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[Roberto Rocha](#) , [Ana Bandeira](#) , [Patrícia Ramos](#) *

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Article

The Impact of Social Responsibility on the Performance of European Listed Companies

Roberto Rocha ¹, Ana Bandeira ² and Patrícia Ramos ^{2,*}

¹ Polytechnic of Porto's School of Accounting and Administration (ISCAP), Rua Jaime Lopes Amorim, s/n 4465-004 S. Mamede de Infesta, Portugal.

² CEOS.PP at ISCAP, Polytechnic of Porto, which is also affiliated with INESC TEC, Rua Jaime Lopes Amorim, s/n 4465-004 S. Mamede de Infesta, Matosinhos, Portugal

* Correspondence: Author : patricia@iscap.ipp.pt

Abstract: This research aims to analyze the impact of Social Responsibility on the performance of 216 European companies during the years 2017 to 2021. The objective of this research is to determine how the operational, financial and market performance of companies is influenced by social responsibility practices. The methodology adopted is quantitative in nature, using the estimation of dynamic models for panel data. To quantify corporate performance, this study will use, the return on assets, the return on equity and finally the Tobin's Q ratio. On the other hand, ESG (Environment, Social and Government) scores and GC Score scores will be used in order to quantify SR. The results show that SR presents not only a negative influence on the financial and operational performance of companies, but also a positive impact on market performance. This influence is even greater when distinguishing the best from the worst scores. The environment, social and government dimension shows a negative relationship with ROA and ROE, and a positive one with Tobin's Q. On the other hand, the anti-corruption and environment dimension of the GC Score, relates negatively with Tobin's Q, the human rights dimension relates negatively with ROE and ROA, and finally, the labor law dimension presents a positive relationship with ROE. Importantly, firm size positively influences this relationship, while age has a negative influence. This research offers important contributions to the literature, since from the ESG scores and the GC Score, a complete analysis of the impact of social responsibility on corporate performance is developed.

Keywords: Social responsibility; ESG; GC Score; Business Performance; European Companies

JEL classification: C12; C33; M21

1. Introduction

The concern that an organization has in relation to the welfare of society and the protection of the environment has been discussed in recent years, having gained main emphasis in the XXI century (Perić & Turalija, 2017). In short, companies have felt a huge pressure from society to adopt socially responsible practices, which implies that they start to have the perspective that social responsibility (SR) can be a strategy to obtain better economic results. The SR associated with a good communication, allows the company to achieve some benefits that are quite important for value creation (Faria, 2018; Tarigan et al., 2019). However, several authors argue that SR only raises high costs and sometimes only harms the economic performance of companies (Tarigan et al., 2019). Other authors refer that it has no impact on shareholder value creation and presents a negative influence on employees (Guadaño & Pedroza, 2018).

Given these divergent findings, the main objective of this research is to ascertain the impact of socially responsible practices on corporate performance.

To quantify the social responsibility of a company, this study used ESG scores. Through various indicators, these scores assess the company's performance in three dimensions: environmental, social and governance. Later, this information is disclosed by rating agencies, with a score that usually

ranges from 0% to 100%. To highlight that the higher the score, the better results the company has in terms of social responsibility.

Although the literature consulted, the quantification of SR is mostly done through ESG scores, the GC Score, which is based on the four fundamental principles of the United Nations Global Compact (human rights, labour law, environment and anti-corruption), can also be one of the metrics used for this purpose, so it will also be considered in this research.

Regarding corporate performance, this research aims to explore the relationship between social responsibility and corporate financial, operational and market performance. To make this possible, the values that European companies obtained, between 2017 and 2021, in the ratios Return on Equity (economic performance), Return on Assets (operational performance) and Tobin's Q (market performance) were collected. Additionally, data on firms' market value and earnings were also collected for the period. The aim of this collection is to explore the relationship between social responsibility indices (ESG and GC Score) and these variables since this relationship has not been much explored in depth in the consulted literature. The control variables of this study will be the age, measured by the number of years of the company since its foundation, the sector of activity (Consumer goods, Communications, Consumer discretionary, Energy, Finance, Real estate, Industry, Materials, Health, Technology and Utilities) and the size of the company, which will be measured by the logarithm of total assets.

To achieve the objective of this research, dynamic models for panel data will be estimated. Initially, the analysis is conducted taking into consideration the existence of a direct relationship between SR metrics (ESG and GC Score), and the financial, operational and market performance of companies. Subsequently, the differences in the performance of companies that obtain a better score compared to those that obtain worse results are ascertained. The same reasoning is done with the environmental, social and governance dimensions of the ESG index. For the human rights, labour law, environment and anti-corruption categories of the GC Score, the process is different, as the direct relationship with company performance was ascertained. The main objective here is to understand how each dimension and category influences company performance. From there, it will be possible to identify the type of activities where the company should apply its efforts, i.e., those where there is a positive relationship between social responsibility and corporate performance.

Finally, it is also the aim of this study to understand how the control variables (size and age) influence the performance of companies, when associated with the ESG index and the GC Score. Therefore, models establishing an interaction between control variables and ESG and GC Score were estimated. Subsequently, the impact of this interaction on the performance of the sample companies was assessed.

In relation to the existing literature, this study contributes with an analysis of the impact of social responsibility on financial, operational, and environmental performance. In short, this research uses two indices of social responsibility - ESG and GC Score - to quantify the performance of companies in this subject. Additionally, this research is of great relevance as it used not only the scores on the overall ESG index but also addressed the scores of its dimensions. This will allow the impact of social responsibility on the performance of companies to be approached in a broader manner, making it equally possible to identify the behaviors that effectively have a positive or negative impact on the financial, operational and market performance of companies. Furthermore, the use of control variables with a view to identifying the existence of a relationship between these and corporate performance is another strong point of this research given that few authors have adopted this process.

Also highlight that one of the major contributions of this research is the fact that it considers several dimensions of social responsibility, in contrast to other studies that prefer a holistic approach or focus on one particular dimension. More precisely, this research also used the GC Score scores, which were little explored in the consulted literature. From these scores, it is possible to verify the impact of practices associated with SR on companies' performance on other fields that the ESG index does not explicitly explore, such as human rights, labour law and anti-corruption. It should also be noted that this study focuses on Western European markets, where literature on this topic is still scarce.

