

Diversity Drives Dollars

A quantitative study examining if and where in an organization, and at what ratios gender diversity has the strongest impact on financial performance

Olivia Jernhall
25323@student.hhs.se

Tuva Johansson
25327@student.hhs.se

Abstract

This study examines the relationship between gender diversity and financial performance at different organizational levels including; Board of Directors (BoD), Executive Management Teams (EMT), Senior Management Teams (SMT), and Staff Levels (SL). It further examines if there is an optimal gender diversity ratio throughout organizations to increase financial performance with the starting point in the research by Ferrary & Déo (2023). The study builds on panel data including 405 observations over four years consisting of merged financial and gender diversity data. EBITDA Margin is used to measure financial performance. We conduct simple OLS regressions of each independent variable and then combine them in models. The results show that gender diversity has an overall positive impact on financial performance. However, we do not find one optimal ratio of gender diversity for all hierarchy levels in an organization. We find the optimal ratio of gender diversity to be 40-60% for BoD and EMT, and 30-70% for SL and SMT.

Tutor: Ting Dong

Keywords: Gender diversity, Financial performance, Board of Directors, Executive Management Teams, Senior Management Teams, Staff Level, Social Sustainability, Critical Mass Theory

Acknowledgments: Thank you to our supervisor at SSE Ting Dong, we are grateful for the advice and feedback throughout our supervision sessions. Thank you to Ann Dahlgren at SEB for the invaluable support and advice. Thank you to our sponsor Ann Magnusson at SEB.

Table of Content

1.0 Introduction.....	3
1.2 Research Questions.....	5
2.0 Literature and Theory.....	5
2.1 Literature Review.....	5
2.1.1 Diversity in Board Of Directors.....	6
2.1.2 Diversity in Executive Management Teams.....	7
2.1.3 Diversity in Senior Management Teams.....	8
2.1.4 Diversity at Staff Level.....	9
2.1.5 Research Gap.....	9
2.2 Theoretical perspective.....	10
2.2.1 Resource-Based View.....	10
2.2.2 Social Identity Theory.....	11
2.2.3 Upper Echelons Theory.....	12
2.2.4 Critical Mass Theory.....	12
2.3 Hypothesis.....	14
3.0 Method.....	14
3.1 Research Design & Models.....	14
3.2 Variables.....	16
3.2.1 Dependant Variable.....	16
3.2.2 Independent Variables.....	16
3.2.3 Control Variables.....	18
3.2.4 Ratio Dummy Variables.....	19
3.3 Sample selection.....	20
3.3.1 Delimitations.....	21
4.0 Findings and Analysis.....	21
4.1 Descriptive Statistics.....	21
4.1.1 Multicollinearity.....	22
4.1.2 Heteroscedasticity.....	23
4.1.3 Robutnesscheck.....	23
4.2 Hypothesis Testing.....	24
4.2.1 Preliminary Analysis.....	24
4.2.2 Hypothesis 1.....	25
4.2.3 Hypothesis 2.....	26
4.3 Summary of Results.....	30
5.0 Discussion.....	30
5.1 Discussion of results.....	30
5.1.1 Independent variables.....	30
5.1.2 Optimal Ratio and Critical Mass Theory.....	34
5.1.3 Practical Implications.....	35
6.0 Conclusion.....	36

6.1 Limitations.....	37
6.2 Future Research.....	38
7.0 References.....	39
8.0 Appendix.....	46

1.0 Introduction

Women have throughout history been excluded from the labor market. It was not until the nineteenth century the first legislation that provided a framework for women's paid work was established. This framework not only included protection for women at work but also contained guarantees for their right to work. Further development took until the end of the Second World War in 1945 when the European Court of Justice set up Community laws regarding gender equality. These Community laws included protection for females at work and were meant to ensure equal rights at work for both men and women. Today, the implementation of these laws has occurred to varying degrees in European countries. From the middle of the 1990s, the focus in Europe regarding working women has shifted from engaging them in the labor market to increasing their economic independence and promoting gender equality. (Letablier, 2020)

Although several laws and policies regarding gender equality have been established in Europe, the present-day reality is that women are still underrepresented in the workforce, especially in higher leadership positions. The participation rate is 75% for men and 48.5% for women (ILO, 2019). Looking at the largest listed companies in Europe during 2023, the share of female presidents, board members, and employee representatives was 34.7%. For CEOs, executives, and non-executives, the share was only 23.3%. (Gender Statistics Database, 2024) Globally, in 2022 women possessed 163/2811 CEO positions, which equals less than 6% (Furness, 2023). This paper aims to investigate the impact of gender diversity on financial performance at different hierarchy levels in a corporation. It will also look into what ratios of gender diversity are needed to yield the possible benefits of gender diversity on financial performance.

The relevance of gender diversity and reduced inequality are emphasized through being included as two of the United Nation's 17 Sustainable Development Goals (United Nations, 2023). In addition, the World Economic Forum (2023) states that women's participation in business is crucial to reduce gender gaps in economics, households, and societies. Research says that by reducing gender inequality, 6.3-10.5 million additional jobs could be created by 2050. Also, GDP would be affected positively. For example, GDP per capita is predicted to increase by 10% by 2050 if inequality is reduced. In addition, there is an increasing view that gender diversity is essential for corporations to attract talent, and to ensure long-term financial

performance and survival. (European Institute for Gender Equality, 2017) Furthermore, a report by McKinsey Global Institute (2015) states that in a scenario where women, to their full potential, participate in the economy in the same way as men do today, the annual global GDP in 2025 would increase by 26%, or 28 trillion dollars, compared to the “business-as-usual” scenario.

As with all, increasing gender diversity in the workforce bears a cost. The European Commission (2003) has estimated the costs associated with implementing diversity policies. They found both a direct cash cost and an opportunity cost connected to implementing diversity policies. The cash costs concern legal compliance and program implementation, while the opportunity costs relate to time diversion of management and execution risk of change. As increasing gender diversity comes at a cost, it is essential to guide companies to where it is the most profitable to embark on the journey to gender diversity.

Expanding on the relevance of gender diversity, according to a report by Impax Asset Management (2019), there has never been a stronger case for gender equality. This refers to the ethical aspect as well as the aspects of investments and economics. As gender becomes a “hotter topic” the need for quantitative research within the field increases. Companies need statistical evidence to know where in an organization to invest to improve their gender diversity. This will, in addition, help companies seize the economic opportunities provided by initiatives such as gender lens investing and gender-linked bonds.

Furthermore, recent developments within the field of gender diversity have occurred within the spectra of government regulation. Several countries, including France, Germany, and Italy have during the last years implemented gender quotas on the board of directors (Siebold, 2022). Similar development is occurring at the EU level with new legislation entering into force by 2026 for all large, publicly listed companies within the EU. For these companies, the under-represented gender needs to occupy at least 40% of non-executive director posts or 33% of all director posts, according to a press release by the European Parliament (2022).

Besides increasing financial performance and opportunities, several reports claim that women's representation contributes to increased environmental caution. Statistically, this has been observed through, for example, decreased CO2 emissions (Altunbas et al., 2021) or overall environmental performance (Birindelli et al., 2019; Kassinis et al., 2016). Diving

further into details, according to a study by Altunbas et al. (2021), an increase of 1% in female managers is correlated with a 0.5% decrease in CO2 emissions. In turn, this increases the probability of firms fulfilling the goals set up in the Paris Agreement. Furthermore, these aspects are crucial for the future survival of corporations, further emphasizing the importance of female representation. Further contributions by women's representation occur within corporate governance. A report published by Curtis et al. (2012) concluded that there is a strong consensus that corporate and social governance metrics improve with a higher representation of women on the board. However, it is a balancing act since too many women may cause over-monitoring, emphasizing the importance of a gender-diverse corporation.

This paper proceeds accordingly; it explores the topic of gender diversity at different levels in a corporation and its impact on financial performance. First, we explore previous literature on gender diversity and its impact on corporate performance. We delve into four hierarchical levels of a corporation, Board of Directors, Executive Management Teams, Senior Management Teams, and Staff Levels. The literature review is then followed by a summary of four relevant theories, the Resource-Based View, the Social Identity Theory, the Upper Echelons Theory, and the Critical Mass Theory. Secondly, we explain our research method and sample. Finally, we present and describe our results and findings, and then, the results and conclusions are analyzed.

1.2 Research Questions

Does gender diversity have a positive impact on financial performance? If so, does the impact of gender diversity differ between hierarchical levels in a corporation?

Is there one optimal gender diversity ratio for increasing financial performance for all hierarchical levels in a corporation?

2.0 Literature and Theory

2.1 Literature Review

This section examines previously published literature within the field of social sustainability, relating to gender diversity and how it links to financial performance. We will look into the

literary findings of each of our research's independent variables; female representation in the Board of Directors (BoD), Executive Management Teams (EMT), Senior Management Teams (SMT), and Staff Levels (SL). Previous research has had a general focus on the impact of females on the BoD. However, there is a lack of research on the impact of gender diversity in other positions. Ferrary and Déo (2023) suggest that this lack of research is due to the difficulty of accessing data relating to other hierarchical levels than the BoD. Since BoD data is published in annual reports this information is easy to access. Other gender diversity data is difficult to access, even in public companies, as it is not required by any reporting standard or law to disclose.

2.1.1 Diversity in Board Of Directors

In previous research of BoDs, there exists a consensus that gender diversity changes board behavior, which in turn impacts financial performance. Post and Byron (2015) conducted a meta-study, which found that boards with a higher female representation had greater accounting returns as well as a higher engagement in board monitoring and strategy involvement. In addition, they observed that shareholder protection had a mediating effect on female representation. If shareholder protection was high, female representation on the board had a higher positive impact on accounting returns.

Furthermore, Adam and Ferreria (2009) found that female board members had higher attendance than males and simultaneously reduced their attendance problems. Relating to firm performance, as measured by Tobin's Q and Return on Assets (ROA), their finding aligns with Post and Byron (2015), except when gender quotas were enforced. Further supporting the positive impact of gender diversity in BoD on financial performance is a study by Del Carmen Valls Martínez and Rambaud (2019) examining board diversity and financial performance of companies on the Spanish Stock Exchange (IBEX35) from a long-term perspective, measured by Tobin's Q.

Beyond the behavior of the board, research suggests that gender diversity in BoD changes the overall employment strategies. Matsa and Miller's (2013) study, examined the effect of Norway's Board of Director gender quotas and the impact diversity had on the decisions and strategies of the BoD. Their study found that more females on the BoD contributed to fewer reductions in the workforce. In turn, this caused a short-term profit reduction, measured by a

ratio of operating assets, due to an increase in number of employees, impacting labor costs. The research suggested that these changes are influenced by a leadership style that comes with increased diversity in the BoD. The change in leadership style contributes to influencing corporate strategy, such as employment policies. The study also emphasized that this was a strategy that possibly could be more profitable in the long run. It is worth noting that the effect of having females on the BoD was stronger if there were no females on the BoD before the policy was undertaken.

