods. This could influence the interpretation of the results and potentially lead to inaccuracies.

Additionally, only certain board characteristics were examined (such as the percentage of female board members, the proportion of independent directors, board size, and company size), without considering other important resources that board members may possess (such as nationality, background, experience, and skills of directors), in line with the resource dependence theory.

Another main limitation lies in the potential influence of cultural norms and legal frameworks on the relationship between gender diversity and ESG performance. Cultural norms and legal regulations vary significantly across countries and regions, impacting the perception and implementation of gender diversity at the corporate level. In cultures with progressive gender equality policies, gender diversity may have a more substantial positive effect on ESG performance compared to regions with less advanced equality. Given the direct contributions of gender diversity to ESG performance, legal frameworks, such as mandatory gender quotas, play a crucial role. These quotas mandate specific levels of gender diversity within companies, thereby directly affecting ESG performance. Such discrepancies across countries highlight the challenge of accounting for diverse legal and cultural contexts in evaluating the relationship between gender diversity and ESG outcomes.

Furthermore, there is a potential variability in the relationship between gender diversity and ESG performance over time. Despite controlling for temporal effects through the use of year dummies and using a FE model, not all the specific dynamics and nuanced changes over time may be captured. The year dummies account for general temporal trends but do not provide insight into the deeper shifts in societal norms and the effectiveness of diversity programs that could influence the relationship between these variables. A more comprehensive longitudinal analysis that goes beyond controlling with year dummies, incorporating more specific time-series data on gender diversity and ESG performance indicators, may be necessary to gain a deeper understanding of the long-term trends and dynamic relationship between these variables.

Another significant limitation of this study is the missing consideration of the potential effects of tokenism and adjustment pressure. Tokenism, where a minimal number of women in board positions might feel isolated or marginalized (Kanter, 1977), along with the pressure on minorities to conform to the prevailing majority culture in order to be accepted and to seize career opportunities, represent complex challenges. These dynamics

could lead to women suppressing their unique perspectives and experiences to adapt, which diminishes the theoretical benefits of diversity. Simultaneously, these processes of adaptation could reduce the variety of perspectives, as individual and innovative views are set aside in favor of conformity. The study might be unable to capture the extent to which these factors actually influence the relationship between gender diversity and ESG performance, representing a significant limitation of the results.

Lastly, there is a lack of consideration for crucial internal factors such as the culture of a company, including how it values and promotes diversity and inclusion. This aspect could significantly influence ESG performance, as a robust culture of inclusion might amplify the effectiveness of gender diversity initiatives. However, the study did not integrate metrics of corporate culture or other pertinent control variables, potentially constraining the depth of comprehension concerning the correlation between gender diversity and ESG performance.

5.3. ***Future Research***

These limitations reveal various opportunities for further research. First, in light of the extensive criticisms leveled at the ESG scores used in this study, it could be valuable to use alternative ESG performance metrics.

In addition, future studies could delve deeper into the effects of gender diversity on the individual components of ESG, examining its impact on the social, environmental, and governance pillars separately, and even on the specific indicators within these pillars. Since the literature review has indicated that women particularly demonstrate increased social and environmental engagement, it would be interesting to explore which criteria of the ESG scores they most significantly impact.

Another significant research area is the methodological challenge of identifying non-linear relationships and optimal thresholds. Future studies could employ advanced analytical methods to more accurately determine inflection points and refine the interpretation of results.

Furthermore, incorporating a wider range of board characteristics in future investigations, such as nationality, background, experience, and skills of directors, could offer a more holistic view of the impacts of gender diversity on ESG performance (Alkayed et al., 2024).

Future research could deepen the findings of this study by examining how cultural norms and legal frameworks influence the relationship between gender diversity and corporate

sustainability performance. Firstly, it would be insightful to explore how cultural attitudes towards gender roles, including societal views on women's status, their legal rights, and acceptance in the workforce, affect this relationship. Secondly, incorporating variables that account for the presence of such regulations, or exclusively focusing on countries that have implemented mandatory gender quotas, could provide new perspectives on how politics can influence the examined relationship. This could offer crucial insights into how mandatory rules for employing women impact a company's sustainability performance and provide valuable insights for managers and policymakers.

Another interesting area of research would be the potential impacts of tokenism and the pressure of minorities to conform to the dominant majority culture. Investigating how these dynamics influence diversity of perspectives and ESG performance could yield crucial insights for developing more effective diversity strategies. For example, the study could be replicated in a context where only companies with a critical mass of women on their boards are included. However, it's important to note that this approach would not conclusively demonstrate that women in these environments no longer feel pressured to conform to the majority.

Lastly, the role of corporate culture, particularly regarding the value and promotion of diversity and inclusion, could be more prominently featured in future studies. Integrating metrics of corporate culture and other relevant control variables could provide a deeper understanding of the correlations between gender diversity and ESG performance.

These diverse research opportunities lay a solid foundation for future projects aimed at closing the gaps in our understanding of the complex relationship between gender diversity, corporate governance, and sustainability performance.