This research is structured in three main chapters. Chapter one consists of the literature review, where the evolution of corporate social responsibility and its dimensions are presented. Subsequently, the main conclusions existing in the literature regarding the impact of social responsibility on corporate performance are presented, where the influence on stakeholders, the positive, negative, and neutral effect of social responsibility and the importance of its disclosure and standardization are addressed. Chapter two deals with the methodology adopted in the research of this research. More precisely, this part presents the sample characterization, the data collection process and the hypotheses formulated. The explanation of the dependent, independent and control variables, as well as the regression models created from these variables, is also carried out in this chapter. The last major chapter presents the results of the empirical study carried out. Initially, the descriptive statistics and the results of the regression models are set out. Subsequently, the results obtained are analyzed and discussed.

2. Literature Review

Throughout this chapter the literature review on the impact of social responsibility on corporate performance is presented. However, initially the evolution of the concept of corporate social responsibility and its dimensions will be set out, and only later will this topic be addressed.

Highlight that the impact of social responsibility on companies will be addressed on different fronts. That is, initially the relationship between social responsibility and stakeholders is displayed, since this relationship may affect the performance of companies. Then the positive, negative and neutral effect of social responsibility on firms' performance is addressed. Finally, the role that social disclosure and standardization play in the framework of corporate performance is also explored.

2.1. The Evolution of Social Responsibility

The interest in issues related to social responsibility began to increase around the 1950s and has grown exponentially both in academic literature (with the main emphasis on the United States of America) and in organizational practice (Carroll, 1999).

Bowen's (1953, referenced by Carroll, 1999), stated that the behavior of companies affects the lives of citizens in various ways and that it is therefore necessary to ascertain which responsibilities these companies have to assume. For this author, SR corresponds to the obligations of entrepreneurs to make desirable decisions in terms of society's objectives and values.

This is an ideology maintained during the 1960s of the 20th century, even reinforced by Davis (1960, referenced by Agudelo et al., 2019). This author emphasizes that during this decade social, economic and political changes made significant pressure for entrepreneurs to reassess their role in society and, consequently, to define a social responsibility policy. In short, entities that enjoy their power without taking into account the impact of the environment, could damage their relationship with stakeholders in terms of trust and respect (Martínez et al., 2016).

Friedman (1970, referenced by Rahman, 2011), a renowned economist and holder of the Nobel Prize in Economics (1976), presents a different view on social responsibility. For this economist, the only responsibility that a company had towards society was to maximise its profits within the limits of the law and with minimal ethical constraints, i.e., without resorting to fraud or deception. This author points out that a company affects its economic performance by focusing its resources on social actions rather than applying them to production.

On the other hand, Carroll (1979) presented a more conscious version, arguing that a company's responsibilities are broader, not limited only to economic and legal responsibilities, but also to a wider range of obligations towards society. More specifically, this author emphasizes that in the literature there was no consensus with a view to explaining the concept of social responsibility, however, the authors mainly focused on three themes. The first theme is related to the economic, legal or voluntary side of a company's social responsibility. The second theme addresses social issues, such as discrimination and the environment. Finally, the last theme is more related to the philosophy of the company's response to implement a social responsibility policy. As all these three views are important, Carroll (1979) decided to relate them in order to obtain a definition of social responsibility

that fully addresses all the obligations that companies have towards society. Thus, for this author, SR is characterized into four categories: economic, legal, ethical and discretionary. The economic responsibility, considered by the author as the most important, consists in the provision of goods and services desired by society and to obtain profit from their sale. Legal responsibility, on the other hand, is present when companies operate within the limits of the law. Ethical responsibility encompasses some ethical aspects that society intends an organization to comply with, which go beyond legal requirements. Finally, discretionary responsibility corresponds to voluntary attitudes on the part of the company that are neither required by law nor expected by society.

As we can see, the contributions of the 50s, 60s and early 70s of the twentieth century helped to understand the role that social responsibility plays in the process of harmony of the company, with the environment and with the stakeholders (Martínez et al., 2016).

Nevertheless, in the 1980s and 1990s of the twentieth century a great theoretical dispersion emerged with a view to analyzing the benefits and advantages of the implementation of social responsibility actions by companies (Martínez et al., 2016). In these decades, concerns about developing new or refined definitions of SR gave way to alternative concepts, theories, models or themes (Carroll, 1999). One of the models developed at this time was authored by Tuzzolino and Armandi (1981, referenced by Carroll, 1999). This model is based on Maslow's hierarchy of needs, where the authors are of the opinion that organizations have physiological, security, affiliation, esteem and self-actualization needs which resemble those of humans. This mechanism enables, according to the authors, the assessment of socially responsible organizational performance, as well as the definition of an analytical framework with a view to facilitating the operationalization of SR.

In this period, Stakeholder Theory was introduced as a dimension in the Corporate Social Responsibility (CSR) literature (Freeman, 1984, referenced by Rahman, 2011). According to Freeman & Dmytriiev (2017), this theory posits that the essence of business lies primarily in building relationships and creating value for all stakeholders. For Freeman, (1984, referenced by Rahman, 2011), active stakeholder participation is critical for successful implementation of CSR. Both Stakeholder Theory and CSR emphasize the idea that companies should assume responsibilities towards communities and society (Freeman & Dmytriiev, 2017). However, the scope of these responsibilities is different, with Stakeholder Theory tending to focus its attention on the local communities where the company operates, while SR is more comprehensive (Freeman & Dmytriiev, 2017).

In the 90's of the 20th centuries, a model presented by Carroll (1991) emerged with great relevance in the social responsibility literature. The model presented is called the "Pyramid Model" and consists of a pyramid made up of four levels. The first two levels near the bottom are common and mandatory for all companies. The bottom of the pyramid embodies the basic notion of any business, i.e., making a profit (economic responsibility), and the next level is related to compliance with the law, as it is society's codification of acceptable and unacceptable behavior (legal responsibility). Near the top of the pyramid, one can find ethical responsibilities that are associated with what is right, just, and minimizing harm to stakeholders. Finally, at the top of the pyramid is the discretionary (philanthropic) responsibilities, where companies are expected to contribute financial and human resources to the community and improve the quality of life.

