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BOARD GENDER DIVERSITY AND CORPORATE TAX AVOIDANCE IN EUROPE: THE ROLE OF ESG

CAROLINA PORTELA CLEMENTE

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SUPERVISION:

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Resumo

O objetivo desta investigação é estudar a relação entre *tax avoidance* e *board gender diversity*, bem como o impacto causado pelo *ESG score* e os seus fatores subjacentes nesta relação, no âmbito dos países europeus. Consideramos que o *board gender diversity* determina negativamente o nível de *tax avoidance*. O nosso estudo fornece fortes provas do papel mediador do *ESG score* na relação acima mencionada. Este efeito é sobretudo captado pelos fatores sociais e ambientais, o que intensifica o impacto causado pelo *board gender diversity.*

O nosso estudo fornece contribuições para a literatura sobre *tax avoidance* e *board gender diversity*, dando novas perspetivas a esta relação, ao acrescentar um tópico que não é suficientemente explorado neste campo, o *ESG score*.

JEL Classification: J16; G34; H26; Q56; M14

Palavras-chave: *Board Gender Diversity; Corporate Governance; Tax Avoidance; ESG Score.*

Abstract

This study focuses on the relationship between tax avoidance and board gender diversity. Additionally, it is analysed whether ESG performance shapes such relationship. The time period goes from 2010 to 2019 and cover 861 companies headquartered in 18 European countries. We find that board gender diversity is negatively associated with the company's level of corporate tax avoidance. We also find that companies' ESG performance mediates the relationship mentioned above, although more prevalent for the social and environmental pillars of the ESG score. Better performance in these pillars intensifies the impact caused by board gender diversity on tax avoidance. Our findings contribute to existing literature, by providing a new understanding of how gender shapes companies appetite for tax avoidance behaviour.

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Glossary

BETR   Book Effective Tax Rate

BoD Indep   Independent Board Members

BoD Size   Board Size

BoD Skills   Board Specific Skills

CEO   Chief Executive Officer

CETR   Cash Effective Tax Rate

Environmental   Environmental Pillar Score

ESG   Environmental, Social and Governance

EU   European Union

Gender   Board Gender Diversity

Governance   Governance Pillar Score

Leverage   Leverage

OLS   Ordinary Least Squares

ROA   Return on Assets

Size   Company Size

Social   Social Pillar Score

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1 Introduction

This study aims to assess whether board gender diversity is associated with corporate tax avoidance, covering the period 2010-2019 and 4878 yearly observations of 861 companies headquartered in 18 European countries. We take the additional step to understand as to whether ESG performance shapes such a relationship.

According to several authors (Manita et al., 2018; Martínez et al., 2019; Ouni et al., 2020; Riguen et al., 2019; Streefland, 2016; Widuri et al., 2020), certain theories are crucial to our research, such as agency and stakeholder theories, that can be highlighted to provide a theoretical background relevant to this issue. Since we consider a social perspective on this study, it is essential that we deliberate about legitimacy theory. In addition to these theories, authors like Ouni et al. (2020) and Streefland (2016) have mentioned other significant strategic theories, such as resource dependency theory, the concept of civic duty, the law-abiding citizen and cognitive theories, although they will not be considered in this study.

The agency theory is one of the most common theories to describe how board gender diversity affects information quality (Adams & Ferreira, 2009). Therefore, women are more likely to be experienced professionals because of specific traits, backgrounds, abilities and expertise that help them gain access to better opportunities, while also lowering agency costs and tax avoidance, and improving information transparency and company value (Hillman & Dalziel, 2003; Solimene et al., 2017).

Similarly, as defended by the proponents of the stakeholder theory, more women in positions of leadership is likely to lead to a decrease in tax avoidance engagement (Jarboui et al., 2020), and to more creative and inventive thinking, may boost information transparency, and improve the company's quality (Martínez et al., 2019). Furthermore,

having women on the board of directors has a favorable and appealing effect on stakeholders' impressions of the company's efficiency, as it demonstrates their dedication to gender equality (Widuri et al., 2020).

Goyal et al. (2019) defines that board diversity refers to the distribution of different qualities and characteristics among directors, which can influence attitudes and opinions. Similarly, the differences in the board composition can improve organizational value and efficiency by providing the board with unique insights and perspectives. Although board diversity can be measured in terms of gender, age, sexual orientation, race, ethnicity, religion, political affiliation, academic and professional background (Rao & Tilt, 2016), this study focuses on board gender diversity.

The board of directors is responsible for assuring the alignment of shareholders' preferences with management, especially in terms of tax affairs, including tax avoidance strategies assumed by them, which can be viewed as positive or negative by the company's shareholders (Hanlon & Heitzman, 2010). Therefore, it becomes important for the board of directors to understand how board gender diversity can affect companies' performance, while management is held accountable to its shareholders. Furthermore, as various academic studies have indicated, tax avoidance methods are linked to risk reputation (Gallemore et al., 2014; Graham et al., 2014), viewed as negative by the public. As a result, the greater the amount of tax avoidance, the larger the risk related to management decisions (Streefland, 2016). Since women are more concerned with a variety of ethical questions, diverse boards tend to avoid taking on aggressive tax strategies and developing a lower level of tax avoidance (Chen et al., 2019).

According to Ouni et al. (2020), gender diversity affects company financial performance by creating an impact on tax avoidance, primarily through corporate behaviours such as ESG orientation. Additionally, it became crucial to figure out how the

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participation of women on corporate boards of directors affects tax avoidance reduction through sustainable performance (Ouni et al., 2020; Widuri et al., 2020). According to the mentioned authors, since women are more concerned about environmental and social issues, their presence on the board can even help to overcome and alleviate the negative effects of the challenges in the workplace. As a result, we expect that ESG performance serves as a mitigating mechanism to the reputational risk from tax avoidance strategies, particularly through two key components: environmental and social.

The sample is composed of the European companies belonging to the Stoxx Europe Total Market Index over the entire period of analysis. Therefore, we measured the impact of board gender diversity on tax avoidance, as well as the impact of ESG score, as a mediator between these two variables.

Our results suggest that board gender diversity is negatively correlated with the two proxies for corporate tax avoidance (BETR and CETR), meaning that it has a negative influence on tax avoidance. Additionally, we discover that the Social Pillar has a more significant and negative impact on this relationship, followed by Environmental Pillar Score. Looking to the ESG Combined Score effect, we cannot conclude its impact on the referred relation with precision. As an additional analysis, we look at the role of board independence. Results suggest that the higher the level of independence of boards, the higher the level of tax avoidance, meaning that independence boards are a mechanism to alleviate the risk from risky activities, allowing companies to take a greater risk. By adding ESG measures to this last analysis, we conclude that for higher levels of Independence and ESG, Tax Avoidance will represent even higher values, overcoming the negativity associated with this type of action.

This study is organized as follows. Chapter 2 reviews the literature related to the topic and crafts the research hypotheses. Next, the empirical analysis is performed in

Chapter 3, which includes a description of the sample considered, and the empirical approach adopted. The results are discussed in Chapter 4, and conclusions are discussed in Chapter 5.

2   Literature Review

2.1   Theoretical Background

Given the growing relevance of gender diversity in the workplace, particularly among board members, it is vital to recognize this issue as part of a company's financial success, both in terms of tax avoidance and ESG score, as suggested by a large body of literature.

In this sense, it is possible to highlight some theories, critical to the thesis' interpretation, in order to provide a theoretical context relevant to the thesis's topic, such as agency and stakeholder theories (Manita et al., 2018; Martínez et al., 2019; Ouni et al., 2020; Riguen et al., 2019; Streefland, 2016; Widuri et al., 2020). Additionally, we can consider the legitimacy theory, as an analysis of corporation's behaviour in terms of social responsibility.