CHAPTER 6 - CONCLUSION

In conclusion, this dissertation provides significant insights into the relationship between gender diversity on boards and ESG performance within the European market. The empirical analysis confirms that gender diversity has a positive impact on a company's ESG performance, suggesting that a balanced representation of women and men on supervisory boards is beneficial for a company's sustainable performance. This positive correlation, however, is non-linear, indicating that there is an optimal level of gender diversity which maximizes ESG performance. In the sample studied, it was found that the ESG performance of the companies reaches its maximum when the proportion of female directors on the board is approximately 60%.

This finding underscores the importance of an approximately equal representation of both genders in the BOD, offering invaluable knowledge for academics, business leaders, and policymakers dedicated to promoting a sustainable and inclusive business environment.

Men and women each bring unique characteristics, skills and experience, and it is the fusion of these different qualities that greatly benefits organizations (Almaqtari et al., 2024). Such equal representation of both genders could emerge as a pivotal factor in advancing a company's environmental, social, and governance achievements.

Therefore, this study underscores that fostering gender diversity in corporate boards is not merely an obligation to promote equality and fairness but also is a crucial tool in corporate governance for improving a company's ESG performance. In an era marked by challenges like the global climate crisis, the role of corporations in contributing to a more sustainable and equitable world has never been more critical. Therefore, gender diversity on boards should be recognized not just as a milestone towards achieving gender equality but as a strategic asset that significantly impacts the social and environmental pillars of sustainability. By providing these insights, the study deepens the understanding of the role of gender diversity in corporate governance and its impact on sustainability outcomes.

REFERENCES

A. A. Zaid, M., Wang, M., Adib, M., Sahyouni, A., & T. F. Abuhijleh, S. (2020). Boardroom nationality and gender diversity: Implications for corporate sustainability performance. *Journal of Cleaner Production*, *251*. https://doi.org/10.1016/J.JCLEPRO.2019.119652

Abad, D., Lucas-Pérez, E., Minguez-Vera, A., & Yagüe, J. (2017). *Does gender diversity on corporate boards reduce information asymmetry in equity markets?-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/)*. *20*, 192–205. https://doi.org/10.1016/j.brq.2017.04.001

Abdelkader, M. G., Gao, Y., & Elamer, A. A. (2024). Board gender diversity and ESG performance: The mediating role of temporal orientation in South Africa context. *Journal of Cleaner Production*, *440*, 140728. https://doi.org/10.1016/J.JCLEPRO.2024.140728

Abinzano, I., Martinez, B., & Poletti-Hughes, J. (2023). Women in power with power: The influence of meaningful board representation on default risk. *International Review of Financial Analysis*, *89*, 102771. https://doi.org/10.1016/J.IRFA.2023.102771

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. https://doi.org/10.1016/J.JFINECO.2008.10.007

Ahmadi, A., Nakaa, N., & Bouri, A. (2018). Chief Executive Officer attributes, board structures, gender diversity and firm performance among French CAC 40 listed firms. *Research in International Business and Finance*, *44*, 218–226. https://doi.org/10.1016/j.ribaf.2017.07.083

Ajaz, A., Shenbei, Z., & Sarfraz, M. (2020). Delineating the Influence of Boardroom's Gender Diversity on Corporate Social Responsibility, Firm's Financial Performance, and Reputation. *LogForum*, *16*(1), 61–74. https://doi.org/10.17270/J.LOG.2019.376

Aksoy, M., Yilmaz, M. K., Tatoglu, E., & Basar, M. (2020). Antecedents of corporate sustainability performance in Turkey: The effects of ownership structure and board attributes on non-financial companies. *Journal of Cleaner Production*, *276 (4)*, 124284. https://doi.org/10.1016/J.JCLEPRO.2020.124284

Al Amosh, H., & Khatib, S. F. A. (2023). ESG performance in the time of COVID-19 pandemic: cross-country evidence. *Environmental Science and Pollution Research*, *30*(14), 39978–39993. https://doi.org/10.1007/s11356-022-25050-w

Alandejani M, Al-Shaer H. (2023), Macro Uncertainty Impacts on ESG Performance and Carbon Emission Reduction Targets. Sustainability. 2023; 15(5), 4249. https://doi.org/10.3390/su15054249

Aldowaish, A., Kokuryo, J., Almazyad, O., & Goi, H. C. (2022). Environmental, Social, and Governance Integration into the Business Model: Literature Review and Research Agenda. *Sustainability (*Switzerland), 14(5), 2959. https://doi.org/10.3390/su14052959

Alkayed, H., Shehadeh, E., Yousef, I., & Hussainey, K. (2024). Does a Female Director in the Boardroom Affect Sustainability Reporting in the U.S. Healthcare Industry? *Journal of Risk and Financial Management 2024*, *17*(2), 49. https://doi.org/10.3390/JRFM17020049