The 21st century is considered the era of the emerging industry of social responsibility, as it has been marked by immense international movements, initiatives, regulations, and reports linked to this topic. According to Perić & Turalija (2017), one of the initiatives was the Global Compact, created by the UN in 2010, which defines the 10 principles of SR, focusing on 4 main themes: human rights, labor and employment practices, environment and anti-corruption. The main purpose of this pact is to encourage companies to be socially responsible and support basic values through their operations (Perić & Turalija, 2017). The creation of the ISO 26000 standard was another of the initiatives that prove the relevance of CSR. This standard's main goal is to assist companies in operating in a socially responsible manner, thus contributing to the well-being of society (Perić & Turalija, 2017).

As we can see, the concept of SR has been discussed over the last decades, and it is also an increasingly present subject in the corporate environment. Companies are aware that SR is the answer

to economic, social and environmental challenges, and putting it into practice allows them to achieve a large number of benefits, as we will see later in this research.

2.2. Influence on Business Performance

Companies see SR to develop a competitive advantage and establish strong ties with their stakeholders (Tiep et al., 2021). This is a consequence of the fact that socially responsible behaviors are associated not only with a better reputation/visibility, but also with a greater recognition by stakeholders, which is reflected in a better relationship with them and, consequently, in better organizational results (Adda et al., 2016). Given this scenario, the importance that SR has assumed in business is to be considered, since several authors argue that the quality of the relationships that an organization maintains with its relevant stakeholders is crucial to its success and survival (Adda et al., 2016).

Within the group of stakeholders, it is possible to find some that are more affected by the company's SR practices than others.

Investors are generally attracted to companies with quality management, since the way their assets are managed can influence the wealth provided to this group of stakeholders (Okafor et al., 2021). On the other hand, these are increasingly committed to the sustainable and social causes that companies advocate. Okafor et al., (2021) argue that companies that align their organizational strategies with social and environmental goals have a substantial investment case and consequently guarantee appreciable returns. In short, this group of stakeholders is attracted to well-managed companies, this being a consequence of how the companies' assets are deployed to generate shareholder wealth.

Nevertheless, within the stakeholders, employees are the ones who are most attentive to companies' SR practices, and their perceptions regarding this topic, have influence on their behaviors, such as loyalty, motivation, productivity and satisfaction in the workplace (European Commission, 2008, referenced by Adda et al., 2016). Duarte & Neves (2011) found that the company's involvement in SR actions increases not only the satisfaction of employees for belonging to that organization, but also promotes their ambition to participate in these actions.

On the other hand, Sameer (2021) argues that in a company where employees are not happy and suffer discrimination, they tend to feel dissatisfied in the workplace. This situation may have negative consequences on employee performance and therefore negatively affect the company's productivity. In order to avoid this scenario, organizations can introduce an SR policy that takes into consideration the interests of their employees. In fact, Tiep et al. (2021) point out that an SR policy allows a company to save on its resources that were intended, for example, to increase employee satisfaction and motivation.

Another stakeholder group that is paying attention to companies' SR practices are consumers. The recognition of the importance of SR in shaping consumers' perceptions and evaluations of a company has been increasingly valued, especially by consumers of generation Y (Millennials) who, compared to other generations, show greater attention to SR practices (Luger et al., 2021).

However, when companies define a SR policy with a view to obtaining economic benefits, the authors' opinions diverge as to whether this correlation is even positive, as we shall see below.

2.2.1. The Positive, Negative, and Neutral Effect of Social Responsibility

SR can be a means by which a company can create economic value (profitability) and social value (benefits to society), and thus achieve sustainable success. Indeed, Okafor et al. (2021) have witnessed in large companies, such as Apple, Amazon, Cisco Systems, or Microsoft, a considerable increase in revenue in line with SR spending. Moreover, companies that profit from SR are more likely to survive in a competitive market and sustain their efforts to address social problems (Magrizos et al., 2021). Thanh et al. (2021) even found that companies are able to increase customer retention, performance, and business continuity when they adopt socially responsible behaviors that take into account the interests of society, the environment, and stakeholders. Rossi et al. (2021) also found in their study of 225 European companies that when SR is measured by the ESG index, there is positive and significant

relationship between it and business performance. Cheng et al. (2015) go further, and state that SR is able to improve a company's financial performance in the current year, and certain socially responsible activities may even have a significant effect in the coming years. On the other hand, Wuttichindanon, (2017) found that companies choose to use SR with the aim of it having an influence on their stakeholders, thus not giving as much importance to the relationship that SR may have with economic performance.

However, not all authors argue for a positive correlation between SR and company performance.

In a study conducted by Fernández et al. (2014) on 380 companies from the coastal north of Portugal, it was possible to find that the socially responsible actions of companies do not produce a significant impact on economic results. Consequently, the authors found that the market in this region is indifferent to SR practices and, therefore, companies with an active SR policy do not rank higher than those that do not develop socially responsible practices.

Oh & Park (2015), referenced by Guzman et al. (2016), argue that there is a negative correlation between SR and company performance, since the costs of implementing SR practices are higher compared to the results obtained. Hirigoyen & Poulain-Rehm (2015) also argue for a negative relationship between SR and firm performance. More specifically, through a sample with 329 companies listed in three geographic areas (United States, Europe and Asia-Pacific region) for the years 2009 and 2010, these authors found that a more active SR policy does not result in better financial performance and even worsens market performance. However, these authors also found that when the firm performs well financially, it invests less in SR in order to achieve even more favorable results. Buallay (2019) identified one of the possible causes that justify the negative relationship between SR and corporate performance. That is, for this author, this inverse relationship is present when company managers use SR for their own benefit, which results in higher costs for the entities, costs that may even be borne by stakeholders and consequently reduce market value, net worth, and asset efficiency.

