



Department of Management

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**The relationship between Gender Diversity and Environmental, Social, Governance
Performance Score**

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摘要

本文的目的是分析女性在董事会中的影响，以及女性的存在对环境、社会和治理（ESG）绩效得分的影响，并研究董事会性别多样性与 ESG 争议得分之间的关系。

这篇实证定量论文涵盖了 2021 年商业年度的北美、欧洲发达国家和亚太地区的能源、工业、金融、医疗保健、基础材料、周期性消费、非周期性消费、房地产和技术行业的公司样本。数据取自 Refinitiv 数据库。为了评估董事会的性别多样性与 ESG 绩效和 ESG 争议得分之间的潜在关系，进行了相关和回归分析。

该研究解决了两个研究问题。1) 董事会性别多样性和 ESG 绩效得分是否相关？2) 董事会的性别多样性和 ESG 争议的得分是否相关？

本文提出的分析包括来自北美、亚太和欧洲发达国家的 4584 家公司。多元回归表明，董事会中的女性对 ESG 绩效得分有积极影响，对 ESG 争议得分有消极影响。

关键字。ESG 得分，ESG 争议得分，公司治理，公司社会责任，性别多样性，董事会。

Abstract

The purpose of this paper is to analyze the influence of female gender on the board of directors and how female presence impacts on the Environment, Social and Governance (ESG) performance score and to study the relationship between board gender diversity and ESG controversies scores.

The empirical quantitative paper covers a sample of North American, Developed European and Asian Pacific companies belonging to the Energy, Industrial, Financial, Healthcare, Basic Material, Consumer Cyclical, Consumer Non-Cyclical, Real Estate and Technology sectors for the business year 2021. Data are taken from the Refinitiv Database. To assess a potential relationship between gender diversity on the board of directors and ESG performance and ESG controversies score, a correlation and regression analysis is carried out.

The research addressed two research questions: 1) Are board gender diversity and ESG performance score related? 2) Are board gender diversity and ESG controversies score related?

The analysis proposed in this paper consists of 4584 companies from North America, Asia Pacific and Developed Europe. The multiple regression states that women on the board of directors have a positive influence on the ESG performance score and that they have a negative influence on the ESG controversies score.

Keywords: ESG score, ESG controversies score, Corporate Governance, Corporate Social Responsibility, Gender Diversity, Board of Directors.

1. Introduction

The main goal of this study is to improve the understanding of *Corporate Social Responsibility* methods' used by businesses around the world. In particular, my research is focused on a thorough analysis of female non-discrimination rules at the corporate governance level. This was made feasible by a thorough investigation into the search for a connection between *gender diversity* on the board of directors and *Environmental, Social and Governance* scores. The influence of the *gender diversity* on the board of directors and its connection to *ESG controversies* scores were also subjects of my investigation.

Large-scale scandals and corporate failures throughout history have cast doubt on the reliability of established businesses and sparked heated discussions about *Corporate Social Responsibility* and corporate governance, particularly with regard to the function of the board of directors (Terjesen et al. 2009). Considering this, numerous nations have implemented new corporate governance laws that emphasize board diversity, particularly *gender diversity*. The role of women on boards has drawn a lot of attention as a result of rules that several nations have passed to improve board *gender diversity*.

This study fits into the body of work that has been done about women's representation in executive positions and, in particular, how that affects *Corporate Social Responsibility*.

For all businesses to identify their purpose in society and to apply social and ethical norms to their particular activity, *Corporate Social Responsibility* is today acknowledged as a fundamental and necessary pillar (Lichtenstein et al, 2004). In fact, more and more companies are demonstrating their dedication and are making an effort in the field of *Corporate Social Responsibility*, but unhappily a sizeable fraction are still making considerable attempts to adapt. In recent decades, there has been significant development in the idea of sustainable and ethical investments. Researchers looked into this issue and potential repercussions for businesses, investors, managers, and people who place their trust in these organizations. Thus, it became apparent that the recent trend among investors has been to place their money in businesses with strong corporate social responsibility and a focus on ESG indexes. Investors base their judgments on the economic value that *CSR* contributes to the business since over the long run, this value attracts additional investors.

Numerous studies have looked at how having women on the board of directors affects social performance and have found that they have a good outlook on *CSR*. For instance, *gender diversity* on the board helps a corporation better carry out its social responsibilities, according to Siciliano in 1996. Furthermore, Bear et al. discovered a favorable correlation between the institutional strength of *CSR* and the number of women on the board. Wan and Coffey demonstrated that the environment, ethics, and quality of work all improved when women were present. Post and Byron contend that there is conflicting data supporting the benefit that having women on boards of directors can offer to *CSR* and that the link can occasionally be both good and detrimental. Furthermore, just a few research have looked at the connection between these two characteristics.

Given this gap in the literature, my study contributes significantly in the ways that are outlined below. First off, by analyzing how the presence of women on the board of directors affects *ESG* indices, my research contributes theoretically to *gender diversity* in business. Additionally, because so few studies have specifically focused on this index, my study analyzes the connection between the number of women on the board of directors and its impact on *ESG controversies* scores.

Therefore, the main goal of my research is to examine the connection between board *gender diversity* and *ESG scores*, followed by an examination of the connection between board *gender diversity* and *ESG controversies*. 4584 businesses from 9 distinct industries make up the sample, including: *Energy, Technology, Financial, Basic Materials, Industries, Healthcare, Consumer Cyclical, Consumer Non-Cyclical, and Real Estate*.

In summary, my study aims to answer these two questions:

- 1) *Is there a relationship between board gender diversity and the Environmental, Social and Governance score index?*
- 2) *Is there a relationship between board gender diversity and the ESG controversies score index?*

The findings indicated a significant positive correlation between board *gender diversity* and the *ESG* score. As a result, businesses having women on their boards of directors will have higher *ESG* score indices. There is a negative correlation between board *gender diversity* and

ESG controversies, which are informational factors that affect *ESG* score negatively. A company's *ESG controversies* index will be lower if there are more women on the board of directors.

2. Literature Review

The following section will consider prior research on these subjects in order to examine the connection between the *gender diversity* of company boards, the *Environmental, Social and Governance score*, and the *ESG controversies* score. Since it serves as the foundation for research on the *Environmental, Social, and Governance score*, *Corporate Social Responsibility* will be briefly addressed first. The analysis of the *ESG* score and *board gender diversity* will come after that. To draw a conclusion, past research that examines the connection between *board gender diversity* and *ESG score* as well as the relationship between *board gender diversity* and *ESG controversies* score will be provided.

2.1. Theoretical Framework

It is now widely acknowledged that a firm, in addition to its economic and legal components, also includes an ethical element. This new theory considers both the proponents of the *stakeholder view*¹ and the proponents of the *stockholder view*². The stakeholder view contends that managers have a moral obligation to respect the rights and preferences of all parties who may have an impact on the achievement of the company's goals, including suppliers, customers, employees, shareholders, managers, and other stakeholders. The notion that the management has moral obligations is shared by both the shareholder view theory and the stakeholder view theory, but there are significant differences in how these obligations should be defined and to whom they should be owed. The premise that a company is a private, closed-off property, administered solely by its owners, and operates merely to maximize profits has now been largely disproved and set aside in recent years. The new goal of a firm is to consider people and anyone who depends on company decisions, or stakeholders. Businesses are expected to actively contribute to society's well-being rather than just refrain from causing

¹ *Stakeholder Theory*: It addresses morals and values in managing an organization, such as those related to Corporate Social Responsibility, the market economy, and social contract theory. The stakeholder theory is a theory of organizational management and business ethics that takes into account the various constituencies impacted by business entities, such as employees, suppliers, local communities, creditors, and others.

² *Stockholder Theory*: According to shareholder theory, which is also known as the duty of a corporation's managers to maximize shareholder profits, this is their responsibility. A corporation is primarily accountable to its stockholders, according to the notion, which was first put forth by Milton Friedman in the 1960s, because of the cyclical structure of the business hierarchy. The compensation of a corporation's business managers is approved by the shareholders. These managers are then in control of the corporation's spending, which must also be done in accordance with the shareholders' desires.

economic harm to it. They are also required to follow the law and use moral judgment when making managerial decisions. This significant shift in viewpoint is due to two key factors:

1. Modern corporations no longer operate under the tenet that ownership and control of a company are the same thing. So-called stockholders, who have little to no operational and psychological engagement in business activities, own the new corporations. As a result, businesses are increasingly regarded as independent beings that can pursue objectives and make decisions.
2. The second notion is that contemporary enterprises significantly and fundamentally affect society. What we would call “external expenses” that are attributed to business, including environmental contamination, the spread of hazardous products, etc., have increased along with awareness of their significance to the globe.

The evolution of the corporate model and the idea behind it offers only two options for addressing the issue of responsibility: either recognizing our social responsibilities to the world around us or making an effort to modify the old model to fit the new organizational realities of business. *Corporate Social Responsibility*³, formerly just an idea, is now recognized as a fundamental and essential pillar for all firms to define their purpose in society and to apply social and ethical norms particular their activity (Lichtenstein et al, 2004). In truth, more and more businesses are showing a commitment to and making efforts in the area of *Corporate Social Responsibility*, but, regrettably, a significant proportion are still making significant attempts to adapt.

³ *Corporate Social Responsibility*: is a self-policing corporate strategy that enables an organization to be socially accountable to its customers, employees, and stakeholders. Companies can be aware of their impact on the economic, social, and environmental aspects of society by engaging in corporate social responsibility, often known as corporate citizenship.

2.2. The Board of Directors and its role in Corporate Social Responsibility

The management, culture, and governance of *Corporate Social Responsibility* are under the control of the *Board of Directors*⁴. Making sure the company has a functional corporate governance framework is a crucial aspect of the directors' duties. While taking into account the interests of shareholders, clients, employees, creditors, and the general public, the governance structure should ensure that appropriate financial and growth targets are set and attained while risk is adequately handled. Additionally, the continued success of *CSR* depends on our corporate governance culture, which includes senior management and board leadership. The duties of the *CSR* Board are outlined in this *Board Charter*⁵, which also discusses the committee structures, independence requirements, and other duties of Directors. The board works to preserve the company's assets and good name while creating long-term profit for shareholders. Its duties include reviewing *CSR* initiatives' budgets, plans, and corporate policies as well as making sure the business follows the right corporate governance procedures. Specifically, it ensures that *CSR* always acts lawfully, responsibly, and in accordance with the highest ethical standards. Approving the *CSR*'s risk framework and risk management plan is another responsibility. The Board of Directors takes into account how *CSR* actions will affect society, morality, and the environment while also keeping track of compliance with *Corporate Social Responsibility* sustainability rules and procedures.

2.3. Board's composition factors and their influence on the Corporate Social Responsibility

The *Board of Directors*, which serves as the chief of all internal control systems and is responsible for supervising business management, is one of the most important and essential corporate governance structures. Considering this, all elements affecting the effectiveness of this oversight body are seen as crucial components of corporate governance.

⁴ *Board of Directors*: A Board of Directors, often known as the board or just the board, is an executive committee that jointly oversees the operations of an organization. This organization may be for-profit or nonprofit, such as a company, nonprofit, or government agency.

⁵ *Board Charter*: it defines the roles, responsibilities, and authority of the Board of Directors and management in setting the direction, management, and control of the company. It also establishes the parameters within which the directors and officers are to act in the performance of their respective roles. Finally, it documents the policies that the board has decided to rely on to fulfill its legal and other obligations.

The following four components of the *Board of Directors'* makeup may have an impact on *Corporate Social Responsibility*:

1. *Board independence*
2. *Absence of CEO duality*
3. *Board Size*
4. *Gender Diversity*

These four elements were found to be the *Board of Directors'* composition variables that significantly affect *Corporate Social Responsibility* in the search for a socially sustainable firm.

What is regarded as a vital requirement and a fundamental monitoring measure, namely that of *Board Independence*⁶, satisfies stakeholders' information needs. Researchers have discovered a definite positive relationship between *Board Independence*, *Corporate Social Responsibility*, and reporting quality, as well as a positive relationship between *Board Independence* and external audit quality. In fact, some well-known theories, such as the *Stakeholder Theory*, the *Stewardship Theory*⁷(Davis et al. 1997), and the *Resource Based Approach*⁸(Barney 1991), affirm that there is a clear positive correlation between the number of independent directors and practices involving *Corporate Social Responsibility* (Harjoto and Jo 2011). Since they are independent directors and come from completely different backgrounds than the business, we can conclude that they are better able to build relationships with the stakeholders and are therefore more likely to meet their needs in an easy and natural way (Ibrahim and Angelidis 1995). Additionally, they have a more stable control over external contingencies because they have a greater understanding of the external environment. Also, according to De Villers et al. 2011, empirical data backs up this beneficial association between independent directors and the implementation of *CSR* initiatives.

⁶ *Board Independence*: A majority of the company boards should be independent. The interests of shareowners will more likely come first when there is an independent majority on the board. Additionally, it is probably to encourage independent judgment and to lessen potential conflicts of interest.

⁷ *Stewardship Theory*: According to stewardship theorists, a steward will value cooperation more highly than defection if given the choice between self-serving behavior and pro-organizational activity. Stewards are thought to be trustworthy, pro-organizational, and collectivists.

⁸*Resource Based Approach*: A managerial paradigm called the resource-based view (RBV) is used to identify the strategic resources a company might use to gain a long-term competitive advantage.

The belief that an internal split between *executive and non-executive powers*⁹ is a prerequisite for each organization arises from management's drive to maximize its own profits and wealth. According to Tirole 1986, the *CEO duality model*¹⁰, which stipulates that the CEO also serves as the *Chairperson*¹¹ of the board, may lead to numerous and significant disputes inside the organization. The risks are exponential when the Chairperson is required to assess the circumstances and outcomes related to his own job and responsibilities as CEO. Given all these ideas, the Stakeholder Agency theory suggests that the *CEO duality model* of corporate leadership should simply be abandoned by all businesses thus increasing their appeal to stakeholders.

Jensens (1993) claimed that from the standpoint of the stakeholder agency theory, a noticeable and suitable number of board members appears to be necessary to ensure good board efficiency. However, a large board, according to McConnel and Sevaes in 1990, necessitates more work and frequently provides incentives for free rider conduct. Also, the *Legitimacy Theory*¹² (Cheng 2008) asserts that simply increasing the number of board members can limit the flexibility and dynamism of the decision-making process. Given this, we might conclude that *board size* is a very contentious corporate governance factor.

*Gender diversity*¹³ is the final component of the board's makeup that directly affects *CSR* activities. According to Hillman et al. (2000), *gender diversity* brings a variety of resources from which the organization might profit in terms of *CSR*. Research done by Wood et al. (1985) show that the presence of varied genders is specifically what leads to the board's open-mindedness and the development of effective innovative tactics. The study has almost conclusively proven the positive connection between the correlation between board efficiency and *gender diversity*. Konrad (2009) and numerous other psychology researchers have claimed

⁹ *Executive and non-executive powers*: The primary duty of an executive director is to perform executive duties in the management and administration of the organization, typically while employed. Typically, non-executive directors are free from business management. Independent, non-executive directors are favored in modern corporate governance theory.

¹⁰ *CEO duality model*: CEO (chief executive officer) and board chairman functions are integrated into one role.

¹¹ *Chairperson*: An organized group, such as a board, committee, or deliberative assembly, has a presiding officer who may also go by the titles of chairman, chairwoman, or chair. The official, who is normally chosen or nominated by the group's members, preside over meetings and manages the group's affairs in a professional manner.

¹² *Legitimacy Theory*: According to the legitimacy theory, corporations constantly work to ensure that their operations adhere to societal norms and boundaries (Deegan et al., 2002). The interactions of the firm with society are the main emphasis of this legitimacy theory.

¹³ *Gender diversity*: Gender identities that show a diversity of expression outside of the binary framework are referred to as exhibiting gender diversity.

that women are more likely to meet stakeholder interests than men because they tend to have a greater aversion to risk than males. Having said that, we can thus view *gender diversity* as a crucial factor for the *Board of Directors*, one that has a big impact on *Corporate Social Responsibility* and merits careful consideration.

2.4. Gender diversity and legislation

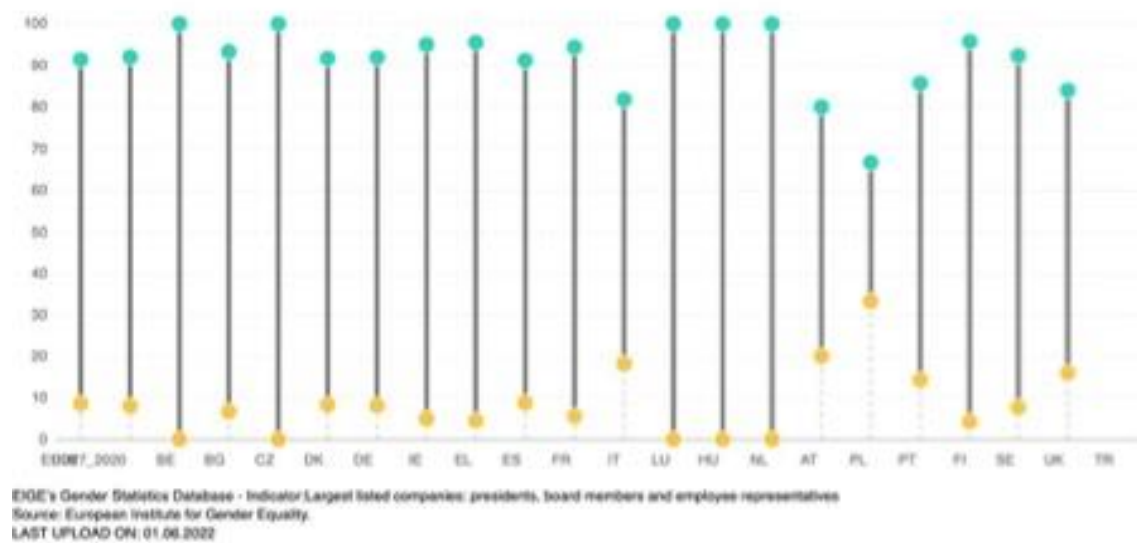
The literature on *gender diversity* in the workplace is rich and in-depth, especially when it comes to the protracted discussion of whether or not to implement a *gender quota*¹⁴. The new millennium has sparked an interest increase in *CSR*, particularly in Europe and the Western region. The European Commission has actively contributed to this development. The Women's Rights and *Legal Affairs Committees*¹⁵ supported discussions with the EU Council on a bill to improve gender balance on company boards on March 20, 2022. They have suggested that there should be at least 40% women among non-executive directors. The so-called "*women on boards*" guideline intends to create transparent hiring practices in businesses so that 33% of all director positions or at least 40% of non-executive director roles are held by members of the underrepresented sex. Thanks to the *European Parliament*, businesses are required to meet this goal by June 30, 2026. When two individuals are equally qualified for a position, the candidate from the underrepresented sex should be given preference. For businesses that disregard open and transparent appointment procedures, the plan provides effective, deterrent, and equitable consequences.

Even if people actively interested in politics and numerous organizations have been actively engaged, progress toward the aim of attaining balanced gender diversity is regrettably very slow outside of the efforts of the European Parliaments.

¹⁴ *Gender quota*: Positive measurement tool that sets a predetermined percentage (percentage) or number of slots or seats that must be filled by, or allocated to, women and/or men, generally in accordance with certain rules or criteria, in order to hasten the achievement of gender-balanced participation and representation.

¹⁵ *Legal Affairs Committees*: The Committee on Legal Affairs and Human Rights works to uphold and advance the rule of law. Additionally, it is in charge of a wide range of duties that effectively constitute it the Assembly's legal counsel.

Figure 1. Differences between percentage of men and women on the Board of Directors in European firms



Source: European Institute for Gender Equality (EIGE)

Only 26,5% of board directors of the 2020 *Fortune 500*¹⁶ list are women. Therefore, a male has a two to three times greater chance of succeeding in a senior management job than a woman with an equivalent level of education, expertise, and experience. Unfortunately, many employers today still favor hiring males over women who possess the same qualifications, which contributes to the gender gap's continued existence. Many people think that creating a gender neutralization process would take a long time, and that businesses should already be able to implement processes and structures that would be less gender discriminatory. However, it does not appear that the system has been able to assist businesses in moving forward on this issue; in reality, the adoption of some optional rules representing minorities has not been able to address the issue of gender discrimination. It is predicted that it will take lot of time for America to reach at least 30% female board representation at the rate at which the country is closing the gender gap.