2.1.1   Agency Theory

The need for a distinction between ownership and management arises due to the evolution of corporations over time, as defined by Fama & Jensen (1983). Nevertheless, the ownership of publicly traded companies is divided among several shareholders, who find it difficult or almost impossible to control the company's day-to-day operations, according to Streefland (2016). As a result, they often delegate this duty to management, who is supposed to act in the best interests of the company's shareholders, but they often struggle to do so, as defended by Berle & Means (1932). In this context, agency theory is the idea of a contractual arrangement between a principal and an agent, in which

shareholders act as principals with the intention of maximizing company value and management acts as agents in delegating decision-making authority, just like Jensen & Meckling (1976) and Ross (1973) explain. In most public companies, shareholders search to enhance the value of their investments, while management may want to maximize their own utility (Streefland, 2016). Therefore, according to Panda & Leepsa (2017), there are often conflicts of interest in the relationship between these two parts, which may lead to agency issues caused by knowledge asymmetry, lack of transparency, or conflict of interests. Additionally, looking to the agency view of corporate tax avoidance, just like Barros (2016) assumed, managers may utilize tax avoidance tactics as a mechanism of management opportunism, as part of the tension between managers and shareholders.

Since one of the most popular theories used by writers to explain the impact of board gender diversity on information quality is the agency theory, it is interesting to investigate this relation. In a sample of US-based companies, Adams & Ferreira (2009) discovered that female directors have a better participation and attendance record in meetings than male directors, since they tend to ask more questions, which is correlated with better communication among members, resulting in a substantial impact on board inputs and company outcomes. Similarly, Barros & Sarmento (2020) show that corporate tax avoidance is linked to the frequency of board meetings, with a higher frequency of meetings resulting in a lower tax burden for the company. Therefore, a higher level of attendance seems to lead to lower levels of tax avoidance. They also show that the size of boards and the number of directors have a significant impact on corporate tax avoidance decisions.

Furthermore, female directors may act as a more active, effective, and resilient mechanism of supervision and control of a board's activity since they are more likely to monitor the company's activities and performance. In this sense, and according to

Streefland (2016), the board of directors serves as the best monitoring system in a public company, also acting as an agent in the decision-making process (Zerban & Madani, 2018). Therefore, the board must operate efficiently and effectively to track management, on behalf of their directors.

Additionally, Solimene et al. (2017) found that female directors significantly influence a company performance, especially in financial purposes (Adams & Ferreira, 2009), induced by a high level of education. Beyond that, female directors are also more likely to be experienced professionals, especially when it comes to their responsibility in the decision-making process, motivated by the specific traits, backgrounds, abilities and expertise that help them achieve access to better opportunities and also increases board independence, while lowering agency costs and tax avoidance and increasing information transparency and company value (Hillman & Dalziel, 2003; Solimene et al., 2017).

2.1.2 Stakeholder Theory

As stated in Freeman & McVea (2001), stakeholders are described as "any group or individual who is affected by or can affect the achievement of an organization's objectives", with a particular interest in the company and each seeking their own usefulness. Additionally, as an organization's primary goal, the author states that companies and managers should consider the needs of their shareholders and all stakeholders. In the same line, Benn et al. (2016) articulate that the organization is responsible for providing benefits for stakeholders while pursuing the company's interests and financial performance, while board members are required to safeguard the interests and rights of different stakeholders, as affirmed by Ouni et al. (2020), since they hold a central role in the business. As a result, stakeholder's support will decide a company's status, as they have the right to access information about the company that will be included in decision-making (Widuri et al., 2020).

As Rose (2004) defends, the presence of women on the board of directors is considered as an important factor, since the stakeholder value is optimized by corporate boards, especially when the percentage of females on the board is high. In a similar vein, it may reinforce the company's engagement to stakeholders by demonstrating their commitment with gender equality. Furthermore, Francoeur et al. (2008) affirms that the inclusion of minority groups on boards, such as women, is beneficial to shareholders and other stakeholders.

Additionally, as Jarboui et al. (2020) refer, this theory can explain how gender diversity on boards improves social efficiency and that incorporating female directors on corporate boards can reduce tax avoidance and favour company's engagement on sustainability performance. Therefore, communicate effectively with stakeholders, who have many sorts and sources of legitimacy, is an important topic from a corporate perspective, according to Parmar et al. (2010), since it is considered that corporate disclosure is used by management as a mean to provide transparency to stakeholders. Moreover, by revealing ESG information, companies hope to gain credibility from stakeholders, as it is seen as a way to manage and respond to the stakeholders demands, as quoted in Manita et al. (2018).

In conclusion, as cited by Maali et al. (2021), the agency theory describes the role of governance in stakeholders' management, while the stakeholder theory provides a connection between governance and sustainability frameworks, in order to align long-term management and stakeholder goals. Both theories complement each other by promoting the coalition between shareholder, stakeholder and management priorities and highlighting the importance of gender diversity on company performance.

2.1.3 Legitimacy Theory

The legitimacy theory is important for describing how an organization behaves when it comes to implementing and developing social responsibility policies, as well as presenting the results (Zyznarska-Dworczak, 2018). This theory is defined as a mechanism that assists organizations in implementing and developing voluntary social and environmental disclosures in order to fulfil their social contract, which allows them to recognize their goals and survive in a volatile and unpredictable environment (Burlea & Popa, 2013).

The long-term viability of the legitimacy theory is founded on a managerial legacy that connects traditional norms and values to modern ethics (Zyznarska-Dworczak, 2018). This theory relies on the notion that exists a social contract between a company and the society, in which it operates (Cuganesan et al., 2006). Any organization, whether political, social, or economic, is said to be legitimate only when its activities or outputs are compatible with society's value-pattern (O'Donovan, 2000).

2.2 The importance of Gender Diversity on the Board of Directors

Since the board of directors is compound by numerous directors with various backgrounds, values, skills, and ideas, each of them can have a different view of the company. So, to understand the effect of gender diversity on the board of directors, specific social issues must be examined, such as the disparities in men and women's beliefs, habits, and attitudes.

Some authors (Chen et al., 2019; Cumming et al., 2015; Liu, 2018; Martínez et al., 2019; Zahid et al., 2019) proposed a theory called socialization theory to explain the various psychological traits of each gender. This theory suggests that men and women learn different sex roles, values and concerns as children (Dawson, 1997; Martínez et al.,

2019) as a result of their early social interactions (Gilligan, 1982), which shape their masculine and feminine personalities (Dawson, 1997; Martínez et al., 2019), allowing them to exhibit psychological and cognitive differences in moral principles (Cumming et al., 2015), since women have higher moral principles (Martínez et al., 2019) and are more concerned and sensitive with ethics than men (Ibrahim et al., 2009). In this sense, women became more aware, concerned, and caring for others' needs and interests as a result of early socialization and upbringing, particularly with regard to the welfare of stakeholders (Carlson, 1972; Eagly & Crowley, 1986; Gilligan, 1977; Liu, 2018; Zahid et al., 2019).