However, there have been other authors (Cho et al., 2019; Dobrea & Găman, 2011; Guzman et al., 2016) who have contradicted the view that social responsibility hurts firm performance. For example, Guzman et al. (2016) and Ali et al. (2020) argue for a positive indirect relationship between SR and firm performance. That is, socially responsible activities allow firms to improve the image of their products and services, and this could translate into a significant increase in sales and, consequently, the increase in the level of business performance (Guzman et al. 2016). On the other hand, the company develops a positive image among stakeholders, thus decreasing overhead costs (Ali et al., 2020). Additionally, Giannarakis et al. (2016) also found in their study of companies listed in the Standard & Poor's 500 between the period 2009 and 2013 that companies' involvement in SR initiatives conveys an image of trust to their surroundings, which in turn positively affects companies' financial performance. Given this scenario, managers who aim to significantly improve business performance should seek to incorporate SR not only as a strategy, but as part of the company's daily activities (Guzman et al., 2016).

It should also be noted that in the literature there are authors who have identified a null relationship between SR and business performance. In a study conducted by Nollet et al. (2016) on companies that are part of the S&P500 index between the years 2007 and 2011, it was possible to conclude that there is no significant relationship between SR and financial performance, with companies only using SR as a strategy to create additional value for their product, and not to have an influence on financial performance. Crisóstomo et al. (2011) reached an identical conclusion and verified in their study of 73 Brazilian companies, that there is no effect of SR on company performance, when this is measured by ROA (Return on Assets) and ROE (Return on Equity) indicators. In terms of Tobin's Q (ratio of the market value of the company's assets to its replacement cost), Bannier et al. (2019) found in their study of European and North American companies that they are not affected by the ESG index in terms of market performance. An identical conclusion was obtained by Madorran & Garcia (2016) in a study conducted on a sample of Spanish companies from the IBEX 35 stock market index. These authors found that in the models used, the relationship between SR and financial performance was not significant.

However, the relationship between social responsibility and corporate performance should not be analyzed in isolation, as there are several variables that can mediate this relationship. Minutolo et al. (2019), in a study of 467 companies in the S&P 500 from 2009 to 2015, concluded that the size of organizations can be one of these variables. More precisely, these authors found that when firm performance is measured by Tobin's Q, the influences of SR disclosure are greater for large firms, as opposed to the effects of SR disclosure on Tobin's Q and return on assets for smaller firms. The industry in which the firm operates, as well as where it is in the supply chain, also significantly influence the adoption of socially responsible behavior (European Commission, 2021a). That is, in cases where customers prioritize this issue, the company is also concerned with defining a social responsibility policy. On the other hand, in cases where customers are not affected by socially responsible practices, companies are unlikely to be interested as well. Age is also shown as a variable to take into account when we want to analyze the adoption of socially responsible practices by companies. This is because according to Sun (2021), who conducted a study of 2,610 companies over the period 1992-2016, older companies may perform better in terms of SR than younger companies, since they have greater maneuverability to invest their financial resources in extra activities, such as SR.

The impact of social responsibility on firm performance may similarly depend on the type of socially responsible activity the firm adopts. Cho et al. (2019) found, for example, that not all activities have a significant impact on firm performance. More precisely, these authors found that socially responsible activities associated with the labor market, the environment, the community, and the workplace do not exert statically significant effects on the ROE, ROA, and Tobin's Q of Greek companies listed on the Athens Stock Exchange. From another perspective, Pham et al. (2022) found in their study of 56 US and Chinese companies that companies with good environmental performance can achieve higher levels of business performance. This is only possible through lower costs and higher revenue, which is a consequence of a good reputation for good practices. However, not all authors advocate this relationship. Kamatra & Kartikaningdyah (2015), however, argue that both social and environmental performance lead to better economic performance, however, environmental performance has a much smaller effect than social performance. In a more pessimistic scenario regarding environmental activities, Makni et al. (2009), found in their study of 179 publicly traded Canadian companies that the environmental dimension of SR negatively influences corporate performance, specifically return on assets, return on equity and market returns. More specifically, Riyadh et al. (2019), found in their study of 250 energy companies between the period of 2016 and 2018, that socially responsible behaviors such as pollution reduction, employee benefit packages, donations, community sponsorships, among others, decrease company profits and could lead to competitive disadvantage. This is a view held by some investors who view socially responsible behaviors as a way to diminish the company's future financial performance and consequently generate lower returns.

Nejati et al. (2017) argue that society-related SR practices are the least likely to increase competitive performance. In another perspective, Sameer (2021) argues that a company performs negatively when it discloses its SR practices related to the environment. This is due to the high costs associated with the disclosure of these types of practices, which ultimately outweigh the benefits that they could bring to companies. Papagrigoriou et al. (2021) are of the same opinion and concluded that there is no significant correlation between SR and the financial performance of companies, even though a large part of the sample discloses SR activities.

Alareeni & Hamdan (2020) found, through an analysis of the financial (ROE), operating (ROA), and market performance (Tobin's Q) of S&P 500 companies, that corporate disclosure of environmental, social, and governance (ESG) aspects positively affects companies' performance measures. Li et al. (2018) found the same relationship, but this time in a study of 350 companies listed in the FTSE index. Yoo & Managi (2022) reached an identical conclusion using a large sample of UK public companies from the Bloomberg database between the period 2004 to 2013.