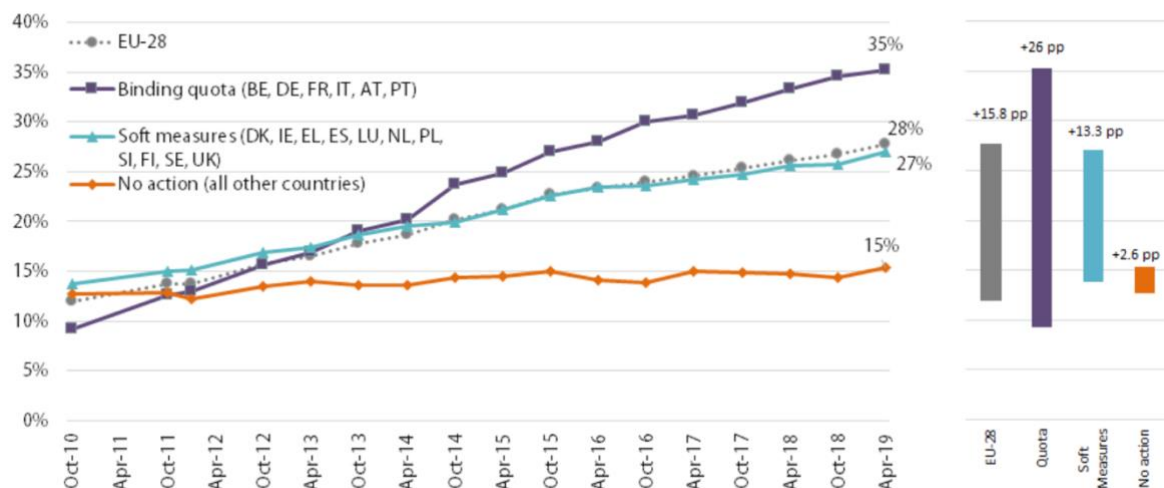
With statutory percentages to be met ranging from 33% to 50% and penalties differing from country to country, '*gender quotas*' for female representation on the Board of Directors have been implemented in the legal systems of ten countries. The 'apply or justify' approach has

¹⁶ *Fortune 500*: Every year, Fortune magazine compiles and publishes The Fortune 500, a list that ranks 500 of the biggest American firms according to total revenue for the corresponding fiscal years.

been strengthened in fifteen additional nations by the implementation of gender quotas that are not required under corporate governance standards. There are also countries that are debating and attempting to come to an agreement to establish legislation safeguarding the female gender. A *gender quota* that has been implemented in some countries has proven to have a significant influence and impact on the make-up of the *Board of Directors*, directly affecting the strategic direction of all enterprises when all these developments in favor of women’s protection are taken into account.

Figure 2. Change in the share of women on boards of the largest listed companies from October 2010 to April 2019 in Europe

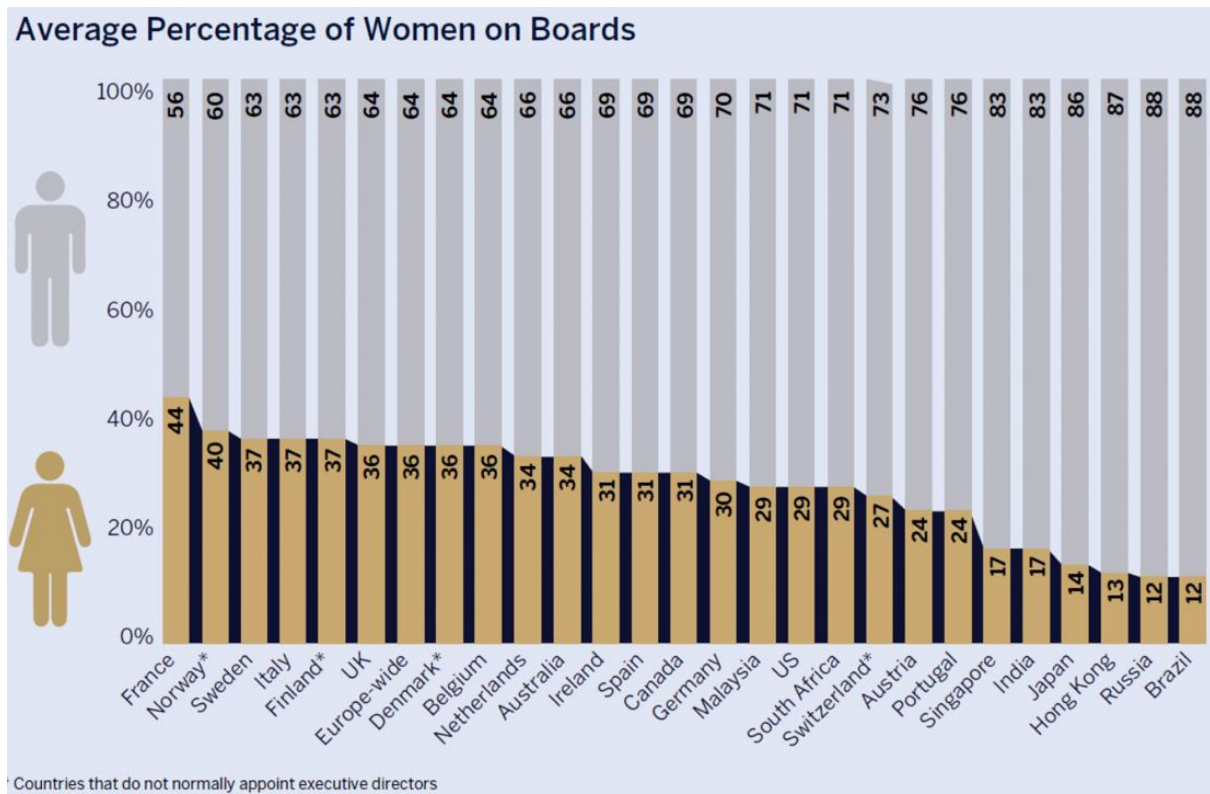
Figure: change in the share of women on boards of the largest listed companies October 2010- April 2019 by type of action taken.



Source: European Institute for Gender Equality (EIGE)

The contrast between doing something and doing nothing is startling. In the six nations with mandatory quotas, there are currently 35% women on boards (across all companies incorporated in those nations), an increase of 26 percentage points since October 2010. The countries with soft measure have the 27% of women in the board of their firms. Countries that are not interested in taking actions against the gender gap have just the 15% of women in their boards.

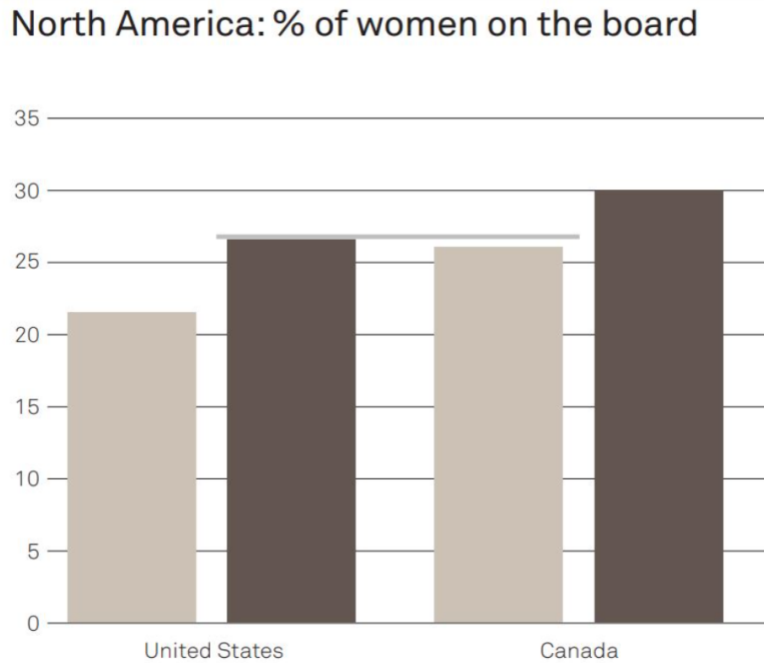
Figure 3. Average percentage of women on boards worldwide 2021



With surprisingly low rates in Brazil (12%), Russia (12%), Hong Kong (13%), and Japan (14%), and remarkably high rates in France (44%), Norway (40%), Sweden (37%), Italy (37%), and Finland (37%), women continue to make up a small minority of board directors. The implementation of the *gender quota* has had the same effect on a significant change in the representation of women on the board as no other action previously documented. When it comes to the *gender quota*, there are two things to keep in mind: in the pre-legislative era, women were unquestionably underrepresented despite having the necessary skills, experience, and competencies; in the post-legislative era, however, women may be able to hold high positions in organizations even if they are not seen as the best candidates, shifting the risk to the other side. The *gender quota* in the nations that have implemented the legislation typically consists of a percentage between 33% and 50%, a time frame of 3 to 5 years, and sanctions for those who do not satisfy the standards. In actuality, the 40% *gender quota* was first implemented in Norway in 2003. Finland followed in 2005 with a 40% quota, and the Canadian province of Quebec in 2006 with a 50% quota. Belgian, Spanish, French, Icelandic, Israeli, Italian, and Kenyan laws also have a gender quota.

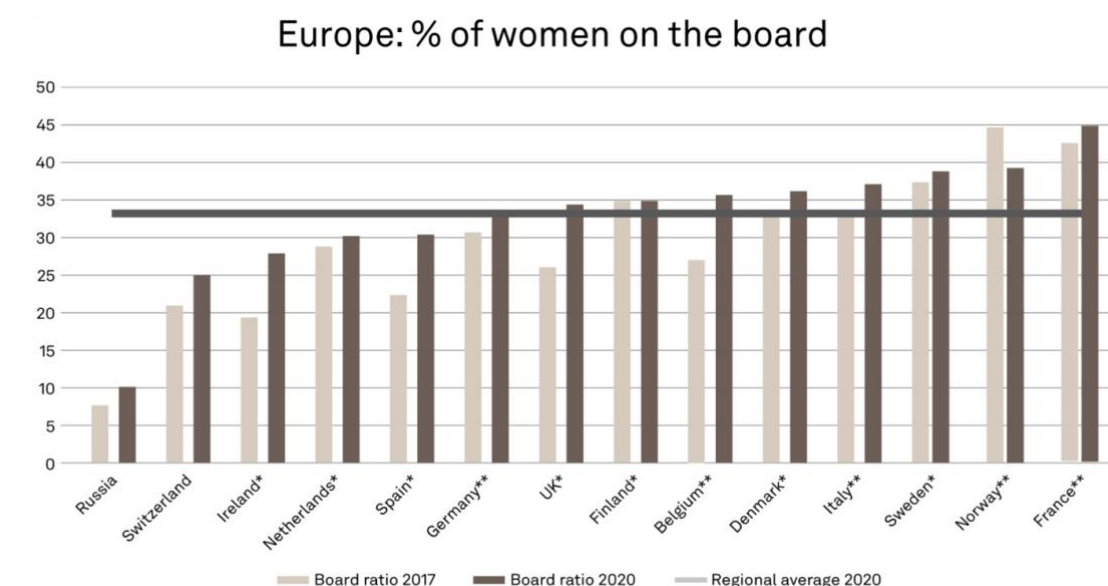
2.4.2 Corporate Social Responsibility in North America, Developed Europe and Asia Pacific

Figure 4. Female board representation in North America from 2017 to 2020



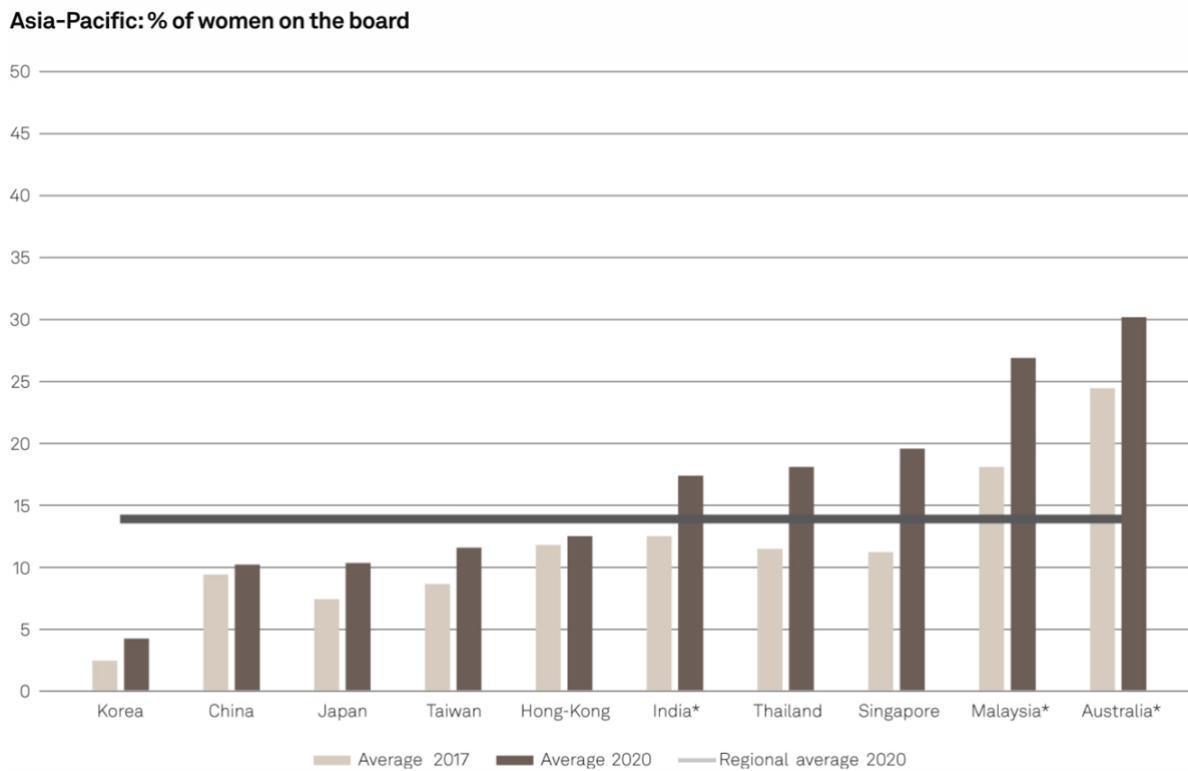
Source: Dow Jones Corporate Sustainability Assessment (2021)

Figure 5. Female board representation in Europe from 2017 to 2020



Source: Dow Jones Corporate Sustainability Assessment (2021)

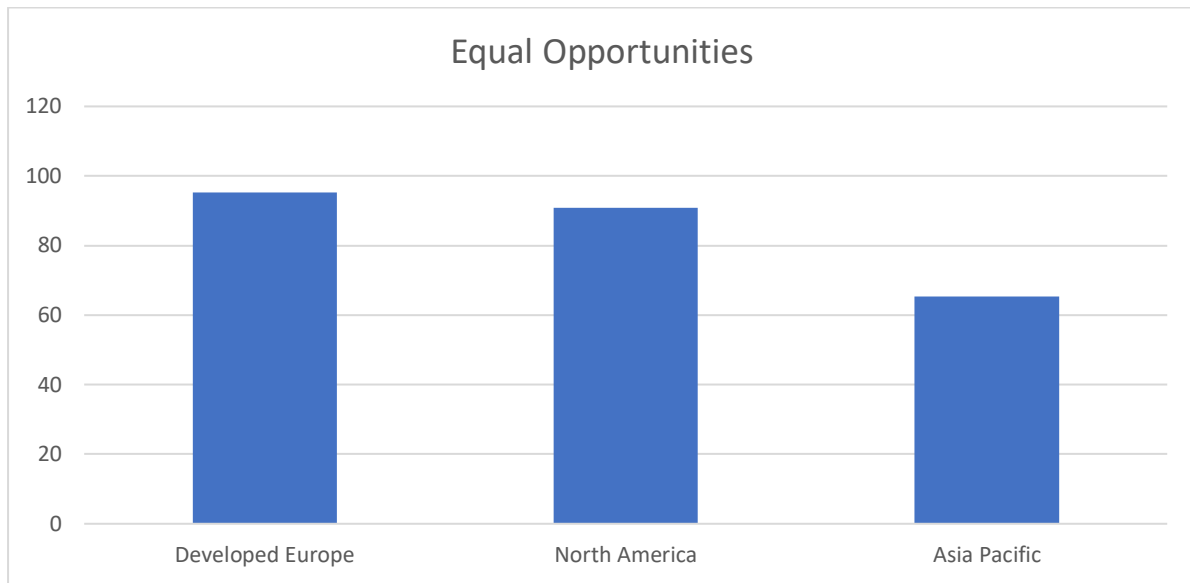
Figure 6. Female board representation in Asia from 2017 to 2020



Source: Dow Jones Corporate Sustainability Assessment (2021)

While *CSR* has been described as a concept dominated by Western frames, subtleties, and implications by Jamali and Karam (2018) and Shabana, Buchholtz, and Carrol (2017), there is growing evidence of varied manifestations of *CSR* in both Western and non-Western contexts (Amaladoss & Manohar, 2013 and Cordeiro, Galeazzo 2018). The convergence and divergence of *CSR/environmental* reporting and PR techniques globally have been examined in a number of cross-cultural studies, particularly from an “East-West” comparative perspective (Fifka, Kühn, & Stiglbauer 2018).

Figure 7. Equal Opportunities score in North America, Developed Europe and Asia Pacific



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

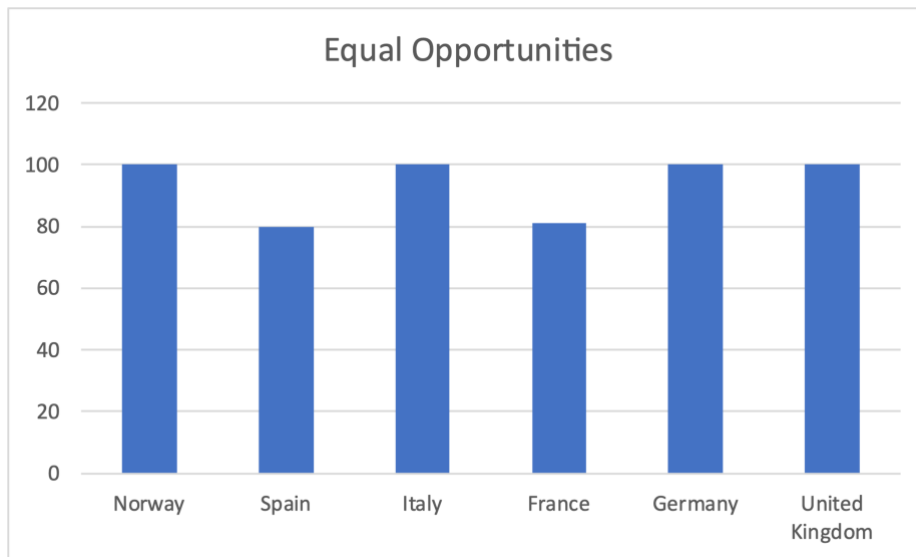
Figure 8. Equal Opportunities score in North America, Developed Europe and Asia Pacific



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

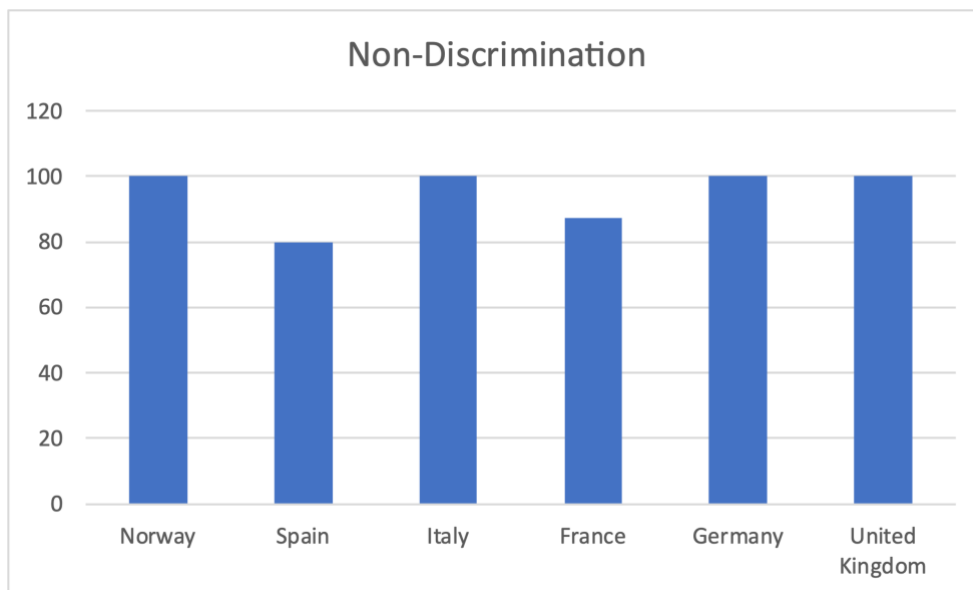
Figures 7 and 8 compare how developed Europe, North America, and Asia-Pacific regions responded to the internal aspect of Equal Opportunity and Non-Discrimination regulations. As anticipated, each of the two highlighted elements has less policies in Asia. There aren't many differences between European and American businesses.