Alkhawaja, A., Hu, F., Johl, S., & Nadarajah, S. (2023). Board gender diversity, quotas, and ESG disclosure: Global evidence. *International Review of Financial Analysis*, *90*, 102823. https://doi.org/10.1016/J.IRFA.2023.102823

Allman, E., & Won, J. (2022). The Effect of ESG Disclosure on Corporate Investment Efficiency. *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.3816592

Almaqtari, F. A., Elsheikh, T., Al-Hattami, H. M., & Mishra, N. (2023). The impact of board characteristics on environmentally friendly production: A cross country study in Asia and Europe. *Journal of Cleaner Production*, *392*, 136257. https://doi.org/10.1016/J.JCLEPRO.2023.136257

Almaqtari, F. A., Elsheikh, T., Hashim, H. A., & Youssef, M. A. E. A. (2024). Board attributes and environmental and sustainability performance: Moderating role of environmental teams in Asia and Europe. *Sustainable Futures*, *7*, 100149. https://doi.org/10.1016/J.SFTR.2023.100149

Amel-Zadeh, A., & Serafeim, G. (2018). Why and How Investors Use ESG Information: Evidence from a Global Survey. *Financial Analysts Journal, 74(3),* 87-103. https://doi.org/10.2139/SSRN.2925310

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. https://doi.org/10.1108/SAMPJ-05-2018-0136

Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, *22*, 119–127. https://doi.org/10.1016/J.BIR.2022.11.006

Barkan, S. E. (2014). Gender and abortion attitudes. *Public Opinion Quarterly*, *78*(4), 940–950. https://doi.org/10.1093/POQ/NFU047

Barros, V., Verga Matos, P., Miranda Sarmento, J., & Rino Vieira, P. (2022). M&A activity as a driver for better ESG performance. *Technological Forecasting and Social Change*, *175*, 121338. https://doi.org/10.1016/J.TECHFORE.2021.121338

Bear, S., Rahman, N., & Post, C. (2010). The Impact of Board Diversity and Gender Composition on Corporate Social Responsibility and Firm Reputation. *Journal of Business Ethics*, *97*(2), 207–221. https://doi.org/10.1007/S10551-010-0505-2/METRICS

Becchetti, L., Bobbio, E., Prizia, F., & Semplici, L. (2022). Going Deeper into the S of ESG: A Relational Approach to the Definition of Social Responsibility. *Sustainability (Switzerland)*, *14(15)*. https://doi.org/10.3390/su14159668

Berg, F., Kölbel, J. F., Rigobon, R. (2022) Aggregate Confusion: The Divergence of ESG Ratings. *Review of Finance*, *26(6)*, 1315–1344. https://doi.org/10.1093/rof/rfac033

Bhat, B. A., Makkar, M. K., & Gupta, N. (2023). Corporate board structure and ESG performance: An empirical study of listed firms in the emerging market. *Corporate Governance and Sustainability Review*, *7*(2), 8. https://doi.org/10.22495/CGSRV7I2P1

Bigelli, M., Mengoli, S., & Sandri, S. (2023). ESG score, board structure and the impact of the non-financial reporting directive on European firms. *Journal of Economics and Business*, *127*, 106133. https://doi.org/10.1016/J.JECONBUS.2023.106133

Billio, M., Costola, M., Hristova, I., Latino, C., & Pelizzon, L. (2021). Inside the ESG ratings: (Dis)agreement and performance. *Corporate Social Responsibility and Environmental Management*, *28*(5), 1426–1445. https://doi.org/10.1002/CSR.2177

Birindelli, G., Dell'Atti, S., Iannuzzi, A. P., & Savioli, M. (2018). Composition and activity of the board of directors: Impact on ESG performance in the banking system. *Sustainability (Switzerland)*, *10*(12), 4699. https://doi.org/10.3390/su10124699

Boulouta, I. (2013). Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance. *Journal of Business Ethics*, *113*(2), 185–197. https://doi.org/10.1007/S10551-012-1293-7

Brahma, S., Nwafor, C., & Boateng, A. (2021). Board gender diversity and firm performance: The UK evidence. *International Journal of Finance & Economics*, *26*(4), 5704–5719. https://doi.org/10.1002/IJFE.2089

Brammer, S., & Pavelin, S. (2004). Building a good reputation. *European Management Journal*, *22*(6), 704–713. https://doi.org/10.1016/J.EMJ.2004.09.033

Branco, M. C., & Rodrigues, L. L. (2008). Factors influencing social responsibility disclosure by Portuguese companies. *Journal of Business Ethics*, *83*(4), 685–701. https://doi.org/10.1007/S10551-007-9658

Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality: An International Journal*, 30(1), 98–115. https://doi.org/10.1108/MEQ-12-2017-0149

Carmo, C., Alves, S., & Quaresma, B. (2022). Women on Boards in Portuguese Listed Companies: Does Gender Diversity Influence Financial Performance? *Sustainability (Switzerland)*, *14*(10). https://doi.org/10.3390/su14106186