However, it should be noted that when the analysis is carried out taking into account the dimensions of SR in isolation, the relationship that each of these establishes with corporate

performance is different. More precisely, Alareeni & Hamdan (2020) and Li et al. (2018) found that environmental and social disclosure negatively affects the operational and financial performance of companies. This scenario may occur due to the fact that these socially responsible practices imply more costs and, as a consequence, harm operational and financial performance (Li et al., 2018). Nevertheless, at the market performance level, both authors found a positive relationship between Tobin's Q and social and environmental practices. In short, the disclosure of aspects related to the company's management is positively related to the operational and market performance, and negatively related to the financial performance (Alareeni & Hamdan, 2020). On the other hand, Buallay (2019) found a slightly different relationship in European Union companies between the same variables. More precisely, this author just like Alareeni & Hamdan (2020) and Li et al. (2018), found that the environmental dimension of the ESG score is positively related to Tobin's Q. However, the same is not true for the ROE performance variable, as, Buallay (2019) found that financial profitability is positively influenced by environmental disclosures. With regard to disclosures related to the governance dimension of the ESG score, it positively affects Tobin's Q and negatively affects financial and operational performance. This means that disclosure of this type of information, while decreasing asset efficiency (ROA) and return on equity (ROE), in contrast, increases market performance. Still within the scope in the Government dimension, Pham et al. (2022) found an inverse relationship between these scores and business performance. This relationship is essentially driven by the use of company resources for unjustified purposes that do not promote a good cause, but only satisfy the desires of board members. This directly affects the shareholders, which could lead to an agency problem and consequently harm the value of the company.

Elouidani & Zoubir (2015), who developed a study of 20 entities listed on the Casablanca stock exchange, concluded that companies engaged in areas of social welfare and environmental protection, obtain lower operating results, and therefore harm their value on the stock exchange.

On the other hand, Elouidani & Zoubir (2015) are of the opinion that investments in SR are made with a long-term horizon, that is, companies should not expect an improvement in financial performance in the first few years of an approach to SR. Madueño et al. (2016) found this scenario in practices associated with environmental protection and even observed that their effects are not visible to stakeholders in the short term. Other authors argue that SR only pays off after a certain investment threshold, and before that point is reached, additional SR expenses decrease business performance (Nollet, Filis & Mitrokostas, 2016).

Finally, it should be noted that the influence of SR on business performance is influenced by the disclosure that each company makes. In short, companies will only have access to all the economic benefits associated with SR, including improved business performance, when their practices are properly communicated and when appropriate disclosure channels are used (Faria, 2018; Madueño et al., 2016), as we will see in the following section.

2.2.2. Importance of Social Disclosure and Its Standardization

The disclosure of SR, over the years, has assumed a particular importance in the business world. More precisely, in the European Union, for example, it is noticeable the movement of different government authorities to establish and implement sustainability reports in order to strengthen relations with society and business communities (Buallay, 2019). In short, stakeholders such as investors, shareholders, creditors, and debtors are increasingly paying attention to sustainability reporting, which consequently affects their decisions around the company (Buallay, 2019).

As referenced earlier, SR enables the company to boost its economic results, create value, and improve its performance. However, achieving these benefits requires the company to report socially responsible information (Faria, 2018).

According to Lys, Naughton, & Wang (2015, referenced by Faria, 2018) existing accounting and financial reporting standards do not take into account sustainability, environmental, and SR aspects. Therefore, some companies have difficulties in reporting, measuring and recognizing social aspects, which justifies the lack of communication of SR practices (Fernández et al., 2014).

In view of these difficulties and also in order to promote their image and social status, companies choose to disclose their socially responsible practices in parallel with the financial reporting through other means, such as sustainability reports (Faria, 2015, referenced by Faria 2018). However, Huang & Wang (2021) are of the opinion that a company is likely to initiate SR reporting after an announcement of regulatory violations by supervisors. Thus, SR disclosure is seen by these authors as a way to disguise bad reputations.

In order to assess companies' sustainable work as well as make sustainability reports more credible, many choose to do them according to the Global Reporting Initiative standards (GRI) (Chen et al., 2015). The GRI standards contain a set of principles for organizations to rigorously define the content of their reports. As a consequence, these standards allow any organization to report its economic, environmental and social impacts in a standardized and comparable way, thus making sustainability reports more consistent, higher quality and more reliable (Global Reporting Initiative, 2020).

Communicating SR practices has a positive impact on the relationships that the company establishes, as it promotes a socially responsible organizational culture and assists in building trusting relationships with stakeholders (Chaudhri, 2016). However, the reporting of SR should be conducted with some caution. Both Viererbl & Koch (2022) and Chaudhri (2016) are of the opinion that a high degree of reporting of socially responsible practices only has a positive effect on recipients' perceptions if companies also engage in a high number of SR activities. If they over-communicate about their involvement in only a few activities, the positive effect of communication does not occur or can even become negative. Therefore, even if companies are aware that SR communication can be a tool for building a good image, it is nevertheless essential to have a balance, subtlety, and modesty in the communication of SR activities (Chaudhri, 2016; Viererbl & Koch, 2022).

In a study conducted by the (European Commission, 2021b), it was possible to conclude that companies in the European Union have a weak disclosure of content related to social responsibility. More specifically, these companies do not report enough and often omit information that investors and other stakeholders consider important.

Despite the weak disclosure of SR by companies, they have different means, models and support to communicate their socially responsible practices. The SA8000 - Social Accountability 8000 certification, can be one such means, as it is a voluntary standard auditable by a third party, which addresses issues related to workers' rights, workplace conditions, and an appropriate and effective management system (Social Accountability International, 2014). Also of note is ISO 26000, a standard developed by APCER (Portuguese Certification Association), which aims to guide organizations with issues related to social responsibility. Among other issues, ISO 26000 assists companies in communicating commitments, performance and other information regarding social responsibility (SGS, 2010).

In addition to these standards, there is AA1000 - AccountAbility 1000, one of the main international standardized models for corporate social responsibility (Grüninger & Ikeda, 2014). This standard guides organizations in the process of identifying, prioritizing and responding to sustainability challenges in order to improve their long-term performance (AccountAbility, 2018).

In order to implement and disseminate SR, the United Nations Global Compact (UNGC) is also a strategic choice for many company managers. This is due to the fact that participation in the UNGC implies lower costs compared to other SR standards, and on the other hand that there is positive evidence in companies in the scope of their profit, sales volume, reputation, employee satisfaction and customer satisfaction (Erro & Sánchez, 2012; Orzes et al., 2018, 2020). In sum, Cetindamar & Husoy (2007) consider that although participation in the UNGC does not result in significant cost advantages, it nevertheless has a strong and positive influence on firms' market performance, in addition to providing ethical and economic benefits. However, the issue of the absence of monitoring and enforcement mechanisms (e.g., third-party audits) on companies advocating UNGC adoption calls into question whether they are effectively adopting socially responsible behaviors (Orzes et al., 2020).