Figure 9. Equal Opportunities in Developed Europe



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

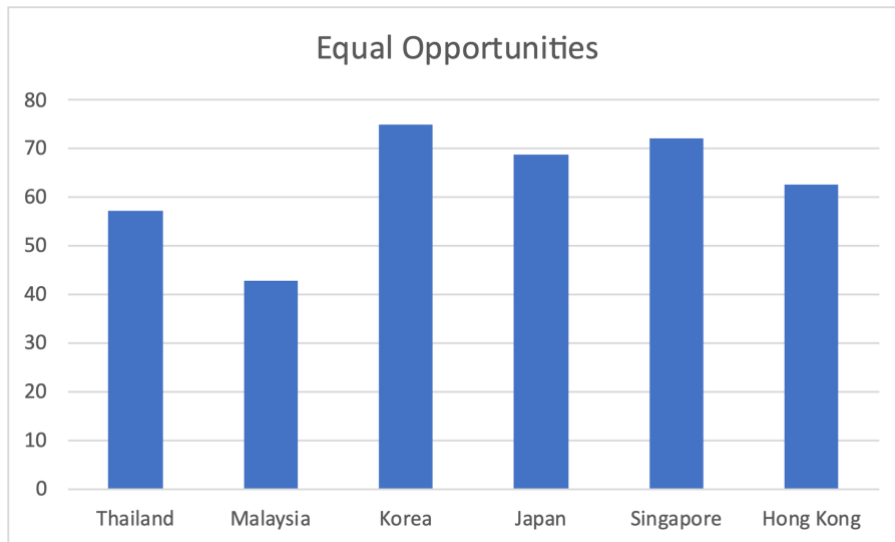
Figure 10. Non-Discrimination in Developed Europe



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

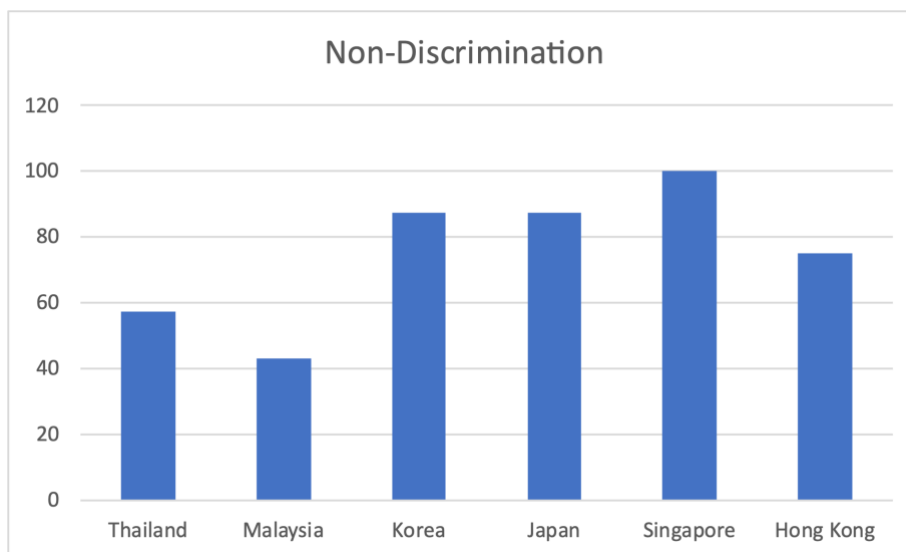
Equal Opportunities within a company’s own activities are well addressed by policies in Europe when it comes to internal *CSR* issues. Except for Spain and France, there are many policies on promoting them within a company’s sphere of influence. The majority of European nations have laws safeguarding diversity and inclusion when it comes to equal opportunity and discrimination.

Figure 11. Equal Opportunities in Asia Pacific



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

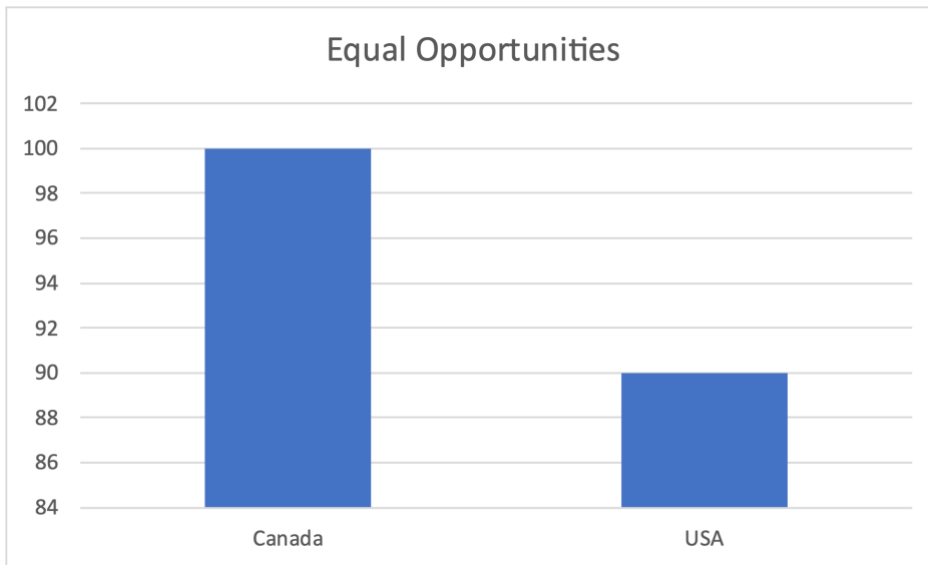
Figure 12. Non-Discrimination in Asia Pacific



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

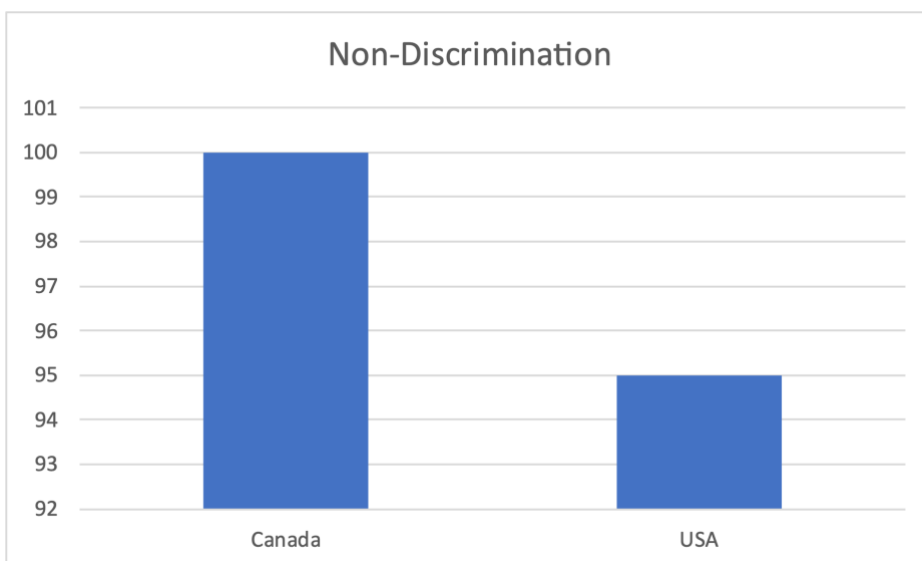
Japan, Korea, and Singapore in the Asian area have more pertinent policies in place. The bulk of the nations in this region lack equal opportunity policies, despite the fact that all Singaporean businesses have non-discrimination and diversity and inclusion protection policies. Although most Asian nations have developed economies, it is fascinating to observe that when it comes to CSR policies, they consistently lag behind other regions.

Figure 13. Equal Opportunities in North America



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

Figure 14. Non-Discrimination in North America



Source: Corporate Social Responsibility in Europe, North America and Asia, University of Hong Kong

All Canadian businesses and the majority of US businesses have policies addressing equal opportunity and anti-discrimination.

To sum up, discussions on *CSR* in Asia have typically followed trends in the West (Mohan 2015, Moon 2017). Although the fundamental framework for environmental management, social responsibility, and sustainable development is the same, priorities in nations with diverse norms, values, and economic development are highly different. The internal aspects of *CSR* do appear to be pretty well established, although based on the presence of written policies, Europe and North America are more active than Asia.

2.5. Gender Diversity

Thomas (1990), Gao and He (2017), Valentine and Godkin (2017), and Bizri (2018) all hold the opinion that effective management of *gender diversity* results in a number of benefits, including equality, respect, appreciation, and engagement between junior and senior members of a company. These benefits then support the pursuit and accomplishment of strategic and tactical goals. According to Muhr et al. (2012) and Knoppers et al. (2013), *diversity management* not only promotes justice and productivity but also assures a healthy and fair workplace environment (2015). Mor Barak and Levin (2002) contend that diversity management inside the workplace has positive and productive results. According to Kim et al. (2015), *diversity management*¹⁷ is a requirement that has been given special consideration by Western nations. This is particularly noticeable because academics have expressed a clear interest in examining employees' perceptions of diversity management practices and the relationship between diversity management and related attitudes. According to Choi and Rainey (2010), the rapidly expanding diversity of the workforce in Western markets has prompted many businesses to view diversity management as a key component of their human resources management strategy. Contrarily, despite the fact that most African and Asian nations have experienced rapid cultural and social development in recent years, diversity management is sadly not a well-developed practice in these regions. According to Park (2006), the majority of African and Asian countries still have a male-dominated population, and any changes to the socio-cultural norms or the power structure can take several years or even

¹⁷ *Diversity management*: This is the set of practices and policies aimed at enhancing diversity within a work environment - be it gender, sexual orientation, ethnic origin, culture, physical ability, etc. - supporting different lifestyles and responding to their distinct needs.

decades. Contrary to many Western and Middle Eastern nations, Egypt has never been regarded as a nation with an inclusive culture; in fact, it has never adopted or implemented a culture that could be described as egalitarian or inclusive, nor has it shown any interest in laws that protect gender or age. The administration has begun to make some tiny strides, as stated in Alas and Mousa 2016; recently political and social rights for women have been established. In fact, Egypt just enacted a 25% *gender quota* in the legislature and has also implemented and launched a number of additional programs to protect women's socio-cultural and economic rights. In order for all employees to have equal access to organizational resources including salary, promotions, development chances, growth, and information, diversity management is necessary, according to Buttner et al. (2010) and Mousa (2017). But as each business has its own history, culture, values, and demographics, researchers like Mor Barak and Levin (2002) and Jin et al. (2017) highlighted the challenges in developing and implementing a program that takes into account diversity and can be shared by all organizations.

2.5.2 Board Gender Diversity

To accurately ascertain the influence of corporate governance and its impact on the organization, a number of metrics are used. Corporate governance is the term used to describe a company's oversight role over all management, operational, and performance operations. According to Lin-Hi and Blumberg (2011), a corporation should establish corporate governance that is compatible with the actions of its stakeholders in a long-term manner that supports efficient operations. The low representation of *women on boards of directors* has been shown in several studies. Joy (2008) looked at the proportion of women on the boards of directors of American companies from 1995 to 2006. Her research revealed that just 9.6% of companies were included on the Fortune 500 in 1995, and that number had only climbed by 5% by 2006. According to his study, it would consequently take 70 years to attain parity and substantially reduce the gender gap on the Fortune 500 board at this rate of growth. Joy was not the only one to see a glacial effect in the increase of women's representation in corporate governance in Australia; Ross-Smith and Bridge (2008) made a similar observation, while Shilton et al. (2019) detailed how women are underrepresented on corporate boards in New Zealand.

Although in a small amount, can the presence of women on the Board of Directors influence the company?

Her research revealed that just 9.6% of companies were included on the Fortune 500 in 1995, and that number had only climbed by 5% by 2006. According to his study, it would consequently take 70 years to attain parity and substantially reduce the gender gap on the Fortune 500 board at this rate of growth. Adler established a link between company success and the proportion of women on the *Board of Directors* in 2001. In order to conduct this research, Adler had to analyze the Fortune 500 from 1980 to 1998. By selecting businesses with women in executive roles and on the Board of Directors and using Return on Assets, Return on Sales, and Return on Equity to gauge their operating performance, Adler was able to create a ranking system that identified which businesses could be categorized as “Women-Friendly.” A 2004 study by Catalyst, on the other hand, looked at the relationship between *gender diversity* and financial performance using Fortune 500 companies from 1996 to 2000 as an example. Its findings revealed that businesses in the first quartile with a higher percentage of women on the board had better financial results as indicated by Return on Equity and Raw stock returns. First, Carter et al. (2003) makes a compelling case for gender diversity by stating that variety fosters higher learning and market knowledge. Second, the presence of women fosters both creativity and innovation since gender, cultural, and demographic differences influence behavior, attitudes, and beliefs. Since *gender diversity* also generates a variety of points of view that lead to much better decisions, issue solving abilities are also higher and much more effective. However, numerous studies have discovered little, if any, relationship between the *gender diversity* of the Board of Directors and financial performance. Instead, *gender diversity* on the *Board of Directors* results in greater efforts in monitoring decisions, which, according to Adams and Ferreira (2009) who examined the effects of female influence on corporate governance, leads to a decrease in shareholder value. While pointing out and proving how a considerable number of female directors can significantly impact a company, other research has concentrated on demonstrating the mechanism by which the participation of women in corporate governance leads to better decision making. According to a 2013 study by Schwartz-Ziv on Israeli boards, which typically have a good gender balance, having 50% men and 50% women on the board makes it more effective, active, and has a broader range of skill sets. It also results in better financial results for the company in terms of Return on Equity and Net Profit Margin. According to a study by the Conference Board of Canada, organizations with at least two female board members are more likely to dominate their sector in terms of sales and profitability. Another aspect that *gender diversity* in corporate governance can affect is risk appetite. Women demonstrate stronger risk aversion than men, according to an experimental study done by researchers like Levin et al. in 1998. Levin and Jianakoplos (1998)

noted that women are more risk averse than men when making financial decisions. Jianakoplos and Bernasek (1998) agreed. However, it may be said that severe risk aversion might result in lower financial performance for the business because risk-averse investors have lower Return on Investment. In his 2006 study on gender variations in risk aversion, Schubert discovered that women are typically more prone to exercise caution and have a gloomier outlook on returns than males. However, it turns out that in the domain of risk management, women still possess a competitive advantage regarding activities requiring variety and communication. According to Schubert, a firm with high gender equality in senior management appears to perform better in terms of risk management and risk analysis. As a result, if the board makes decisions jointly, this can lessen the volatility of the company's performance and, by extension, lower risk.

2.6. Environmental, Social and Governance (ESG)

Corporate Social Responsibility (CSR) is often referred to as *Environmental, Social, and Governance (ESG)*¹⁸. The topics covered by *ESG* reports include a company's use of resources, natural resources, human rights, level of corruption, and community relations investments, among other things. In recent decades, the impact that businesses have on society and the environment has become increasingly important. The *Environmental, Social, and Corporate Governance (ESG)* indices represent how businesses have acted on this issue. Investors' interest in *CSR* or *ESG* dynamics is growing, and this is supported by the fact that, in 2019, more than 300 mutual funds with mandated *CSR* obtained a combined 20 billion in net flow, which is exactly four times more than in 2018. *The Principles of Responsible Investment (PRI)*,¹⁹ which establishes a commitment to include *ESG/CSR* in investment analysis and decision-making processes, has attracted more than 3000 institutional investors. *ESG* is used to measure additional information and aspects of a company's performance that do not come from traditional accounting. Corporate financial statements cannot educate management or investors about reputation value, corporate quality, brand equity, safety, company culture,

¹⁸ *Environmental, Social, and Governance (ESG)*: The acronym ESG, which means Environmental, Social and Governance (environment, social and governance), encompasses a series of evaluation elements used in the financial sector to judge the sustainability of investments, with a view to overall evaluation of a company that it goes beyond purely economic results. In other words, that is, to always evaluate the risk / return profile of portfolios with respect to an investment, it is more common than if used, also taking into account the performance of specific ESG criteria.

¹⁹ *The Principles of Responsible Investment (PRI)*: It supports but is not a part of the United Nations and encourages investors to utilize responsible investment to increase returns and better manage risks without operating for its own financial gain. It interacts with global policymakers but is unaffiliated with any government.

strategy, know-how, or holdings of other critical assets. In order to measure the management skills of the company and to enhance risk management, *ESG* indicators strive to collect non-financial information about the environment, social performance, and corporate governance. Today, information from *ESG* indicators is crucial, especially for management's goals and objectives. Managers need to have access to a plethora of information so as to manage their global operations. The managers of these businesses may run them in a way that is weighed toward their long-term goals and remains sustainable because even enterprises with excellent *ESG* indicators have a thorough awareness of the long-term tactics used by their industry.

2.6.2. Environmental Index

The dynamics of pollution and environmental protection by private organizations that may have a significant impact and influence on the environment have recently attracted significant and growing interest from both internal and external parties. External stakeholders, including environmental activist groups, government regulators, shareholders, investors, customers, suppliers, and others, as well as internal stakeholders, may be impacted by workplace pollution. In order to reduce air emissions of greenhouse gases, ozone-depleting compounds, carbon dioxide, waste, hazardous wastes, water discharges, and impacts on biodiversity, all businesses should now be concerned about and committed to environmental protection. Therefore, businesses ought to make the best use of natural resources. Improvements in environmental performance, the ability to lower environmental costs, and the emergence of a new market of opportunities made possible by new environmental technologies and ecologically designed processes could all result from technological advancement and product innovation. Companies with outstanding environmental performance can draw in new stakeholders and produce excellent economic performance, according to Melnyk, Sroufe, and Calantone. The amount of research on environmental performance has greatly expanded. In 2004, Al-Tuwaijiri et al. examined the effects that company management can have on the environment and its resources, including the release of harmful compounds and pollutants into water. Numerous researchers, including Wagner and Sulaiman (2010), were able to examine a variety of approaches to achieving economic performance, keeping pollution levels under control as effectively as possible, and doing so in a way that would improve the company's environmental performance. Contrary to what many other studies have claimed, Elsayed and Paton in 2005 provided evidence that environmental performance has no bearing on economic performance by utilizing

Tobin's Q, Return on Assets, and Return on Sales as indicators of corporate and economic performance.

2.6.3. Social Index

There is plentiful literature that has been written on the business and how it should be socially responsible. Adam (2012) proposes a three-dimensional conceptualization of social practices. The first dimension is *Corporate Social Responsibility* (economic, legal, and ethical), the second is *Corporate Social Responsiveness*²⁰ (defence, reaction, accommodation, and pro-action), and the third and final dimension is *social issues* (Consumers, shareholders, the environment, product safety, workplace discrimination/safety, and employees). The outcomes of a company's social responsibility efforts and its ability to produce results are what important. Contrarily, according to Wood (1991), corporate social practices are a relationship of social responsibility principles, procedures, social responsiveness policies, programs, and observable outcomes of the company's social interactions. Corporate social practice is a concept that stresses a company's obligation to its stakeholders, beginning with its employees and ending with its community as a whole, according to Turban and Greening (1997). In light of this, businesses with strong social performance also tend to be more desirable to both employees and the general public. Companies should make an effort to be socially responsible towards the internal and external communities in order to gain the trust and loyalty of their employees, consumers, and society. Indicators of whether a corporation is actually socially responsible include employee quality, health, safety, training, and development as well as product responsibility, community duty, human rights, diversity, and opportunity (Thomson Reuters 2015). According to Barnett and Salomon (2012), businesses with a low *Corporate Social Practices* do better financially than those with a moderate *CSP*. The argument that stakeholders might convert social responsibility into profit matches this premise admirably.

²⁰ *Corporate Social Responsiveness*: Corporate social responsiveness is the active engagement of business entities and their agents in managing their environments. Corporate social responsibility, on the other hand, emphasizes the moral duties that company has to society.

2.6.4. Governance Index

According to Fama and Jensen (2012), it is essential to have a good structure of corporate governance that allows the restriction of *agency costs*²¹ and thereby supports the survival of businesses to maximize a company's performance in the interests of the shareholders. Corporate governance is the process or framework used to coordinate business operations and set predetermined short- and long-term goals for all shareholders while also taking stakeholder interests into consideration. Ponnu (2008) asserts that corporate governance is essential for structuring the dynamics of board performance and managing business operations. According to Said et al. 2009, one of the key components of corporate governance procedures for regulating how the firm conducts its business is the Board of Directors. According to corporate governance principles, competitive and equal management compensation is a best practice and is essential to luring and keeping executive board members. Each shareholder should receive a certain right and should be treated equitably. The entire stakeholder group should be informed of all strategies and aspirations, and all daily decision-making procedures should then be integrated with all economic, social, and environmental measures. Research by Giannarakis et al. (2014) and Ponnu (2008) indicates that corporate governance and its management are important variables affecting company performance.

2.6.5. ESG disclosure

The worldwide market is shifting more and more in favor of investment methods that take *Environmental, Social and Governance* factors into account. *ESG disclosure* can measure a company's performance in terms of *governance, social responsibility, and environmental care*. Its capacity to examine a company by displaying its management performance and so detecting hazards related to *ESG* performance has earned it the title of critical variable.

²¹ *Agency Costs*: An agency cost is a specific kind of internal business expense that results from an agent acting on behalf of a principal. Core inefficiencies, dissatisfactions, and disruptions, such as conflicts of interest between shareholders and management, usually result in agency costs.