Even though there exists a strong consensus, the exact relationship between BoD diversity and financial performance is difficult to determine. Research by Farrell and Hersch (2005) found a reversed relationship. Rather than female directors leading to improved firm performance, it was observed that strong financial performance was positively related to the probability of appointing female directors. The research further concluded that a potential explanation would be that women are scarce resources and, when in demand, can be selective regarding which boards they serve on. Further findings from the study showed that if 20% of the board is female, there is a close to zero probability of adding another female.

2.1.2 Diversity in Executive Management Teams

As with BoD, prior research on EMT emphasizes a change in behavior related to diversity, impacting financial performance. In particular, women in the EMT have been found to decrease strategic risk-taking (Jeong and Harrison, 2017; Perryman et al., 2016). Jeong and Harrison (2017) argued that risk-taking can be seen as a mediating variable, as risk is associated with a substantial downside and more potential loss. Therefore, decreased risk-taking contributes to better financial performance in the long run. The reduced strategic risk-taking is interpreted as a product of female characteristics in the decision process, such as females being more risk-averse than men.

A further behavioral change occurring from gender diversity in the EMT was observed by Flabbi et al. (2019). Their findings showed a positive interaction between female leadership and sales per employee. The productivity increase was stronger when female leadership was combined with an increase in female employees. In addition, female executives improved the allocation of women within the firms since they were better at interpreting productivity

signals from females. Thus, female executives can successfully match individual female employees to positions aligning with their skills.

Prior research agrees that gender diversity improves financial performance. However, there exist discrepancies relating to its strength. Both Flabbi et al. (2019) and Perryman et al. (2016) found a positive impact of EMT on firm performance, as measured by sales per employee respectively Tobin's Q. While the research by Jeong and Harrison (2017) supports the conclusion that the relationship is positive they only found a weak correlation long-term in their meta-study, measured by, among other variables, ROA and Tobin's Q.

A particularly visible position within the EMT is the CEO. Thus, an extensive amount of research has exclusively focused on the CEO position. The research presented revealed that firm performance, as measured by ROA, was positively impacted if the CEO was female (Khan and Vietio, 2013; Jeong and Harrison, 2017). Further findings by Jeong and Harrison (2017) show that having a female CEO decreases risk-taking.

2.1.3 Diversity in Senior Management Teams

Relating to SMT, prior literature has reported a connection between gender diversity and financial performance. Krishnan and Parson (2008) examined the impact on the quality of reported earnings of Fortune 500 companies, finding a correlation between diversity in SMT and higher earnings quality. In turn, the firm financial performance, as measured by ROA and Economic Value Added, is positively impacted by earnings quality (Duarte et al., 2022). Dezső and Gaddis Rose (2012) further support the findings. Their research exhibited that with at least one woman in SMT, a firm, on average, generates one percent more economic value and generates superior accounting performance.

As with previous hierarchical levels discussed, several factors impact the relationship between gender diversity and financial performance. Dezső and Gaddis Rose (2012) found the benefits to increase with the innovation intensity a firm exhibited in its strategy. In addition, research by Schwab et al. (2016) found employee productivity to increase if gender diversity in SMT increased, impacting financial performance. However, this required the level of diversity to rise beyond tokenism to combat isolation, which is above 20% of the underrepresented

gender. Thus, the relationship found in this research is described as curvilinear, where the more balanced the team is, the better the performance.

The literature differs in consensus regarding what level of diversity is necessary to achieve increased firm performance. However, examining the literary evidence provided in section 2.1.4 ‘Diversity at Staff Level’ supports the view of Schwab et al. (2016).

2.1.4 Diversity at Staff Level

Previous research is in agreement that diversity in the SL improves financial performance. Findings by Ali et al. (2011) illustrate an overall positive relationship between gender diversity at SL and firm performance, measured by employee productivity. Frink et al. (2003) pursued a similar analysis. Their findings support the idea that increased gender diversity is positive for financial performance, as measured by market performance (a combination of growth in sales, market share, marketing, and profitability). Further supporting the correlation are the findings of Ferrary and Déo (2023), whose research on listed French companies found that diversity at the SL affects firm profitability positively.

While they find a positive correlation between financial performance and gender diversity, it does not occur until a certain diversity threshold is reached. Ferrary and Déo (2023) found the optimal impact with a gender diversity ratio between 40% and 60%, illustrated as a hat-shaped curve. The research by Frink et al. (2003) supports the idea of a curvilinear relationship while not mentioning a specific ratio. Ali et al. (2011) found it necessary for gender diversity to grow substantially to gain diversity-related benefits. Furthermore, the study concluded that results might differ depending on the industry.

2.1.5 Research Gap

Our study makes several contributions to the gender diversity and financial performance relationship literature. Previous studies have mainly focused on the relationship between one level of gender diversity, usually BoD, and financial performance. Thus, the research lacks a more holistic picture of the impact of different hierarchical levels. Furthermore, we aim to provide a more holistic picture, including at which ratios each diversity measure is the most significant, providing additional guidance to companies in their social sustainability work.

This thesis aims to find if gender diversity in leadership teams and at the overall staff level drives financial performance, and also if there are optimal diversity ratios to achieve that performance. Furthermore, we also aim to find which measure has the strongest significant impact on financial performance, and at what ratio. A reason for examining several managerial levels is that a previous study by Ferrary and Deo (2023) concluded that each hierarchical level in an organization fulfills a specific purpose. Each contributes to a social status that may contribute (positively or negatively) to a firm's financial performance, indicating that different gender diversity measures may impact firm performance differently. Thus, our research contributes to relevant insight within an area currently missing data.

The contribution of this research aims to span beyond the literature and create incentives for companies to strive toward gender diversity. For companies to manage, it is relevant to attain knowledge of which hierarchical levels have the most profound impact on financial performance to guide companies on where to start.

2.2 Theoretical perspective

The following section focuses on establishing a suitable theoretical foundation. Exploring theories is of academic significance since it establishes a base for interpreting the empirical results and potential discrepancies.

2.2.1 Resource-Based View

The Resource-Based View (RBV) examines the link between the internal characteristics of a firm and its performance. According to the theory, firms can achieve higher financial performance and a sustained competitive advantage by exploiting their imperfectly imitable, non-substitutable, rare, and valuable resources. (Barney, 1991) It is important to note that the RBV can be applied in several ways depending on the empirical context. However, the common elements for all RBVs are three shared assumptions: 1) Resources and capabilities can be allocated heterogeneously between competing firms, 2) The differences can be long-lasting, and 3) The differences can help to explain why certain firms persistently outperform other firms. (Barney, 2001)

According to the RBV, one can divide resources into two broad categories: tangible and intangible, where human capital represents an intangible resource (Auh and Menguc, 2006).

Research has shown that resources regarded as socially complex and intangible provide a superior source of sustained competitive advantage than tangible resources. A possible source of an intangible and socially complex resource could be gender diversity since it contributes to creativity, improved problem-solving, and market insight to the firm. (Ali, 2015) Moreover, a diverse organization is argued to be better equipped to serve a diverse customer group. Relating to gender diversity this is dependent on the different experiences carried by women and men. The combination of diverse skills and knowledge is seen to improve the levels of creativity and innovation in a corporation. Research suggests that the RBV holds throughout all hierarchical levels. (Ali et al., 2011) Thus, the RBV establishes a potential link between gender diversity and improved financial performance, not from a short-term point-of-view but through providing firms with a sustained competitive advantage in the long run.

2.2.2 Social Identity Theory

The Social Identity Theory (SIT) elaborates on the social conditions and cognitive processes underlying the behavior of the intergroup, in particular regarding bias, discrimination, and prejudice. According to the SIT, individuals divide groups into in-groups (us) and out-groups (them), viewing their group with a positive bias. The SIT states that social identity is a consequence of three processes: 1) Social categorization, 2) Social identification, and 3) Social comparison. (Turner and Tajfel, 1979)

It is common for individuals to categorize based on visible differences that require less extensive processing, such as gender (Messick and Mackie, 1989). Thus, a gender-diverse workforce may create distinct psychological groups (Ali, 2015). According to the SIT, in-groups and out-groups based on gender diversity decreases the efficiency of an organization (Williams and O'Reilly, 1998). This is due to the tendency to perceive one's group above the other, resulting in psychological division and comparison. Sequentially, this reduces communication, increases stereotypical behavior and expectations, and decreases cooperation. (Ali et al., 2011) Additional research on the SIT implies that diversity may harm group performance and process unless active measures are introduced to prevent these problems (Williams and O'Reilly, 1998). Thus, gender diversity, if not pursued with caution and a plan, might hurt firm performance through the formation of undesirable behavior, leading to increased conflicts and reduced efficiency.

2.2.3 Upper Echelons Theory

The Upper Echelons Theory (UET) emphasizes the presiding role of top management in the organization's outcomes through their idiosyncratic characteristics (Hambrick and Mason, 1984). In short, the UET builds on two intertwined parts according to Hambrick (2007): “(1) *executives act based on their personalized interpretations of the strategic situations they face, and (2) these personalized construals are a function of the executives' experiences, values, and personalities*”. The UET emphasizes that demographic characteristics (for example age, gender, and income) could be well-grounded representatives of top managers' cognitive frames (Hambrick, 2007). Hambrick and Mason (1984) describe the cognitive frame as including three components: “1. *knowledge or assumptions about future events, 2. knowledge of alternatives, 3. knowledge of consequences attached to alternatives*”. The UET emphasizes the noticeable managerial characteristics as measures of what assumptions and characteristics top managers contribute to in an administrative situation (Hambrick and Mason, 1984).

To understand why organizations perform in a certain way, one must consider the biases and dispositions of those with power (the top executives). The UET takes its stand in the view that leadership is a shared activity. This results in the capabilities, collective cognitions, and interactions of the entire EMT entering into strategic decisions, emphasizing the importance of focusing on the EMT instead of simply on the CEO. (Hambrick, 2007)

Studies have observed the results of having women in the Upper Echelon, concluding that a product of this is decreased strategic risk-taking. Decreased strategic risk-taking has been shown to mediate the relationship between females in the Upper Echelon and increased long-term financial performance. (Jeong and Harrison, 2017)

2.2.4 Critical Mass Theory

Granovetter's (1978) theory of threshold models of collective behavior explains why individuals make the decisions they do based on what decisions others make. The study highlights the concept of “threshold”, which represents the proportion of people making a particular decision, triggering an individual to act. The threshold is not constant, it is affected by the “social structure”, which is the group's relationship with the individual they are influencing. In turn, the social structure plays a crucial role in the threshold necessary to get

an individual to act in accordance with the group. The model can be used to explain a variety of forms of collective action.