In the last decade, attention regarding sustainability issues has grown exponentially, which has led to an increased focus on companies' disclosure of environmental, social, and governance (ESG) practices (Li et al., 2018). Given this conjuncture, the ESG score rating market has developed considerably in recent years and is used by leading business consulting firms around the world (Alareeni & Hamdan, 2020).

Importantly, ESG disclosure promotes the decrease of asymmetric information between companies and stakeholders, thus strengthening the relationship between both parties (Li et al., 2018). Furthermore, Okafor et al. (2021) point out that investors, as part of their fiduciary responsibility, are increasingly committed to the causes of environmental, social and sustainable development of companies. Thus, they often turn to ESG scores when deciding where to invest (Okafor et al., 2021). In short, companies that align their organizational strategies with good organizational, environmental, and social management have a substantial investment case, and are expected to secure appreciable returns (Li et al., 2018). Therefore, it can be concluded that organizations that disclose ESG practices, hold a better performance through reputation, investor confidence, efficient use of resources, and consequently, higher firm value (Tarmuji et al., 2016). As verified, the mentioned standards, templates and scores present several thorough criteria, however, companies have other means to disclose their SR activities, where they can customize their content and structure. Internally, companies can define a code of ethics as a way to guide employees in conflicting situations, to establish strategies to avoid mistakes in ethics, to promote positive behaviors, and to improve employee performance and behavior (Dias, 2014). Externally, companies can opt for the so-called "Social Marketing", i.e., the communication of their social practices through newsletters, magazines, posters, flyers among other means, which can be shared on their own website, social networks, sent by letter or email (Faria, 2018). This is a very viable option for companies, since it offers great opportunities for interaction with stakeholders and allows the maintenance of permanent relationships (Gomez, 2013).

Thus, it is possible to conclude that disclosure assumes a significant weight in SR, since it facilitates comparability between companies, thus affecting their image before stakeholders. Moreover, SR plays a role of relevance and is almost a watchword of contemporary society. For this reason, if managers of organizations (regardless of size) want CSR to have a significant impact on business performance or, on the other hand, want it to be a competitive advantage, they should seek to disclose their CSR practices. However, despite the fact that companies have various means to disclose, whether these are standardized or customized by the organizations, they show poor disclosure (European Commission, 2021).

3. Material and Methods

3.1. Sample Characterization

As found in the literature review, there is an inconsistency of opinions regarding the impact of CSR on business performance, so it is relevant to address this topic. Therefore, the main objective of this study is to analyze the influence of social responsibility practices on financial, operational and market performance in Western European listed companies.

To analyze this influence, it is important to realize that social disclosure is essential for a company to take greater advantage of CSR. However, for some researchers, this disclosure represents a rather high cost, which takes time to obtain a return, and may harm the company's performance in the short term (Nollet et al., 2016). In the literature consulted it was possible to see that to evaluate the performance of companies in terms of SR, ESG scores are mostly used, so in this research, these scores will also be used. However, the GC Score, based on the UN Global Compact, can also be used to quantify the socially responsible activities of companies. In fact, this index is particularly interesting because thanks to UN support, the Global Compact is now the largest SR initiative in the world (Orzes et al., 2020). The GC Score, in turn, provides a normative assessment of companies based on the four core principles of the UN Global Compact, namely human rights, labor rights, the environment, and anti-corruption. Despite the importance attributed to this pact, in the literature

consulted there are still few studies that use this metric to establish a relationship with the corporate performance of companies, so this research fills this gap.

Throughout this section the characterization of the sample will be exposed, as well as the process for obtaining all its data. Subsequently, the dependent and independent variables to be used in the study will be presented. And finally, the hypotheses raised from the literature review will be presented, as well as the respective regression models that will test them.

3.2. Data Collection

Given that Western Europe is made up of 14 major countries (Belgium, Denmark, Spain, Finland, France, Germany, the Netherlands, Ireland, Italy, Norway, Portugal, Sweden, Switzerland and the United Kingdom), and the premise of this research was to collect the 25 most valued companies in each country, the total number of companies to be included in the sample would be 350. However, this sample consists of 216 companies, since it was necessary to disregard those that did not have data on the variables under study and it was also essential to make a statistical correction by eliminating outliers from the final sample, since there were two companies with extremes in the financial performance variables under analysis that were very high or very low.

The time frame used in this research is a five-year period, from 2017 to 2021, inclusive. The choice of this period also implied the disregard of some companies in the sample collected, since some only entered the stock market after 2017. It should be noted that this period was the one that presented the largest number of collected observations, as well as a greater availability of financial and social responsibility data.

The information regarding the ESG Index and GC Score was taken from the Esgbook¹ database provided by Arabesco S-Ray. Esgbook is the global leader in sustainability data and technology, providing transparent and comparable ESG data from over 25,000 companies. It is a trusted data source as it partners with recognized entities such as Global Reporting Initiative (GRI) and European Union Sustainable Finance Disclosure Regulation (EU SFDR). Moreover, the data collection is carried out in a thorough, transparent, and careful manner.

Regarding the financial information of European companies, this was taken from the Finbox² database, considered to be the largest repository of valuation models and risk metrics available on the internet. Note that this data was collected in dollars, since not all countries under analysis have the euro as their transaction currency.

3.3. Variables, Hypotheses and Regression Models

This section will present the dependent and independent variables to be used in the study, as well as the justification for choosing them. Finally, it is explained how the statistical models were developed, as well as their econometric equations.

3.3.1. Dependent Variables

The evaluation of a company's performance is usually carried out by means of financial statements. Therefore, one of the most usual technical analyses to evaluate the company's performance is through the analysis of financial indicators (Kamatra & Kartikaningdyah, 2015).