2.7. Prior research on board gender diversity and ESG Performance

According to Terjesen et al. 2009, *board gender diversity* has recently become an essential part of corporate governance structures all over the world. The concept of “Women on Corporate Boards” aligns neatly with the stakeholder theory. According to Harjoto et al. 2015 and Jain and Jamali 2016, although through the *Corporate Social Responsibility* of each company’s board manages the interests of diverse stakeholders, many directors lack experience in handling CSR challenges (Paine, 2014). Despite this, studies and statements by Boulouta (2013) and Harjoto et al. (2015) and *stakeholder theory* suggest that boards with a sizable proportion of women as directors are more likely to deal with and invest in CSR. First, according to research that places a strong emphasis on gender differences, men and women have different perceptions and views of the leadership role. Men are more often characterized by assertive, dominance, competitiveness, control, and domination behaviors, while women share the traits of being kind, sympathetic, and supportive, according to Eagly et al. 2003. As a result, we can say that women are more concerned with safeguarding the welfare of others, and these traits that distinguish women from men appear to confirm that female directors may be more interested in stakeholders’ interests than their male director counterparts, who typically lean more toward shareholder interests and purely economic issues (Adams et al., 2011). The varied origins and experiences that men and women have, in turn, result in distinct orientations about behavior toward stakeholders, claim Hillman et al. (2002) and Singh et al. (2008). Typically, women are more likely to be important in their communities and to have experience in fields outside of business. Singh et al. (2008) further demonstrated that women directors have a tendency to earn significant board experience with typically smaller companies and have a lower likelihood of being appointed CEOs. We can therefore draw the conclusion that female directors may be able to increase the board’s understanding of CSR issues by contributing their perspectives to this cause. Enhancing and implementing the company’s reputation is one of the key responsibilities of directors; in fact, businesses should work to increase their legitimacy and reputation by appointing influential and powerful people to their boards. These directors will later serve as the company’s public face and may then have a beneficial impact on opinions held by others. In light of this, according to Hillman et al. (2007), the presence of women on the Board of Directors sends a signal to female employees, potential candidates, stakeholders, and the market as a whole that the company will be able to fulfil its objectives. According to Nielsen and Huse (2010), since women are more likely to be involved in the strategic CSR issues of companies and stakeholders, they may be particularly sensitive to and even influence

certain decisions belonging to company practices regarding, particularly, company environmental and *Corporate Social Responsibility* policies. According to Glass et al. (2016), women in executive roles typically have a different leadership style from males; in fact, it may be claimed that women are more concerned with environmental and social well-being while men are more concerned with profit maximization. In general, women are more concerned with refraining from activities that could hurt the community (Adams et al. 2011). According to Cumming et al. (2015), women on boards frequently suggest pro-environmental and pro-social solutions, which helps businesses make better strategic decisions about environmental and social challenges. A large proportion of women on the board is associated, in a study by Liu (2008), Dadanlar and Abebe (2020), with fewer environmental litigation. Additionally, women are psychologically influenced to act in ways that may lessen *information asymmetries*²² toward stakeholders and the market. In addition, having women on the *Board of Directors* is seen as an indication that the company is absorbing demands from the environment and the market. Because of this, board composition is a crucial component of corporate governance that can have an impact on *ESG performance*. Decisions affecting ESG and stakeholders invariably involve female board members because of their experiences, psychological make-up, and history. According to Kyaw et al. (2017) and Manita et al. (2018), *resource dependence theory*, which holds that corporate success depends on the resources board members have such as background, psychological traits, and past experiences, can explain how board gender diversity and ESG performance. A crucial resource for businesses, the Board of Directors uses the knowledge and experience of its members to assist in making strategic choices and managing stakeholder pressure. In addition, female board members are more likely to make strategic decisions that are compassion-driven and ESG-friendly, which improve ESG performance, according to Burgess and Tharenou (2002). This means that female board members have entirely different viewpoints and perspectives than males. According to Braun and Alazzani (2017), women are typically more involved in green entrepreneurship initiatives and have a more environmentally conscious mindset. They also have a tendency to be more inclusive, participatory, and democratic. According to Srinidhi and Gull (2011), they also tend to avoid embarrassment and conflicts, placing a lot of value on developing solid and reliable connections. According to Landry, Bernardi, and Bosco (2014), it will be simpler for businesses with a gender-diverse Board of Directors to rank among the most admired, morally

²² *Information asymmetries*: Information asymmetry is a condition in which information is not fully shared among the individuals who are part of the economic process: therefore a part of the agents concerned have more information than the rest of the participants and can take advantage of this configuration.

upstanding, and finest places to work. The results of numerous earlier research that looked at the relationship between *ESG* and *gender diversity* on corporate boards of directors are unclear. In general, previous studies on the many facets of *CSR* have consistently discovered a good connection between board gender diversity *ESG performance*. According to Bear et al. (2010), when there are more female directors on company boards, the ESG rating rises. Women's presence has a beneficial impact on ESG disclosure, according to studies by Barako and Brown (2008), Frias-Aceituno et al. (2013), Lone et al. (2016), Tamimi and Sebastianelli (2017), and others. Similar findings have been made by Post, Rahman, and Rubow (2011), Jia and Zhang (2012), Harjoto et al. (2015), and Liao et al. (2015) about the automatic improvement of corporate social performance with an increase in the proportion of female board members. Other research has also suggested a lack of or a negative relationship between gender diversity and corporate social performance. Despite these results, prior research still believes that having more women on the Board of Directors enhances the quality of ESG disclosures, and that as the proportion of women on the board rises, so should ESG performance.

2.7.2. ESG controversies score

Negative *ESG* information about the firm, such as scandalous or dubious operations, can result in *Environmental, Social and Governance controversies* and if its *CSR* is poor the company can lose market share. Johnson (2003) asserts that a company's illegal and careless behavior has an impact on its financial performance and creates unfavorable perceptions among stakeholders. Many sectors reveal more information in the sustainability report to improve their public image, which improves *ESG performance*. Despite this, bad press ruins a company's brand, bringing down its market value and raising its risk. Investors actively monitor how businesses address social and environmental issues, and they penalize businesses with low ESG ratings and high *ESG controversies* scores. Nguyen (2015) asserts that price volatility in the market also rises exponentially as a result of investors' influence over *ESG* debates and *CSR* issues, which affects companies' risk. *ESG controversies* cast doubt on the validity of the companies and their board members' conduct. *ESG conflicts* are undesirable because they damage profits and goodwill. Firms with a history of controversy work to defend their conduct by providing more details about their *ESG* initiatives and making aggressive investments in *ESG*-related projects to win over stakeholders. *ESG controversies* may drastically lower a company's *ESG* performance. Board members typically make strategic decisions based on

ESG. According to Arayssi et al., 2020, female board members are more concerned about *ESG* welfare than their male counterparts and take *ESG controversies* seriously. *Board gender diversity* encourages businesses to take *ESG* related actions and closely monitor *ESG controversies* to minimize reputational harm. Indeed, *ESG controversies* can put businesses at great financial peril. *ESG controversies* and board gender diversity are two crucial elements that can affect and control a company's financial risk. The company's exposure to *Environmental, Social, and Governance controversies* as well as bad media events is used to generate the *ESG Controversy scores*, which are based on 23 *ESG controversy* categories. Community, human rights, management, product responsibility, use of resources, shareholders, and workforce are the seven areas into which *ESG controversies* are broken, and there are 23 *ESG controversies* subjects in total.

- 1) Anti-competition controversies
- 2) Business Ethics controversies
- 3) Intellectual Property controversies
- 4) Critical Countries controversies
- 5) Public Health controversies
- 6) Tax Fraud controversies
- 7) Child Labor controversies
- 8) Human Rights controversies
- 9) Mgt compensation controversies count
- 10) Consumer controversies
- 11) Controversies Customer Health & Safety
- 12) Controversies Privacy
- 13) Controversies Product Access
- 14) Controversies Responsible Marketing
- 15) Controversies Responsible R&D
- 16) Environmental Controversies
- 17) Accounting Controversies count
- 18) Insider Dealing controversies Count
- 19) Shareholder Rights controversies Count
- 20) **Diversity and Opportunity controversies**
- 21) Employees Health & Safety controversies
- 22) Wages working condition controversies count

23) Management Departures

If controversies arise throughout the year, the corporation is penalized affecting the *ESG score*. If there are further developments should arise regarding negative impact factors, such as litigation, conflicts, or fines, the influence of these bad occurrences could be carried over and be noticed the following year. Considering that the **Diversity and Opportunity controversies** is one of the 23 elements that composed the *ESG controversies* calculation, previous literature confirm that gender diversity can impact the *ESG controversies* score.

3. Research Questions

Starting with earlier findings mentioned in the Literature Review, I was able to outline certain hypotheses. My analysis made a strong case in favor of practicing *Corporate Social Responsibility* by firms. The reasons for this are that *Corporate Social Responsibility (CSR)* is now seen as a fundamental and essential pillar for all companies to define their purpose in society and to implement social and ethical standards within their operations. The importance of ensuring a work environment that respects equality and promises to act in the name of equal opportunities has become a fundamental cause today. The strong impact that social responsibility has on companies, is an interesting phenomenon to observe and study. *CSR* has become a genuine and tangible reality. *Corporate Social Responsibility (CSR)* is often referred to as *Environmental, Social, and Governance (ESG)*.

I have developed two different and connected hypotheses. My first hypothesis seeks to determine whether there is a connection between *board gender diversity* and *Environmental, Social, and Governance (ESG) performance*. The findings from the earlier research on this subject are not homogeneous. In order to advance our understanding of the subject, my research examined the correlation between these two factors in a large sample of businesses operating in North America, Developed Europe, and Asia-Pacific. Firms were taken from 9 different industries. The 9 various sectors used in my research are described below:

1. *Energy*
2. *Technology*
3. *Consumer Cyclical*
4. *Consumer Non-Cyclical*
5. *Real Estate*
6. *Financials*
7. *Basic Materials*
8. *Industrials*
9. *Healthcare*

While earlier work only included samples from a small number of industries or countries, this study includes companies from many nations and industries while ensuring that the contexts are comparable. The variables used in this model were the *ESG score* and the *Board gender*

diversity percentage variables, while other *control variables*²³ were added for in-depth studying of my research and to consider the cross-country contexts.

H1. The gender diversity of the Board of Directors is positively related to the Environmental, Social and Governance (ESG) Performance Indicators.

Environmental, Social, and Governance are the three primary performance aspects of *ESG* as a measurement. Negative *ESG* information about the firm, such as scandalous or dubious operations, can result in *ESG controversies*, which can cause the company to lose market share if its *CSR* is poor. Global media sources are used to determine the *ESG controversies* score, which is then discounted from the *ESG* score to determine the final *ESG* combined score for a company. Therefore, my research seeks to establish a link between the board gender diversity and the *ESG controversy* score. Given that *ESG controversies* are unfavorable information about the *ESG* and that there is a positive correlation between the *ESG score* and *board gender diversity*, there must be a negative correlation between the *ESG controversies* and *board gender diversity*.

H2. The gender diversity of the Board of Directors is negatively related to the Environmental, Social and Governance (ESG) controversies score.

The table below summarized the hypothesis of the thesis pointing put the effect of the independent variable on Environmental, Social and Governance performance.

Figure 15. Prior Literature Review Authors

Hypothesis	Variables	Relation with ESG	Earlier Studies
1	ESG	+	Thomas (1990), Gao (2017), He (2017), Bizri (2018), Muhr (2012), Kim (2015), Choi (2010), Park (2006), Lin-Hi (2011), Joy (2008), Bridge (2008) Ross-Smith (2008), Bridge (2008), Shilton (2019), Carter (2003), Adams (2009), Ferreira (2009), Konrad (2009), Joy (2008), Terjesen (2009), Jamali (2006), Harjoto (2015), Paine (2014), Adams (2011), Singh (2008)
2	ESG Controversies	-	Johnson (2003), Nguyen (2015), Rubow (2011), Rahman (2011), Liao (2015), Bear (2010), Tamimi (2017), Sebastianelli (2017), Frias-Aceituno (2013), Lone (2016)

²³ *Control variables*: An experimental component that remains constant and unchanging during the duration of the research is known as a control variable (or scientific constant) in science. If control variables were not maintained constant during the experiment to examine the relative correlation between the dependent and independent variables, the outcomes of the experiment could be significantly influenced.

4. Research Methods

4.1. Sample Description

Refinitiv Workspace, an American-British global provider of financial market data and technology, was utilized to obtain the data for this study. The business was established in 2018 and is a division of the *London Stock Exchange*²⁴ Group. *Refinitiv* is the driving force behind players in the global financial market, generating 6.25 billion dollars in revenue, more than 40,000 clients, and 400,000 end users across 190 nations. Their *ESG* investing data includes 630 parameters and covers 76 nations and 80% of the global market size. To ensure that the data is uniform, comparable, and trustworthy, each piece is meticulously quality-controlled and confirmed.

In my study, I examined the *Environmental, Social and Governance* performance of businesses in North America, Developed Europe, and Asia-Pacific, as well as their *gender diversity* policies. Based on publicly available and auditable data, *ESG scores* are intended to assess the relative *ESG* performance, commitment, and effectiveness of a company clearly and impartially across 10 key areas. *Human rights, environmental product innovation, emissions, shareholders, diversity and inclusion*, and other topics are among the ten primary themes. With data going back to 2002 and encompassing more than 80% of the global market value over more than 630 different *ESG* variables, *Refinitiv* has one of the most complete *ESG* databases in the business. The percentile rank results (available in percentages and letter grades from D- to A+) are easy to interpret.

Figure 16. The score range descriptions

Score Range	Description
0 to 25	<i>First Quartile</i> Scores within this range indicates poor relative <i>ESG</i> performance and insufficient degree of transparency in reporting material <i>ESG</i> data publicly
> 25 to 50	<i>Second Quartile</i> Scores within this range indicates satisfactory relative <i>ESG</i> performance and moderate degree of transparency in reporting material <i>ESG</i> data publicly
> 50 to 75	<i>Third Quartile</i> Scores within this range indicates good relative relative <i>ESG</i> performance and above average degree of transparency in reporting material <i>ESG</i> data publicly
> 75 to 100	<i>Fourth Quartile</i> Scores within this range indicates excellent relative <i>ESG</i> performance and high degree of transparency in reporting material <i>ESG</i> data publicly

²⁴ *London Stock Exchange*: The London Stock Exchange is the stock exchange headquartered in London, England. Founded in 1801, it is the main European financial center by capitalization, as well as one of the first in the world.

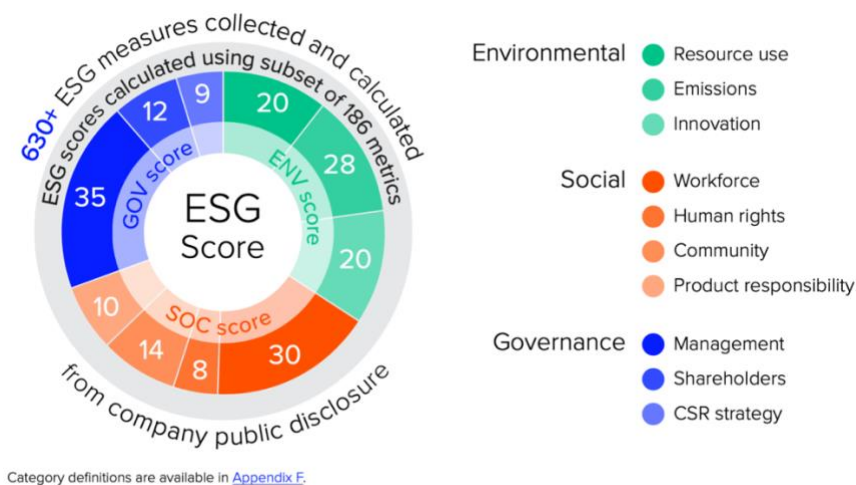
They are compared to The Refinitiv Business Classifications (TRBC - Industry Group) to determine how well they perform in terms of the environmental, social, and controversies categories.

Over 630 business-level ESG indicators are captured and calculated by Refinitiv, of which a subset of 186 of the most relevant and comparable measures for each industry for the entire technique of scoring and evaluating a company. These are categorized into ten categories that reformulate the three pillar scores and the final *ESG* score, which is an assessment of the company's *ESG* performance, commitment, and efficacy based on publicly available data.

These are the ten pillars:

- 1) *Resource Use*
- 2) *Emissions*
- 3) *Innovation*
- 4) *Workforce*
- 5) *Human rights*
- 6) *Community*
- 7) *Product Responsibility*
- 8) *Management*
- 9) *Shareholders*
- 10) *CSR strategy*

Figure 17. The ESG measures.



Source: Refinitiv Database


Three pillar scores - *corporate governance, social responsibility, and the environment* - are created by combining the category scores. The *ESG pillar score* is a relative total of the industry-specific environmental and social category weights. The weights for governance are constant across all sectors. The pillar weights are converted to normalized percentages with a 0–100 range.

Based on 23 *ESG controversial* topics, the score for the *ESG controversies* category is determined. If a controversy develops throughout the year, the involved corporation is penalized, and this affects their total *ESG score* and grading. If there are fresh developments about unfavorable occurrences, for example, litigation, ongoing legislative disputes, or fines, the impact of the incident may still be felt in the following year. As the controversy develops, all fresh media content is recorded. The market cap bias that large-cap corporations have due to receiving more media attention than smaller-cap companies are also addressed by the controversies score.

The conversion from a percentile score to a letter grade is based on the logic in the table below:

Figure 18. The conversion from a percentile score to a letter grade.

Score range	Grade	Description
0.0 <= score <= 0.083333	D -	'D' score indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.
0.083333 < score <= 0.166666	D	
0.166666 < score <= 0.250000	D +	
0.250000 < score <= 0.333333	C -	'C' score indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly.
0.333333 < score <= 0.416666	C	
0.416666 < score <= 0.500000	C +	
0.500000 < score <= 0.583333	B -	'B' score indicates good relative ESG performance and above-average degree of transparency in reporting material ESG data publicly.
0.583333 < score <= 0.666666	B	
0.666666 < score <= 0.750000	B +	
0.750000 < score <= 0.833333	A -	'A' score indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.
0.833333 < score <= 0.916666	A	
0.916666 < score <= 1	A +	



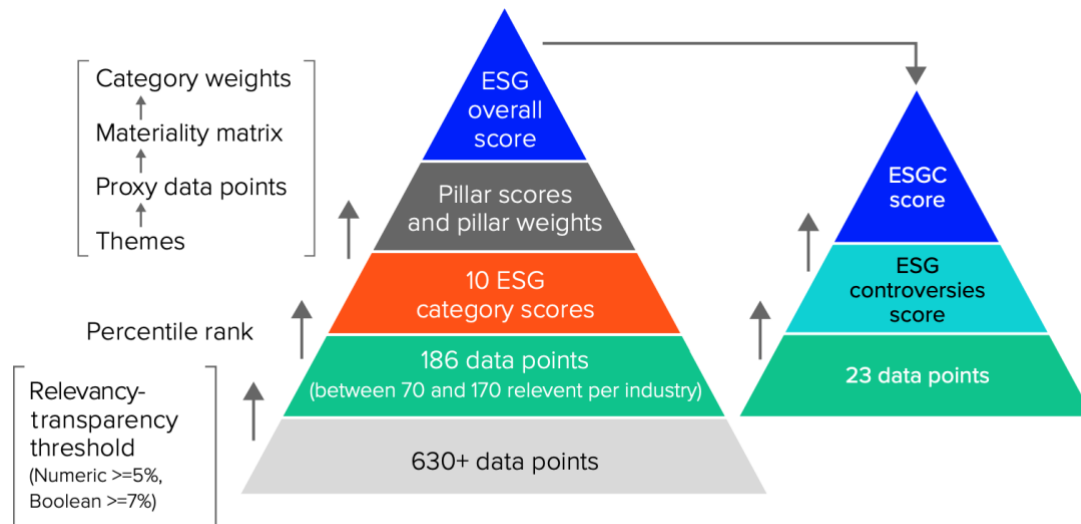
Source: Refinitiv Database

4.1.2. Scores calculation methodology

Transparency is essential to building our customers' trust and confidence in the data because ESG data is fundamentally important for making wise investment decisions.

The Refinitiv ESG scoring methodology is described in full in this section. A five-step process flow can be used to explain and demonstrate the Refinitiv ESG grading methodology.

Figure 19. The Refinitiv ESG scoring methodology.



Source: Refinitiv Database

The Refinitiv database offers a wealth of data, for this reason in order to conduct this study and test my theory, I had to choose a sample of companies.

The first emphasis of the study was on businesses from these three regions:

- 1) *North America*
- 2) *Developed Europe*
- 3) *Asia-Pacific*

The decision to choose these global regions, was taken so that the study could take into account cross-regional patterns. Aiming to exclude businesses that did not have complete data availability, the completeness of the data was checked. With data from the most recent fiscal year, the final sample includes 4584 distinct companies.

In the table below I classified the 4584 companies that composed the sample into 9 different industries provided by Refinitiv Database.

Figure 20. Industrial Categories

Industry	N	%
Energy	300	7%
Basic Material	393	9%
Industrials	722	16%
Technology	866	19%
Consumer Cyclical	665	15%
Consumer Non-Cyclical	278	6%
Financials	261	6%
Healthcare	825	18%
Real Estate	274	6%
Tot.	4584	100%

Almost the 70% of the sample include firms from the Industrial, Technology, Consumer Cyclical and Healthcare industry. The last 30% include firms from the Energy, Basic Material, Consumer Non-Cyclical, Financials and Real Estate sectors.

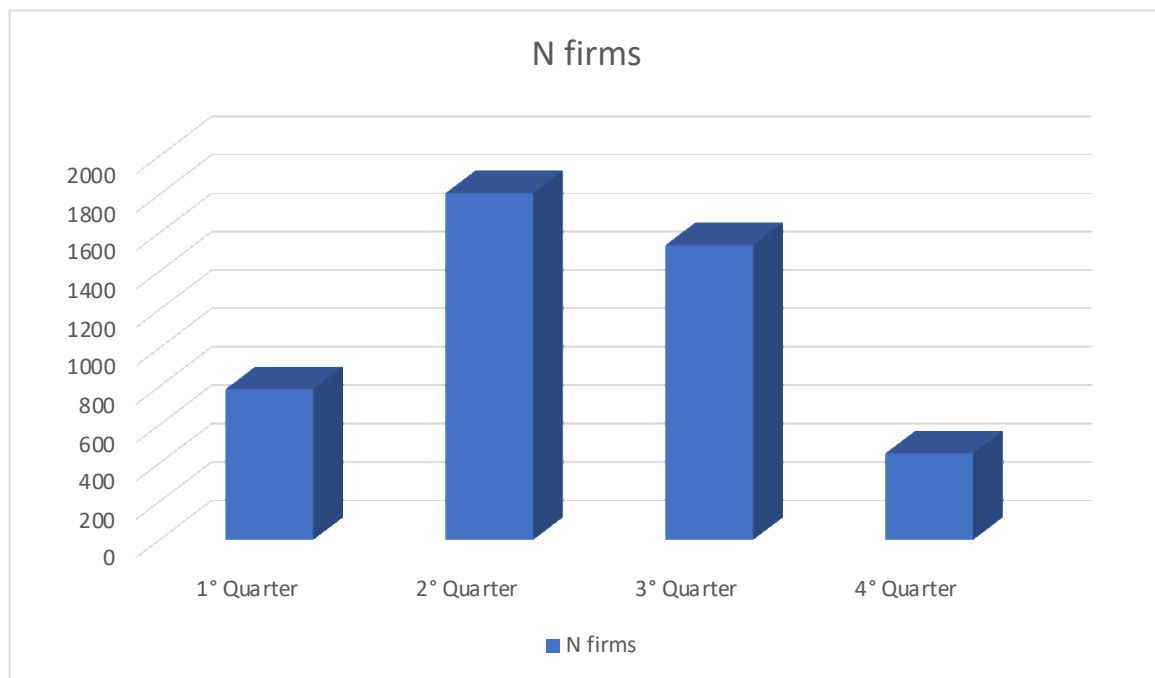
The Refinitiv database, provided information on the *ESG* scores of the companies chosen and to understand how much companies cares about *ESG performance* I have divided them into four categories. I have classified them in four quarters:

- 1) 1° Quarter includes firms with ESG scores below or equal to 25,00.
- 2) 2° Quarter includes firms with ESG scores between 25.00 and 50.00.
- 3) 3° Quarter includes firms with ESG Scores between or equal to 50,00 and 75,00.
- 4) 4° Quarter includes firm with ESG greater than 75,00.