Although women are more risk-averse, they can track board operations and company results more closely and efficiently than men, according to Adams & Ferreira (2009), Prasetyo (2019) and Streefland (2016). Furthermore, as a result of different experiences between genders, women can increase discussion, encourage good interaction between directors, bring new and fresh perspectives and points of view into the boardroom, and also provide more openness disclosure and reporting, as stated by Prasetyo (2019) and Streefland (2016). Women executives are also more likely to be independent-minded and make more straightforward decisions, which is critical in carrying out successful board oversight (Carter et al., 2003; Chen et al., 2019; Budi, 2019). Additionally, as Chen et al. (2019) enumerated, board gender diversity ensures that ethical and moral concerns are taken into account when making decisions, and that females, in comparison to males, have higher ethical standards, display greater ethical awareness, put more weight on ethical, environmental, and social obligations, make more altruistic decisions and when confronted with organizational pressures, stop engaging in unethical behaviour.

The board of directors determines the corporate approaches to be pursued and defines the level of disclosure of the achieved performance, as defined by Vacca et al. (2020). Therefore, as mentioned by Solimene et al. (2017), a board with diverse members can

produce better decisions regarding the various contributions that each of them can give to a company's decision-making process. Women are more likely to consider various factors, provide a detailed and careful analysis of the problems and be aware of the interests of a wider spectrum of stakeholders, as reported by Chen et al. (2019), leading to more efficient and better decisions. As supported by the stakeholder theory, Streefland (2016) referred that additional female directors in the board of directors could be a good faith to the stakeholders. Even if they do not directly add value to the company, certain stakeholders might value the idea of equal rights.

Many countries have implemented various forms of positive action, legislation, and quotas in order to boost the number of women in high-profile and board roles (Lincoln & Adedoyin, 2012). In this sense, the European Commission (2011, 2012b) produced the "Women on the Board Pledge for Europe" by March 2012, a voluntary commitment made by publicly traded European corporations to increase the percentage of female directors to 30% by 2015 and 40% by 2020. Consequently, 11 EU members (France, Belgium, Portugal, Spain, Italy, Greece, Denmark, Finland, Netherlands, Austria, and Slovenia) introduced different types of legal instruments to promote gender equality on corporate boards. Although, according to the European Commission (2012), just one in every seven board members (13,7%) among European's largest companies is a woman, a minor improvement from 11,8 percent in 2010.

According to the European Commission (2019), in October 2018, the percent of women on the boards of the major publicly traded companies registered in EU reached 26,7%, with France being the only EU Member State having at least 40% of each gender on its board. Despite that, women are still under-represented in the key positions on boards, and men still dominate European boardrooms. A female chair or CEO is found in fewer than one out of every ten organizations.

Even though women have risen to high-profile positions on boards and in management positions over time, according to Lincoln & Adedoyin (2012), they still are under-represented in senior executive and board positions. Ryan & Haslam (2005) show that women are more likely to be recruited for riskier or precarious work and to receive more negative reviews and evaluations than their male counterparts, even though professional history has shown that women are as highly qualified as men (Peterson & Philpot, 2007). In this context, Budi (2019) mentioned that women on boards are seen as powerful, since they face constant challenges in retaining their positions on boards of directors, which men typically dominate. Regardless, Lincoln & Adedoyin (2012) mentioned that "male and female board members have different roles within the board", since women are more likely to sit on public relations committees and less likely to find positions on executive committees (Peterson & Philpot, 2007).

2.3   Board Gender Diversity and Tax Avoidance

Tax avoidance is one of the most commonly used expressions in the literature, which encompasses all legal and illegal actions made by a company to decrease its taxes, over a long period (Kovermann & Velte, 2021), but only legal acts are studied here. Additionally, tax avoidance is generally seen by the public as negatively, despite of being a legal practice, since it complies with the letter but not with the spirit of the law and leads to unexpectedly low tax rates, as stated by Fonseca (2020) and Petrin (2018). Similarly, the European Commission (2012a) defines aggressive tax planning as a company's actions that take advantage of tax system technicalities or mismatches between two or more tax systems to reduce tax burden.

There is controversy in the immediate factors that influence a company's tax avoidance, such as whether the company is profit-maximizing, beneficial to the company,

or socially responsible, beneficial to society, as mentioned by Karlberg (2020). Companies must find the correct balance between making a profit while staying socially responsible, or, in other words, avoiding tax expenses while satisfying stakeholders obligations. Although tax avoidance is legal in practice, shareholders may disagree with the means and methods used by company management to achieve their goals in minimizing tax avoidance.

Additionally, as referred by Streefland (2016), there is risk associated with engaging in increased tax avoidance, which could include litigation costs of tax avoidance or even legal procedures. Chen et al. (2019) underlined the importance of a company's reputation risk and how it relates to tax avoidance. As a result, whenever there is a larger level of tax avoidance, there is a greater risk associated with management decisions (Streefland, 2016). Furthermore, Chen et al. (2019) said that, while tax avoidance reveals how boards weigh the benefits of lower cash taxes against the risk of reputational damage, organizations with a gender-diverse board of directors demonstrate traits compatible with lowering reputation risk. Therefore, it is expected that this type of companies will have higher tax rates due to concerns about reputation risk associated with tax avoidance, as well as the ability of women to consider various ethical issues, improving board performance.

As Liu (2018) stated, companies with gender-diverse boards are less likely to participate in unethical behavior, such as frauds, earnings management and tax avoidance. Therefore, as stated by Chen et al. (2019), these companies will have higher tax rates, since the presence of women on the board of directors, according to Widuri et al. (2020) and Riguen et al. (2019), will help corporations prevent and even minimize tax avoidance.

H1: Board Gender Diversity is negatively associated with tax avoidance.

2.4   The Mediating Role of ESG Score

As defined by Chen & Scott (2021), environmental, social, and governance criteria are a set of requirements for a company's activities that socially conscious investors use to select companies. As a result, a company's ESG score is a numerical representation of its performance on various topics, specifically environmental, social, and governance concerns, as measured by external agencies, both internally and externally. Despite the fact that the ESG Score simply evaluates how organizations report their operations the majority of its value comes from pointing out any discrepancies between internal truth and public perception, according to Chen & Scott (2021). As a result, it is critical that the methodology is objective, accurate and consistent, since the more consistent and trustworthy an ESG Score is, the greater the impact it will have on performance, encouraging investments and ensuring a long-term business.

According to Widuri et al. (2020), since women pay more attention to environmental and social issues, their presence on the board can even help to overcome and mitigate the repercussions of the challenges, that may arise in the workplace. Therefore, as the number of women on the board rises, it is expected that ESG score will rise as well. In this sense, board gender diversity, according to Martínez et al. (2019), can be viewed as a corporate governance instrument for implementing a sustainable management approach, resulting in a higher ESG Score and a better company reputation when compared to companies with non-diverse boards. This statement implies that organizations with diverse boards are more committed to sustainability, since the longer they have a diverse board, the more likely their sustainability practices would improve over time. Additionally, it demonstrates that companies with these characteristics accounted for the majority of higher-scoring companies, while companies with less diverse boards accounted for the majority of lower-scoring companies, as referred by Banahan & Hasson (2018).

On the other hand, as corporate tax strategies may be lawful, the public may not perceive them prudent, sustainable, or ethical. In this way, according to Fonseca (2020), some rating agencies have decreased the ESG rankings of companies facing legal action over tax issues, pay lower tax rates than projected, or have unclear tax structures. One of the driving causes behind bad ESG rankings and analyses is tax avoidance's impact on a company's image, value, and reputation, especially for the businesses that do not disclose their tax plans. As a result, Fonseca (2020) stated that businesses should be challenged to re-evaluate their tactics, especially nowadays, since ESG investing is rapidly becoming one of the most important investment strategies in the world.