In the estimated models there are three dependent variables that will measure the operating, financial and market performance of the firms. More specifically, to ascertain the performance in financial terms the variable Return on Equity (ROE) will be used. In operational terms, the variable to be considered will be Return on Assets (ROA). And finally, the Tobin's Q variable will be used to evaluate performance in market terms. These are quite common variables used by several authors

¹ <https://app.esgbook.com/>

² <http://finbox.com/>

when trying to assess the impact of SR on business performance (Alareeni & Hamdan, 2020; Cho et al., 2019; Giannarakis et al., 2016; Kamatra & Kartikaningdyah, 2015; Li et al., 2018; Minutolo et al., 2019; Okafor et al., 2021; Yoo & Managi, 2022).

ROE is a profitability ratio whose purpose is to assess the return on investment provided to the company's capital holders or shareholders (Fernandes et al., 2016). This ratio consists of the division of net income by the company's assets in a period (Alareeni & Hamdan, 2020).

ROA evaluates the performance of capital invested in the company, i.e., this ratio indicates how efficient a company has been in using its assets to generate profit (Alareeni & Hamdan, 2020; Fernandes et al., 2016). It is a widely used variable to evaluate profitability of companies and is obtained by the ratio between net income for the period and total assets (Cho et al., 2019).

Tobin's Q is one of the most usual and complete financial ratios to assess the performance of an entity, especially in the long term, and is therefore used in several studies (Minutolo et al., 2019; Yoo & Managi, 2022). When there is good management of the firm's resources and capabilities, the firm will have higher value added and its assets will have a value greater than their replacement cost (Minutolo et al., 2019). In this research, Tobin's Q is given by the ratio of the firm's market value to its total assets (Li et al., 2018), and this ratio will be presented as a percentage, like the previous ratios. A value greater than 100% means that the company is worth more than its assets, while if the value is less than 100% it means the opposite.

3.3.2. ESG and GC Scores

To quantify the SR of the companies in the sample, we used the ESG scores (taken from the Esgbook database), as they express the socially responsible performance of organizations in a measurement variable. The ESG score includes 22 sustainability-related themes that reformulate the scores of the three main dimensions (social, environmental, and governance), and the final ESG score, which is a reflection of the company's ESG performance, commitment, and effectiveness based on publicly disclosed information. More precisely, the final ESG score, which ranges from 0% to 100%, is obtained through a weighted sum of the scores obtained in each of the dimensions, where the weight varies according to materiality. The scores for each of the dimensions, which also vary between 0% and 100%, are calculated considering only the characteristics within each of the themes.

Regarding GC Score scores, these were also taken from the ESGBook database. These scores provide a normative assessment of companies based on the four core principles of the United Nations Global Compact: human rights, labor rights, environment, and anti-corruption. This compact is considered the world's largest corporate sustainability initiative and calls on companies and stakeholders not only to conduct business responsibly, but also to seek opportunities that promote sustainable development goals (Arabesque S-Ray, 2021). Through the Arabesque S-Ray, these principles are quantified for the first time and like the ESG index, the GC Score is calculated in a detailed and careful manner. The categories and the overall GC Score are scaled between 0% and 100%, where higher scores indicate better performance. Initially, each of the categories has a weight of 25% on the overall GC Score, however, this weight is compounded when the category score starts to fall below 50% (neutral point).

The use of both scores is important for conducting a more comprehensive analysis of the impact of SR on company performance.

3.4. Additional Control Variables

Additional control variables can have an impact on the dependent variable, and for this reason they should be considered when estimating models that assess the impact of SR on firms' performance.

In the academic literature on SR, several authors have used different additional control variables associated with firms, such as size, age, leverage, capital intensity and industry sector (Madorran & Garcia, 2016; Sameer, 2021; Yoo & Managi, 2022).

In this research, the size of the sample firms will be considered as a control variable. In some studies, such as that of Rossi et al. (2021), no relationship could be found between firm performance

and firm size. However, other authors have found that firm size influences the relationship between firm performance and SR, as larger firms tend to spend more financial resources on SR than smaller firms (Kamatra & Kartikaningdyah, 2015; Minutolo et al., 2019). Thus, since this is a variable taken into account to measure firm size, the research of this research used the natural logarithm of total assets, as in other studies (Alareeni & Hamdan, 2020; Gangi et al., 2020; Madorran & Garcia, 2016; Sameer, 2021; Yoo & Managi, 2022).

Following the same logic as research conducted within this topic, another key control variable for this research will be age (Minutolo et al., 2019). Han & Kim (2020) found that the impact of SR on business performance decreases as the firm ages through new values generated from SR. From another perspective, Sun (2021) found that older firms, compared to younger firms, engage in a greater number of socially responsible activities due to the availability of financial resources.

Finally, the sector in which the company operates is another control variable used by several authors. Madorran & Garcia (2016) argue that the relationship between SR and firm performance can be moderated by the sector, and sometimes without this variable some studies have not found conclusive relationships between SR and business performance. In this case, since the research is oriented towards listed companies the following sectors will be considered: Capital Goods, Consumer Goods, Conglomerates, Discretionary Consumer, Cyclical Consumption, Non-Cyclical Consumption, Energy, Finance, Real Estate, Manufacturing, Materials, Basic Materials, Healthcare, Services, Information Technology, Communication, Transportation and Utilities. These sectors are used by the Investing platform³ to classify listed companies.

3.4. Hypotheses

As the main objective of this research is to understand the relationship between SR and the financial, operational and market performance of companies, the following hypotheses were stipulated:

H1: SR has a positive effect on the operational performance of the company, when this is measured by the return on total assets (ROA).

H2: SR has a positive effect on firm's market performance, when this is measured by Tobin's Q.

H3: The SR has a positive effect on the financial performance of the company, when this is measured by the return on equity (ROE).

Of note, there are a high number of studies that find a negative relationship between corporate performance and environmental and social disclosure. Given this statement, through the dimensions of the ESG index, it is also intended to validate the following hypotheses:

H4: Social disclosure negatively affects firms' operating performance when it is measured by ROA.

H5: As the company increases its score in terms of the social dimension of the ESG index, the lower its market performance as measured by Tobin's Q.

H6: There is a negative relationship between social disclosures and ROE.