The Critical Mass Theory (CMT) implies that when directors of the underrepresented gender are under a certain threshold of representation, they may face resistance from the rest of the directors. By extension, this leads to imitation of the majority, resulting in assimilation. However, once the threshold is reached, the contribution of female directions becomes valued. They then increase cooperation in tasks such as formulating corporate strategy and fostering a beneficial Corporate Social Responsibility strategy. (Yarram and Adapa, 2021) Lefley and Janeček (2023) argue that it is not enough to add women to the board, aiming to reach a certain threshold. These women must be recruited independently, based on competence, to achieve the critical mass shift, implying that the Critical Mass is not solely about numbers.

Dahlerup (1988) examined the concept of critical mass from the perspective of women in politics. The study alleges that there will be a qualitative shift in an organization when there are approximately 30% women. The study highlights several consequences of females being a minority in an organization. Some consequences are that; they become tokens, there is lower efficiency in the organization, they become stereotypes for the rest of the group, and they are excluded from informal networks.

Kanter (1977) looked at the impact of skewed diversity ratios in groups and examined the consequences for women as a token (when they are in a significant minority). Kanter divides the different groups and proportions into four categories; uniform, skewed, tilted, and balanced. A balanced group consists of a gender mix of 40-60% (Appendix 1). When Kanter examines the consequence of having women as tokens (<20%), it is shown that they tend to face complex challenges such as increased performance pressure, stereotypical role entrapment, isolation, and increased visibility. When the group is tilted, with women in the minority but not as tokens, subgroups can start to form coalitions and influence the group culture to a varying degree. In the tilted state, women are increasingly seen as individuals rather than simply representatives of their gender. When a group is balanced, Kanter observed that it is reflected in the culture and interactions of the group. In a balanced group, the presence of women is normalized, and they gain significant influence over the group. In balanced groups, potential sub-groups are also not only based on gender.

2.3 Hypothesis

The results from the literary review, examining several studies at different hierarchy levels in an organization, show that the relationship between gender diversity and financial performance is complex. Diverse teams appear to change the behavior of teams when it comes to, among others, risk, employment strategies, and reporting. From the literature, it can be determined that gender diversity, in general, positively impacts financial performance. The theories presented further support the view of gender diversity being value-creating. Based on this, we have formulated the following hypothesis:

Hypothesis 1: *Gender diversity at different hierarchical levels in a corporation combined has an overall positive impact on the EBITDA Margin.*

From both the literary review and the theoretical section, the gender diversity ratio seems to be of great importance when it comes to what impact gender diversity has in a corporation. Based on the findings above, a gender diversity ratio of 40-60% seems to be the most efficient to yield the benefits but also to avoid the negative consequences of gender diversity. With this in mind, we hypothesize:

Hypothesis 2: *Gender diversity at each hierarchical level in a corporation has the strongest positive impact on EBITDA Margin when the gender diversity ratio is between 40-60%.*

3.0 Method

3.1 Research Design & Models

For this study, a quantitative research approach has been selected. This was deemed most suitable due to the data access and the lack of quantitative studies examining gender diversity on different hierarchical levels and its correlation to financial performance. To test our hypotheses, we conduct simple OLS regressions. By regressing the independent variables on the dependent variable we aim to identify patterns and test our hypotheses. We start by regressing each independent variable along with the control variables on the dependent variable, followed by a regression combining all four independent variables, Model 1.

$$\text{EBITDAMargin}_{t+1} = \alpha + \beta_1 X_{1,t} + \beta_2 X_{2,t} + \beta_3 X_{3,t} + \beta_4 X_{4,t} + \beta_5 C_1 + \beta_6 C_2 + \beta_7 C_3 + \beta_8 D_1 + \beta_9 D_2 + \epsilon_t \quad (1)$$

Following this, we replicate the research of Ferrary and Déo (2023), dividing the sample into a subset based on the gender diversity ratio for each independent variable. The first sub-set consists of companies with a gender diversity ratio between 40-60%, Model 2.

$$\text{EBITDAMargin}_{t+1} = \alpha + \beta_{10a} D_{3a,t} + \beta_{10b} D_{3b,t} + \beta_{10c} D_{3c,t} + \beta_{10d} D_{3d,t} + \beta_5 C_1 + \beta_6 C_2 + \beta_7 C_3 + \beta_8 D_1 + \beta_9 D_2 + \epsilon_t \quad (2)$$

The sub-set with ratios between 40-60% are regressed together to test the idea of Ferrary and Déo (2023). Following this regression, the process is replicated by creating a new sub-set with a ratio of 30-70% for the independent variables following the findings of Dahlerup (1988) and the Critical Mass Theory, Model 3.

$$\text{EBITDAMargin}_{t+1} = \alpha + \beta_{11a} D_{4a,t} + \beta_{11b} D_{4b,t} + \beta_{11c} D_{4c,t} + \beta_{11d} D_{4d,t} + \beta_5 C_1 + \beta_6 C_2 + \beta_7 C_3 + \beta_8 D_1 + \beta_9 D_2 + \epsilon_t \quad (3)$$

After examining the results from Models 2 and 3, the ratios of each independent variable with the strongest significance are combined into a fourth model.

$$\text{EBITDAMargin}_{t+1} = \alpha + \beta_{10a} D_{3a,t} + \beta_{10b} D_{3b,t} + \beta_{11c} D_{4c,t} + \beta_{11d} D_{4d,t} + \beta_5 C_1 + \beta_6 C_2 + \beta_7 C_3 + \beta_8 D_1 + \beta_9 D_2 + \epsilon_t \quad (4)$$

The regression with mixed ratios is performed to provide a more holistic picture of our research for companies, focusing on the best interplay of measures based on a combination of prior ideas. To ensure that the effect of gender diversity on financial performance can properly be measured, we use a one-year lag for the financial performance measure.

3.2 Variables

3.2.1 Dependant Variable

Dependent variable (DV): EBITDA Margin_{t+1}

$$\text{EBITDA}_{t+1} = \text{Net Profit}_{t+1} + \text{Interest}_{t+1} + \text{Taxes}_{t+1} + \text{Depreciation}_{t+1} + \text{Amortization}_{t+1}$$

$$\text{EBITDA Margin}_{t+1} = \frac{\text{EBITDA}_{t+1}}{\text{Revenue}_{t+1}}$$

In our analysis, we have selected the EBITDA Margin as the dependent variable. EBITDA can be defined as “a measure of cash the firm generates through its operations” (p.75, Berk and DeMarzo, 2020). Through this definition, it can be a proxy of short-term liquidity, operational performance, and efficiency. Thus, the EBITDA Margin seems appropriate to represent firm financial performance, capturing the essence of a corporation's operational performance.

There are two further reasons for our choice of dependent variable. Firstly, given the availability of years in our gender data set, 2019-2022, it is necessary to use a measure capturing financial performance in a relatively short time frame. EBITDA makes quick approximations of the cash flow values and because of this, it can be used to assess the real value of a company's operations. The EBITDA Margin indicates a firm's profitability and captures the immediate effects of cost cuts making it an appropriate choice. (Rossi et al., 2017)

Secondly, the period for the financial data, 2020 and 2023, was significantly impacted by both the COVID-19 pandemic and the Ukraine-Russo war, causing financial distortion by impacting interest, depreciation, and amortization. As the EBITDA Margin focuses on operational efficiency, it is appropriate as it avoids the effects of external market dynamics caused by these events (Ferrary and Déo, 2023).

3.2.2 Independent Variables

The choice of independent variables is based on data availability and previous research. Firstly, as mentioned gender diversity at the BoD level has been subject to extensive research. (Post and Byron, 2015; Adams and Ferreira's, 2009; Farrell and Hersch, 2005; Matsa and Miller's, 2013; Del Carmen Valls Martínez and Rambaud's, 2019) It is also the highest

decision-making organ in a company besides the general meeting. Thus we deem it suitable to include it in our study as one measure of gender diversity.

Independent variable 1: Gender Diversity in Board of Directors_t

$$\beta_1 X_{1,t} = \beta_1 \% \text{ female BoD members}_t = \beta_1 \frac{\text{female BoD members}_t}{\text{BoD members}_t}$$

Secondly, the EMT is included as the second independent variable. The choice to include the EMT is based on its place in the organizational hierarchy, the first level below the BoD, and its significant power over the decision-making process in a company. Previous studies, even though few, have also been conducted using EMT as an independent variable. (Flabbi et al., 2019; Perryman et al., 2016; Jeong and Harrison, 2017)

Independent variable 2: Gender Diversity in Top Management Team_t

$$\beta_2 X_{2,t} = \beta_2 \% \text{ female EMT members}_t = \beta_2 \frac{\text{female EMT members}_t}{\text{EMT members}_t}$$

Thirdly, the SMT is included to measure the impact of gender diversity below top management. Measuring the impact of diversity below the top management is crucial to provide a broader view of gender diversity in an organization. Previous research further supports this decision (Krishnan and Parson, 2008; Dezső and Gaddis Rose, 2012; Schwab et al., 2016).

Independent variable 3: Gender Diversity in Senior Management_t

$$\beta_3 X_{3,t} = \beta_3 \% \text{ female SM members}_t = \beta_3 \frac{\text{female SMT members}_t}{\text{SM members}_t}$$

Finally, we look at the total gender diversity of a company, the SL. Often, the BoD, EMT, and SMT only make up a small fraction of the total number of employees in a corporation. Thus, it is relevant to include the overall gender diversity ratio of a company. Staff diversity has also been used as an independent variable in a few studies conducted within the field (Ali et al., 2011; Frink et al., 2003).

Independent variable 4: Gender Diversity on Staff Level_t

$$\beta_4 X_{4,t} = \beta_4 \% \text{ female staff}_t = \beta_4 \frac{\text{female staff}_t}{\text{total staff}_t}$$

3.2.3 Control Variables

As there are several factors besides gender diversity impacting a firm's financial performance (EBITDA Margin), control variables are necessary to be included to adjust for size, risk, capital structure, and country effects. These have been included to further isolate the impact of gender diversity to attain a more correct result of how it impacts firms.

Del Carmen Valls Martínez and Ramabudan (2019) used total assets to control for company size. They further argue that size has a dual impact, on the one hand enabling economies of scale, but simultaneously a large company encounters higher complexity and costs relating to monitoring. The selection of assets to control for size is further supported by Schrand et al. (2018); Perryman et al. (2016); Dezső and Gaddis Rose (2012).

Control variable 1: logarithm of total assets

$$\beta_5 \text{Control}_1 = \log(\text{total assets})$$

Furthermore, previous studies have added a leverage measure, expressed as the ratio between debt and assets, to control for risk and firm characteristics (Dezső and Gaddis Rose, 2012; Schrand et al., 2018).