Therefore, as mentioned by Ouni et al. (2020), gender diversity affects company financial performance by creating an impact on tax avoidance, especially through corporate behaviours such as ESG orientation. According to the agency theory, organizations with gender-diverse boards are likely to have a higher level of information transparency, which is important when it comes to ESG score, and the way tax avoidance is seen by the public. As a result, it is crucial to figure out how the participation of women on corporate boards affects tax avoidance reduction through sustainable performance, particularly in three key areas: environmental, social and governmental. (Ouni et al., 2020; Widuri et al., 2020)

H2: The relationship between board gender diversity and tax avoidance is moderated by company's ESG performance.

3 Empirical Research

3.1 Sample and Data

To conduct the empirical research 1,469 European companies were identified as constituents of the Stoxx Europe Total Market, a composite index that reflects companies listed in Western Europe. The index includes approximately 95% of the free float market value in 18 European countries, including Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and United Kingdom.

The financial data was extracted from Refinitiv Eikon, for the period from 2010 to 2019, defining a final sample of 4,878 yearly observations of 861 unique companies listed on the referred index above, after the exclusion of financial companies[1] and companies with insufficient data to compute tax avoidance proxies, the board gender diversity indicator, ESG Score, as well as all control variables. To overcome the limitations of extreme values in both tails of the distributions, all variables were winsorized at the 5th and 95th percentiles.

3.2 Methodology

3.2.1 Measurement of Tax Avoidance

To evaluate the research hypotheses, two proxies for corporate tax avoidance were used, Book Effective Tax Rate *(BETR)* and Cash Effective Tax Rate *(CETR)*. Focusing on both proxies is a standard practice in the existent literature, as in Jarboui et al. (2020), Barros & Sarmento (2020), Chen et al. (2019), Dyreng et al. (2008), Riguen & Kachouri (2019), Riguen et al. (2019), Streefland (2016) and Widuri et al. (2020).

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[1] According to prior literature these types of companies have different capital structures (higher than normal) which may lead to a different interpretation of the results, according to Fama & French (1992).

Therefore, *BETR* represents the provision for income taxes divided by income before taxes, measured by the ratio of total tax expense to pre-tax income for a given company. On the other hand, *CETR* was calculated with cash taxes paid divided by net income before taxes, representing the proportion of cash taxes paid.

Considering these two variables, all negative observations for the two proxies of corporate tax avoidance were eliminated. Similarly, all observations in which the variables are greater than 1 were also eliminated from the initial sample. In these cases, the company would be required to pay more taxes than the profit generated during the corresponding fiscal period. Finally, since lower levels of tax avoidance are associated with higher *BETR* and *CETR*, we multiplied these variables by -1, implying an increase of tax avoidance in *BETR* and *CETR*. From now on, the variables BETR and CETR will be considered as *Tax Avoidance*.

Table 2 provides descriptive statistics for the variables used in this research. *Tax Avoidance (BETR)* and *Tax Avoidance (CETR)* display similar statistics. In this sense, we find that the mean, for *Tax Avoidance (BETR)* and *Tax Avoidance (CETR)*, is -24.29 percent and -24.54 percent, median is -23.73 percent and -22.63 percent, and the fluctuations of both variables are -98.71 percent to 0.00 percent and -98.92 percent to 0.00 percent, respectively. Although, the standard deviation diverges a bit, being 11.35 percent for *Tax Avoidance (BETR)* and 15.37 percent for *Tax Avoidance (CETR)*.

3.2.2 Measurement of Board Gender Diversity

Board Gender Diversity (*Gender*) was measured by the percentage of women on the board of directors who serve the company best interests, as in Adams & Ferreira (2009), Beji et al. (2020), Budi (2019), Chen et al. (2016), Jarboui et al. (2020), Manita et al. (2018), Martínez et al. (2019), Ouni et al. (2020), Riguen & Kachouri (2019), Riguen et al. (2019), Widuri et al. (2020) and Zahid et al. (2019).

Looking at Table 2, we can conclude that the entire sample of 4878 yearly observations, *Gender* has a mean of 23.98 percent and median of 25.00 percent, varying between 0.00 percent and 75.00 percent.

3.2.3 *Measurement of ESG Score*

To analyze the ESG score of each company, we extracted four variables from Refinitiv Eikon Database. First, we considered the ESG Combined Score, representing an overall company score based on the ESG Score and ESG Controversies Score. The ESG Score reflects a total of 10 categories divided into three major dimensions, namely environmental, social and governance, based on reported data in the public domain and ESG Controversies Score that takes into account 23 ESG controversy topics, measuring a company's exposure to any environmental, social and governance controversies or adverse events reflected in global. Finally, the last three variables served to measure the individual impact of each pillar in a company. Therefore, the Environmental Pillar Score (*Environmental*) assesses how companies handle environmental compliance and conservation, historical and cultural site preservation, and pollution prevention. The Social Pillar Score (*Social*) demonstrates how companies manage their relationships with the communities in which they operate, as well as with their employers, consumers, and suppliers. The Governance Pillar Score (*Governance*) looks at how businesses handle shareholder rights, executive leadership, and internal controls. (Jarboui et al., 2020; Manita et al., 2018; Ouni et al., 2020; Widuri et al., 2020).

Finally, the ESG Combined spectrum varies from 0.42 to 93.69 points, with a mean of 54.61 and a median of 55.43 points.

3.2.4 Model

To analyze the above-mentioned hypotheses, is estimated the following OLS regression models with robust standard errors. The aim is to assess the relationship between tax avoidance and board gender diversity, as well as the mediating role of ESG in that relationship:

$Tax\ Avoidance_{i,t}$ (Equation 1)

$$= \beta_0 + \beta_1 Gender_{i,t} + \beta_2 BoD\ Size_{i,t} + \beta_3 BoD\ Indep_{i,t}$$

$$+ \beta_4 BoD\ Skills_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t}$$

$$+ \beta_7 ROA_{i,t} + \varepsilon_{i,t}$$

$Tax\ Avoidance_{i,t}$ (Equation 2)

$$= \beta_0 + \beta_1 Gender_{i,t} * ESG_{i,t}$$

$$+ \beta_2 BoD\ Size_{i,t} + \beta_3 BoD\ Indep_{i,t} + \beta_4 BoD\ Skills_{i,t}$$

$$+ \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t} + \beta_7 ROA_{i,t} + \varepsilon_{i,t}$$

where *Tax Avoidance* stands for effective tax rate; *ESG* represents the environment, social and governance scores, globally and its components; *Leverage* stands for the leverage ratio; *Size* is the company size measured as the logarithm of total assets; *ROA* represents the return on assets; *Gender* represents board gender diversity; *BoD Size* stands for the board size; *BoD Indep* represents independent board members; *BoD Skills* stands for board specific skills; *i* represents the year of the data and *t* represents the company in case.

3.2.5 Control Variables

Concerning control variables, two different categories are used to avoid endogeneity concerns about the relationship between the three critical variables of this study, namely, *Tax Avoidance*, *Gender* and *ESG*.

We considered the following variables on board-level structural controls, that, as mentioned by Goyal et al. (2019), can also influence the level of tax avoidance and ESG score, we considered:

- **Board size (*BoD Size*):** represents the total number of board members at the end of the fiscal year (Streefland, 2016), since larger boards could imply more female directors and ultimately influence tax avoidance. Over-monitoring or communication difficulties by automatically increasing or decreasing monitoring may be one argument (Adams & Ferreira, 2009; Beji et al., 2020; Cumming et al., 2015; Liu, 2018; Manita et al., 2018; Martínez et al., 2019; Vacca et al., 2020; Zahid et al., 2019).