Cek, K., & Eyupoglu, S. (2020). Does environmental, social and governance performance influence economic performance? *Journal of Business Economics and Management*, *21*(4), 1165–1184. https://doi.org/10.3846/jbem.2020.12725

Chen, C., Fan, M., & Fan, Y. (2023). The impact of ESG ratings under market soft regulation on corporate green innovation: an empirical study from informal environmental governance. *Frontiers in Environmental Science*, *11*. https://doi.org/10.3389/FENVS.2023.1278059

Chen, Z., & Xie, G. (2022). ESG disclosure and financial performance: Moderating role of ESG investors. *International Review of Financial Analysis*, *83*, 102291. https://doi.org/10.1016/j.irfa.2022.102291

Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, *87*(1), 157–176. https://doi.org/10.1016/J.JFINECO.2006.10.006

Cheng, X., & Feng, C. (2023). Does environmental information disclosure affect corporate cash flow? An analysis by taking media attentions into consideration. *Journal of Environmental Management*, *342(7)*, 118295. https://doi.org/10.1016/J.JENVMAN.2023.118295

Ciocirlan, C., & Pettersson, C. (2012). Does Workforce Diversity Matter in the Fight against Climate Change? An Analysis of Fortune 500 Companies. *Corporate Social Responsibility and Environmental Management*, *19*(1), 47–62. https://doi.org/10.1002/CSR.279

Clément, A., Robinot, É., & Trespeuch, L. (2023). The use of ESG scores in academic literature: a systematic literature review. *Journal of Enterprising Communities*. https://doi.org/10.1108/JEC-10-2022-0147

Cohen, J. R., Holder-Webb, L., & Zamora, V. L. (2015). Nonfinancial Information Preferences of Professional Investors. *Behavioral Research in Accounting*, *27*(2), 127–153. https://doi.org/10.2308/BRIA-51185

Corporate Finance Institute (n.d.). *ESG (Environmental, Social, & Governance*. Available at: https://corporatefinanceinstitute.com/resources/esg/esg-environmental-social-governance/ [Accessed at: 02 February 2024]

Daugaard, D., & Ding, A. (2022). Global Drivers for ESG Performance: The Body of Knowledge. *Sustainability (Switzerland)*, *14*(4). https://doi.org/10.3390/su14042322

De Souza Barbosa, A., da Silva, L. B., Morioka, S. N., & de Souza, V. F. (2023). Integration of Environmental, Social, and Governance (ESG) criteria: their impacts

on corporate sustainability performance. Palgrave Communications *10(1)*, 1-18. https://doi.org/10.1057/s41599-023-01919-0

Deloitte. (2022). *Progress at a snail's pace Women in the boardroom: A global perspective Seventh edition Deloitte Global Boardroom Program*. Available at: https://www.deloitte.com/global/en/services/risk-advisory/research/women-in-the-boardroom-seventh-edition.html [Accessed at: 5 December 2023]

Deng, X., & Cheng, X. (2019). Can ESG Indices Improve the Enterprises' Stock Market Performance?-An Empirical Study from China. *Sustainability*, *11(17)*, 4765. https://doi.org/10.3390/su11174765

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2010). Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting. *SSRN Electronic Journal*. https://doi.org/10.2139/SSRN.1687155

Dong, Y., Liang, C., & Wanyin, Z. (2023). Board diversity and firm performance: impact of ESG activities in China. *Economic Research-Ekonomska Istraživanja*, *36*(1), 1592–1609. https://doi.org/10.1080/1331677X.2022.2090406

Drempetic, S., Klein, C., & Zwergel, B. (2020). The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review. *Journal of Business Ethics*, *167*(2), 333–360. https://doi.org/10.1007/S10551-019-04164-1

Duque-Grisales, E., & Aguilera-Caracuel, J. (2021). Environmental, Social and Governance (ESG) Scores and Financial Performance of Multilatinas: Moderating Effects of Geographic International Diversification and Financial Slack. *Journal of Business Ethics*, *168*(2), 315–334. https://doi.org/10.1007/S10551-019-04177-W

Dyer, G. W., & Whetten, D. A. (2006). Family Firms and Social Responsibility: Preliminary Evidence from the S&P 500. *Https://Doi.Org/10.1111/j.1540-6520.2006.00151.x*, *30*(6), 785–802. https://doi.org/10.1111/J.1540-6520.2006.00151.X

Edmans, A. (2021). *No Stakeholder Left Behind: The Dangers of ESG Metrics.* Available at: https://medium.com/@alex.edmans/no-stakeholder-left-behind-the-dangers-of-esg-metrics-5369ff66bdda [Accessed at: 10 February 2024]

Ehlers, T., Elsenhuber, U., Jegarasasingam, A., & Jondeau, E. (2023). Deconstructing ESG Scores: How to Invest with your own Criteria?, *IMF WP/23/57*,