Control variable 2: debt ratio

$$\text{debt ratio} = \frac{\text{total debt}_{t+1}}{\text{assets}_{t+1}}$$

$$\beta_6 \text{Control}_2 = \text{debt ratio}$$

In the study conducted by Ferrary and Déo (2023), the logarithm of market capitalization was used to control for size when they researched French companies. The choice of market capitalization to control for size is further supported by Krishnan and Parsons (2008).

Control variable 3: logarithm of market capitalization

$$\beta_7 \text{Control}_3 = \log(\text{market capitalization})$$

In addition, Ferrary and Déo (2023) adjusted for firm headquarters in the Paris area as they deemed a company in an urban area to impact the results. As approximately half of our sample consists of companies with headquarters in the United Kingdom (26.4%) or the Nordics (24.7%) we choose to add two dummy control variables to control for country effect (Appendix 2).

Control variable 4: UK dummy

$$\beta_8 D_1 = \begin{cases} 1, & \text{if the country is the United Kingdom} \\ 0, & \text{if the country is not the United Kingdom} \end{cases}$$

Control variable 5: Nordics dummy

$$\beta_9 D_2 = \begin{cases} 1, & \text{if the country is Sweden, Norway, Finland or Denmark} \\ 0, & \text{if the country is not Sweden, Norway, Finland or Denmark} \end{cases}$$

With this in mind, we chose to add the debt ratio, the logarithm of assets, the logarithm of market capitalization, a Nordic dummy, and a UK dummy as control variables to our model. By adding these control variables we adjust for size, risk, capital structure, and country effects.

3.2.4 Ratio Dummy Variables

Previous research and theories have found the impact of gender diversity on financial performance to occur first after a certain threshold of diversity is reached. Ferrary & Déo (2023) found the optimal impact at a ratio between 40-60%. Based on this we have decided to include a dummy variable for each independent variable of a ratio between 40-60%.

Ratio Dummy variable_{10a-d, t} = diversity ratio within or outside the ratio 40-60%

$$\beta_{10a-d} D_{3a-d, t} = \begin{cases} 1, & \text{if diversity is } 40\% \leq 60\% \\ 0, & \text{if diversity } < 40\% \text{ or } > 60\% \end{cases}$$

where,

β_{10a} = BoD Coefficient,	$D_{3a, t}$ = BoD diversity level
β_{10b} = EMT Coefficient,	$D_{3b, t}$ = EMT diversity level
β_{10c} = SMT Coefficient,	$D_{3c, t}$ = SMT diversity level
β_{10d} = SL Coefficient,	$D_{3d, t}$ = SL diversity level

To further investigate what ratios gender diversity has an impact on financial performance we have included gender diversity ratios between 30-70%. This is to see whether it is essential to have a balanced group of diversity (40-60%) or if diversity can have an impact on financial performance at lower ratios as well. Previous research by Kanter (1977) and Dahlerup (1988) provides further support for including variables at a diversity ratio between 30-70%.

Ratio Dummy variable $_{11a-d,t}$ = diversity ratio within or outside 30-70%

$$\beta_{11a-d} D_{4a-d,t} = \begin{cases} 1, & \text{if diversity is } 30\% \leq 70\% \\ 0, & \text{if diversity } < 30\% \text{ or } > 70\% \end{cases}$$

where,

β_{11a} = BoD Coefficient,	$D_{4a,t}$ = BoD diversity level
β_{11b} = EMT Coefficient,	$D_{4b,t}$ = EMT diversity level
β_{11c} = SMT Coefficient,	$D_{4c,t}$ = SMT diversity level
β_{11d} = SL Coefficient,	$D_{4d,t}$ = SL diversity level

3.3 Sample selection

Our data consists of two data samples spanning over four years. One of the samples includes gender diversity measures and one includes financial performance measures. By merging the two data samples we have created a panel data set. The gender diversity sample was collected from Denominator, a company collecting Diversity, Equity, and Inclusion (DEI) specific data variables. Denominator has the largest standardized data set for DEI variables covering more than 3 million companies (Denominator, 2024). The data set has been accessed through a collaboration with Skandinaviska Enskilda Banken (SEB). The financial performance sample and the control variables have been extracted from the well-known and established research database, Capital IQ. From Capital IQ we have retrieved the EBITDA Margin for each company in the sample. The underlying geographical information for the geographical dummy variables has been extracted from Denominator.

Table 1- Sample distribution per year

Year (Gender/Financial)	n
2019/2020	117
2020/2021	117
2021/2022	118
2022/2023	53
Total	405

3.3.1 Delimitations

This thesis is limited to listed companies in Europe that report the measures of females in BoD, EMT, SMT, and SL. Due to the lack of companies reporting gender diversity measures our sample is notably smaller ($n_{\text{total}}=405$) than the total population of listed companies in Europe during these four years. This sample might be subject to selection bias since companies reporting gender diversity measures are likely those outperforming their peers within the area.

Regarding the geographic limitation, research has shown that the link between gender diversity and company performance is context-dependent, especially on norms (Turban, 2021). Thus, as the view on diversity differs worldwide, it is important to consider geographical limitations when designing our research. Due to data availability, the study is also limited to listed companies. In our sample, the United Kingdom (26%), and the Nordic countries; Sweden, Denmark, Norway, and Finland (24%), make up 50% of our sample. In addition, companies in Northern and Western European countries are overrepresented in the sample. Only a small share (2%) are companies in Eastern Europe. (Appendix 3) The gender data will be compared to financial data with a one-year lag, as we assume that the effect of management operation in a company shows results with a one-year lag. The gender data spans from 2019 to 2022, and the financial data from 2020 to 2023. We have excluded financial companies due to their lack of EBITDA measures.

4.0 Findings and Analysis

4.1 Descriptive Statistics

Descriptive statistics for the dependent variable and independent variables are presented in Table 2. As illustrated in the table, the mean values for all independent variables are below 40%, indicating that the mass of our sample exhibits a low level of gender diversity. This aligns with the broader corporate world, beyond our sample, where women are underrepresented. The conformity is positive for our study as it confirms that our sample reflects the reality of gender diversity, allowing us to provide relevant insights.

Comparing our descriptive statistics with previous research, the mean and standard deviation are similar to previous literature (Ferrary and Déo, 2023; Flabbi et al., 2019), both for the dependent and independent variables. Regarding the control variables, the mean and standard deviation of market capitalization align with prior findings (Ferrary and Déo, 2023) while for the assets the only appropriate comparison is standard deviation, due to differences in period and sample, which is also similar to previous studies (Del Carmen Valls Martínez and Ramabudan, 2019).

Table 2- Descriptive statistics of the dependent, independent, and control variables

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99
Dependent Variable							
EBITDA Margin	405	20.327	17.923	-53.7	83.5	-28.3	71.2
Independent Variables							
BoD woman ratio	405	35.657	9.973	13	67	14	60
EMT woman ratio	405	23.807	15.854	0	67	0	57
SMT women ratio	405	28.573	12.437	2	81	7	67
SL woman ratio	405	35.867	14.319	6	76	10	76
Controls							
Assets	404	9.465	1.558	4.88	13.001	5.95	12.764
Market capitalization	405	9.266	1.718	3.235	13.042	4.889	12.454
Debt ratio	402	28.455	13.909	0	64.504	.49	58.306
UK dummy	406	.246	.431	0	1	0	1
Nordics dummy	406	.273	.446	0	1	0	1

4.1.1 Multicollinearity

Multicollinearity occurs when variables are interdependent in a regression model. High multicollinearity is a threat since it reduces the statistical significance of the independent variables. (Allen, 1997) To test for multicollinearity we check the Variance Inflation Factors (VIF). A VIF above 10 is, according to the general rule of thumb, an indication of multicollinearity issues and cause for further investigation (O'Brien, 2007). When conducting the VIF test we find that each of our models and variables has a VIF below 4, which according to the general rule of thumb is an acceptable VIF score (O'Brien, 2007). The VIF of Model 1 is 1.7 (Appendix 3) where the independent variables of diversity in SMT and SL, as well as the control variables market capitalization and assets, have higher VIFs, 2.37 and 2.04 respectively 2.34 and 2.24. Model 2 has a mean VIF of 1.49 (Appendix 4) while Models 3 and 4 have a mean VIF of 1.52 respectively 1.47 (Appendix 5 and 6). Based on these findings, we do not have to regard the issue of multicollinearity.

4.1.2 Heteroscedasticity

Heteroscedasticity is exhibited when the error terms in a model do not exhibit constant variance across observations. It violates one of the assumptions for modeling a linear regression, assuming homoscedasticity. (Newbold et al., 2019) To ensure the validity of our regression results, we have to address and control for heteroscedasticity.

To check for heteroskedasticity, we employ the Breush-Pagan test, which examines disturbances concerning heteroscedasticity in linear regression models (Breusch and Pagan, 1979). When computing the Breush-Pagan test on our models, it fails to reject the null hypothesis about heteroscedasticity being present (Appendix 7, 8, 9, and 10). Thus, based on the results we assume homoscedasticity and do not correct for heteroscedasticity.

4.1.3 Robutnesscheck

To conduct a robustness check, we check for values below the 1st percentile and above the 99th percentile. These values could be understood as extreme values impacting and distorting the result. Through the test, we find that eight of the companies are within these limits. Of the companies, four are below the 1st percentile with values ranging from -53.7 to -44.8 and four are above the 99th percentile with values from 75.3 to 83.5.

To test the impact of these values we conduct a simple OLS regression on Model 1 excluding companies below the 1st and above the 99th percentile (Appendix 11). The elimination impacts BoD which increases in significance and EMT which decreases in significance. However, this does not necessarily indicate that these values should be removed. Our sample is skewed since the mean values of all gender diversity measures are below 50%, as shown in Table 2. Thus, financial values connected to high gender diversity ratios in companies might be understood as extreme values when they are instead relevant and not misleading. Furthermore, turning to previous literature one can see that there has not been an adjustment for extreme values (Ali, 2015; Ferrary and Déo, 2023; Ali et al., 2011).

4.2 Hypothesis Testing

4.2.1 Preliminary Analysis

To find and analyze the individual relationships between the EBITDA Margin and each independent variable, we start the hypothesis testing by regressing all independent variables independently, controlling for size, risk, capital structure, and country effects. The results of these regressions are shown in Table 3. The objective is to obtain the relationship each independent variable has with the dependent variable. Afterward, we will assess whether or not all measures are suitable to be included in the final model.

Board of Directors. When regressing our first independent variable, the BoD woman ratio, while controlling for size, risk, capital structure, and country effects we find that the gender diversity of BoD positively impacts the EBITDA Margin with a coefficient of 0.192. The impact is also statistically significant ($p < 0.05$). The regression has an R-squared value of 13.8%, which suggests that the BoD diversity ratio has a fairly low explanatory value alone meaning it cannot explain most of the variation in the EBITDA Margin.