- **Board independence (*BoD Indep*):** represents the percentage of independent board members, related to the board size, as reported by the company. In this sense, Armstrong et al. (2015) show that the number of independent directors is linked to tax avoidance, arguing that they have the influence of mitigating agency conflicts between shareholders and management. (Beji et al., 2020; Budi, 2019; Liu, 2018; Manita et al., 2018; Martínez et al., 2019; Streefland, 2016; Zahid et al., 2019)

- **Board specific skills (*BoD Skills*):** represent the percentage of board members who have either an industry-specific background or a solid financial background, similar to the variables considered by Beji et al. (2020), in terms of educational level and background.

As a second category of control variables, we considered the following variables in terms of company characteristics, which have been defined and proved to influence engagement on tax avoidance, such as:

- **Leverage (*Leverage*):** represents the relationship between the uses of funds obtained from deb (Streefland, 2016), computed as total debt divided by total assets, and it can influence the level of tax avoidance negatively. (Beji et al., 2020; Budi, 2019; Chen et al., 2016, 2019; Cumming et al., 2015; Dyreng et al., 2008; Jarboui et al., 2020; Liu, 2018; Maali et al., 2021; Ouni et al., 2020; Riguen & Kachouri, 2019; Riguen et al., 2019; Vacca et al., 2020; Widuri et al., 2020; Yoon et al., 2021)

- **Company size (*Size*):** refers to a scale in classifying the size of a company and was calculated as a result of the logarithm of total assets, that according to Streefland (2016), it could influence tax avoidance positively, since larger companies can avoid taxes more effectively through economies of scale, even though they usually have to pay more taxes (Barros & Sarmento, 2020; Beji et al., 2020; Budi, 2019; Chen et al., 2016, 2019; Cumming et al., 2015; Dyreng et al., 2008; Jarboui et al., 2020; Liu, 2018; Maali et al., 2021; Manita et al., 2018; Martínez et al., 2019; Riguen & Kachouri, 2019; Riguen et al., 2019; Vacca et al., 2020; Widuri et al., 2020; Yoon et al., 2021; Zahid et al., 2019).

- **Return on assets (*ROA*):** measures profitability and was calculated as the net income after taxes for the fiscal period divided by total assets and, according to some of the authors referred above. This variable can be positively related to tax avoidance, as stated by Widuri et al. (2020), since when a company increases profits, income tax will also increase, so companies tend to avoid taxes, to improve performance(Adams & Ferreira, 2009; Beji et al., 2020; Budi, 2019; Chen et al., 2016, 2019; Cumming et al., 2015; Dyreng et al., 2008; Jarboui et al., 2020; Liu, 2018; Maali et al., 2021; Martínez et al., 2019; Ouni et al., 2020; Riguen et al., 2019; Streefland, 2016; Vacca et al., 2020; Yoon et al., 2021).

The correlations between all of the variables may be seen in Table 3. Therefore, with the exception of *BoD Indep*, *BoD Skills*, and *ROA*, which are positively correlated and statistically significant, almost all variables are negatively correlated and statistically significant, with both dependent variables of *Tax Avoidance*. As a result, we may conclude that there are no multicollinearity difficulties.

4 Empirical Results

4.1   Main Results

4.1.1 Board Gender Diversity and Tax Avoidance

Through the analysis of Table 4, we can extract the results for equation 1, which is based on the impact on tax avoidance caused by board gender diversity, the primary focus of this study. Looking at both measures of tax avoidance, we conclude that *Gender* is negatively correlated and statistically significant, which is coherent with the defined hypothesis (H1) and similar to the results found by Widuri et al. (2020), but contrary to Streefland (2016) findings, since he only considered 540 big US public companies, which may impact the results of his study. Therefore, we can assume that US companies have different characteristics when compared to European companies.

Now, if we compare the results for both measures individually, for both proxies for corporate tax avoidance, the coefficient for *Gender* is significant at conventional columns (1) and (2). As a result, a change in 1% in the gender diversity level yields a *BETR* and *CETR* reduction of 4.50% and 2.89%, respectively. This indicates that board gender diversity harms ETR and, as a result, negatively influences the amount of tax avoidance, consistent with Budi (2019) and Karlberg (2020).

Supported by existent literature, we can conclude that organizations with gender-diverse boards are likely to be engaged in lower corporate tax avoidance, eventually due to reputational risk concerns (Chen et al., 2019; Liu, 2018). Also, it is associated with

women's ability to more effectively consider ethical topics, and thus improve company performance (Chen et al., 2019; Liu, 2018).

4.1.2   *The Mediating Role of ESG Score*

Next, we assess whether the previous findings on the relationship between corporate tax avoidance and board gender diversity depends on company's ESG performance. Therefore, in this model, we consider ESG Combined Score, and the different ESG factors, namely, Environmental, Social and Governance, for columns (1), (2), (3) and (4), respectively. These variables were contemplated to evaluate the impact caused by each factor of ESG, especially from the Social Pillar, as expected by research. Consequently, Table 5 contains the findings of this investigation, which are organized into two panels, one for each measure of tax avoidance, Panel A for BETR and Panel B for CETR.

Looking at Panel A, we see that Gender has a negative coefficient in all columns, similar to the previous models, but it is statistically significant only in columns (1) and (4). However, when looking at the coefficient of each interaction, only the Social parameter is statistically significant. It has a stronger and negative impact on tax avoidance, implying that the higher the Social score, the lower the level of engagement with corporate tax avoidance strategies. Although the Environmental parameter is not statistically significant, it also demonstrates a negative coefficient that will decrease Tax Avoidance, but in a slightly lower magnitude when compared to the Social parameter.

Panel B shows positive coefficients on Board Gender Diversity, but they are not statistically significant, contrarily to what we observed in Panel A. At the same time, the interaction term coefficients are negatively correlated with Tax Avoidance (CETR) and columns (2), (3) and (4). In other words, the pillars of the ESG Score are statistically

significant and with similar coefficients. Therefore, we can confirm that a higher score of each ESG factor, for a given level of Board Gender Diversity, leads to a lower level of Tax Avoidance by looking at the interaction term coefficients in columns (2), (3) and (4). Although, the Environmental Pillar Score provides with the highest coefficient, meaning that it has the higher negative impact on the relationship between Tax Avoidance and Board Gender Diversity.

Since women are more concerned with environmental and social issues, their presence on the board can help to mitigate the adverse effects of the challenges that emerge in the workplace. Therefore, as the number of women on boards increases, the ESG score will also rise, especially in social and environmental pillars, as we can verify in this study. Board gender diversity is then seen as an advantage for the company, since the higher the number of women, the higher the level of concern with others and the level of transparency in their work, perceived as positive for investors that are sensitive to tax avoidance and react negatively to this form of risky investment.

These findings imply that ESG Score impacts the relationship between Board Gender Diversity and Tax Avoidance, and that each ESG Pillar has a different effect on this relationship. In line with the stakeholder theory and our results, a diverse board enhances social efficiency. It explains how female directors on corporate boards might reduce tax avoidance and favour company involvement in sustainability performance, as stated by Jarboui et al. (2020). These results support our second hypothesis that the ESG score behaves as a mediator between tax avoidance and board gender diversity, especially through social and environmental aspects, since it enhances a legitimate image of the company. However, since certain coefficients are not statistically significant, it is impossible to isolate the effect of the ESG Score on the relationship highlighted in our sample.

4.2   Additional Results

4.2.1   The Mediating Role of Board Independence

As an additional analysis, we looked at the role of board independence in shaping the relationship between Board Gender Diversity and Tax Avoidance. Previous research has suggested that directors may be biased because they belong to a board of directors. Therefore, a board with an independent majority is more likely to consider the best interests of shareholders, making better decisions and assisting in the mitigation of any conflicts of interest, eliminating potential biases (Cox & Munsinger, 1985; Page, 2009).