EIGE. (2016). *Economic Benefits of Gender Equality in the European Union*. Available at: https://eige.europa.eu/newsroom/economic-benefits-gender-equality?language_content_entity=en [Accessed at: 15 November 2023]

EIGE. (2023). *Largest listed companies: presidents, board members and employee representatives.* Available at: https://eige.europa.eu/gender-statistics/dgs/indicator/wmidm_bus_bus__wmid_comp_compbm [Accessed at: 26 February 2024]

Erhard, 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. https://doi.org/10.1111/1467-8683.00011

European Commission (2012). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.* Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A52012DC0615 [Accessed at: 10 December 2023]

European Commission (n.d.). Available at: https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en [Accessed at: 20 November 2023]

European Parliament and Council of the European Union. (2022). *Directive (EU) 2022/2381 of the European Parliament and of the Council of 23 November 2022 on improving the gender balance among directors of listed companies.* Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2381 [Accessed at: 10 February 2024]

Fahad, P., & Rahman, P. M. (2020). Impact of corporate governance on CSR disclosure. *International Journal of Disclosure and Governance*, *17*(2–3), 155–167. https://doi.org/10.1057/S41310-020-00082-1

Farhan Jedi, F., & Nayan, S. (2018). An empirical evidence on the effect of women board representation on firm performance of companies listed in Iraq Stock Exchange. *Business and Economic Horizons (BEH)*, *14*(1), 117–131. https://doi.org/10.15208/BEH.2018.10

Ferrero-Ferrero, I., Fernández-Izquierdo, M. Á., & Muñoz-Torres, M. J. (2015). Integrating Sustainability into Corporate Governance: An Empirical Study on Board Diversity. *Corporate Social Responsibility and Environmental Management*, *22*(4), 193–207. https://doi.org/10.1002/CSR.1333

Fu, T., & Li, J. (2023). An empirical analysis of the impact of ESG on financial performance: the moderating role of digital transformation. *Frontiers in Environmental Science*, *11*. https://doi.org/10.3389/FENVS.2023.1256052

García Martín, C. J., & Herrero, B. (2020). Do board characteristics affect environmental performance? A study of EU firms. *Corporate Social Responsibility and Environmental Management*, *27*(1), 74–94. https://doi.org/10.1002/csr.1775

Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B., & Sepulveda, C. (2014). Does media pressure moderate CSR disclosures by external directors? *Management Decision*, *52*(6), 1014–1045. https://doi.org/10.1108/MD-09-2013-0446

Giese, G., Lee, L.-E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance. *The Journal of Portfolio Management, 45(5),* 69-83. http://dx.doi.org/10.3905/jpm.2019.45.5.069

Groysberg, B., & Bell, D. (2010). Dysfunction in the Boardroom. *Harvard Business Review*. Available at: https://hbr.org/2013/06/dysfunction-in-the-boardroom [Accessed at: 12 February 2024]

Gruszczy´nski, M., & Gruszczy´nski, G. (2020). Women on Boards and Firm Performance: A Microeconometric Search for a Connection. *Journal of Risk and Financial Management 2020, Vol. 13, Page 218*, *13*(9), 218. https://doi.org/10.3390/JRFM13090218

Guedes, M. J., & Casaca, S. F. (2021). The gbb index: A proposal to measure the gender balance on company boards. *Journal of Governance and Regulation*, *10*(2 Special Issue), 249–257. https://doi.org/10.22495/jgrv10i2siart6

Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices? *Journal of Accounting and Economics*, *51*(3), 314–338. https://doi.org/10.1016/J.JACCECO.2011.01.005

Güngör, B. & Seker Y. (2022). The Relationship between Board Characteristics and ESG Performance: Evidence from the Oil, Gas, and Coal Sector. *Journal of Strategic and Social Researches, 6(1),* 17-37. https://doi.org/10.30692/sisad.1073684

Gurol, B., & Lagasio, V. (2023). Women board members' impact on ESG disclosure with environment and social dimensions: evidence from the European banking sector. *Social Responsibility Journal*, *19*(1), 211–228. https://doi.org/10.1108/SRJ-08-2020-0308

Haniffa, R. M., Cooke, T. E., 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. https://EconPapers.repec.org/RePEc:eee:jappol:v:24:y:2005:i:5:p:391-430

Hassan, M. K., Houston, R., Karim, M. S., & Sabit, A. (2023). CEO duality and firm performance during the 2020 coronavirus outbreak. *The Journal of Economic Asymmetries*, *27*, 1703–4949. https://doi.org/10.1016/j.jeca.2022.e00278

Hedija, V., & Němec, D. (2021). Gender diversity in leadership and firm performance: Evidence from the czech republic. *Journal of Business Economics and Management*, *22*(1), 156–180. https://doi.org/10.3846/jbem.2020.13680

Heubeck, T. (2023). Walking on the gender tightrope: Unlocking ESG potential through CEOs' dynamic capabilities and strategic board composition. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.3578