Figure 21. The classification of the firms based on the ESG score

Quarter	ESG Score	
1° Quarter	≤ 25	Poor ESG performance
2° Quarter	$25 < x < 50$	Satisfactory ESG performance
3° Quarter	$50 \leq x < 75$	Good ESG performance
4° Quarter	> 75	Excellent ESG performance

Figure 22. The percentage of each quarter based on the ESG performance



The final 10% of the firms have an *excellent ESG* score, whereas 39% of the firms have a *satisfactory ESG* score, 34% of the firms have a *good ESG* score and 17% of the firms have a *poor ESG* score.

As a result, this study considered a sample of businesses from three different regions, each with its own cultures, laws, and customs. The distribution of the sampled companies among the three nations is shown in the table below.

Figure 23. Percentage of firms for each Region

Region	N	%
<i>Asia Pacific</i>	1106	24%
<i>Developed Europe</i>	800	18%
<i>North America</i>	2678	58%
Tot.	4584	100%

The 58% of the firms in the sample were North American, 24% of the firms were Asian and 18% of the firms in the sample were European.

4.2. Variables Description

4.2.1. Dependent Variables

The *environmental, social, and governance (ESG) score* and the *ESG controversies score* were the dependent variables in this study. Using the *ESG score and ESG controversies score*, the data pertaining to these two variables were collected from the *Refinitiv* database. The *Environmental, Social, and Governance (ESG)* three pillar scores are created by the ten areas of utilization of resources, emissions, innovation, human rights, community involvement, product responsibility, management, shareholders, and CSR strategy. The three pillar scores are then created by combining the category scores: *corporate governance, social responsibility, and the environment*. The *ESG* pillar score is a relative total of the industry-specific environmental and social category weights. The weights for governance are constant across all sectors. The conversion of the pillar weights to normalized percentages with a 0–100 range.

The *ESG controversies score* is determined based on 23 ESG controversies topics. If a controversy arises throughout the year, the concerned company is penalized, and this impacts their total ESG score and grading. As the debate develops, all fresh media content is recorded. The market cap bias that large-cap corporations have due to receiving more media attention than smaller-cap companies are also addressed by the controversies score.

4.2.2 Independent Variable

Gender diversity served as the research's independent variable. The independence of the board's members, the CEO's dual role as chairman, *gender diversity*, and other factors are all addressed in academic research as variables that have a substantial impact on the board's effectiveness (Giannakaris, Konteos, and Sariannidis, 2014 and Nadeem, Zaman & Saleem 2017). To establish a balanced gender ratio among its members, organizations are currently under increased pressure from interest groups and government initiatives to include more women on their boards of directors (Atena & Tiron-Tudor 2020, Li et al. 2017). Researchers provide a variety of justifications for hiring female directors, most of which are connected to the provision of fresh viewpoints and alternative values to the decision-making processes (Byron & Post, 2016, Wieczorel-Szymanska, 2020).

Data for the *gender diversity* variable in this study was taken from the *Refinitiv* database. Each company received a score from 0 to 100 from the database. The percentage of female directors on each board set was taken into account while calculating this score. A greater gender diversity score was given to businesses whose board seats were more frequently held by members of the underrepresented gender.

4.2.3. Control Variables

Figure 24. Description of the Control Variable

Control Variable	Measure
LN Board Size	Natural logarithm of board size
CSR Sustainability Committee	Existence of a CSR committee (dummy variable, 1 = yes, 0 = no)
CSR Sustainability External Auditor Name	The sustainability auditor name is one of the Big Four (dummy variable, 1 = Yes, 0 = No)
Firm Size	Natural logarithm of total assets
Leverage	Ratio of total debt divided by total assets
Return on Assets	Net income before extraordinary items / preferred dividends divided by total assets
North American Dummy	dummy variable, 1 = North America, 0 = Europe or Asia Pacific
Developed Europe Dummy	dummy variable, 1 = Developed Europe, 0 = North America or Asia Pacific
North American Dummy * Board Gender Diversity Percentage	Interaction item, North American dummy * gender ratio
Developed Europe Dummy * Board Gender Diversity Percentage	Interaction item, Developed Europe dummy * gender ratio

The Natural Logarithm of the board size

The *Natural Logarithm of the board size* is the first variable I used in my study. Stakeholder-agency theory suggests that having the right number of board members is crucial for ensuring high levels of board effectiveness (Jensen, 1993). It must be considered that large boards can produce bad incentives for free-rider behavior (McConnel & Servaes, 1990). *Board size* is a contentious corporate governance factor. According to the *legitimacy theory*, when the number of board members rises, the flexibility and dynamism of the decision-making process can diminish (Cheng, 2008). Also, low levels of critical self-reflection and process debate may occur, thus significantly reducing the efficacy of the board (Lipton & Lorsch, 1992). Furthermore, as a board increases in size, monitoring responsibilities expand as well, necessitating additional time and specialized expertise. Insofar as an “ideal” *board size* depends on specific firm-level variables, it may not be the greatest board composition indicator to have an impact on *CSR* reporting. The *natural logarithm of the board size* was employed in this study’s computations and to lessen skewness.

CSR Sustainable Committee Dummy Variable

The *CSR Sustainable Committee Dummy Variable* was the second control variable I utilized. I anticipate that the establishment of a *CSR* committee will improve ESG performance. The *CSR sustainable committee dummy* will be indicated with 1 if the company’s management or supervisory board has established a committee for *Corporate Social Responsibility*, otherwise it will be indicated with 0. Many multinational corporations decide to form *CSR* committees wishing to set the example for socially responsible policies and get their company listed on sustainability indices like the *DJSI*²⁵. The committee is made up of a small number of directors specifically with the intention of aligning the decisions made with the standards defined by the company’s own sustainability indexes (Jansson, 2005). The sustainability committee is crucial in preventing a company’s social responsibility from being seen as little more than window dressing. In addition to helping the *Board of Directors* of the firm achieve its obligation to the shareholders regarding the policies and practices that relate to the company’s sustainable growth on a worldwide basis, the committee is especially tasked with guiding the *CSR* policies. Most large enterprises’ *CSR* committees, according to Mackenzie (2007), focus on analyzing

²⁵ *DJSI*: The Dow Jones Sustainability Indices (DJSI) are a set of best-in-class benchmarks designed for investors who realize the importance of sustainable business practices in creating long-term shareholder value and who want their investment portfolios to reflect their sustainability convictions.

CSR concerns and formulating policies to meet the requirements for inclusion as a strategic aim in CSR indexes.

CSR Sustainability External Audit Committee dummy variable

Another control dummy variable has been added to predict a positive effect on audit quality: the *selection of one of the top four audit firms*²⁶. These four top-selling audit firms are KPMG, Ernst & Young, PricewaterhouseCoopers, and Deloitte. If one of these four audit firms performed the audit of the companies, the dummy variable will be assumed to have a value of 1, otherwise it will have a value of 0. The growing understanding that it is desirable and necessary for enterprises to understand the costs and benefits of their operations upon stakeholders is reflected in sustainability audits, reporting, and decision-making. The Sustainability audit is a relatively new phenomena; the increased emphasis towards the legitimacy and correctness of sustainability information have led to this phenomenon. It helps users make more informed decisions by enhancing the information's robustness, correctness, and dependability in sustainability reports.

Firm Size

The *natural logarithm of the total assets* is used to calculate the *firm size*, the fourth control variable. I have used this variable because the size of the firm greatly affects the impact that the CSR has on the outcomes. The larger the firm is, the stronger the correlation between CSR and economic performance will be. Strategic motivation may be impacted by firm size, which is advantageous for CSR participation (Adams and Hardwick, 1998). Given that larger businesses typically have a greater societal impact as a result of the scope of their operations, it is considered fair that they should bear the burden of being more socially responsible than smaller businesses.

²⁶ *Audit firms*: The Big Four, comprised of the international accounting networks Deloitte, Ernst & Young (EY), KPMG, and PricewaterhouseCoopers, are the four largest professional services networks in the world (PwC). The four are frequently grouped together because they have similar sizes to the rest of the market in terms of revenue and workforce, are thought to be equally capable of offering a broad range of professional services to their clients, and are seen as equally desirable networks to work in by those looking to start careers in professional services, particularly accounting. This is because these firms frequently work with Fortune 500 companies.

Leverage

Leverage, or the ratio of total debt to total assets, is the fifth control variable. The positive correlation between *Corporate Social Responsibility* and financial performance is well-documented in meta-analysis research (Margolis et al. 2007, Margolis and Walsh 2003). Companies might satisfy the social interests of their stakeholders by providing users with extra financial information through *CSR* disclosures that assisted in decision-making (including credit providers). Lender support is essential for a company in order to get debt finance. The ability of the company to acquire pertinent resources is the main emphasis of the resource based theory (Pfeffer and Salancik 2003). This method assumes that a company is not self-sufficient and requires outside assistance to survive and develop. Because managers would explain and defend the social and environmental implications of their operations to funders from the standpoint of having greater access to financing sources, *CSR* disclosures are likely to assist companies acquire financing (including debt). So, businesses that provide substantial environmental and social information are more likely to live up to credit providers' requirements, win their support, and have easier access to sources of debt funding.

The Return on Asset

The *Return on Asset (ROA)* is another control variable I have employed in my study. Board gender diversity can be defined as the various physical and personal traits that board members possess that make the board diverse and better able to give a wider range of answers. A part of board diversity is *gender diversity*. It alludes to the fluctuation in the proportion of women on corporate boards. It is crucial to remember that women contribute significantly to organizational performance and legal compliance (Fallan, 1999; Kastlunger et al. 2010). The meticulous feminine values in topics pertaining to corporate success were demonstrated by Kastlunger et al. (2010). Adams and Ferreira (2009) contend, however, that women closely watch the conduct of managers and make up a large portion of meeting attendees. The profit after tax divided by total assets serves as a performance indicator for an entity. *Return on assets (ROA)* measures the amount of revenue an organization makes from the use of assets. Azutoru et al. (2017), Abdullahi (2014), and other prior empirical studies have demonstrated a significant correlation between return on assets and corporate governance characteristics measurements of enterprises. A strong association between return on assets and corporate governance metrics of enterprises, however, was not discovered by other studies (Abu et al., 2016; Adeusi et al., 2013). To corroborate or disprove earlier empirical data on the association

between corporate governance characteristics measures and business performance, *ROA* was added to the research variable as the dependent variable.

North American dummy variable and European dummy variable

Two region area *dummy variables*²⁷ have also been employed. The first is a *North American dummy variable*, which will have a value of 1 if the company is from that region and a value of 0 otherwise. The second set of variables were the *European dummy variable*, which had a value of 1 if the company is located in developed Europe and a value of 0 otherwise. I have demonstrated the variations between the areas in this way.

Interaction items

When the impact of one independent variable on a dependent variable varies according to the value(s) of one or more other independent variables, this is known as an interaction effect in regression. An interaction effect is shown as the product of two or more independent variables in a regression equation.

$$\hat{y} = b_0 + b_1X_1 + b_2X_2$$

Where \hat{y} is the predicted value of a dependent variable, X_1 and X_2 are independent variables, and b_0 , b_1 and b_2 are regression coefficients.

And here is the same regression equation with an interaction:

$$\hat{y} = b_0 + b_1X_1 + b_2X_2 + b_3X_1X_2$$

Here, b_3 is a regression coefficient, and X_1X_2 is the interaction. The interaction between X_1 and X_2 is called a two-way interaction, because it is the interaction between two independent variables

In my research, as interaction items I have use the product of the Board Gender Diversity percentage and the North American Dummy Variable and the product of the Board Gender

²⁷ *Dummy variables*: A dummy variable in statistics and econometrics, specifically in regression analysis, is one that only accepts the values 0 or 1 to signify the lack or existence of some categorical effect that might be anticipated to change the result. They can be viewed as numerical substitutes for qualitative facts in a regression model, grouping data into groups that are mutually exclusive.

Diversity percentage and the European Dummy Variable to analyze the effect from a regional perspective.

4.3. Research Model

The previous sections described the characteristics of the sample and the variables that have been used in this study and clarified the research's premise. The model that served as the foundation for this study is described in the subsequent chapter. My models are to shed light on the connection between the *Environmental, Social, and Governance Score* and the *gender diversity of the board* and the *ESG controversies score* and the *Board Gender Diversity*. The sample included businesses in the energy, technology, consumer cyclical, consumer non-cyclical, basic materials, healthcare, industrials, and financial industries from North America, developed Europe, and Asia Pacific.

The models used to test my hypothesis were based on a multiple linear regression. A multiple linear regression model describes the relationship between a *dependent variable*²⁸ (Corporate Social Responsibility) and one (or more) *independent variable*²⁹ (x). The dependent variable is also called the response variable, while the independent variables are also called explanatory or predictor variables. I have used this model to analyze and observe the relationship between the board gender diversity, my dependent variable and several independent variables or dummies. Moreover, due to the presence of heterogeneous factors, dummy variables are inserted so as to control cross-regional differences. The dummies assumed values ranging from 0 to 1, indicating whether a specific characteristic exists or not.

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik} + \varepsilon$$

In which:

- y_i is the dependent variable
- $x_{i1} + \dots + x_{ik}$ are the explanatory variable
- $\beta_0 + \beta_1 X_i \dots$ is the regression function
- β_0 is the intercept

²⁸ *Dependent variable*: Effect is the dependent variable. Changes in the independent variable affect its value.

²⁹ *Independent variable*: The cause is the independent variable. Its value is unaffected by the other study variables.

- β_1 angular coefficient
- ε is the statistical error
- i varies between observations $i = 1 \dots n$

Where, Y_i corresponds to the *ESG score or ESG controversies score* of the companies in the research. $X_{i\dots k}$ are the explanatory variables: *board gender diversity percentage, CSR Sustainable Committee, the CSR Sustainability External Auditor Name, Firm Size, Leverage, Return on Assets, North American Dummy and Developed Europe Dummy, Board Gender Diversity*North American Dummy and Board Gender Diversity*Developed Europe Dummy* of each company in the sample. β_0 is the intercept of the multiple linear regression model, $\beta_{1\dots k}$ and u_i is the statistical error.

This study used a sample of businesses to estimate the parameters of the multiple regression model. The computed parameters therefore describe a line that minimized the square of their residual differences using the least squares approach. The computed regression line's equation is as follows:

$$\hat{y} = b_0 + b_1x_{i1} + b_2X_{i2} + \dots + \beta_kX_{ik}$$

$b_{1\dots k}$ represents the estimates of the parameters $\beta_{1\dots k}$ of the model, and b_0 is instead the intercept of the estimated regression line. Thanks to this estimated equation, I was able to analyze the relationship between the *board gender diversity* and the *Environmental, Social and Governance performance* and the relationship between the *board gender diversity* and the *Environmental, Social and Governance controversies score*.

5. Analysis of the Results

The next section will present an analysis of the findings of the tests that have been carried out on the chosen samples of companies after outlining the research methodology used in this study.

Data from the Refinitiv database on a sample of 4584 firms were used in this investigation. The collected data on the companies matched the previous fiscal year (2021), therefore this research extends current findings on the requested queries. The study's goal was to be cross-regional and cross-industrial. As a result, it contained information on businesses from nine distinct industries and three different regions (North America, Asia Pacific, and Developed Europe) (Utilities, Technology, Consumer Cyclical, Consumer Non-Cyclical, Healthcare, Real Estate, Industrials, Financial and Basic Materials).

5.1 Regression Models

5.1.1. Model 1

The first model (Model 1) examined the connection between *gender diversity* on boards and the effectiveness of the *environmental, social, and governance* performance score. In order to determine if firms with a higher board gender diversity have poor or strong environmental, social, and governance performance, this research investigated the first hypothesis.

The regression model was therefore expressed by the following equation:

$$ESG\ score = \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \varepsilon$$

The dependent variable was the *environmental, social and governance performance score* of the companies, measured with the Refinitiv *ESG score*. The coefficient β_0 was the intercept of the function, while β_1 was the coefficient of x_1 , the independent variable of the model that represented the percentage of the women in board of directors. To see the effect of board decisions' on the next year, for the independent variable and control variables I have taken data from the year 2020, while for the ESG score I have taken data from the fiscal year 2021. The

β_i s were the coefficients of the different control variables (x_i) that have been included in the model to quantify the effects on the *Environmental, Social and Governance* performance score. The control variables x_i included in the study were: *Firm Size* (calculated as the Natural Logarithm of the total Assets), the firm performance (*ROA*), *Leverage* (Total Debt/Total Assets), *Natural Logarithm of the board size*, the *CSR sustainability Committee*, the *CSR sustainability external auditor name*, the *north American dummy*, and the *developed Europe dummy*. In order to estimate the value of these coefficients, I used the multiple regression model.

5.1.2. Model 1.2

The second hypothesis sought to determine how the gender diversity of the board of directors affected the *ESG controversies* score. According to the prior research, I anticipated that businesses with a large proportion of female directors would have lower *ESG controversies* scores.

The regression model was expressed by the following equation:

$$ESG\ controversies\ score = \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \varepsilon$$

The dependent variable represented the *ESG controversies* score performance of firms, that was measured with the Refinitiv *ESG controversies score*. The intercept of the function was β_0 while β_1 was the coefficient of the *gender diversity*. To see the effect of board decisions' on the next year, for the independent variable and control variables I have taken data from the year 2020, while for the *ESG controversies* score I have taken data from the fiscal year 2021. The β_i s were the coefficients of the different control variables (x_i) that have been included in the model to quantify the effects on the Environmental, Social and Governance performance score. The control variables x_i included in the study were: *Firm Size* (calculated as the Natural Logarithm of the total Assets), the firm performance (*ROA*), *Leverage* (Total Debt/Total Assets), *Natural Logarithm of the board size*, the *CSR sustainability Committee*, the *CSR sustainability external auditor name*, the *North American dummy* and the *Developed Europe dummy*. In order to estimate the value of these coefficients, I used the multiple regression model.

5.1.3. Model 2

This model is basically the same of the first, but I have decided to add two interactions items to see the regional differences.

The regression model was therefore expressed by the following equation:

$$\begin{aligned} \text{ESG score} = & \beta_0 + \beta_1 \text{Gender Diversity} + \beta_i x_{i(\text{controls})} + \beta_i (\text{Gender Diversity} \\ & * \text{Developed Europe Dummy Variable}) + \beta_i (\text{Gender Diversity} \\ & * \text{North American Dummy Variable}) + \varepsilon \end{aligned}$$

The dependent variable was the *environmental, social and governance performance score* of the companies, measured with the Refinitiv *ESG* score. The coefficient β_0 was the intercept of the function, while β_1 was the coefficient of x_1 , the independent variable of the model that represented the portion of seats of the board assigned to female directors. To see the effect of board decisions' on the next year, for the independent variable and control variables I have taken data from the year 2020, while for the *ESG* score I have taken data from the fiscal year 2021. The β_i s were the coefficients of the different control variables (x_i) that have been included in the model in order to quantify the effects on the *Environmental, Social and Governance* performance score. The control variables x_i included in the study were: *Firm Size* (calculated as the Natural Logarithm of the total Assets), the firm performance (*ROA*), *Leverage* (Total Debt/Total Assets), *Natural Logarithm of the board size*, the *CSR sustainability Committee*, the *CSR sustainability external auditor name*, the *North American dummy*, the *Developed Europe dummy*, the interaction items *North American Dummy * gender ratio* and the *Developed Europe Dummy * Gender ratio*. In order to estimate the value of these coefficients, I used the multiple regression model.

5.1.4. Model 2.2

This model is basically the same of the second, but I have decided to add two interactions items in order to see the regional differences.