Analyzing the results, we conclude that Gender is statistically negative associated, similar to what we observed on the results for equation 1, but with a higher coefficient, meaning a bigger influence on the decrease of tax avoidance. Comparing to the interaction term coefficients, the results are the opposite, since they are positively associated with Tax Avoidance, indicating that for a given level of Board Gender Diversity, the higher the Board Independence, the higher the level of Tax Avoidance. Therefore, we can expect a number of independent board members to have a positive impact on Tax Avoidance, since independent directors solve agency conflicts between shareholders and management, according to Armstrong et al. (2015).

4.2.2   The impact of ESG on the Mediating Role of Board Independence

Finally, we ran a separate analysis to see if ESG and board independence initiatives affect the link between Board Gender Diversity and Tax Avoidance. As previously stated, if we analyze the bias inside the board, we may reduce possible bias by adding independence to this theme (Cox & Munsinger, 1985; Page, 2009). Similarly, by taking ESG measures into account, we may mitigate the possibility of tax avoidance by keeping

a stronger relationship with the involved society and increasing legitimacy (Burlea & Popa, 2013; Cuganesan et al., 2006; O'Donovan, 2000; Zyznarska-Dworczak, 2018).

Table 7 shows that Gender maintains a comparable and negative association when looking at the BETR measure (Panel A), but a slightly lower coefficient regarding the CETR measure (Panel B), representing a mediating effect on this relationship. In contrast, the interaction term coefficients show a positive correlation with both tax avoidance proxies, except for the Environmental and Governance parameters, which show a slightly negative but not statistically significant coefficient in CETR analysis. Therefore, especially in terms of ESG Combined Score and Governance, in BETR analysis, we can assume that Tax Avoidance will increase even more, when compared to the previous analysis, as a result of legitimacy given to the company and the impact caused by women on the board.

5 Conclusions

Despite the extensive role of research on corporate tax avoidance, the novelty of our study comes from looking at board gender diversity in an EU-based setting and in a period with a demanding focus on sustainability matters. Therefore, we also consider as to whether company's ESG performance shapes differently how board diversity tackles corporate tax avoidance engagement level. Therefore, to test our two hypotheses, we use a data set of the Stoxx Europe Total Market Index, with a final sample of 861 companies, from 18 European countries, between 2010 and 2019.

To triangulate results, we consider two measures as dependent variables: book effective tax rate and cash effective tax rate. To evaluate the ideas defined in our hypotheses, we design two models, one for each hypothesis. The first one aims to assess

the impact of board gender diversity on tax avoidance, while the second one aggregates the ESG score and its pillars, as a mediator between such relationship. As a result, the findings of this study are in line with previous research and our hypotheses. We discovered that having a diverse board of directors has a negative influence on tax avoidance. Due to the lack of statistical insignificance, the second conclusion reveals that the ESG score is relevant in explaining variability in corporate tax avoidance.

Finally, we find that the ESG elements differ in their individual effects, with the Social and Environmental Pillars having a stronger influence on the relationship between Gender and Tax Avoidance, as defended by the stakeholder theory. Social perceptions of an organization's activities have an impact on its performance, whether it leads to the organization's failure or helps to mitigate the reputational risk associated with tax avoidance tactics (Burlea & Popa, 2013). Therefore, in this case, the Social and Environmental Pillars have a mitigating impact, as so, if we consider the legitimacy theory, with a better ESG performance, a company can take risk actions, since it is considered as legitimate by the environment in which it operates.

In addition, we examine the impact of Board Independence and discover that the higher the level of this variable, the higher the level of Tax Avoidance, indicating that the two variables are positively correlated. To complete these analyses, we add ESG to the equation and discover that Tax Avoidance will increase even more, to higher levels of Board Independence and ESG Score, as a result of legitimacy and reduced levels of bias (Burlea & Popa, 2013; Cox & Munsinger, 1985; Cuganesan et al., 2006; O'Donovan, 2000; Page, 2009; Zyznarska-Dworczak, 2018).

Our study makes contributions to the literature on tax avoidance and board gender diversity, providing new sights to this relationship, in scope of European companies (e.g.

Chen et al., 2019; Liu, 2018; Riguen et al., 2019; Widuri et al., 2020), and also adding a topic that is not sufficiently explored in this field, ESG score.

We also provide a managerial contribution, showing the impact of ESG score as a mediator effect on the relationship between tax avoidance and board gender diversity, particularly in terms of environmental and social issues. A practical example of this is SONAE, which issued 40.8 million euros in green bonds as part of its sustainable objectives, as well as the promotion of gender equality in leadership positions and within its teams, where it had 36% representation by 2020 and hopes to reach 39% by 2023 (Neves, 2021; SONAE, 2020).

Therefore, this study concludes that diverse boards have a negative influence on tax avoidance. In other words, diverse boards decrease the risk-taking of companies in activities that may carry significant reputational risks, such as tax avoidance actions. So, board gender diversity should not only be seen as a way to improve sustainability, but also as a way to potentially take more balanced risks.

This study has limitations regarding the sample, since there were no significant amount of companies with balanced data for the last 10 consecutive years. Therefore, it is suggested for further research to expand the analysis in terms of other board measures (i.e. Number of Board Meetings, Board Meeting Attendance, CEO gender, etc).

Additionally, we have not found a significant amount of literature covering the relationship between the three main variables of this study, namely board gender diversity, tax avoidance and ESG score. Thus, further research is expected to concentrate on the relationship between board gender diversity, sustainability performance (a variable that wasn't explored in this study), as a complement of ESG score, and corporate tax avoidance, from another points of view, especially in terms of board measures.

6 Bibliography

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7 Appendixes

Table 1 – Sample Country Statistics

Country Name	# Companies by Country	% Companies by Country
Austria	21	2%
Belgium	29	3%
Denmark	28	3%
Finland	33	4%
France	88	10%
Germany	95	11%
Ireland	14	2%
Italy	44	5%
Luxembourg	14	2%
Malta	1	0%
Netherlands	35	4%
Norway	31	4%
Poland	26	3%
Portugal	4	0%
Spain	41	5%
Sweden	103	12%
Switzerland	62	7%
UK	192	22%
Total	**861**	**100%**

Table 2 – Descriptive Statistics

	N	Mean	SD	p25	Median	p75	min	max
Tax Avoidance (BETR)	4878	-0.2429	0.1135	-0.2912	-0.2373	-0.1853	-0.9871	0.0000
Tax Avoidance (CETR)	4878	-0.2454	0.1537	-0.3072	-0.2263	-0.1556	-0.9892	0.0000
Gender	4878	0.2398	0.1382	0.1429	0.2500	0.3333	0.0000	0.7500
ESG	4878	0.5461	0.1813	0.4255	0.5543	0.6865	0.0042	0.9369
BoD Size	4878	0.1042	0.0371	0.0800	0.1000	0.1200	0.0100	0.3100
BoD Indep	4878	0.5651	0.2449	0.4286	0.5714	0.7273	0.0000	1.0000
BoD Skills	4878	0.4036	0.2209	0.2353	0.4000	0.5625	0.0000	1.0000
Leverage	4878	0.2402	0.1573	0.1248	0.2301	0.3431	0.0000	1.1372
Size	4878	22.6109	1.5901	21.4912	22.5588	23.7624	17.4673	26.9864
ROA	4878	0.0753	0.1002	0.0349	0.0566	0.0907	0.0002	2.5182
Environmental	4878	0.5517	0.2532	0.3684	0.5817	0.7659	0.0000	0.9844
Social	4878	0.6048	0.2270	0.4475	0.6370	0.7893	0.0043	0.9863
Governance	4878	0.5321	0.2207	0.3560	0.5458	0.7093	0.0046	0.9841

Note: Table 2 shows the descriptive statistics of our sample, excluding financial companies, from 2010 to 2019. All variables were winsorized at the 5th and 95th percentiles. ESG represents ESG Combined Score.