Huang, D. Z. X. (2021). Environmental, social and governance (ESG) activity and firm performance: a review and consolidation. *Accounting and Finance*, *61*(1), 335–360. https://doi.org/10.1111/acfi.12569

Husted, B. W., & Sousa-Filho, J. M. de. (2019). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research*, *102*, 220–227. https://doi.org/10.1016/J.JBUSRES.2018.01.017

Ihsani, A. N., Nidar, S. R., & Kurniawan, M. (2023). Does ESG Performance Affect Financial Performance? Evidence from Indonesia. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, *13*(1), 46–61. https://doi.org/10.30741/WIGA.V13I1.968

International Labour Organization. (n.d.). *Improving gender diversity in company boards*. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---act_emp/documents/briefingnote/wcms_754631.pdf [Accessed at 18 December 2023]

Isnindiah Sofiati, & Aria Farah Mita. (2024). The Role Of Gender Diversity In Increasing ESG Performance Through Intellectual Capital. *Jurnal Akuntansi*, *28*(1), 184–205. https://doi.org/10.24912/JA.V28I1.1861

Jensen, M.C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance*, *48*(3), 831–880. https://doi.org/10.1111/J.1540-6261.1993.TB04022.X

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. https://doi.org/10.1016/0304-405X(76)90026-X

Kanter, R. M. (1977). Men and Women of the Corporation. Basic Books, New York.

Kaur, R., & Singh, B. (2018). CEOs' Characteristics and Firm Performance: A Study of Indian Firms. *Https://Doi.Org/10.1177/0974686218806714*, *11*(2), 185–200. https://doi.org/10.1177/0974686218806714

Kent Baker, H., Pandey, N., Kumar, S., & Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research*, *108*, 232–246. https://doi.org/10.1016/J.JBUSRES.2019.11.025

Kim, S., & Li, Z. (2021). Understanding the Impact of ESG Practices in Corporate Finance. *Sustainability 2021, Vol. 13, Page 3746*, *13*(7), 3746. https://doi.org/10.3390/SU13073746

Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, *29*(2), 346–364. https://doi.org/10.1016/J.LEAQUA.2017.06.001

Kılıç, M., & Kuzey, C. (2016). The effect of board gender diversity on firm performance: evidence from Turkey. *Gender in Management*, *31*(7), 434–455. https://doi.org/10.1108/GM-10-2015-0088

Kolev, K. D., & McNamara, G. (2020). Board demography and divestitures: The impact of gender and racial diversity on divestiture rate and divestiture returns. *Long Range Planning*, *53*(2), 101881. https://doi.org/10.1016/J.LRP.2019.05.001

Kumari, P. S. R., Makhija, H., Sharma, D., & Behl, A. (2022). Board characteristics and environmental disclosures: evidence from sensitive and non-sensitive industries of India. *International Journal of Managerial Finance*, *18*(4), 677–700. https://doi.org/10.1108/IJMF-10-2021-0547

Kyaw, K., Olugbode, M., & Petracci, B. (2017). Can board gender diversity promote corporate social performance? *Corporate Governance (Bingley)*, *17*(5), 789–802. https://doi.org/10.1108/CG-09-2016-0183

Lakhal, F., Aguir, A., Lakhal, N., & Malek, A. (2015). Do women on boards and in top management reduce earnings management? Evidence in France. *Journal of Applied Business Research*, *31*(3), 1107–1118. https://doi.org/10.19030/JABR.V31I3.9236

Laskar, N., Sahu, J. P., & Choudhury, K. S. (2023). Impact of gender diversity on firm performance: empirical evidence from India. *Managerial Finance*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/MF-02-2023-0126

Liao, L., Luo, L., & Tang, Q. (2015). Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *British Accounting Review*, *47*(4), 409–424. https://doi.org/10.1016/J.BAR.2014.01.002

Linnenluecke, M. K. (2022). Environmental, social and governance (ESG) performance in the context of multinational business research. *Multinational Business Review*, *30*(1), 1–16. https://doi.org/10.1108/MBR-11-2021-0148

LSEG (2023). *Environmental, social and governance scores from LSEG.* Available at: https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf [Accessed at 05 January 2024]

Martha, H., & Khomsiyah, K. (2023). THE EFFECTS OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ON CORPORATE PERFORMANCE. *Jurnal Ilmiah Bisnis Dan Ekonomi Asia*, *17*(1), 112–120. https://doi.org/10.32815/JIBEKA.V17I1.1380

Meng, T., Dato Haji Yahya, M. H., Ashhari, Z. M., & Yu, D. (2023). ESG performance, investor attention, and company reputation: Threshold model analysis based on panel data from listed companies in China. In *Heliyon* (Vol. 9, Issue 10). Elsevier Ltd. https://doi.org/10.1016/j.heliyon.2023.e20974

Menicucci, E., & Paolucci, G. (2022). Board Diversity and ESG Performance: Evidence from the Italian Banking Sector. *Sustainability 2022, Vol. 14, Page 13447*, *14*(20), 13447. https://doi.org/10.3390/SU142013447