The regression model was therefore expressed by the following equation:

ESG controversies score

$$\begin{aligned} &= \beta_0 + \beta_1 \text{Gender Diversity} + \beta_i x_{i(\text{controls})} + \beta_i (\text{Gender Diversity} \\ &* \text{Developed Europe Dummy Variable}) + \beta_i (\text{Gender Diversity} \\ &* \text{North American Dummy Variable}) + \varepsilon \end{aligned}$$

The dependent variable represented the *ESG controversies score* performance of firms, that was measured with the Refinitiv *ESG controversies score*. The intercept of the function was β_0 while β_1 was the coefficient of the gender diversity. To see the effect of board decisions' on the next year, for the independent variable and control variables I have taken data from the year 2020, while for the ESG controversies I have taken data from the fiscal year 2021. The β_i s were the coefficients of the different control variables (x_i) that have been included in the model in order to quantify the effects on the Environmental, Social and Governance performance score. The control variables x_i included in the study were: *Firm Size* (calculated as the Natural Logarithm of the total Assets), the firm performance (*ROA*), *Leverage* (Total Debt/Total Assets), *Natural Logarithm of the board size*, the *CSR sustainability Committee*, the *CSR sustainability external auditor name*, the *North American dummy*, the *Developed Europe dummy*, the interaction item *North American Dummy * gender ratio* and the *Developed Europe Dummy * Gender ratio*. In order to estimate the value of these coefficients, I used the multiple regression model.

Figure 25. Summary of all variables and their formulas

<i>Variables</i>	<i>Formula</i>	<i>Descriptions</i>
Dependent Variables		
ESG score	$ESG \text{ score standardized value} = \frac{x_i - X}{\sigma_x}$	Where: - X = average of ESG - σ_x = standard deviation
ESG controversies score	$ESG \text{ controversies score standardized value} = \frac{x_i - X}{\sigma_x}$	Where: - X = average of ESG controversies - σ_x = standard deviation
Independent variables		
Board Gender Diversity percentage	<i>Refinitiv</i>	
Control Variables		
Leverage	$Winsorize \text{ Leverage} = \frac{\text{Total Debt}}{\text{Total Assets}}$	
Return on Assets	$Winsorize \text{ Return on Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$	
LN Board Size	Natural Logarithm of Board Size	
CSR Sustainability Committee	if True = 1, if False = 0	
CSR Sustainability External Auditor Name	if Big Four (Deloitte, EY, KPMG, PriceWaterHouse) = 1, if no = 0	
Firm Size	LN of Total Assets	
Developed Europe Dummy	if Developed Europe = 1, if North American = 0, if Asia-Pacific = 0	
North American Dummy	if Developed Europe = 0, if North American = 1, if Asia-Pacific = 0	
Developed Europe Dummy * Gender Ratio	$x = \text{Developed Europe Dummy} * \text{Gender Ratio Percentage}$	
North American Dummy * Gender Ratio	$x = \text{North American Dummy} * \text{Gender Ratio Percentage}$	

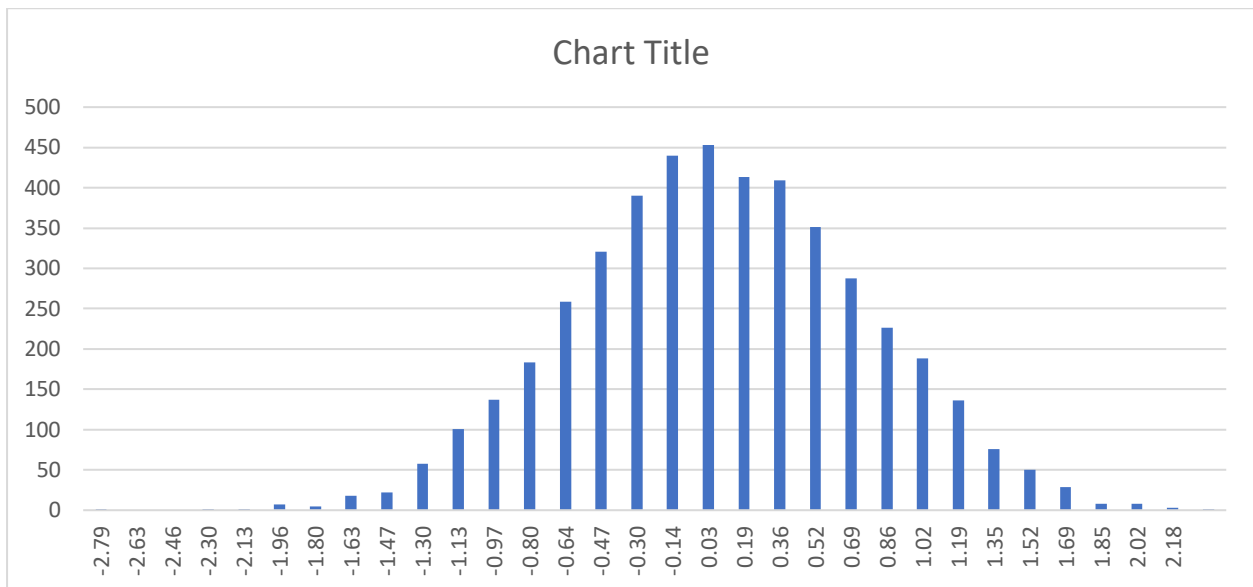
5.2. Analysis and Results

5.2.2 Normality Test

I initially verified that several essential assumptions were upheld in all the models before using these regressions to verify my hypothesis. I started by determining if the error terms of the companies I chose as a sample were normally distributed. To compute the analysis suggested by this study, a multiple linear regression needed a normal distribution. I created a histogram that represented the frequency of the regression's residuals to test for normality.

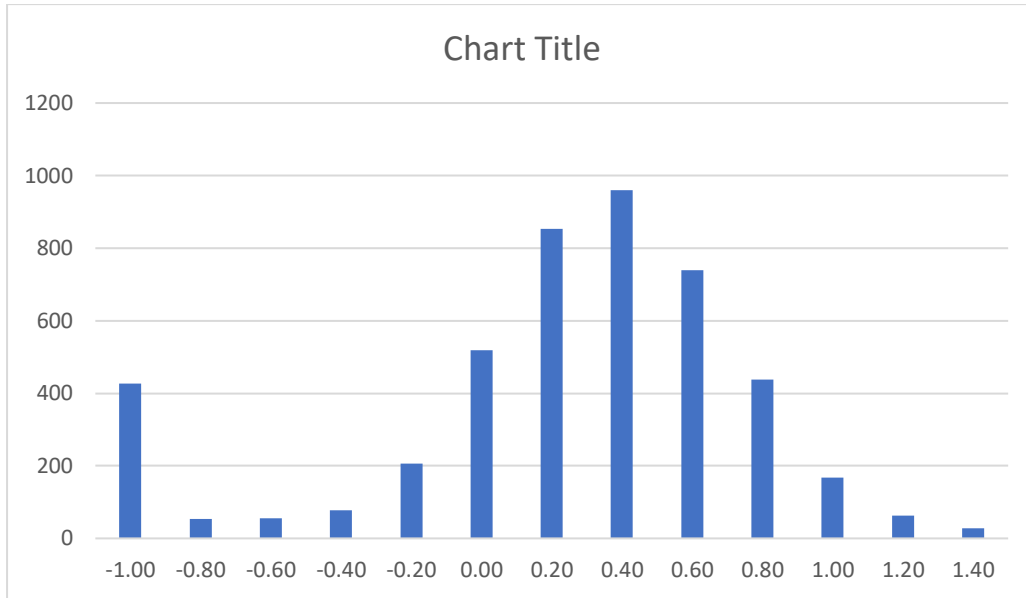
The following graph represents the distribution of the frequency of the residual values of the Model 1. I have verified that the curve tends to be normal and there do not seem to be what are referred to as tails emerging.

Figure 26. Normality Test – Distribution of Residuals Histogram – Model 1.1



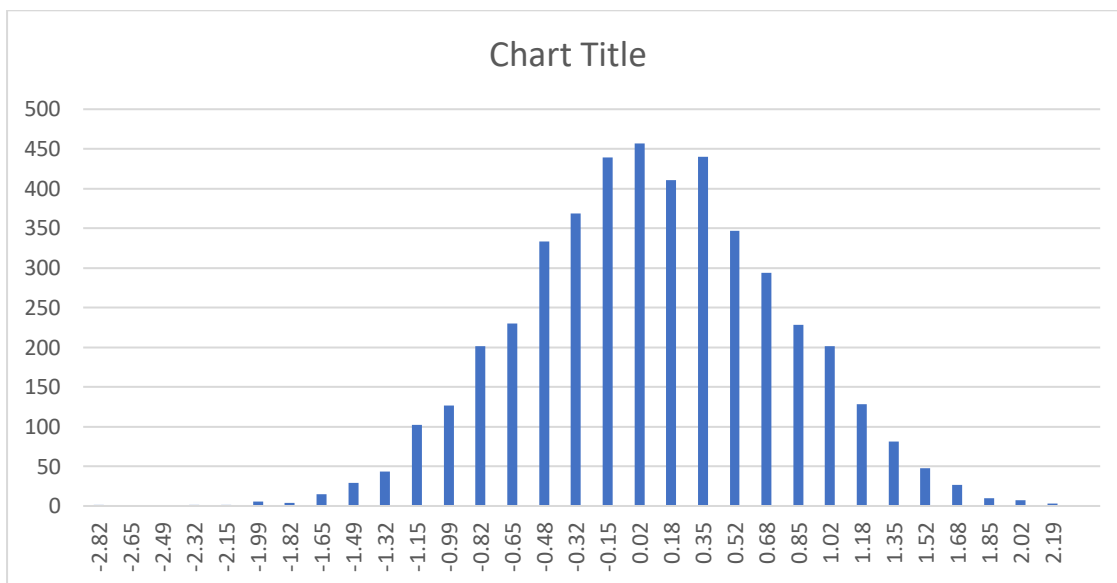
The residual distribution of the Model 1.2 resulted approximately normal when plotting the frequency histogram. There is just a small tail, this means that the distribution was slightly skewed to the left.

Figure 27. Normality Test – Distribution of Residuals Histogram – Model 1.2



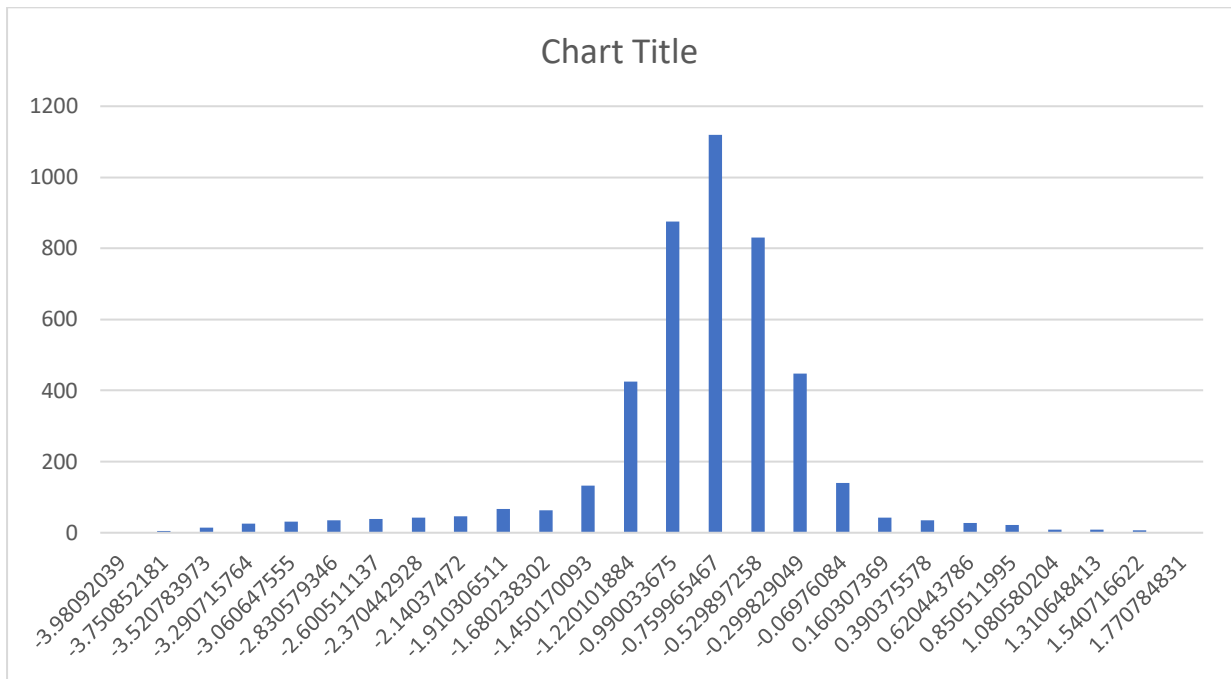
The following graph of the Model 2 represents the distribution of the frequency of the residual values of the first model. I have verified that the curve tends to be normal and there do not seem to be what are referred to as tails emerging.

Figure 28. Normality Test – Distribution of Residuals Histogram – Model 2.1.



The following graph of the Model 2.2 represents the distribution of the frequency of the residual values of the first model. I have verified that the curve tends to be normal and there do not seem to be what are referred to as tails emerging.

Figure 29. Normality Test – Distribution of Residuals Histogram – Model 2.2.



After creating these graphs, I was able to see that there was no discernible trend in the variance of the residuals for the companies in my sample across any of the models. Additionally, after establishing the normality, I had to make sure that none of the models included a correlation between the independent variable and my control variables.

5.2.3. Multicollinearity Test

Figure 30 – Multicollinearity Test

		Correlations						
		VAR00001	VAR00002	VAR00003	VAR00004	VAR00005	VAR00006	VAR00007
VAR00001	Pearson Correlation	1	-.209**	.287**	.142**	.239**	.225**	.113**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001
	N	4584	4584	4584	4584	4584	4584	4584
VAR00002	Pearson Correlation	-.209**	1	-.066**	-.052**	-.014	-.113**	-.100**
	Sig. (2-tailed)	<.001		<.001	<.001	.328	<.001	<.001
	N	4584	4584	4584	4584	4584	4584	4584
VAR00003	Pearson Correlation	.287**	-.066**	1	.073**	.029*	.076**	.135**
	Sig. (2-tailed)	<.001	<.001		<.001	.047	<.001	<.001
	N	4584	4584	4584	4584	4584	4584	4584
VAR00004	Pearson Correlation	.142**	-.052**	.073**	1	.067**	.060**	.160**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001
	N	4584	4584	4584	4584	4584	4584	4584
VAR00005	Pearson Correlation	.239**	-.014	.029*	.067**	1	.025	.004
	Sig. (2-tailed)	<.001	.328	.047	<.001		.088	.810
	N	4584	4584	4584	4584	4584	4584	4584
VAR00006	Pearson Correlation	.225**	-.113**	.076**	.060**	.025	1	.086**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.088		<.001
	N	4584	4584	4584	4584	4584	4584	4584
VAR00007	Pearson Correlation	.113**	-.100**	.135**	.160**	.004	.086**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.810	<.001	
	N	4584	4584	4584	4584	4584	4584	4584

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 5 shows the correlation between our variables.

- VAR00001: ESG score
- VAR00002: ESG controversies
- VAR00003: Board Gender Diversity
- VAR00004: Leverage
- VAR00005: Return On Assets
- VAR00006: LN Board Size
- VAR00007: LN Total Assets

The previous table outlines the correlation between the explanatory variables included in the models and their significance level, with their p-value (sig.). In this table we can see that the *ESG controversies* score is negative correlated with the *ESG score* with a high level of significance p-value (p) < 0,01; this confirmed my previous assumption saying that there is a negative relationship between the *ESG score* and *ESG controversies* score. The *Board gender diversity* is positively correlated with the *ESG score*, with a high level of significance p-value (p) < 0,01 and negative correlated with the *ESG controversies* score with a high level of

significance too p-value ($p < 0,01$). The *leverage* is positively correlated with the ESG score (p-value ($p < 0,01$)) and negative correlated with the *ESG controversies* score (p-value ($p < 0,01$)). The *Return on Assets* has a positive relationship with the ESG score and a negative relationship with the *ESG controversies* score. Considering the *Natural Logarithm of the Board Size*, is positively correlated with the ESG score, meaning that larger board are related with higher ESG score and this value is significance due to its p-value ($p < 0,01$). The *Natural Logarithm of the Board Size* is negative correlated with the *ESG controversies* score with a high level of significance (p-value ($p < 0,01$)). The *Firm Size* (Natural Logarithm of Total Assets) is positively related to the ESG score and negative related to the *ESG controversies* score with a high level of significance p-value ($p < 0,01$).

5.2.4. Descriptive Statistics

The following table analyze the descriptive statistics and the industry distribution of the variables.

Figure 31. Industry distribution

PANEL B - Sample distribution by industry				
Industry	N	%	LN Board Size	Board Gender
ENERGY	300	7%	2,109	18,714
BASIC MATERIALS	393	9%	2,195	20,298
INDUSTRIALS	722	16%	2,158	20,946
TECHNOLOGY	866	19%	2,088	20,296
CONSUMER CYCLICAL	665	15%	2,182	22,974
CONSUMER NON CYCLICAL	278	6%	2,188	22,304
FINANCIALS	261	6%	2,250	22,468
HEALTHCARE	825	18%	2,071	21,450
REAL ESTATE	274	6%	2,080	22,727
Tot.	4584	100%	2,147	21,353

In this table we can see that the majority firms of the sample (almost the 70%) belong to the Industrials, Technology, Consumer Cyclical and Healthcare sectors. The rest of the firms are included in the Energy, Basic Materials, Consumer Non-Cyclical, Financials and Real Estate industries. The Average *Natural Logarithm of the Board Size* is 2.147 and is distributed across the industry with a range from 2.071 and 2.250. The Average value of the *Board gender Diversity* is 21.353%, with a range across the industries from 18,714 for the Energy sector and

22.974 for the Consumer Cyclical sector. An average value of 21.353% is low, considering that the male gender has an 80% of average value.

Figure 32. Descriptive Statistic

PANEL A - Descriptive Statistics						
	Mean	Median	Sqrt	Min	Max	
ESG Score	0,000	-0,034	1,000	-2,228	2,431	
ESG Controversies Score	0,000	0,347	1,000	-4,469	0,347	
Board Gender Diversity, Percent	21,276	20,000	13,353	0,000	80,000	
LEV	24,256	17,727	26,163	0,000	93,450	
ROA	5,729	5,910	14,544	-25,630	37,450	
LN Board Size	2,135	2,197	0,308	0,000	3,714	
LN Total Assets	21,505	21,493	1,919	14,007	28,010	

The *ESG* score and *ESG controversies* score were standardized with the formula:

$$\text{Standardized ESG score} = \frac{x_i - \text{Average ESG}}{\sigma_x}$$

$$\text{Standardized ESG controversies score} = \frac{x_i - \text{Average ESG controversies}}{\sigma_x}$$

The *Leverage* and *the Return on Assets* were winsorized, limiting the extreme values in the statistical data to reduce the outliers. I have set all outliers to a percentile of 95% of winsorization. The board gender diversity percentage has a range goes between 0% to 80%. This means that in a sample of 4584, neither one firms has a board composed by all women.

5.3. Regression Results

The purpose of this section is to investigate and analyze the connection between the *gender diversity* of the board of directors and the *ESG* score as well as the board *gender diversity* and the *ESG controversies* score. Analysis was possible after testing the two models that were introduced in the previous chapter.

Both models examine 4854 distinct companies. Since not all businesses record *ESG* data in their performance, I had to eliminate more than 5,000 businesses from the original sample, which had more than 10,000 participants. The information gathered relates to recent fiscal years that are listed in the *Refinitiv* database.

Model 1 include the entire sample of North American, European and Asian companies included in *Energy, Financial, Consumer Cyclical, Consumer Non-Cyclical, Industrial, Healthcare, Basic Materials, Real Estate and Technology* sectors. Its aim is to confirm that the *Board Gender Diversity* and the *ESG* score are related by a positive relationship and that the *ESG controversies* and *Board Gender diversity* are related by a negative relationship.

Model 2 uses the same sample of the first model. Model 2 include the entire sample of North American, European and Asian companies included in *Energy, Financial, Consumer Cyclical, Consumer Non-Cyclical, Industrial, Healthcare, Basic Materials, Real Estate and Technology* sectors. Its aim is to confirm that the *Board Gender Diversity* and the *ESG* score are related by a positive relationship and that the *ESG controversies* and *Board Gender diversity* are related by a negative relationship. This second analysis also added the interaction items to analyze the regional effect.

Figure 33. Model 1: Regression Results

	<i>ESG</i>	<i>ESG Controversies</i>
Intercept	-5,055*** (-36,294)	4,633*** (24,080)
Board Gender Diversity	0,011*** (13,486)	-0,09*** (0,822)
LEV	-0,001*** (-2,959)	0,003*** (5,3576)
ROA	0,0000 (0,8376)	0,005*** (4,936)
Board Size	0,173*** (4,541)	-0,042 (-0,8138)
CSR Sustainability Committee	0,7910*** (33,738)	-0,011 (-0,326)
CSR Sustainability External Auditor Name	0,231*** (5,542)	0,013 (0,218)
Ln Total Assets	0,186*** (26,3819)	-0,201*** (-20,616)
Dummy Europe	0,333*** (8,756)	-0,392*** (-7,451)
Dummy North America	0,066*** (2,433)	-0,447*** (-11,890)
Industry fixed Effect	Controlled	Controlled
Adjusted R Square	0,545	0,533
N	4584	4584

The superscripts *, **, *** represents statistical significance at the 10%, 5% and 1% confidence levels,

When we look at the first model, which depicts the connection between the *Environmental, Social, and Governance* score and the diversity of the board of directors, we can see that the model's overall fit is considerable. The level of significant F is equal to 611,997 with an adjusted R square of 55%. Analyzing the coefficient of the independent variable, *Board Gender Diversity*, it is possible to note that it is significant due to its p-value (p)<0,001 and, the coefficient is positive. While considering the model 1.2 with the *ESG controversies* score as dependent variable, the model is valid and significant. The level of significance is equal to 78,972 with an adjusted R Square of 53%. As in the first case, it is significant because its p-value is lower than 0,01 while, the coefficient is negative, confirming the second hypothesis.