Table 3 – Pairwise Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tax Avoidance (BETR)	1.000												
(2) Tax Avoidance (CETR)	0.549	1.000											
(3) Gender	-0.036	-0.026	1.000										
(4) ESG	-0.044	-0.070	0.281	1.000									
(5) Social	-0.099	-0.101	0.262	0.820	1.000								
(6) Governance	-0.022	-0.066	0.202	0.598	0.377	1.000							
(7) Environmental	-0.087	-0.092	0.240	0.788	0.716	0.366	1.000						
(8) BoD Size	-0.133	-0.143	0.089	0.275	0.339	0.094	0.405	1.000					
(9) BoD Indep	0.031	0.023	0.182	0.234	0.173	0.377	0.141	-0.207	1.000				
(10) BoD Skills	0.096	0.089	-0.156	-0.066	-0.124	0.093	-0.116	-0.205	-0.038	1.000			
(11) Leverage	0.000	0.029	0.099	0.132	0.127	0.081	0.127	0.112	0.060	-0.101	1.000		
(12) Size	-0.113	-0.100	0.208	0.405	0.473	0.279	0.524	0.456	0.082	-0.250	0.224	1.000	
(13) ROA	0.139	0.153	0.010	-0.086	-0.113	-0.044	-0.127	-0.130	0.002	0.113	-0.221	-0.289	1.000

Note: The pairwise correlation matrix between tax avoidance, board gender diversity and esg measures and controls is shown in Table 3. In this sense, ESG (4) represents ESG Combined Score and the numbers (5), (6) and (7) represent ESG components.

Table 4 – The effect of Board Gender Diversity on Tax Avoidance

Model 1: $ETR_{i,t} = \beta_0 + \beta_1 Gender_{i,t} + \beta_2 BoD\ Size_{i,t} + \beta_3 BoD\ Indep_{i,t} +$

$$\beta_4 BoD\ Skills_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t} + \beta_7 ROA_{i,t} + \varepsilon_{i,t}$$

VARIABLES	(1) Tax Avoidance (BETR)	(2) Tax Avoidance (CETR)
Gender	-0.0450***	-0.0289*
	(0.0105)	(0.0151)
BoD Size	-0.198***	-0.319***
	(0.0406)	(0.0581)
BoD Indep	0.0124**	0.0125*
	(0.00523)	(0.00737)
BoD Skills	0.0339***	0.0377***
	(0.00579)	(0.00815)
Leverage	-0.0152*	-0.00355
	(0.00903)	(0.0139)
Size	0.000253	-0.000253
	(0.000943)	(0.00144)
ROA	0.0706***	0.125***
	(0.0253)	(0.0443)
Constant	-0.237***	-0.214***
	(0.0228)	(0.0344)
Fixed effects by sector	YES	YES
Fixed effects by year	YES	YES
Observations	4,878	4,878
R-squared	0.136	0.165
Adjusted R-squared	0.131	0.160

Note: Table 4 represents the Model 1 outputs for the relationship between tax avoidance (on both measures, Tax Avoidance (BETR) and Tax Avoidance (CETR)) and board gender diversity (Gender), with control variables associated. ESG represents ESG Combined Score. Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.

Table 5 (Panel A) – The effect of ESG variables on the relationship between Board Gender Diversity and Tax Avoidance

Model 2: $ETR_{i,t} = \beta_0 + \beta_1 Gender_{i,t} * ESG_{i,t} + \beta_2 BoD\ Size_{i,t} + \beta_3 BoD\ Indep_{i,t} +$

$$\beta_4 BoD\ Skills_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t} + \beta_7 ROA_{i,t} + \varepsilon_{i,t}$$

VARIABLES	(1) Tax Avoidance (BETR)	(2) Tax Avoidance (BETR)	(3) Tax Avoidance (BETR)	(4) Tax Avoidance (BETR)
Gender	-0.0410**	-0.0263	-0.00260	-0.0606***
	(0.0195)	(0.0164)	(0.0186)	(0.0152)
Gender x ESG	-0.00710			
	(0.0278)			
BoD Size	-0.196***	-0.185***	-0.175***	-0.201***
	(0.0408)	(0.0413)	(0.0409)	(0.0407)
BoD Indep	0.0126**	0.0135***	0.0146***	0.0100*
	(0.00527)	(0.00523)	(0.00520)	(0.00553)
BoD Skills	0.0340***	0.0342***	0.0348***	0.0326***
	(0.00582)	(0.00580)	(0.00579)	(0.00590)
Leverage	-0.0151*	-0.0152*	-0.0149*	-0.0153*
	(0.00906)	(0.00901)	(0.00898)	(0.00906)
Size	0.000305	0.000693	0.00110	5.16e-06
	(0.000964)	(0.000985)	(0.000982)	(0.000952)
ROA	0.0706***	0.0702***	0.0700***	0.0699***
	(0.0253)	(0.0254)	(0.0256)	(0.0254)
Gender x Environmental		-0.0331		
		(0.0214)		
Gender x Social			-0.0702***	
			(0.0239)	
Gender x Governance				0.0300
				(0.0215)
Constant	-0.238***	-0.249***	-0.260***	-0.229***
	(0.0238)	(0.0242)	(0.0241)	(0.0234)
Fixed effects by sector	YES	YES	YES	YES
Fixed effects by year	YES	YES	YES	YES
Observations	4,878	4,878	4,878	4,878
R-squared	0.136	0.137	0.138	0.137
Adjusted R-squared	0.130	0.131	0.132	0.131

Note: Table 5 - Panel A represents the outputs for the relationship between tax avoidance (BETR) and board gender diversity (Gender), considering the impact of ESG variables, with control variables associated. In this sense, column (1) shows the results for ESG combined score (ESG) and column (2), (3) and (4) shows the results for each ESG pillar (Environmental, Social and Governance). Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.

Table 5 (Panel B) – The effect of ESG variables on the relationship between Board Gender Diversity and Tax Avoidance

Model 2: $ETR_{i,t} = \beta_0 + \beta_1 Gender_{i,t} * ESG_{i,t} + \beta_2 BoD\ Size_{i,t} + \beta_3 BoD\ Indep_{i,t} +$

$$\beta_4 BoD\ Skills_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Size_{i,t} + \beta_7 ROA_{i,t} + \varepsilon_{i,t}$$