Minutolo, M. C., Kristjanpoller, W. D., & Stakeley, J. (2019b). Exploring environmental, social, and governance disclosure effects on the S&P 500 financial performance. *Business Strategy and the Environment*, *28*(6), 1083–1095. https://doi.org/10.1002/bse.2303

Naciti, V. (2019). Corporate governance and board of directors: The effect of a board composition on firm sustainability performance. *Journal of Cleaner Production*, *237*, 117727. https://doi.org/10.1016/J.JCLEPRO.2019.117727

Nekhili, M., Boukadhaba, A., & Nagati, H. (2021). The ESG–financial performance relationship: Does the type of employee board representation matter? *Corporate*

Governance: An International Review, *29*(2), 134–161. https://doi.org/10.1111/CORG.12345

Nguyen, H., & Faff, R. (2006). Impact of Board Size and Board Diversity on Firm Value: Australian Evidence. *Corporate Ownership & Control, 4(2),* 42-32. http://dx.doi.org/10.22495/cocv4i2p2

Nielsen, S., & Huse, M. (2010). The Contribution of Women on Boards of Directors: Going beyond the Surface. *Corporate Governance: An International Review*, *18*(2), 136–148. https://doi.org/10.1111/J.1467-8683.2010.00784.X

Paolone, F., Pozzoli, M., Chhabra, M., & Di Vaio, A. (2024). Cultural and gender diversity for ESG performance towards knowledge sharing: empirical evidence from European banks. *Journal of Knowledge Management, 28(11),* 106-131. https://doi.org/10.1108/JKM-05-2023-0445

Pfeffer, J., & Salancik, G. R. 1978. The external control of organizations: A resource dependence perspective. New York: Harper & Row

Pinheiro, A. B., dos Santos, J. I. A. S., Cherobim, A. P. M. S., & Segatto, A. P. (2023, October 23). What drives environmental, social and governance (ESG) performance? The role of institutional quality. Management of Environmental Quality: An International Journal, 35(2), 427–444. https://doi.org/10.1108/meq-03-2023-0091

Pletzer, J. L., Nikolova, R., Kedzior, K. K., & Voelpel, S. C. (2015). Does gender matter? female representation on corporate boards and firm financial performance - A meta-analysis. *PLOS ONE*, *10*(6). https://doi.org/10.1371/JOURNAL.PONE.0130005

Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal*, *58*(5), 1546–1571. https://doi.org/10.5465/AMJ.2013.0319

Post, C., Rahman, N., & Rubow, E. (2011). Green governance: Boards of directors' composition and environmental corporate social responsibility. *Business and Society*, *50*(1), 189–223. https://doi.org/10.1177/0007650310394642

Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does Board Gender Diversity Influence Financial Performance? Evidence from Spain. *Journal of Business Ethics*, *141*(2), 337–350. https://doi.org/10.1007/S10551-015-2735-9

Rodríguez-Fernández, M., Sánchez-Teba, E. M., López-Toro, A. A., & Borrego-Domínguez, S. (2019). Influence of ESGC Indicators on Financial Performance of Listed Travel and Leisure Companies. *Sustainability*, *11*(19), 5529. https://doi.org/10.3390/SU11195529

Romano, M., Cirillo, A., Favino, C., & Netti, A. (2020). ESG (Environmental, Social and Governance) Performance and Board Gender Diversity: The Moderating Role of CEO Duality. *Sustainability 2020*, *12*(21), 9298. https://doi.org/10.3390/SU12219298

Saha, R. (2023). The impact of board-level female directors on firm performance: evidence from India. *Equality, Diversity and Inclusion*, *42*(8), 945–967. https://doi.org/10.1108/EDI-07-2022-0172

Sahin, Ö., Bax, K., Czado, C., & Paterlini, S. (2022). Environmental, Social, Governance scores and the Missing pillar—Why does missing information matter? *Corporate Social Responsibility and Environmental Management*, *29*(5), 1782–1798. https://doi.org/10.1002/CSR.2326

Sanches Garcia, A., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of Cleaner Production, 150(2017),* 135-147. https://doi.org/10.1016/j.jclepro.2017.02.180

Sarfraz, M., Ozturk, I., Yoo, S., Raza, M. A., & Han, H. (2023). Toward a new understanding of environmental and financial performance through corporate social responsibility, green innovation, and sustainable development. *Humanities and Social Sciences Communications 2023, 10*(1), 1–17. https://doi.org/10.1057/s41599-023-01799-4

Schwartz-Ziv, M. (2017). Gender and Board Activeness: The Role of a Critical Mass. *Journal of Financial and Quantitative Analysis*, *52*(2), 751–780. https://doi.org/10.1017/S0022109017000059

Shahbaz, M., Karaman, A. S., Kilic, M., & Uyar, A. (2020). Board attributes, CSR engagement, and corporate performance: What is the nexus in the energy sector? *Energy Policy*, *143*, 111582. https://doi.org/10.1016/J.ENPOL.2020.111582