This correlation represents a strong negative relation between the *board gender diversity* and the *ESG controversies* score. Regarding the control variables, the *leverage* is negative correlated with the *ESG* score meaning that higher *ESG* score is usually a mark of financially responsible business with a steady revenue stream. In the model with the *ESG controversies* as dependent variable, the *leverage* is positively correlated with the *ESG controversies* score, meaning that firms with higher *ESG controversies* usually have more debt than equity. Considering the *Return on Assets* we can see that in the first case of the dependent variable the value is positive but close to zero. We can say that *ESG* investments produce considerable costs and resources, which is why the *Return on Assets* would almost seem to have a negative relationship with *ESG* in the short term. In the second case with *ESG controversies* score the relationship is instead positive and significant, indicating precisely that non-investment in *ESG* score would lead in the short term to a higher *Return on Asset*. In the second case, the *Return on Assets* is positively correlated with the *ESG controversies* score, meaning that the return is higher if the controversies score are higher. The *Natural Logarithm of the board size* is highly positively related with the *ESG* performance score, and this value is significant due to its p-value(p)<0.01. It means that a bigger board size is positively correlated to higher *ESG* score. Considering the second case, with *ESG controversies* score as dependent variable, it is negatively correlated with the *Natural logarithm of the board size*. This means that a bigger board of director cause negative impact on the *ESG controversies* score. The presence of the *CSR Sustainable Committee* is highly positive correlated to *ESG score* (79%), with a high level of significance due to the fact that the p-value (p) < 0,01. On the other side, the *CSR sustainable Committee* is negative correlated with the *ESG controversies*, meaning that the presence of a *CSR Sustainable Committed* will reduce the *ESG controversies* score. The *CSR Sustainability External Auditor Name* is positively correlated with the *ESG score* (23%), with a high level of significant p-value (p) < 0,01. On the other side, the *ESG controversies* score is lightly positive correlated with the *CSR Sustainability External Auditor Name*. The *Firm Size* (Natural Logarithm of the Total Assets) is highly correlated with the *ESG score* (18%), with a level of significance of p-value (p) < 0,01. Meaning that larger firms impact positively the *ESG score*. On the other side we can see that the *Firm Size* is negatively correlated with the *ESG controversies* score (- 20%), with a level of significance of p-value (p) < 0,01, meaning that larger firms are usually negatively correlated with the *ESG controversies* score.

The indication of *gender diversity* on the *European* region is very high considering the dummy variable, which is extremely positive (33%) and very significant due to its p-value (p) < 0.01. Undoubtedly, this high value is also due to the European legislation to implement the presence

of women in companies and on the board of directors. Considering instead the *North American dummy variable*, we can state that the effect of *gender diversity* is certainly lower than in the European region, but we can still consider it positive. The value of the board variable *gender diversity* is positive but much lower than these two variables, so we can conclude that the *Asian region* has a negative influence, leading to a clear decrease in this value. Regarding the *ESG controversies* the indication of gender diversity on the European region is very low considering the dummy variable, which is extremely negative (- 40%) and very significant due to its p-value ($p < 0.01$). Considering instead the North American dummy variable, we can state that the effect of gender diversity is even lower than in the European region (- 44%) and really significant due to its p-value ($p < 0.01$). The value of the board variable *gender diversity* is negative but much higher than these two variables, so we can conclude that the *Asian region* has a positive influence, leading to a clear increase in this value.

The first model shows a positive relationship between the ESG score and the board gender diversity, and we can see that in this case the first hypothesis is demonstrated. The second case shows that there is a negative relationship between the board gender diversity and the ESG controversies score demonstrating that the second hypothesis is verified.

Figure 34. Model 2: Regression results

	<i>ESG</i>	<i>ESG Controversies</i>
Intercept	-4,922*** (-33,816)	4,658*** (23,117)
Board Gender Diversity	0,008*** (4,789)	-0,012 (-0,011)
LEV	-0,001*** (-2,859)	0,003*** (5,367)
ROA	0,001 (0,971)	0,005*** (4,960)
Board Size	0,175*** (4,599)	-0,042 (-0,804)
CSR Sustainability Committee	0,787*** (33,618)	-0,011 (-0,333)
CSR Sustainability External Auditor Name	0,254*** (6,025)	0,009 (0,162)
Ln Total Assets	0,182*** (25,429)	-0,202*** (-20,362)
Dummy Europe	0,403*** (6,270)	-0,431*** (-4,853)
Dummy North America	0,160 (-1,386)	-0,462*** (-7,676)
Dummy Europe * Gender Ratio	0,258*** (-0,309)	-0,106 (0,576)
Dummy North America * Gender Ratio	0,126*** (3,389)	-0,011 (0,372)
Industry Effect	Controlled	Controlled
Adjusted R Square	0,547	0,534
N	5484	5484

The superscripts *, **, *** represents statistical significance at the 10%, 5% and 1% confidence levels, respectively.

When we look at the second model, which depicts the connection between the *ESG score* and *board gender diversity*, we can see that the model's overall fit is considerable. The level of significant F is equal to 504,381 with an adjusted R square of 54,7%. Analyzing the coefficient of the independent variable, *Board Gender Diversity*, it is possible to note that it is significant due to its p-value ($p < 0,001$) and, the coefficient is positive. While considering the model with the *ESG controversies* score as dependent variable, the model is valid and significant. The level of significance is equal to 64,621 with an adjusted R Square of 53,4%. As in the first case, it is significant because its p-value is lower than 0,01 while, the coefficient is negative, confirming the second hypothesis. This correlation represents a strong negative relation between the board

gender diversity and the *ESG controversies* score. Regarding the control variables, the *leverage* is negative correlated with the *ESG score* meaning that higher *ESG score* is usually a mark of financially responsible business with a steady revenue stream. In the model with the *ESG controversies* as dependent variable, the *leverage* is positively correlated with the *ESG controversies* score, meaning that firms with higher *ESG controversies* usually have more debt than equity. Considering the *Return on Assets* we can see that in the first case of the dependent variable the value is positive but close to zero. We can say that ESG investments produce considerable costs and resources, which is why the *Return on Assets* would almost seem to have a negative relationship with *ESG* in the short term. In the second case with *ESG controversies score* the relationship is instead positive and significant, indicating precisely that non-investment in *ESG score* would lead in the short term to a higher *Return on Asset*. In the second case, the *Return on Assets* is positively correlated with the *ESG controversies* score, meaning that the return is higher if the controversies score is higher.

In the second case, the *Return on Assets* is positively correlated with the *ESG controversies* score, meaning that the return is higher if the controversies score is higher. The *Natural Logarithm of the board size* is highly positively related with the *ESG performance score*, and this value is significant due to its p-value ($p < 0.01$). It means that a bigger board size is positively correlated to higher *ESG score*. Considering the second case, with *ESG controversies* score as dependent variable, it is negatively correlated with the *Natural logarithm of the board size*. This means that a bigger board of director cause negative impact on the *ESG controversies* score. The presence of the *CSR Sustainable Committee* is highly positive correlated to *ESG score* (79%), with a high level of significance since the p-value ($p < 0,01$). On the other side, the *CSR sustainable Committee* is negative correlated with the *ESG controversies*, meaning that the presence of a *CSR Sustainable Committed* will reduce the *ESG controversies* score. The *CSR Sustainability External Auditor Name* is positively correlated with the *ESG score* (23%), with a high level of significant p-value ($p < 0,01$). On the other side, the *ESG controversies* score is lightly positive correlated with the *CSR Sustainability External Auditor Name*. The *Firm Size (Natural Logarithm of the Total Assets)* is highly correlated with the *ESG score* (18%), with a level of significance of p-value ($p < 0,01$). Meaning that larger firms impact positively the *ESG score*. On the other side we can see that the *Firm Size* is negatively correlated with the *ESG controversies* score (20%), with a level of significance of p-value ($p < 0,01$), meaning that larger firms are usually negatively correlated with the *ESG controversies* score. The indication of gender diversity on the European region is very high considering the dummy variable, which is extremely positive (40%) and very significant due to its p-value (p)

< 0.01. Undoubtedly, this high value is also due to the European legislation to implement the presence of women in companies and on the board of directors. Considering instead the *North American dummy variable*, we can state that the effect of gender diversity is certainly lower than in the European region, but we can still consider it positive. The value of the board variable *gender diversity* is positive but much lower than these two variables, so we can conclude that the *Asian region* has a negative influence, leading to a clear decrease in this value. Regarding the *ESG controversies* the indication of gender diversity on the *European region* is very low considering the dummy variable, which is extremely negative (- 43%) and very significant due to its p-value ($p < 0.01$). Considering instead the *North American dummy variable*, we can state that the effect of *gender diversity* is certainly lower than in the *European region* (- 46%) and significant due to its p-value ($p < 0.01$). The value of the board variable *gender diversity* is negative but much higher than these two variables, so we can conclude that the *Asian region* has a positive influence, leading to a clear increase in this value.

Analyzing the model with *ESG scores* as dependent variables, the moderating effect of *gender diversity* on the *European dummy variable* has a positive impact on *gender diversity* significantly (25%) due to its p-value ($p < 0.01$). The moderating effect of gender diversity on the *North American dummy variable* has a positive impact on gender diversity significantly (12%) due to its p-value ($p < 0.01$) but slightly lower than the European variable. We can therefore conclude that the moderating effect of gender diversity on the *Asian region* has a much lower impact than on the other two regions. The model with the *ESG controversies* score as dependent variables, on the other hand, has a negative moderating effect of *gender diversity* on the *European dummy variable* on gender diversity (-10%). The moderating effect of gender diversity on the *North American dummy variable* has a negative impact on *gender diversity* significantly due to its p-value ($p < 0.01$) but much higher than on the *European variable*. We can therefore conclude that the moderating effect of gender diversity on the *Asian region* has a much higher impact than on the other two regions.

The second model shows a positive relationship between the *ESG score* and the *board gender diversity*, and we can see that in this case the first hypothesis is demonstrated. The second case shows that there is a negative relationship between the *board gender diversity* and the *ESG controversies score* demonstrating that the second hypothesis is verified.

6. Discussions

The next chapter will go through the key finding of the four models used in this study after outlining the findings of the regression analysis.

6.1. Conclusion – Hypothesis 1

The study's first hypothesis sought to prove that there was a link between the sample companies' *environmental, social, and governance* scores and the *gender diversity* of their boards. Both from a result and a measurement perspective, the prior literature on the subject was not uniform. Previous research concentrated more on establishing a link between board *gender diversity* and risk or financial performance than it did on establishing a link between *board gender diversity* and *corporate social responsibility*. The sample in the earlier research likewise concentrated on businesses in a small number of industries or in certain nations. As a result, selecting a different sample could alter the study's findings.

The inclusion of a new measurement, the *Environmental, Social, and Governance* score performance offered by the *Refinitiv* Database, was suggested by this study. Unlike the measurements that were previously employed, this indicator evaluated the *ESG* score using a score that ranged from 0 to 100. The ultimate *ESG* score, which evaluates the company's *ESG* performance, commitment, and efficacy based on publicly available data, is determined by 10 categories that reformulate the three pillar scores. The ten pillars are as follows:

- 1) *Resource Use*
- 2) *Emissions*
- 3) *Innovation*
- 4) *Workforce*
- 5) *Human rights*
- 6) *Community*
- 7) *Product Responsibility*
- 8) *Management*
- 9) *Shareholders*
- 10) *CSR strategy*

The *ESG controversies* score was another addition to the earlier literature. My presumption was founded on the idea that unfavorable *ESG* information about the company, such as scandalous or questionable business practices, could spark *ESG* issues, which could lead to market share losses if the company's *CSR* is subpar. Global media sources are used to determine the *ESG controversies* score, which is then discounted from the *ESG* score to determine the final *ESG* combined score for a company. Given that *ESG controversies* are unfavorable information about the *ESG* and that there is a positive relationship between board *gender diversity* and the *ESG* score, there must be a negative relationship between the two. The traits of the sample of businesses selected for this study were another contribution to the prior literature. The sample included businesses from all over the world, including those from North America, Asia Pacific, and Developed Europe. The companies in the sample also come from nine various industries, including the ones of basic materials, healthcare, financial services, real estate, consumer cyclical and non-cyclical goods, and energy. This made it possible for the study to consider the variations among nations and industries.

The study's first model, which examined the first assertion, revealed a strong correlation between board *gender diversity* and success on the *environmental, social, and governance* metrics. The *ESG* score of businesses was greater when there were more women on the board of directors. These findings significantly supported my initial theory and were consistent with earlier studies that had also found a link between corporate social responsibility and the proportion of women on boards of directors.

The model 2.1 was identical to the first model but added an interaction item to highlight regional variations in the sample. Like the first model, the findings of the models indicated a favorable correlation between *board gender diversity* and the performance of the *Environmental, Social, and Governance* score. The *ESG* score of businesses was greater when there were more women on the board of directors. These findings significantly supported my initial theory and were consistent with earlier studies that had also found a link between corporate social responsibility and the proportion of women on boards of directors.

The Board of Directors has authority over the administration, culture, and governance of corporate social responsibility. One of the most important responsibilities of directors is to ensure that the Company has an effective corporate governance framework. As a result, the board's makeup is crucial in emphasizing the qualities of the company's strategic course.

Women can add to the talent pool from which a business might choose its board members. The inclusion of women on a board of directors greatly benefits the organization since they bring a variety of resources to the table. Female members have unique perspectives, ideologies, knowledge bases, and concepts. Additionally, a diverse board of directors greatly aids in developing fresh answers to unsolved issues.

6.2. Conclusion - Hypothesis 2

The study's last hypothesis sought to determine how *gender diversity* on boards of directors affected businesses' *ESG controversies* scores. A small portion of earlier literature had been devoted to this subject, leaving a significant gap that needed to be further examined.

The score for the *ESG Controversies* category is calculated based on 23 ESG contentious subjects. If a controversy arises during the year, the concerned corporation suffers consequences that lower its overall *ESG score* and grade. The effects of bad events may still be felt in the year that follows if there are new developments, such as litigation, on-going legislative battles, or fines. All recent media coverage is captured as the controversy grows. The controversies score also addresses the market cap bias that large-cap organizations have receiving more media attention than smaller-cap enterprises.

The results of this sample indicate that there is a negative association between these two factors. The second hypothesis examined the relationship between the *board gender diversity* and the *ESG controversies* score. A lower *ESG controversies* score was indicative of businesses with more women on the board of directors. These findings clearly support my second hypothesis and are consistent with earlier studies that have found a negative correlation between the *ESG controversies* score and the percentage of female board members.

The 1.2 model in this study, analyzed the impact of the presence of women in the Board of Directors on the *ESG controversies* score. The result showed that companies with a high number of women have lower *ESG controversies* score.

The 2.2 model in this study was the same as 1.2 model, but it added but it had also the interaction item to show the regional differences in the sample.

7. Model limitations and future research

There are certain limitations to this study, notwithstanding the contributions it made to the body of knowledge about the connection between board gender diversity and the *ESG score*.

First off, there were 4854 businesses included in the study's sample, which came from three major regions including North America, Asia Pacific, and Developed Europe. In any case, there were significant differences in the sample's country distribution of the enterprises. Specifically, 58% of the companies are from North America, 24% are from Asia Pacific, and the remaining 18% are from Developed Europe.

Region	N	%
<i>Asia Pacific</i>	1106	24%
<i>Developed Europe</i>	800	18%
<i>North America</i>	2678	58%
Tot.	4584	100%

Additionally, the sample's data came from businesses with various market capitalizations. This implied that analyses of small, medium, and large were combined. The sample considered three broad categories, including various nations, civilizations, and customs. I could compare countries rather than regions to better understand how culture affects this relationship. Finally, only one year's worth of data for the dependent variables was gathered (2021). Different financial years could be utilized to better understand the relationship between the *Environmental, Social, and Governance* score. The study could then be applied to businesses of all sizes and across geographical boundaries.

Second, *board gender diversity* served as this study's independent variable. There are very few board members, and they do not directly affect how businesses are run on a daily basis. To measure the impact on environmental sustainability, additional research should take into account the gender diversity of the top executives of the companies. With their fresh perspectives, ideas, and expertise, more women in senior positions could benefit the businesses.

The relationship between the *gender diversity* of the board and the diversity of the company's executives and workers should also be considered. Future research could examine if having more female board directors would improve the gender diversity among executives. Finally, the study might examine whether having more female leaders has a favorable effect on the sustainability of businesses' environmental practices.

Thirdly, other diversity factors were not considered in this study, which only looked at the board's gender diversity from a gender perspective. Therefore, additional research could be enhanced by integrating several independent variables that gauge other crucial board member composition factors like age, ethnicity, tenure, educational background, and skillset.

Moreover, the variables in my study were all provided by the *Refinitiv* database. Further studies on the topic could collect data from different sources to check if the results are consistent.

Finally, a multiple regression model provides the study's foundation. This suggests a strong link between a company's environmental sustainability and the gender diversity of its board of directors. Future research can therefore concentrate on the causal connection between these variables.

8. Managerial and Practical implications

According to the research, there is a strong correlation between a company's *ESG* score and the *gender diversity* of its board of directors. These two elements are becoming a key component in every company and are gaining importance on a global scale. One of the most important responsibilities of directors is to ensure that the company has a working corporate governance framework. The governance structure should make sure that appropriate financial and growth targets are set and accomplished while risk is properly managed, while also considering the interests of shareholders, clients, employees, creditors, and the general public. Furthermore, our corporate governance culture, which includes senior management and board leadership, is essential to the sustained success of *CSR*.

The organizations may benefit from several resources brought by gender diversity in terms of *CSR*. The diversity of women on the board notably contributes to its open-mindedness and the creation of successful, cutting-edge strategies. The association between *gender diversity* and board effectiveness has been positively demonstrated by research in nearly all cases. Analysing data on the *board gender diversity* across the globe in the last years, a positive trend can be observed in both emerging and developed region. Anyway, even if governance and firms have been actively engaged, progress toward the aim of attaining balanced gender diversity is regrettably very slow. Although environmental management, social responsibility, and sustainable development have a common core framework, the priorities of countries with varied norms, values, and economic development are very different. The internal facets of *CSR*, particularly gender diversity, do seem to be quite well established, however Asia is less active than Europe and North America based on the availability of written regulations. Nevertheless, even in industrialized nations, there is still a greater gender gap. Additionally, as this study's findings show, companies with more female directors on their boards have a beneficial impact on their *ESG* performance score. Companies should begin establishing initiatives to boost the proportion of women in top management positions to improve board gender diversity.

Regarding the *ESG controversies*, the results of the study highlight that companies with a high number of women in the board of director achieve a lower *ESG controversies* score. This is since *ESG controversies* are negative information about the *ESG* score and adding to the board more women will lead to a decrease of *ESG controversies*. The first model confirmed the firm hypothesis confirming that *ESG score*, and *Board Gender Diversity* are strictly positive

correlated, while the second model confirmed a negative relationship between the *ESG score* and *ESG controversies*, confirming the second hypothesis that between the *board gender diversity* and the *ESG controversies* a negative correlation exists.

Summary

Introduction

The main goal of this study is to improve the understanding of *Corporate Social Responsibility* methods' used by businesses around the world. In particular, my research is focused on a thorough analysis of female non-discrimination rules at the corporate governance level. This was made feasible by a thorough investigation into the search for a connection between *gender diversity* on the board of directors and *Environmental, Social and Governance* scores. The influence of the *gender diversity* on the board of directors and its connection to *ESG controversies* scores were also subjects of my investigation.

Theoretical Framework

It is now widely acknowledged that a firm, in addition to its economic and legal components, also includes an ethical component. This new theory considers both the proponents of the *stakeholder view* and the proponents of the *stockholder view*. The premise that a company is a private, closed-off property, administered solely by its owners, and operates merely to maximize profits has now been largely disproved and set aside in recent years. The new goal of a firm is to consider people and anyone who depends on company decisions, or stakeholders. Businesses are expected to actively contribute to society's well-being rather than just refrain from causing economic harm to it. *Corporate Social Responsibility*, formerly just an idea, is now recognized as a fundamental and essential pillar for all firms to define their purpose in society and to apply social and ethical norms particular their activity.

The Board of Directors and its role in Corporate Social Responsibility

The management, culture, and governance of *Corporate Social Responsibility* are under the control of the *Board of Directors*. Making sure the company has a functional corporate governance framework is a crucial aspect of the directors' duties. Additionally, the continued success of *CSR* depends on our corporate governance culture, which includes senior management and board leadership. The duties of the *CSR* Board are outlined in this *Board Charter*, which also discusses the committee structures, independence requirements, and other duties of Directors. Specifically, it ensures that *CSR* always acts lawfully, responsibly, and in accordance with the highest ethical standards.

Board's composition factors and their influence on the Corporate Social Responsibility

The *Board of Directors*, which serves as the chief of all internal control systems and is responsible for supervising business management, is one of the most important and essential corporate governance structures. Considering this, all elements affecting the effectiveness of this oversight body are seen as crucial components of corporate governance. The following four components of the *Board of Directors'* makeup may have an impact on *Corporate Social Responsibility*:

5. *Board independence*
6. *Absence of CEO duality*
7. *Board Size*
8. *Gender Diversity*

Gender diversity and legislation

The literature on *gender diversity* in the workplace is rich and in-depth, especially when it comes to the protracted discussion of whether or not to implement a *gender quota*. The new millennium has sparked an interest increase in *CSR*, particularly in Europe and the Western region. The European Commission has actively contributed to this development. Even if people actively interested in politics and numerous organizations have been actively engaged, progress toward the aim of attaining balanced gender diversity is regrettably very slow outside of the efforts of the European Parliaments.