Executive Management Team. The results of regressing the EMT woman ratio on EBITDA Margin show similar results as for BoD. The EMT woman ratio has a positive coefficient (0.137) and is significant ($p < 0.05$), but, as with BoD, exhibits a low R-squared value (14.1%).

Senior Management Team. When regressing the SMT woman ratio the result differs in comparison to the previous independent variables. Firstly, the coefficient is slightly lower, 0.08, and is not statistically significant. Regarding our earlier problems with low R-squared values, it is still present in this regression (13.1%).

Staff Level. The regression result of the SL woman ratio shows a positive coefficient (0.069) but, as with the SMT, it is non-significant. Regarding the R-squared value, it is still low (13.1%).

Summary. Overall, the BoD and EMT of the independent variables show a positive significant correlation to the EBITDA Margin. In further tests, we will include all four independent variables since the aim is to provide a broader picture of the impact of gender diversity.

Table 3- *Independent regressions of the independent variables BoD, EMT, SMT, & SL*

VARIABLES	EBITDA Margin	EBITDA Margin	EBITDA Margin	EBITDA Margin
Independent variables				
BoD women ratio	0.192** (0.0878)			
EMT women ratio		0.137** (0.0562)		
SMT women ratio			0.0800 (0.0717)	
SL women ratio				0.0688 (0.0608)
Controls				
Assets	1.184 (0.811)	1.345* (0.810)	1.413* (0.825)	1.351* (0.818)
Market capitalization	1.102 (0.721)	1.019 (0.722)	1.041 (0.732)	1.098 (0.726)
Debt ratio	0.343*** (0.0624)	0.324*** (0.0634)	0.344*** (0.0634)	0.342*** (0.0637)
UK dummy	-3.026 (2.193)	-2.782 (2.158)	-2.412 (2.192)	-2.244 (2.163)
Nordics dummy	1.506 (2.075)	0.467 (2.150)	1.531 (2.108)	1.786 (2.079)
Constant	-17.28*** (6.087)	-13.65** (5.686)	-14.49** (5.982)	-14.67** (6.023)
Model summary				
Observations	401	401	401	401
R-squared	0.138	0.141	0.131	0.131
Adjusted R-Squared	0.125	0.128	0.117	0.117

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

4.2.2 Hypothesis 1

To test for H1 we use Model 1. The R-squared value is 15.1%, indicating low explanatory power, providing a limitation to our model. The results, shown in Table 4, reveal that women in BoD and EMT have a significant positive impact on the EBITDA margin. For women on BoD, the effect is 0.185 (p<0.05), while for women in EMT, the effect is 0.137 (p<0.05).

However, Model 1 does not reveal a significant effect on EBITDA Margin by women in SMT and SL. On the SMT level, the results show a negative correlation (-0.045) to EBITDA Margin while the SL has a positive correlation (0.032). Three out of four of the hierarchical levels have a positive impact, whereas two of them exhibit quite strong significance. The

overall effect of gender diversity on the EBITDA Margin in Model 1 is thus positive, and therefore our study finds evidence to support H1.

Table 4- *Regression Model 1*

VARIABLES	EBITDA Margin
Outcomes	
BoD women ratio	0.185** (0.0886)
EMT women Ratio	0.137** (0.0626)
SMT women ratio	-0.0453 (0.104)
SL woman ratio	0.0315 (0.0834)
Controls	
Assets	1.227 (0.821)
Market capitalization	1.002 (0.727)
Debt ratio	0.311*** (0.0641)
UK dummy	-3.758* (2.230)
Nordics dummy	0.203 (2.162)
Constant	-18.16*** (6.329)
Model summary	
Observations	401
R-squared	0.151
Adjusted R-squared	0.131
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

4.2.3 Hypothesis 2

To further explore the effect of gender diversity in corporations, we replicate the test by Ferrary and Déo (2023). In their research, they studied the impact of gender diversity on staff level and middle management. The results showed a curvilinear relationship between gender diversity and financial performance, exhibiting an optimal ratio of 40%-60%.

Accordingly, to test H2 we use Model 2, replicated from Ferrary and Déo (2023). The regression results of our extended analysis with Model 2, shown in Table 5, demonstrate that the R-squared value is 17.1%, indicating a still limited explanatory power. Consistent with our

findings in Model 1, gender diversity in BoD and EMT significantly impacts the EBITDA Margin ($p < 0.01$ and $p < 0.01$), but the significance has increased with the ratios. In addition, both of the independent variables have remarkably higher coefficients. The coefficient of BoD has increased from 0.185 to 6.053 and of EMT, it has increased from 0.137 to 6.16. SL (2.999) and SMT (-1.374) also showed stronger coefficients in Model 2. Nevertheless, neither gender diversity in the SMT nor at the SL shows statistical significance. As only two out of four independent variables show statistical significance with diversity ratios of 40-60% we do not find support for H2.

Table 5- Regression Model 2

VARIABLES	EBITDA Margin
Outcomes	
BoD women ratio 40-60%	6.053*** (1.894)
EMT women ratio 40-60%	6.160*** (2.368)
SMT women ratio 40-60%	-1.374 (2.699)
SL women ratio 40-60%	2.999 (2.068)
Controls	
Assets	1.136 (0.820)
Market capitalization	1.387* (0.716)
Debt ratio	0.293*** (0.0641)
UK_dummy	-5.345** (2.273)
Nordics_dummy	0.794 (2.058)
Constant	-14.07** (5.726)
Model summary	
Observations	401
R-squared	0.171
Adjusted R-squared	0.152
Standard errors in parentheses	
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$	

To further research the optimal ratio, following the lack of support for our second hypothesis in Model 2, we conduct additional testing. This adjustment follows Dahlerup's (1988) notions of organizational change occurring from the threshold of a gender diversity ratio of 30%. In Model 3, when we adjust the diversity ratios for all independent variables to 30-70%, the

significance of the independent variables changes, as illustrated in Table 6. The regression results show that the R-squared value in Model 3 is slightly below Model 2, 15.3%. Contrary to earlier findings, SL is now the only significant independent variable ($p < 0.01$) with a positive coefficient (6.127).

Table 6- Regression Model 3

VARIABLES	EBITDA Margin
Outcomes	
BoD women ratio 30-70%	2.307 (2.025)
EMT women ratio 30-70%	1.147 (1.969)
SMT women ratio 30-70%	-2.351 (2.078)
SL women ratio 30-70%	6.127*** (1.999)
Controls	
Assets	1.467* (0.813)
Market capitalization	0.928 (0.726)
Debt ratio	0.305*** (0.0652)
UK_dummy	-2.254 (2.245)
Nordics_dummy	2.705 (2.204)
Constant	-15.78*** (5.826)
Model summary	
Observations	401
R-squared	0.153
Adjusted R-squared	0.134

Standard errors in parentheses

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

From the regressions above, it can be seen that different diversity ratios have different impacts depending on the hierarchical level. The BoD and the EMT are significant and positive at the diversity ratios of 40-60%. Furthermore, SL is positive and significant at a ratio of 30-70%. Regarding the SMT it does not exhibit statistical significance in any model, however, we have chosen to include it at the ratio of 30-70% as it was closest to being significant, even though negative. To further deepen our research, finding the strongest significant effect of diversity on EBITDA Margin, we merge these distributions into a fourth model.

In Model 4 the diversity ratios that display the highest significance for each independent variable in previous models have been combined. Thus, we include BoD and EMT at a diversity ratio of 40-60% and SMT and SL at 30-70%. When regressed Model 4 yields the highest explanatory value, compared to the previous models, however still low, as R-squared is 18.1%, as exhibited in Table 7. BoD, EMT, and SL are shown to be both positive and strongly significant. The EMT shows the highest correlation and significance with a coefficient of 6.49 and $p < 0.01$. The BoD shows the second-highest coefficient of 5.398, while SL has a coefficient of 5.208. Regarding significance, all of the three independent variables illustrate a strong statistical significance ($p < 0.01$). Shifting to the SMT, it shows a negative correlation with a coefficient of -2.415 but is still non-significant. As this study does not test middle management, due to a lack of data, we can only see that diversity in the SL gives us similar results as the study by Ferrary and Déo (2023), however, with different diversity distributions as supported by the research of Dahlerup (1988).

Table 7- Regression Model 4

VARIABLES	EBITDA Margin
Outcomes	
BoD women ratio 40-60%	5.398*** (1.871)
EMT women ratio 40-60%	6.490*** (2.263)
SMT women ratio 30-70%	-2.415 (1.962)
SL women ratio 30-70%	5.208*** (1.947)
Controls	
Assets	1.174 (0.791)
Market capitalization	1.230* (0.705)
Debt ratio	0.258*** (0.0632)
UK_dummy	-4.794** (2.074)
Constant	-13.22** (5.409)
Model summary	
Observations	401
R-squared	0.181
Adjusted R-squared	0.165

Standard errors in parentheses

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

4.3 Summary of Results

In summary, gender diversity in the BoD and EMT has repeatedly shown statistical significance while simultaneously exhibiting positive coefficients. SL is positive in each regression but only significant at a 30-70% ratio in Models 3 and 4. Opposite these, SMT has never been shown to be significant and it exhibits a negative coefficient in every regression except for when it is independently regressed. The highest R-squared is reached in Model 4 which combines a 40-60% diversity ratio for the BoD and EMT with a 30-70% diversity ratio for SMT and SL. Regarding H1, we have found evidence to support it with Model 1 as the overall impact of gender diversity in the model is positive. However, BoD and EMT levels have a significantly greater positive impact than SL, while SMT is negative and non-significant. Regarding the second hypothesis, the optimal ratio of 40-60% is only found to be significant for two out of the four hierarchical levels, thus the study fails to support H2.