VARIABLES	(1) Tax Avoidance (CETR)	(2) Tax Avoidance (CETR)	(3) Tax Avoidance (CETR)	(4) Tax Avoidance (CETR)
Gender	0.00269	0.0111	0.0103	0.00752
	(0.0276)	(0.0233)	(0.0265)	(0.0218)
Gender x ESG	-0.0564			
	(0.0396)			
BoD Size	-0.307***	-0.292***	-0.297***	-0.311***
	(0.0587)	(0.0591)	(0.0590)	(0.0583)
BoD Indep	0.0146**	0.0150**	0.0146**	0.0180**
	(0.00745)	(0.00739)	(0.00739)	(0.00775)
BoD Skills	0.0386***	0.0383***	0.0386***	0.0407***
	(0.00820)	(0.00817)	(0.00816)	(0.00835)
Leverage	-0.00303	-0.00348	-0.00322	-0.00329
	(0.0139)	(0.0138)	(0.0139)	(0.0139)
Size	0.000160	0.000692	0.000529	0.000324
	(0.00147)	(0.00149)	(0.00149)	(0.00145)
ROA	0.125***	0.124***	0.124***	0.127***
	(0.0444)	(0.0445)	(0.0446)	(0.0440)
Gender x Environmental		-0.0709**		
		(0.0306)		
Gender x Social			-0.0651*	
			(0.0344)	
Gender x Governance				-0.0701**
				(0.0314)
Constant	-0.227***	-0.241***	-0.236***	-0.232***
	(0.0355)	(0.0363)	(0.0362)	(0.0348)
Fixed effects by sector	YES	YES	YES	YES
Fixed effects by year	YES	YES	YES	YES
Observations	4,878	4,878	4,878	4,878
R-squared	0.165	0.166	0.166	0.166
Adjusted R-squared	0.160	0.160	0.160	0.160

Note: Table 5 - Panel B represents the outputs for the relationship between tax avoidance (CETR) and board gender diversity (Gender), considering the impact of ESG variables, with control variables associated. In this sense, column (1) shows the results for ESG combined score (ESG) and column (2), (3) and (4) shows the results for each ESG pillar (Environmental, Social and Governance). Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.

Table 6 – The effect of Board Independence on the relationship between Board Gender Diversity and Tax Avoidance

VARIABLES	(1) Tax Avoidance (BETR)	(2) Tax Avoidance (CETR)
Gender	-0.0887***	-0.0645***
	(0.0162)	(0.0228)
Gender x BoD Indep	0.0775***	0.0643**
	(0.0202)	(0.0287)
BoD Size	-0.183***	-0.311***
	(0.0409)	(0.0586)
BoD Skills	0.0343***	0.0380***
	(0.00577)	(0.00815)
Leverage	-0.0159*	-0.00391
	(0.00904)	(0.0139)
Size	1.24e-05	-0.000381
	(0.000942)	(0.00144)
ROA	0.0703***	0.125***
	(0.0253)	(0.0443)
Constant	-0.227***	-0.207***
	(0.0228)	(0.0346)
Fixed effects by sector	YES	YES
Fixed effects by year	YES	YES
Observations	4,878	4,878
R-squared	0.138	0.165
Adjusted R-squared	0.132	0.160

Note: Table 6 represents the outputs for the relationship between tax avoidance (on both measures, BETR and CETR) and board gender diversity (Gender), considering the impact of board independence (BoD Indep), with control variables associated. Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.

Table 7 (Panel A) – The impact of ESG on the Mediating Role of Board Independence

VARIABLES	(1) Tax Avoidance (BETR)	(2) Tax Avoidance (BETR)	(3) Tax Avoidance (BETR)	(4) Tax Avoidance (BETR)
Gender	-0.0778***	-0.0602***	-0.0581***	-0.0692***
	(0.0150)	(0.0138)	(0.0147)	(0.0132)
Gender x BoD Indep x ESG	0.104***			
	(0.0332)			
BoD Size	-0.201***	-0.204***	-0.201***	-0.198***
	(0.0406)	(0.0407)	(0.0406)	(0.0406)
BoD Indep	-0.00193	0.00565	0.00652	-0.000397
	(0.00689)	(0.00652)	(0.00679)	(0.00682)
BoD Skills	0.0334***	0.0338***	0.0337***	0.0322***
	(0.00578)	(0.00578)	(0.00578)	(0.00582)
Leverage	-0.0159*	-0.0153*	-0.0153*	-0.0154*
	(0.00910)	(0.00906)	(0.00906)	(0.00907)
Size	-0.000319	-0.000197	-8.89e-05	-0.000267
	(0.000959)	(0.000979)	(0.000977)	(0.000954)
ROA	0.0703***	0.0708***	0.0707***	0.0696***
	(0.0252)	(0.0252)	(0.0252)	(0.0255)
Gender x BoD Indep x Environmental		0.0485*		
		(0.0279)		
Gender x BoD Indep x Social			0.0391	
			(0.0298)	
Gender x BoD Indep x Governance				0.0806***
				(0.0276)
Constant	-0.216***	-0.223***	-0.226***	-0.218***
	(0.0239)	(0.0243)	(0.0243)	(0.0236)
Fixed effects by sector	YES	YES	YES	YES
Fixed effects by year	YES	YES	YES	YES
Observations	4,878	4,878	4,878	4,878
R-squared	0.138	0.137	0.137	0.138
Adjusted R-squared	0.132	0.131	0.131	0.132

Note: Table 7 - Panel A represents the outputs for the relationship between tax avoidance (BETR) and board gender diversity (Gender), considering the impact of board independence (BoD Indep) and ESG variables, with control variables associated. In this sense, column (1) shows the results for ESG combined score (ESG) and column (2), (3) and (4) shows the results for each ESG pillar (Environmental, Social and Governance). Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.

Table 7 (Panel B) – The impact of ESG on the Mediating Role of Board Independence

VARIABLES	(1) Tax Avoidance (CETR)	(2) Tax Avoidance (CETR)	(3) Tax Avoidance (CETR)	(4) Tax Avoidance (CETR)
Gender	-0.0430**	-0.0231	-0.0332	-0.0222
	(0.0210)	(0.0195)	(0.0207)	(0.0185)
Gender x BoD Indep x ESG	0.0447			
	(0.0466)			
BoD Size	-0.320***	-0.317***	-0.320***	-0.319***
	(0.0581)	(0.0582)	(0.0581)	(0.0581)
BoD Indep	0.00639	0.0151*	0.0106	0.0161*
	(0.00967)	(0.00912)	(0.00960)	(0.00953)
BoD Skills	0.0375***	0.0377***	0.0377***	0.0382***
	(0.00816)	(0.00815)	(0.00815)	(0.00823)
Leverage	-0.00383	-0.00352	-0.00359	-0.00351
	(0.0139)	(0.0139)	(0.0139)	(0.0139)
Size	-0.000498	-8.09e-05	-0.000365	-0.000110
	(0.00147)	(0.00149)	(0.00149)	(0.00146)
ROA	0.125***	0.125***	0.125***	0.125***
	(0.0443)	(0.0443)	(0.0443)	(0.0442)
Gender x BoD Indep x Environmental		-0.0186		
		(0.0398)		
Gender x BoD Indep x Social			0.0128	
			(0.0423)	
Gender x BoD Indep x Governance				-0.0223
				(0.0393)
Constant	-0.205***	-0.220***	-0.211***	-0.219***
	(0.0358)	(0.0365)	(0.0365)	(0.0353)
Fixed effects by sector	YES	YES	YES	YES
Fixed effects by year	YES	YES	YES	YES
Observations	4,878	4,878	4,878	4,878
R-squared	0.165	0.165	0.165	0.165
Adjusted R-squared	0.160	0.159	0.159	0.159

Note: Table 7 - Panel B represents the outputs for the relationship between tax avoidance (CETR) and board gender diversity (Gender), considering the impact of board independence (BoD Indep) and ESG variables, with control variables associated. In this sense, column (1) shows the results for ESG combined score (ESG) and column (2), (3) and (4) shows the results for each ESG pillar (Environmental, Social and Governance). Fixed effects (by sector and year) were considered in this analysis and the robust t-statistic errors are shown in parenthesis. The time window under consideration is from 2010 to 2019. The significance levels for 1%, 5%, and 10% are shown by ***, **, and *, respectively.