Shehata, N., Salhin, A., & El-Helaly, M. (2017). Board diversity and firm performance: evidence from the U.K. SMEs. *Applied Economics*, *49*(48), 4817–4832. https://doi.org/10.1080/00036846.2017.1293796

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010

Tamimi, N., & Sebastianelli, R. (2017). Transparency among S&P 500 companies: an analysis of ESG disclosure scores. *Management Decision*, *55*(8), 1660–1680. https://doi.org/10.1108/MD-01-2017-0018/FULL/XML

Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016). The Impact of Environmental, Social and Governance Practices (ESG) on Economic Performance: Evidence from ESG Score. *International Journal of Trade, Economics and Finance*, *7*(3), 67–74. https://doi.org/10.18178/IJTEF.2016.7.3.501

Torchia, M., Calabrò, A., Huse, M., & Brogi, M. (2010). Critical Mass Theory and Women Directors' Contribution to Board Strategic Tasks. *Corporate Board: Role, Duties & Composition.* 6(3). http://dx.doi.org/10.22495/cbv6i3art4

Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, *8*(2), 169–178. https://doi.org/10.1108/JGR-11-2016-0029

Wasiuzzaman, S., & Subramaniam, V. (2023). Board gender diversity and environmental, social and governance (ESG) disclosure: Is it different for developed and developing nations? *Corporate Social Responsibility and Environmental Management*, *30*(5), 2145–2165. https://doi.org/10.1002/csr.2475

Wasiuzzaman, S., & Wan Mohammad, W. M. (2020). Board gender diversity and transparency of environmental, social and governance disclosure: Evidence from Malaysia. *Managerial and Decision Economics*, *41*(1), 145–156. https://doi.org/10.1002/MDE.3099

Weber, O. (2014). Environmental, Social and Governance Reporting in China. *Business Strategy and the Environment*, *23*(5), 303–317. https://doi.org/10.1002/BSE.1785

Wu, Z., Gao, J., Luo, C., Xu, H., & Shi, G. (2024). How does boardroom diversity influence the relationship between ESG and firm financial performance? *International Review of Economics & Finance*, *89*, 713–730. https://doi.org/10.1016/J.IREF.2023.10.045

Yadav, P., & Prashar, A. (2023). Board gender diversity: implications for environment, social, and governance (ESG) performance of Indian firms. *International Journal of Productivity and Performance Management*, *72*(9), 2654–2673. https://doi.org/10.1108/IJPPM-12-2021-0689

Yahya, H. (2023). Female leadership and ESG performance of firms: Nordic evidence. *Corporate Governance*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/CG-03-2023-0129

Yu, M. (2023). CEO duality and firm performance: A systematic review and research agenda. *European Management Review*, *20*(2), 346–358. https://doi.org/10.1111/EMRE.12522

Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and Corporate Financial Performance: Empirical Evidence from China's Listed Power Generation Companies. *Sustainability 2018, 10*(8), 2607. https://doi.org/10.3390/SU10082607

APPENDIX

Appendix 1 – Composition of the sample by country

Country of Headquarter	Number of Companies	Proportion of Companies
Austria	29	1.57%
Belgium	41	2.22%
Cyprus	7	0.38%
Czech Republic	1	0.05%
Denmark	52	2.81%
Finland	71	3.84%
France	161	8.70%
Germany	232	12.53%
Greece	23	1.24%
Hungary	5	0.27%
Iceland	7	0.38%
Ireland	42	2.27%
Italy	99	5.35%
Luxembourg	31	1.67%
Malta	5	0.27%
Netherlands	55	2.97%
Norway	64	3.46%
Poland	27	1.46%
Portugal	14	0.76%
Russia	26	1.40%
Spain	61	3.30%
Sweden	233	12.59%
Switzerland	130	7.02%
Ukraine	2	0.11%
United Kingdom	433	23.39%
Total	**1878**	**100%**

Appendix 2 – Pearson Correlation Matrix

VARIABLE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) ESGScore	1.000									
(2) GBBIndex	0.336***	1.000								
(3) BoardSize	0.418***	0.124***	1.000							
(4) CompanySize	0.490***	0.095***	0.476***	1.000						
(5) ROA	-0.071***	-0.013	-0.116***	-0.114***	1.000					
(6) DbtE	0.003	0.004	0.012	0.018*	-0.009	1.000				
(7) IndepBoard	0.304***	0.210***	-0.088***	0.098***	0.024**	-0.008	1.000			
(8) CEODuality	0.053***	0.048***	0.149***	0.115***	-0.014	-0.003	0.096***	1.000		
(9) Inflation	0.014**	0.111***	-0.092***	-0.078***	0.029**	0.020**	0.016	-0.089***	1.000	
(10) lnGDP	0.025**	0.082***	-0.182***	-0.084***	0.020**	-0.040***	0.133***	0.024**	-0.193	1.000

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$