Table 8- Results of hypothesis

Hypothesis 1	<i>Gender diversity at different hierarchical levels in a corporation combined has an overall positive impact on the EBITDA Margin.</i>	Supported
Hypothesis 2	<i>Gender diversity at each hierarchical level in a corporation has the strongest positive impact on EBITDA Margin when the gender diversity ratio is between 40-60%.</i>	Rejected

5.0 Discussion

5.1 Discussion of results

5.1.1 Independent variables

Board of Directors. Our findings show a strong, statistically significant, positive impact of gender diversity in the BoDs on financial performance. These findings align with previous literature which establishes a similar link (Post and Byron, 2015; Del Carmen Vall Martínez and Rambaud, 2019). From our literary review a proposed reason for why diversity on BoD generates greater returns, especially long-term, is behavioral change. One study found that the attendance of the BoD increased with diversity (Adams and Ferreira, 2009). Another study concluded that diversity contributes to increased strategic involvement and board monitoring

(Post and Byron, 2015). A third study concluded that women on the BoD led to changed employment strategies which decreased workforce reductions. In the short run, this led to decreased profits, however, it is a strategy that has the potential to increase long-run profitability. (Matsa and Miller, 2013)

The UET emphasizes that diversity changes the characteristics of the EMT. Our findings, juxtaposed with existing literature, suggest a similar occurrence in the BoD. Thus, the principles of the UET regarding EMT could contribute to explaining a similar mechanism regarding the impact of the BoDs. As observed in the literary review, the role of diversity shapes the characteristics of the BoD which influences the outcomes of the organization, similar to what the UET emphasizes for EMTs (Hambrick and Mason, 1984). The UET emphasizes leadership as an activity shared among the people in the group, the different characteristics, capabilities, and collective connections of these individuals are all reflected in the company's strategic decisions (Hambrick, 2007). Considering the UET in combination with the literature, it is plausible to assume that the presence of females on the boards we have studied has influenced strategic risk-taking, attendance, and board monitoring all of which can contribute to increased financial performance.

Executive Management Team. The findings from our research are in line with previous literary findings which have found evidence for a strong correlation between women in executive positions and financial performance (Khan and Vietio, 2013; Flabbi et al., 2019; Perryman et al., 2016; Jeong and Harrison, 2017). Further, literary findings suggest that women are linked to increased long-term financial performance through reduced strategic risk-taking (Jeong and Harrison, 2017). These findings are further supported by the UET saying that the EMT's collective demographics, such as gender, and psychological characteristics impact the strategic choices and thereby the organization's direction (Hambrick and Mason, 1984). Expanding on the above, the following connections can be made; In the case of diversity in EMTs females seem to be more risk averse compared to men, and thus, this psychological trait in females impacts the strategic choices and direction of the organizations which impacts financial performance positively.

The RBV highlights gender diversity as a complex and intangible resource contributing to creativity, better problem-solving, and market insights (Ali, 2015). It emphasizes the different experiences carried by men and women (Ali et al., 2011), resulting in a different course of

action as Jeong and Harrison (2017) exemplified by a reduction in strategic risk-taking as a product of female characteristics in their study. This consensus between theory and literature further contributes to explaining the results of diversity driving financial performance at this level, as found in our research.

Senior Management Team. Our empirical findings show that the SMT does not exhibit a statistically significant relationship with the EBITDA Margin. Although non-significant it is notably negative when regressed in the models. However, when regressed alone it is slightly positive but still non-significant. These findings do not align with previous literary research (Dezső and Gaddis Rose, 2012; Krishnan and Parson, 2008), although the number of preceding studies is limited. Developing on the result, there are several potential explanations for why the SMT shows insignificant and ambiguous results. A reason could be that the SMT has too little strategic influence in an organization for the factors of the UET to be applied. While they are too far down in the leadership hierarchy to impact strategic decision making they may also be too few to make an impact similar to the SL, which exhibits a significant impact. Another explanation could be our small data sample, providing insufficient data points. Thus, more data and research might be needed to establish a clear relationship between SMT and financial performance.

Elaborating on the results, one may attempt to understand these findings through the SIT. As previously put forward, according to Williams and O'Reilly (1998) diversity may harm performance unless actively combated through for example policies. Thus, a potential explanation for the non-significant negative impact may be a lack of policies introduced within companies at the SMT level necessary to enable a significant positive impact. However, further research is needed to find a more plausible explanation for this result.

Staff Level. The statistical significance of the SL differs depending on whether it is regressed at a ratio or not. A strong statistically significant, positive relationship with firm performance is found only when regressing it at a 30-70% ratio in Models 3 and 4. In other regressions, it is positive but non-significant. Previous literary findings support the significance of examining it as a ratio (Ali et al., 2011; Frink et al., 2003; Ferrary and Déo, 2023). However, Ferrary and Déo (2023) find the optimal diversity ratio to be 40-60% while our findings support an optimal ratio of 30-70%. This will be further elaborated in section 5.1.2 'Optimal Ratio and Critical Mass'.

To further explain why diversity at the SL shows a positive correlation to financial performance the RBV can be applied. Employing a diverse workforce contributes to diverse sets of skills and knowledge being shared, which has been found to increase organizational creativity and innovation. (Ali et al., 2011) This establishes a possible link to why gender diversity at the SL positively impacts financial performance. However, due to the lack of extensive data in this thesis, along with the lack of similar studies, more research is needed to determine more exact causes and relationships between gender diversity and financial performance at this level.

Overall. To further discuss and analyze our overall findings the RBV can be applied. As presented in section 4.1 ‘Descriptive Statistics’, the mean for all of the independent variables is below 40%, with the highest being exhibited from SL at 35.87%, followed by BoD at 35.66%, then SMT at 28.57%, and last EMT at 23.81%, as seen in Table 2. This illustrates that there is a general underrepresentation of women in companies. Thus these women could, according to the RBV, be seen as intangible unique resources, providing an advantage for companies possessing these “resources” in the form of human capital. While the RBV provides further support for the positive correlation of the BoD, EMT, and SL, it makes the non-significant negative impact of SMT even more ambiguous.

Elaborating on the evidence presented in the literary review of BoD, it proposes that financial performance impacts gender diversity, not vice-versa (Farrell and Herchs, 2005). Our findings can not prove whether or not this is true, however, we can support the conclusion that there is a link between financial performance and gender diversity. Trying to find support for our first hypothesis, we can turn to other literary findings. Matsa and Miller (2013) found that diversity in BoD influences corporate and employment strategy and Perryman et al. (2016) found that diversity in executive management reduced risk-taking. These findings provide a broader perspective, suggesting a mediating effect of gender diversity, which is behavioral change. This change could increase long-term performance. In addition, the literature presented in the introduction regarding environmental factors (Altunbs et al., 2021; Brindelli et al., 2019; Kassinis et al., 2016) further supports the idea of a change in behavior related to increased diversity.

Furthermore, Flabbi et al. (2019) found that female executives are better at successfully allocating female employees which could result in a more attractive workplace. Thus, creating the possibility of a reinforcing relationship, where females increase the EBITDA Margin which attracts more female employees. A reasonable conclusion, therefore, becomes that it is not as simple as a linear relationship, rather there exists several mediating factors between gender diversity and financial performance.

It is also important to consider the risk of omitted variable bias in the regressions. This is because other important factors are not accounted for as EBITDA Margin is not solely a result of diversity at one or several hierarchical levels in the organization. As a consequence, there is a risk that the importance and effect of each independent variable on the EBITDA Margin is overestimated. Overall, this can give us biased results saying that diversity is more important in explaining EBITDA Margin than it is in reality.

5.1.2 Optimal Ratio and Critical Mass Theory

To further elaborate on the results of the second hypothesis and the additional tests connected to it, optimal ratios and the CMT will be discussed. As presented in section 4.3 'Results', the strongest effect of gender diversity on financial performance is achieved in Model 4. However, it is important to note that when constructing Model 4, we chose the diversity ratios that have been the most significant, and put these together into a model. Thus, it is not unpredictable that Model 4 yields the most significant results as it could be seen as a case of p-hacking.

In the context of diversity, the CMT suggests that there has to be a certain amount of women in a team for them to have an influence. Otherwise, they are seen as tokens and face several challenges in the group. It is not until the group is balanced that women start to have a real impact without being stereotyped and only regarded as their gender. (Kanter, 1977; Dahlerup, 1988)

Based on the CMT and the findings by Ferrary and Déo (2023), which found the optimal ratio to be 40-60%, we based our analytical starting point on this ratio. Our findings align with the theory and the findings of Ferrary and Déo (2023) on the BoD and EMT levels as the variable's coefficients are positive and statistically significant. To explain the results of SL,

having the highest significance and coefficient at the diversity ratio of 30-70%, we refer to Dahlerup's (1988) findings that there is a significant shift in women's impact already at the presence of 30% women in an organization. Thus, as the SL includes more employees than management teams it might not be as obvious when the gender diversity ratio increases between the ratios of 30/40-60/70%. However, it does not explain why the results of the SMT and SL at a 40-60% ratio are insignificant and in the case of the SMT, negative. This could be due to our small sample and skewed mean of companies and thus, the number of companies excluded in the higher and more limited ratio of 40-60%. Thus, to better explain the lack of support for our second hypothesis, and to understand why not all hierarchical levels exhibit a significant coefficient at the 40-60% ratio, there is a need for more data and further research.

5.1.3 Practical Implications

These findings hold practical implications for organizational practices in the realm of gender diversity. Companies that aim to enhance their financial performance should consider implementing strategies to promote gender diversity across different hierarchical levels of the organization, in particular, at the levels of BoD and EMT. Our findings conclude that corporations should strive to have a gender diversity ratio of 40-60% in higher management teams and at least 30-70% women in the overall workforce. It is essential to remember that gender diversity does not imply a 50/50 diversity ratio, levels around 40-60% are enough to capture the benefits of a diverse management team. At the BoD level, this aligns with the suggestions of the European Parliament (2022) where non-executive directors of the underrepresented gender should constitute a minimum of 40%. However, their suggested diversity ratio of at least 33% in the EMT is not enough, according to our research. Connecting to the descriptive statistics, the mean for the different diversity ratios are all under 40%, revealing room for improvement within the corporate world. Our findings, combined with the theories presented emphasize the importance of increasing gender diversity through an active process. This is crucial to combat the negative impacts of diversity where the underrepresented gender is seen only for their gender and not their competence.

Going further into details, one can see that out of our independent variables, the BoDs and the EMTs are proven to be most significant, where the EMT exhibits the highest coefficient in Model 4 (see Table 7). However, this does not necessarily imply that a firm can achieve a higher EBITDA by increasing gender diversity in the BoD and the EMT. Connecting to

previous literature, Flabbi et al. (2019) found that female executives are more successful with interpreting female workers' productivity signals, thus increasing overall productivity. Based on this, a mediating effect appears to be present, and further research is necessary to conclude the relationship between the different levels of positions.

6.0 Conclusion

Companies today have one main mission; to create value for their shareholders. Our study concludes with a crucial finding, gender diversity enhances financial performance. Previous literature has emphasized the behavioral change occurring through having a diverse corporation, impacting the overall strategy, risk, team behaviors, and employment strategy. Connecting to our findings, this appears to be a driver of financial performance. While some managers may view increasing diversity as costly and time-consuming, our research reveals that the benefits of diversity yield greater financial performance, especially at the highest hierarchical levels of an organization. Thus, we hope that this thesis will provide companies with a further compelling reason to improve gender diversity.