Only 26,5% of board directors of the 2020 *Fortune 500* list are women. Therefore, a male has a two to three times greater chance of succeeding in a senior management job than a woman with an equivalent level of education, expertise, and experience. Only 26,5% of board directors of the 2020 *Fortune 500* list are women. Therefore, a male has a two to three times greater chance of succeeding in a senior management job than a woman with an equivalent level of education, expertise, and experience. . The implementation of the *gender quota* has had the same effect on a significant change in the representation of women on the board as no other action previously documented. With statutory percentages to be met ranging from 33% to 50% and penalties differing from country to country, '*gender quotas*' for female representation on the Board of Directors have been implemented in the legal systems of ten countries. A *gender quota* that has been implemented in some countries has proven to have a significant influence and impact on the make-up of the *Board of Directors*, directly affecting the strategic direction

of all enterprises when all these developments in favor of women's protection are taken into account.

CSR in North America, Developed Europe and Asia Pacific

Although CSR has been characterized as a term predominately influenced by Western frames, subtleties, and implications, there is mounting proof of the idea's many different expressions in both Western and non-Western contexts. Numerous cross-cultural studies have looked at the global convergence and divergence of CSR/environmental reporting and PR tactics, especially from a "East-West" comparative perspective. When it comes to internal CSR issues, European policies do not effectively address human rights within a company's own activities. When it comes to equal opportunity and discrimination, the majority of European countries have legislation protecting diversity and inclusion. In Asia, Singapore, Japan, and Korea all have more relevant policies in place. Fair pay, workweek, and overtime arrangements seem to be well-developed in Japan and Korea but are incredibly uncommon in Singapore and Hong Kong. Despite the fact that all Singaporean enterprises have non-discrimination and diversity and inclusion protection policies, the majority of the countries in this area do not. Although the majority of Asian countries have developed economies, it is amazing to see how they continuously fall short of other regions when it comes to CSR legislation. The laws in North America that deal with child labor, supply chain audits, and local community development seem to be the most progressive. All businesses in Canada and most in the US have anti-discrimination and equal opportunity policies. In conclusion, debates about CSR in Asia have frequently imitated Western practices. Although environmental management, social responsibility, and sustainable development have a common core framework, the priorities of countries with varied norms, values, and economic development are very different. Although Europe and North America are more active than Asia in terms of formal policies, the internal parts of CSR do seem to be quite well established.

Gender Diversity

According to earlier research, managing gender diversity well has a lot of advantages for both junior and senior employees of a firm, including equality, respect, appreciation, and engagement. These advantages then assist in pursuing and achieving strategic and tactical goals. According to the research, diversity management ensures a fair and healthy work environment while also advancing justice and productivity. According to earlier studies, diversity management at work produces effective and good outcomes. Western countries have

paid particular attention to the need for diversity management. This is especially noteworthy because academics have made it apparent that they are interested in exploring how employees view diversity management strategies and how those strategies link to corresponding attitudes. Many firms now consider diversity management to be an important part of their human resources management strategy as a result of the rapidly growing diversity of the workforce in Western markets.

Board Gender Diversity

Several criteria are utilized to accurately determine the influence of corporate governance and its effect on the firm. The phrase "corporate governance" refers to a company's function as the ultimate arbiter of all management, operational, and performance activities. Studies have demonstrated the underrepresentation of women on boards of directors. According to earlier studies, the percentage of women on the board of directors in 2001 was associated with firm success. Adler was able to develop a ranking system that determined which companies might be labeled as "Women-Friendly" by choosing companies with women in senior roles and on the board of directors and utilizing Return on Assets, Return on Sales, and Return on Equity to evaluate their operating success. First, Carter presents a strong argument in favor of gender diversity by noting that variation promotes advanced learning and business acumen. Furthermore, because gender, cultural, and demographic differences have an impact on behavior, attitudes, and beliefs, having more women in a workplace promotes both creativity and innovation. Instead, according to Adams and Ferreira (2009), who looked at the effects of female influence on corporate governance, gender diversity on the Board of Directors results in increased efforts in monitoring decisions, which lowers shareholder value. In terms of sales and profitability, firms with at least two female board members are more likely to rule their industry, according to a research by the Conference Board of Canada. Risk appetite is another factor that gender diversity in corporate governance can influence.

Environmental, Social and Governance (ESG)

Environmental, social, and governance (ESG) is another name for corporate social responsibility (CSR). ESG reports address a variety of subjects, such as a company's use of resources, reliance on natural resources, respect for human rights, degree of corruption, and investments in community connections. The effect that corporations have on society and the environment has gained importance during the past few decades. Businesses' responses to this issue are reflected in the Environmental, Social, and Corporate Governance (ESG) indices.

Prior research on board gender diversity and ESG Performance

Recently, gender diversity on boards has become a crucial component of corporate governance frameworks all over the world. According to studies and stakeholder theory, boards with a substantial percentage of female directors are more likely to discuss and fund CSR. Women share the characteristics of being kind, sympathetic, and supporting, but men are more frequently characterized by assertive, dominance, competition, control, and dominating tendencies. These characteristics that set women apart from men seem to confirm that female directors may be more interested in stakeholders' interests than their male counterparts, who typically lean more toward shareholder interests and purely economic issues. As a result, we can say that women are more concerned with ensuring the welfare of others. We can therefore conclude that by offering their insights to this cause, female directors may be able to improve the board's awareness of CSR issues. One of the main duties of directors is to improve and implement the company's reputation; in reality, companies should try to improve their legitimacy and reputation by recruiting powerful and prominent people to their boards. Additionally, the presence of women on the board of directors is viewed as a sign that the business is responding to environmental and commercial concerns. As a result, board makeup is an essential element of corporate governance that may affect ESG performance. Due to their experiences, psychological makeup, and history, female board members invariably participate in decisions that have an impact on ESG and stakeholders.

ESG controversies

Environmental, Social, and Governance issues can be caused by negative ESG information about the company, such as scandalous or questionable operations, and if its CSR is subpar, the company may lose market share. According to earlier studies, a company's illegal and negligent actions have an effect on their financial success and give stakeholders the wrong impression. In an effort to boost their public image, several industries disclose additional information in their sustainability report, which enhances ESG performance. Two essential components that can influence and manage a company's financial risk are ESG disputes and board gender diversity.

Research Questions

I have created two distinct but related hypotheses. In order to test my first hypothesis, I will look at the relationship between board gender diversity and Environmental, Social, and Governance (ESG) performance. My research looked at the relationship between these two variables in a large sample of companies operating in North America, Developed Europe, and Asia-Pacific in order to further our understanding of the topic. The businesses came from nine different industries. The following is a description of the 9 different sectors I used in my study:

10. Technology

11. Energy

12. Consumer Cyclical

13. Consumer Non-Cyclical

14. Real Estate

15. Financials

16. Basic Materials

17. Industrials

18. Healthcare

H1. The gender diversity of the Board of Directors is positively related to the Environmental, Social and Governance (ESG) Performance Indicators.

Negative ESG information about the company, such as scandalous or questionable operations, may give rise to ESG controversies, which, if the company's CSR is subpar, may result in market share losses. Global media sources are used to determine the ESG controversies score, which is then discounted from the ESG score to determine the final ESG Combined score for a company. The goal of my research is to prove a connection between the ESG controversy score and the gender diversity of the board. Given that ESG controversies are unfavorable information about the ESG and that there is a positive relationship between board gender diversity and the ESG score, there must be a negative relationship between the two.

H2. The gender diversity of the Board of Directors is negatively related to the Environmental, Social and Governance (ESG) controversies score.

4. Research Methods

This study concentrated on the connections between board gender diversity and the ESG controversy score as well as the association between board gender diversity and the Environmental, Social, and Governance score. The Refinitiv Platform provides information on board gender diversity, ESG score, and ESG controversies score.

The corporations from North America, Developed Europe, and Asia Pacific were the main subjects of this study. I selected businesses from nine different industries for my sample, including technology, energy, industrials, basic materials, healthcare, real estate, consumer cyclical, consumer non-cyclical, and financial services. 4854 businesses made up the final sample; of them, 58% are North American, 24% are from Asia-Pacific, and 18% are from Developed Europe.

The Environmental, Social, and Governance Score and the ESG Controversies Score are the dependent factors in my study, whereas Board Gender Diversity is the independent variable. Additionally, the Natural Logarithm of the Board Size, Firm Size, Return on Assets, Leverage, CSR Sustainability Committee, CSR Sustainability External Auditor, North American, European, and two other interaction items (Board Gender Diversity* North American dummy variable, Board Gender Diversity* European dummy variable) are added as additional control variables. These factors were included to ensure that the findings on the correlation between the ESG score, ESG controversy score, and board gender diversity were not impacted by other factors that were not taken into consideration.

Control Variable Description

Control Variable	Measure
LN Board Size	Natural logarithm of board size
CSR Sustainability Committee	Existence of a CSR committee (dummy variable, 1 = yes, 0 = no)
CSR Sustainability External Auditor Name	The sustainability auditor name is one of the Big Four (dummy variable, 1 = Yes, 0 = No)
Firm Size	Natural logarithm of total assets
Leverage	Ratio of total debt divided by total assets
Return on Assets	Net income before extraordinary items / preferred dividends divided by total assets
North American Dummy	dummy variable, 1 = North America, 0 = Europe or Asia Pacific
Developed Europe Dummy	dummy variable, 1 = Developed Europe, 0 = North America or Asia Pacific
North American Dummy * Board Gender Diversity Percentage	Interaction item, North American dummy * gender ratio
Developed Europe Dummy * Board Gender Diversity Percentage	Interaction item, Developed Europe dummy * gender ratio

The first model (Model 1) examined the connection between *gender diversity* on boards and the effectiveness of the *environmental, social, and governance* systems. In order to determine if firms with a higher board gender diversity have poor or strong environmental, social, and governance performance, this research investigated the first hypothesis.

The regression model was therefore expressed by the following equation:

$$ESG\ score = \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \varepsilon$$

The second hypothesis sought to determine how the gender diversity of the board of directors affected the ESG controversies score. According to the prior research, I anticipated that businesses with a large proportion of female directors would have lower ESG controversy scores.

The regression model was expressed by the following equation:

$$ESG\ controversies\ score = \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \varepsilon$$

The third model is basically the same of the first, but I have decided to add two interactions items in order to see the regional differences.

The regression model was therefore expressed by the following equation:

$$ESG\ score = \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \beta_i X_1 X_2 + \beta_i X_1 X_3 + \varepsilon$$

This fourth model is basically the same as the second, but I have decided to add two interaction items in order to see the regional differences.

The regression model was therefore expressed by the following equation:

ESG controversies score

$$= \beta_0 + \beta_1 Gender\ Diversity + \beta_i x_{i(controls)} + \beta_i X_1 X_2 + \beta_i X_1 X_3 + \varepsilon$$

Conclusion

Conclusion Hypothesis 1

The primary goal of the study was to demonstrate a relationship between the gender diversity of the boards of the sample companies and the environmental, social, and governance scores of those companies. The existing literature on the topic wasn't consistent from a measuring or result perspective. As opposed to focusing on a link between board gender diversity and corporate social responsibility, prior research focused more on establishing a link between board gender diversity and risk or financial performance. The preceding study's sample was similarly narrowly focused on companies in a few specific industry or countries. The results of the study might change if a different sample was chosen.

Conclusion Hypothesis 2

The last research hypothesis examined the impact of gender diversity on corporate boards of directors on ESG controversy scores. There was a substantial vacuum in the older literature because only a small percentage of it was devoted to this topic.

The findings of this sample suggest a bad correlation between these two variables. The second theory looked at the connection between the ESG controversy score and the gender diversity of the board. Businesses with more women on the board of directors tend to have lower ESG controversy scores. These results unequivocally corroborate my second hypothesis and are in line with past research that discovered a negative relationship between the ESG controversy score and the proportion of female board members.

Managerial implications

According to the study, a company's environmental sustainability and the gender diversity of its board of directors are strongly correlated. These two factors are becoming important on a global level and are turning into crucial features in every business. In addition to taking into account the interests of shareholders, clients, employees, creditors, and the general public, the governance structure should ensure that appropriate financial and growth targets are set and achieved while risk is adequately handled. Additionally, the long-term sustainability of CSR depends on our corporate governance culture, which involves senior management and board leadership. Research has almost always found a strong correlation between gender diversity on boards and effectiveness. In relation to ESG controversies, the study's findings show that businesses with a high proportion of women on their board of directors score lower on this metric. This is because ESG controversies are bad news for the ESG score and adding more women to the board will result in a drop in ESG controversies.

Bibliography

Almeyda, R., & Darmansyah, A. (n.d.). *The Influence of Environmental, Social, and Governance (ESG) Disclosure on Firm Financial Performance*.

Bertrand, M., Goldin, C., & Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American Economic Journal: Applied Economics*, 2(3), 228–255.

Boulouta, I. (2013). Hidden Connections: The Link Between Board Gender Diversity and Corporate Social Performance. *Journal of Business Ethics*, 113(2), 185–197.

Cook, A., & Glass, C. (2015). Diversity begets diversity? The effects of board composition on the appointment and success of women CEOs. *Social Science Research*, 53, 137–147.

Cook, A., Ingersoll, A. R., & Glass, C. (2019). Gender gaps at the top: Does board composition affect executive compensation? *Human Relations*, 72(8), 1292–1314.

Danvila del Valle, I., Diez Esteban, J. M., & Péres, O. L. de F. (2013). Corporate Social Responsibility and Sustainability Committee Inside the Board. *SSRN Electronic Journal*.

Fernández-Gago, R., Cabeza-García, L., & Nieto, M. (2016). Corporate social responsibility, board of directors, and firm performance: an analysis of their relationships. *Review of Managerial Science*, 10(1), 85–104.

Galbreath, J. (2018). Is Board Gender Diversity Linked to Financial Performance? The Mediating Mechanism of CSR. *Business and Society*, 57(5), 863–889.

Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*, 66.

Glück, M. (2022). *Gender Diversity and Stock Performance: Business Case or Moral Case for Investors?-International Evidence*.

Grosvold, J. (2011). Where are all the women? institutional context and the prevalence of women on the corporate board of directors. *Business and Society*, 50(3), 531–555.

Hamrouni, A., Boussaada, R., & ben Farhat Toumi, N. (2019). Corporate social responsibility disclosure and debt financing. *Journal of Applied Accounting Research*, 20(4), 394–415.

Harjoto, M. A. (2017). Corporate social responsibility and degrees of operating and financial leverage. *Review of Quantitative Finance and Accounting*, 49(2), 487–513.

Isah, N., & Iliya, R. (n.d.). *The Effect of Corporate Gender Diversity on Board and Firm*

Jane Lenard, M., Yu, B., Anne York, E., & Wu, S. (2014). Impact of board gender diversity on firm risk. *Managerial Finance*, 40(8), 787–803.

Jia, M., & Zhang, Z. (2013). Critical Mass of Women on BODs, Multiple Identities, and Corporate Philanthropic Disaster Response: Evidence from Privately Owned Chinese Firms. *Journal of Business Ethics*, 118(2), 303–317.

Landi, G., & Sciarelli, M. (2019). Towards a more ethical market: the impact of ESG rating on corporate financial performance. *Social Responsibility Journal*, 15(1), 11–27.

Li, T. T., Wang, K., Sueyoshi, T., & Wang, D. D. (2021). Esg: Research progress and future prospects. In *Sustainability (Switzerland)* (Vol. 13, Issue 21). MDPI.

Manita, R., Bruna, M. G., Dang, R., & Houanti, L. (2018). Board gender diversity and ESG disclosure: evidence from the USA. *Journal of Applied Accounting Research*, 19(2), 206–224.

Martinez-Jimenez, R., Hernández-Ortiz, M. J., & Cabrera Fernández, A. I. (2020). Gender diversity influence on board effectiveness and business performance. *Corporate Governance (Bingley)*, 20(2), 307–323.

- Mousa, M., Massoud, H. K., & Ayoubi, R. M. (2020). Gender, diversity management perceptions, workplace happiness and organisational citizenship behaviour. *Employee Relations*, 42(6), 1249–1269.
- Naveed, K., Voinea, C. L., Ali, Z., Rauf, F., & Fratostiteanu, C. (2021). Board gender diversity and corporate social performance in different industry groups: Evidence from China. *Sustainability (Switzerland)*, 13(6). <https://doi.org/10.3390/su13063142>
- Nielsen, S., & Huse, M. (2010). Women directors' contribution to board decision-making and strategic involvement: The role of equality perception. *European Management Review*, 7(1), 16–29.
- Orazio, E. D. '. (n.d.). *Responsabilità sociale ed etica d'impresa*.
- Ouni, Z., Mansour, J. ben, & Arfaoui, S. (2020). Board/executive gender diversity and firm financial performance in Canada: The mediating role of environmental, social, and governance (ESG) orientation. *Sustainability (Switzerland)*, 12(20), 1–17.
- Petersen, H. L., & Vredenburg, H. (2009). Morals or economics? Institutional investor preferences for corporate social responsibility. *Journal of Business Ethics*, 90(1), 1–14.
- Rahim, M. (2021). *GENDER ROLE AND ESG CONTROVERSIES*.
- Reddy, S., & Jadhav, A. M. (2019). Gender diversity in boardrooms—A literature review. In *Cogent Economics and Finance* (Vol. 7, Issue 1). Cogent OA.
- Romano, M., Cirillo, A., Favino, C., & Netti, A. (2020). ESG (Environmental, social and governance) performance and board gender diversity: The moderating role of CEO duality. *Sustainability (Switzerland)*, 12(21), 1–16.
- 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.

- Setó-Pamies, D. (2015). The Relationship between Women Directors and Corporate Social Responsibility. *Corporate Social Responsibility and Environmental Management*, 22(6), 334–345.
- Shakil, M. H. (2021). Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity. *Resources Policy*, 72.
- Shakil, M. H., Tasnia, M., & Mostafiz, M. I. (2020). Board gender diversity and environmental, social and governance performance of US banks: moderating role of environmental, social and corporate governance controversies. *International Journal of Bank Marketing*, 39(4), 661–677.
- Shin, T. (2012). The Gender Gap in Executive Compensation: The Role of Female Directors and Chief Executive Officers. *The ANNALS of the American Academy of Political and Social Science*, 639(1), 258–278.
- Steurer, R. (2010). The role of governments in corporate social responsibility: Characterising public policies on CSR in Europe. *Policy Sciences*, 43(1), 49–72.
- Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016). The Impact of Environmental, Social and Governance Practices (ESG) on Economic Performance: Evidence from ESG Score. *International Journal of Trade, Economics and Finance*, 7(3), 67–74.
- Teodósio, J., Vieira, E., & Madaleno, M. (2021). Gender diversity and corporate risk-taking: a literature review. In *Managerial Finance* (Vol. 47, Issue 7, pp. 1038–1073). Emerald Group Holdings Ltd.
- Terjesen, S., Aguilera, R. v., & Lorenz, R. (2015). Legislating a Woman's Seat on the Board: Institutional Factors Driving Gender Quotas for Boards of Directors. *Journal of Business Ethics*, 128(2), 233–251.
- Udayasankar, K. (2008). Corporate Social Responsibility and Firm Size. In *Source: Journal of Business Ethics* (Vol. 83, Issue 2).

- Usman, M., Farooq, M. U., Zhang, J., Makki, M. A. M., & Khan, M. K. (2019). Female directors and the cost of debt: does gender diversity in the boardroom matter to lenders? *Managerial Auditing Journal*, *34*(4), 374–392.
- van Duuren, E., Plantinga, A., & Scholtens, B. (2016). ESG Integration and the Investment Management Process: Fundamental Investing Reinvented. *Journal of Business Ethics*, *138*(3), 525–533.
- Velte, P. (2016). Women on management board and ESG performance. *Journal of Global Responsibility*, *7*(1), 98–109.
- Velte, P. (2019). Does board composition influence CSR reporting? A meta-analysis. *Corporate Ownership and Control*, *16*(2), 48–59.
- Vollero, A., Yin, J., & Siano, A. (2022). Convergence or divergence? A comparative analysis of CSR communication by leading firms in Asia, Europe, and North America. *Public Relations Review*, *48*(1).
- Wang, M., Qiu, C., & Kong, D. (2011). Corporate Social Responsibility, Investor Behaviors, and Stock Market Returns: Evidence from a Natural Experiment in China. *Journal of Business Ethics*, *101*(1), 127–141.
- Wang, X., Zhang, Z., & Jia, M. (2022). Community norms and corporate philanthropy: the moderating role of women on board of directors. *International Journal of Manpower*, *43*(5), 1239–1264.
- Wasiuzzaman, S., & Wan Mohammad, W. M. (2020). Board gender diversity and transparency of environmental, social and governance disclosure: Evidence from Malaysia. *Managerial and Decision Economics*, *41*(1), 145–156.
- Wu, J., Richard, O. C., Triana, M. del C., & Zhang, X. (2022). The performance impact of gender diversity in the top management team and board of directors: A multiteam systems approach. *Human Resource Management*, *61*(2), 157–180.

Yadav, P., & Prashar, A. (2022). Board gender diversity: implications for environment, social, and governance (ESG) performance of Indian firms. *International Journal of Productivity and Performance Management*.

Zahidi, S., & Ibarra, H. (2010). *The Corporate Gender Gap Report 2010*.