This thesis has aimed to answer the question of whether gender diversity has a positive impact on financial performance, and if so, which hierarchical levels have the greatest impact. The research finds evidence to support the first hypothesis, that the overall impact of gender diversity on financial performance is positive. Moreover answering the second part of the first research question, the hierarchical levels of BoD and EMT outperform the SMT and SL. The BoD and EMT have approximately the same impact on financial performance throughout the four models. However, no evidence has been found for the SMT having a positive impact. The SL exhibits a positive but insignificant coefficient except when regressed at a ratio of 30-70%, then it is highly significant. Nonetheless, from an overall perspective, as stated in the first hypothesis, gender diversity in different hierarchical levels of a corporation combined impacts financial performance positively.

Furthermore, in answering the second research question of whether there is an optimal ratio of gender diversity regarding financial performance throughout the hierarchical levels of an organization, we do not find there to be one optimal ratio throughout all levels. The impact of BoD and EMT are found to be the most profound at a diversity ratio between 40-60%. However, we fail to find support for this ratio at the SMT or SL, and thus also fail to find

support for our second hypothesis. Instead, we find that the optimal level for SL is 30-70%, following the findings by Dahlerup (1988). However, we do not find any ratio in which SMT is significant.

The results are explained by combining our empirical findings with previous research and theory, providing a stable base upon which it is possible to attain sustained and real-world applicable conclusions. Specific importance is emphasized in the literary findings that the underrepresented gender, which in the realm of the overall corporate world in the present and historically are females, must reach a level above tokenism to make a significant impact in a team. Our research finds support for this at the highest levels of an organization and the overall staff level. However, when it comes to the more intermediate level, senior management, we do not find support for this.

The subject of our study is of interest to corporations, their shareholders, and stakeholders, as it establishes a link for achieving increased financial performance. Our findings provide a path for companies with a direction of where to start. The empirical result of the research shows that, within the hierarchical levels we have researched, gender diversity has a positive impact, even though with varying significance, on financial performance in three out of four levels. Thus, it is in the best interest of each of these actors to increase their levels of gender diversity.

6.1 Limitations

The study is subject to limitations. This research only includes listed companies in Europe that report diversity ratios or disclose enough information at BoD, EMT, SMT, and SL for the data provider Denominator to calculate it. Due to this, our data sample includes only a small portion of the population of listed European companies. Therefore our study might not show a completely correct picture of gender diversity's impact on financial performance. It could also be biased as companies choosing to disclose this information likely have better diversity ratios than companies choosing not to. Our models also have a low R-squared value, indicating that the models have low explanatory values. This implies that there are several other factors, apart from diversity, impacting the EBITDA Margin, which limits our ability to say that the results exclusively are affected by diversity.

6.2 Future Research

Throughout our research, we have acknowledged several possibilities for future research within the field of diversity in corporations. Firstly, companies just recently began reporting gender diversity data in other management levels than BoD. Thus, when there is more available data, it would be interesting to replicate our study with a larger data sample. It would also be interesting to change the geographical area to, for example, the U.S. as they also report these measures.

Furthermore, when more data is available it would be suitable to investigate the senior management level as this is the only independent variable showing a negative, non-significant correlation to the EBITDA Margin. Our limited data sample might be one explanation for why it is deviating from the other results. If further research, with larger samples, still would show a negative correlation to financial performance it would be relevant to study why that is the case.

Due to the limitations of data available we could not include middle management. However, it would provide insight into future research due to its hierarchical position, between the SMT and SL level which displayed significantly different results. The effect of how diversity in different positions affects diversity in the organization would also be useful to investigate. If there is a mediating effect of diversity between different levels, increasing diversity at another level could help organizations know where to start their work toward a more gender-diverse company.

7.0 References

- 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>
- Allen, M. P. (1997). The problem of multicollinearity. In *Understanding Regression Analysis* (pp. 176–180). https://doi.org/10.1007/978-0-585-25657-3_37
- Ali, M. (2015). Impact of gender-focused human resource management on performance: The mediating effects of gender diversity. *Australian Journal of Management*, 41(2), 376–397. <https://doi.org/10.1177/0312896214565119>
- Ali, M., Kulik, C. T., & Metz, I. (2011). The gender diversity–performance relationship in services and manufacturing organizations. *The International Journal of Human Resource Management*, 22(7), 1464–1485. <https://doi.org/10.1080/09585192.2011.561961>
- Altunbas, Y., Gambacorta, L., Reghezza, A., & Velliscig, G. (2021). Does gender diversity in the workplace mitigate climate change? In <https://www.bis.org/publ/work977.pdf>. Bank for International Settlements.
- Auh, S., & Menguc, B. (2006). Diversity at the executive suite: A resource-based approach to the customer orientation–organizational performance relationship. *Journal of Business Research*, 59(5), 564–572. <https://doi.org/10.1016/j.jbusres.2005.10.006>
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643–650. <https://doi.org/10.1177/014920630102700602>
- Berk, J., & Demarzo, P. (2020). *Corporate finance* (5th ed., p. 75). Pearson Education Limited.

Birindelli, G., Iannuzzi, A. P., & Savioli, M. (2019). The Impact of Women Leaders on Environmental performance: Evidence on Gender Diversity in Banks. *Corporate Social Responsibility and Environmental Management*, 26(6). <https://doi.org/10.1002/csr.1762>

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica*, 47(5), 1287–1294.

Curtis, M., Schmid, C., & Struber, M. (2012). *Gender diversity and corporate performance*. Credit Suisse AG.

Dahlerup, D. (1988). From a small to a large minority: Women in Scandinavian politics. *Scandinavian Political Studies*, 11(4), 275–298.
<https://doi.org/10.1111/j.1467-9477.1988.tb00372.x>

Del Carmen Valls Martínez, M., & Rambaud, S. C. (2019). Women on corporate boards and firm's financial performance. *Women's Studies International Forum*, 76, 102251.
<https://doi.org/10.1016/j.wsif.2019.102251>

Dezső, C. L., & Ross, D. G. (2012). Does female representation in top management improve firm performance? A panel data investigation. *Strategic Management Journal*, 33(9), 1072–1089.

Duarte, A. F., Lisboa, I., & Carreira, P. (2022). Does earnings quality impact firms' performance? The case of Portuguese SMEs from the mold sector. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/jfra-12-2021-0444>

European Commission (2003). The Costs and Benefits of Diversity.
<https://www.coe.int/t/dg4/cultureheritage/mars/source/resources/references/others/17%20-%20Costs%20and%20Benefits%20of%20Diversity%20-%20EU%202003%20ExSum.pdf>.

European Institute for Gender Equality, (2017). Economic benefits of gender equality in the EU: overall economic impacts of gender equality, Publications Office.
<https://data.europa.eu/doi/10.2839/96823>

Farrell, K. A., & Hersch, P. L. (2005). Additions to corporate boards: the effect of gender. *Journal of Corporate Finance*, 11(1-2), 85–106.
<https://doi.org/10.1016/j.jcorpfin.2003.12.001>

Ferrary, M., & Déo, S. (2023). Gender diversity and firm performance: when diversity at middle management and staff levels matter. *The International Journal of Human Resource Management*, 34(14), 2797–2831. <https://doi.org/10.1080/09585192.2022.2093121>

Flabbi, L., Macis, M., Moro, A., & Schivardi, F. (2019). Do Female Executives Make a Difference? The Impact of Female Leadership on Gender Gaps and Firm Performance. *The Economic Journal*, 129(622), 2390–2423. <https://doi.org/10.1093/ej/uez012>

Frink, D. D., Robinson, R. K., Reithel, B., Arthur, M. M., Ammeter, A. P., Ferris, G. R., Kaplan, D. M., & Morrisette, H. S. (2003). Gender Demography and Organization Performance. *Group & Organization Management*, 28(1), 127–147.
<https://doi.org/10.1177/1059601102250025>

Furness, V. (2023, March 1). Gender-equal boards out of reach until 2038, says MSCI.Reuters.
<https://www.reuters.com/business/sustainable-business/gender-equal-boards-out-reach-until-2038-says-msci-2023-03-01/>

Gender Statistics Database. European Institute for Gender Equality.
https://eige.europa.eu/gender-statistics/dgs/indicator/wmidm_bus_bus__wmid_comp_compbm

Gender Statistics Database. European Institute for Gender Equality.
https://eige.europa.eu/gender-statistics/dgs/indicator/wmidm_bus_bus__wmid_comp_compex/bar

Granovetter, M. (1978). Threshold models of collective behavior. *American Journal of Sociology*, 83(6), 1420–1443. <https://doi.org/10.1086/226707>

Hambrick, D. C. (2007). Upper Echelons Theory: An Update. *Academy of Management Review*, 32(2), 334–343.

Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*, 9(2), 193–206.

Home - Denominator. (2024, January 10). Denominator. <https://www.denominator.one/>

International Labour Organization. (2019). The business case for change. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_700953.pdf

Jeong, S., & Harrison, D. A. (2017). Glass Breaking, Strategy Making, and Value Creating: Meta-Analytic Outcomes of Women as CEOs and TMT members. *Academy of Management Journal*, 60(4), 1219–1252. <https://doi.org/10.5465/amj.2014.0716>

Kanter, R. M. (1977). Some effects of proportions on group life: skewed sex ratios and responses to token women. *American Journal of Sociology*, 82(5), 965–990. <https://doi.org/10.1086/226425>

Kassinis, G., Panayiotou, A., Dimou, A., & Katsifaraki, G. (2016). Gender and Environmental Sustainability: A Longitudinal Analysis. *Corporate Social Responsibility and Environmental Management*, 23(6), 399–412. <https://doi.org/10.1002/csr.1386>

Khan, W. A., & Vieito, J. P. (2013). Ceo gender and firm performance. *Journal of Economics and Business*, 67, 55–66. <https://doi.org/10.1016/j.jeconbus.2013.01.003>

Krishnan, G. V., & Parsons, L. M. (2008). Getting to the Bottom Line: An Exploration of Gender and Earnings Quality. *Journal of Business Ethics*, 78(1-2), 65–76. <https://doi.org/10.1007/s10551-006-9314-z>

Lefley, F., & Janeček, V. (2023). Board gender diversity, quotas and critical mass theory. *Corporate Communications: An International Journal*, 29(2). <https://doi.org/10.1108/ccij-01-2023-0010>

- Letablier, M.-T. (2020). Legislation on women's work in Europe. *Encyclopédie D'histoire Numérique De L'Europe*.
<https://ehne.fr/en/encyclopedia/themes/gender-and-europe/earning-a-living/legislation-women%E2%80%99s-work-in-europe>
- Matsa, D. A., & Miller, A. R. (2013). A Female Style in Corporate Leadership? Evidence from Quotas. *American Economic Journal: Applied Economics*, 5(3), 136–169.
<https://doi.org/10.1257/app.5.3.136>
- McKinsey Global Institute. (2015, September 1). *How Advancing Women's Equality Can Add \$12 Trillion to Global Growth*. McKinsey & Company.
<https://www.mckinsey.com/featured-insights/employment-and-growth/how-advancing-womens-equality-can-add-12-trillion-to-global-growth>
- Messick, D. M., & Mackie, D. M. (1989). Intergroup Relations. *Annual Review of Psychology*, 40(1), 45–81. <https://doi.org/10.1146/annurev.ps.40.020189.000401>
- Newbold, P., Carlson, W. L., & Thorne, B. (2019). *Statistics for business and economics*. Pearson.
- O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673–690.
- Parliament approves landmark rules to boost gender equality on corporate boards*. (2022, November 22). [Www.europarl.europa.eu](http://www.europarl.europa.eu).
<https://www.europarl.europa.eu/news/en/press-room/20221118IPR55706/parliament-approves-landmark-rules-to-boost-gender-equality-on-corporate-boards>
- Perryman, A. A., Fernando, G. D., & Tripathy, A. (2016). Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research*, 69(2), 579–586.

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>

Rossi, M., Galasso, S., & Capasso, A. (2017). International Journal of Economics and Financial Issues Women Do it Better: An Investigation on the Association between Gender Diversity In Board of Directors and the Financial Performance. *International Journal of Economics and Financial Issues*, 7(6), 41–50.

Schrand, L., Ascherl, C., & Schaefers, W. (2018). Gender diversity and financial performance: evidence from US REITs. *Journal of Property Research*, 35(4), 296–320.
<https://doi.org/10.1080/09599916.2018.1549587>

Schwab, A., Werbel, J. D., Hofman, H., & Henriques, P. (2016). Managerial Gender Diversity and Firm Performance: An Integration of Different Theoretical Perspectives. *Group & Organization Management*, 41(1). <https://doi.org/10.2139/ssrn.3161617>

United Nations. (2023). *The 17 Sustainable Development Goals*. United Nations; United Nations. <https://sdgs.un.org/goals>

Siebold, S. (2022, January 14). Factbox: Women’s quotas on company boards: The EU’s frontrunners and laggards. *Reuters*.
<https://www.reuters.com/business/sustainable-business/womens-quotas-company-boards-eus-frontrunners-laggards-2022-01-14/>

Turner, J. C., & Tajfel, H. (1979). Social comparison and group interest in ingroup favoritism. *European Journal of Social Psychology*, 9(2), 187–204.
<https://doi.org/10.1002/ejsp.2420090207>

Turban, S. (2021, September 17). Research: When Gender Diversity Makes Firms More Productive. *Harvard Business Review*.
<https://hbr.org/2019/02/research-when-gender-diversity-makes-firms-more-productive>

Williams, K.Y., O'Reilly, C.A. III, (1998). Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior*, 20, 77-140.

World Economic Forum. (2023, June). *Global Gender Gap Report 2023*.

Www3.Weforum.org; World Economic Forum.

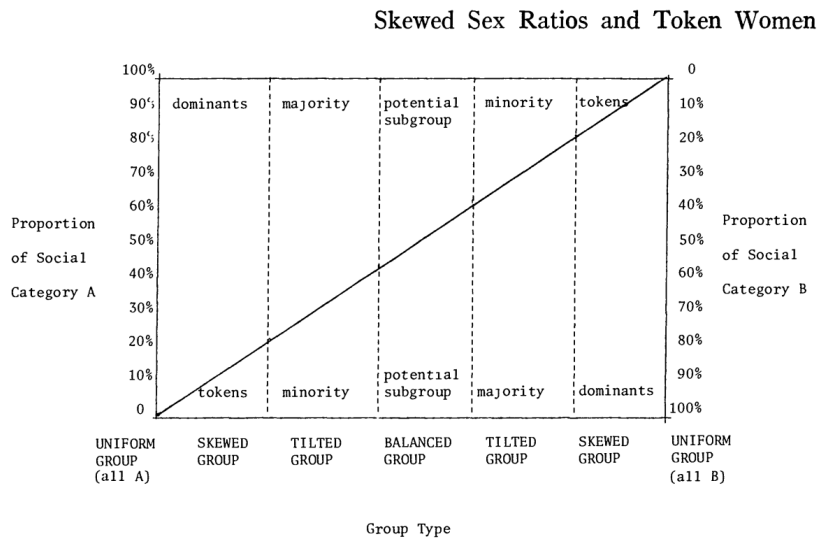
https://www3.weforum.org/docs/wef_gggr_2023.pdf

Yarram, S. R., & Adapa, S. (2021). Board gender diversity and corporate social responsibility: Is there a case for critical mass? *Journal of Cleaner Production*, 278(123319), 123319.

<https://doi.org/10.1016/j.jclepro.2020.123319>

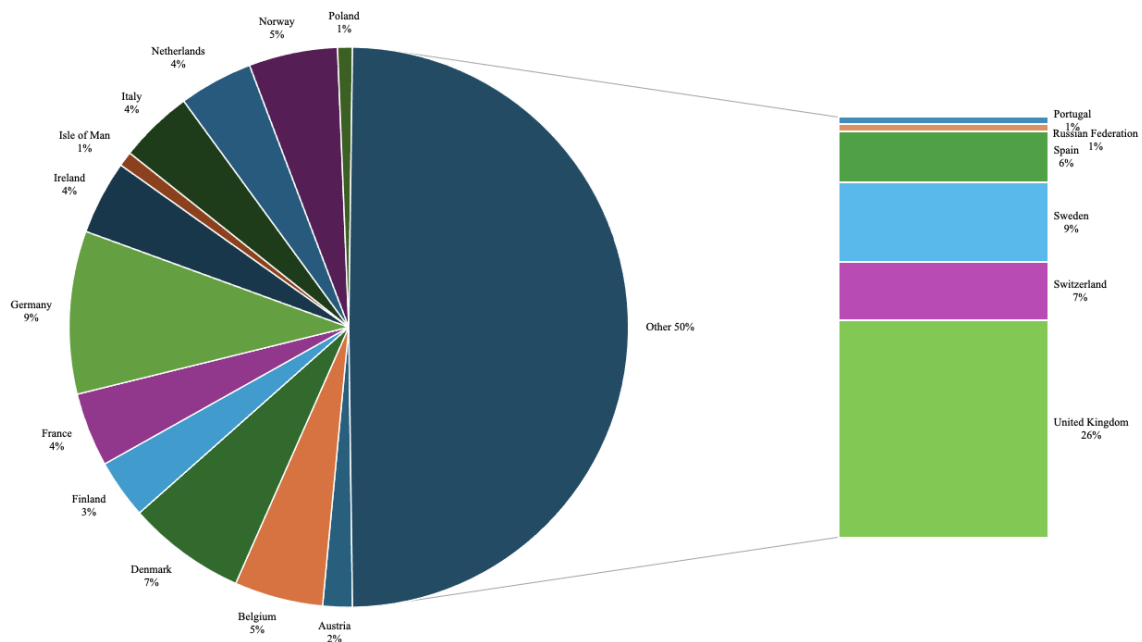
8.0 Appendix

Appendix 1- Model explaining compositions of gender diversity in a group from Kanter's research (1977)



Source: Kanter, R. M. (1977). Some effects of proportions on group life: skewed sex ratios and responses to token women. *American Journal of Sociology*, 82(5), p967.

Appendix 2- Geographic distribution of sample



Appendix 3- VIF test Model 1

	VIF	1/VIF
SMT woman ratio	2.372	.422
Assets	2.34	.427
Market capitalization	2.243	.446
SL woman ratio	2.039	.49
EMT woman ratio	1.413	.708
Nordics dummy	1.338	.747
UK dummy	1.313	.761
Debt ratio	1.135	.881
BoD woman ratio	1.116	.896
Mean VIF	1.701	

Appendix 4- VIF test Model 2

	VIF	1/VIF
Assets	2.39	.418
Market capitalization	2.229	.449
SMT women ratio 40-60%	1.414	.707
UK dummy	1.398	.715
SL women ratio 40-60%	1.262	.793
Nordics dummy	1.242	.805
EMT women ratio 40-60%	1.197	.835
Debt ratio	1.162	.861
BoD women ratio 40-60%	1.147	.872
Mean VIF	1.493	

Appendix 5- VIF test Model 4

	VIF	1/VIF
Assets	2.298	.435
Market capitalization	2.246	.445
SMT women ratio 30-70%	1.517	.659
Nordics dummy	1.394	.717
SL women ratio 30-70%	1.372	.729
UK dummy	1.335	.749
EMT women ratio 30-70%	1.26	.794
Debt ratio	1.178	.849
BoD women ratio 30-70%	1.063	.941
Mean VIF	1.518	

Appendix 6- VIF test Model 3

	VIF	1/VIF
Assets	2.256	.443
Market capitalization	2.197	.455
SMT women ratio 30-70%	1.403	.713
SL women ratio 30-70%	1.35	.741
UK dummy	1.181	.846
Debt ratio	1.147	.872
BoD women ratio 40-60%	1.136	.88
EMT women ratio 40-60%	1.11	.901
Mean VIF	1.472	

Appendix 7- BP test for heteroskedasticity Model 1

Assumption:	Normal error terms
Variable:	Fitted values of EBITDA Margin
H0:	Constant variance
	$\chi^2_2(1) = 1.63$ Prob > $\chi^2_2 = 0.2020$

Appendix 8- BP test for heteroskedasticity Model 2

Assumption:	Normal error terms
Variable:	Fitted values of EBITDA Margin
H0:	Constant variance
	$\chi^2_2(1) = 0.58$ Prob > $\chi^2_2 = 0.4473$

Appendix 9- BP test for heteroskedasticity Model 3

Assumption:	Normal error terms
Variable:	Fitted values of EBITDA Margin
H0:	Constant variance
	$\chi^2_2(1) = 0.45$ Prob > $\chi^2_2 = 0.5028$

Appendix 10- BP test for heteroskedasticity Model 4

Assumption:	Normal error terms
Variable:	Fitted values of EBITDA Margin
H0:	Constant variance
	$\chi^2_2(1) = 0.79$ Prob > $\chi^2_2 = 0.3744$

Appendix 11- Robustness Check Model 1

VARIABLES	EBITDA Margin
Outcomes	
BoD women ratio	0.247*** (0.0770)
EMT women ratio	0.0929* (0.0540)
SMT women ratio	-0.0647 (0.0895)
SL woman ratio	0.0469 (0.0719)
Controls	
Assets	0.158 (0.723)
Market capitalization	1.643** (0.636)
Debt ratio	0.294*** (0.0559)
UK_dummy	-3.459* (1.920)
Nordics_dummy	1.605 (1.874)
Constant	-15.03*** (5.477)
Model summary	
Observations	393
R-squared	0.171
Adjusted R-squared	0.151

Standard errors in parentheses

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