H7: Environmental disclosure negatively affects firms' operating performance when it is measured by ROA.

H8: As the firm increases its score in terms of the environmental dimension of the ESG index, the lower Tobin's Q (market performance).

H9: There is a negative relationship between environmental disclosures and ROE.

Finally, it was also found that SR practices that take employees' interests into consideration increase the financial performance of companies. Given this statement, the following hypothesis was formulated:

H10: The relationship between SR and financial performance is positive when mediated by practices associated with employees.

3.5. Regression Models

³ <https://pt.investing.com/>

The methodology adopted in this research is associated with the estimation of models for panel data. This is the most suitable model for this research since it relates the temporal and spatial dimension, something that is necessary for this research, given that it uses data from different countries in a time period from 2017 to 2021. According to Battisti & Smolski (2019), the interaction of individual variables (firms) with a time series implies a complex analysis, so the panel data model is the most suitable. This model offers three types of regression: pooled OLS, fixed effects models and random effects models.

To choose the type of regression that fits each of the estimated models, the following were performed: the F-test, in order to identify the best model between the pooled OLS and the fixed-effects model, the Breush-Pagan test, in order to understand whether to opt for the pooled or random-effects OLS, and finally, the Hausman test, to understand which is the best choice between the fixed-effects model or the random-effects model (Battisti & Smolski, 2019).

In order to evaluate the influence of social responsibility on company performance, 10 models were estimated. To facilitate the interpretation of this research and for better understanding in the analysis of results, a number will be assigned to each of the estimated models. It should be noted that, with the exception of models VII, VIII, IX and X, each of the remaining models is composed of three regression equations, where the main objective is to evaluate the relationship of SR with operational, market and financial performance. Therefore, each of the regression equations consists of a different dependent variable associated with business performance - ROA (operational performance), Tobin's Q (market performance) and ROE (financial performance). Models VII, VIII, IX and X are each formed by only two regression equations, one with the dependent variable ROA and the other with ROE. Tobin's Q was not considered in these models for presenting irrelevant results.

It should also be noted that the additional control variables are as follows:

- Firm size - measured by the logarithm of total firm assets (LogSize);
- Sector of activity - creation of eleven dummy variables corresponding to each sector, where the one whose firm fits assumes the value 1, and the value 0 otherwise. The sectors to be considered are: Consumer Goods (Bens_Cons), Discretionary Consumer (Cons_Disc), Energy (Ener), Finance (Finan), Real Estate (Imob), Industry (Indus), Materials (Mat), Health (Saude), Information Technology (Tecnol), Communication (Comuni), and Utilities (Utilid).
- Age - corresponds to the difference between the year of analysis and the year each company in the sample was founded.

The first two models presented aim to assess the influence of the overall ESG Index and GC Score on the operational, market and financial performance of Western European firms. In these equations a direct regression between ESG/GC Score and firm performance is assumed.

$$\text{I. } Business_performance_RD_{i,t} = \beta_{0\Box} + \beta_{1\Box}(ESG_{i,t}) + \beta_{2\Box}(LogSize_{i,t}) + \beta_{3\Box}(Age_{i,t}) + \sum \beta_{4\Box}(Sector_{i,t}) + \mu_{i,t}$$

$$\text{II. } Business_performance_RD_{i,t} = \beta_{0\Box} + \beta_{1\Box}(GCscore_{i,t}) + \beta_{2\Box}(LogSize_{i,t}) + \beta_{3\Box}(Age_{i,t}) + \sum \beta_{4\Box}(Sector_{i,t}) + \mu_{i,t}$$

Model III intends to ascertain the impact of high and low ESG scores on firms' performance. To this end, dummy variables were created by means of ESG scores. More specifically, the model contains two dummy variables that classify the ESG score each firm obtains into better (score above the 3rd quartile) and worse (score below the 1st quartile). Thus it is assumed that the scores between the 1st and 3rd quartile will be the dummy variable omitted in this model. In terms of the interpretation of these variables, it is possible to point out that when the company assumes values above the 3rd quartile in the overall ESG scores, the Best_ESG variable assumes value 1, and zero otherwise. On the other hand, the Worst_ESG variable takes value 1 when the company obtains values below the 1st quartile of the ESG scores, and 0 otherwise.

$$\text{III. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(Best_ESG_{i,t}) + \beta_{2\Box}(Worst_ESG_{i,t}) + \beta_{3\Box}(LogSize_{i,t}) + \beta_{4\Box}(Age_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

Model IV, follows the same reasoning as the previous model, but in this case for GC Score, replacing the dummy variables Best_ESG and Worst_ESG with the variables Best_GC and Worst_GC.

$$\text{IV. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(Best_GCscore_{i,t}) + \beta_{2\Box}(Worst_GCscore_{i,t}) + \beta_{3\Box}(LogSize_{i,t}) + \beta_{4\Box}(Age_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

In order to assess the impact that each ESG dimension (environmental, social and government) has on company performance, model V was estimated, where the environmental (Amb), social (Social) and government (Gov) dimensions are dummy variables. Thus, the same logic as the previous two models was adopted, but this time for each of these dimensions. The main advantage of these models is associated with the fact that they identify the relationship that different SR activities establish with company performance.

$$\text{V. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(Best_Amb_{i,t}) + \beta_{2\Box}(Worst_Amb_{i,t}) + \beta_{3\Box}(Best_Social_{i,t}) + \beta_{4\Box}(Worst_Social_{i,t}) + \beta_{5\Box}(Best_Gov_{i,t}) + \beta_{6\Box}(Worst_Gov_{i,t}) + \beta_{7\Box}(LogSize_{i,t}) + \beta_{8\Box}(Age_{i,t}) + \sum \beta_{9\Box}(Sector_{i,t}) + \mu_{i,t}$$

Model VI assesses the relationship that each of the dimensions of GC Score - anticorruption (AC), human rights (HR) environment (ENV) and labor law (LR) - has with operational, market and financial performance. The reasoning of this model is identical to that of models I and II, where a direct relationship is established between GC Score dimensions and business performance.

$$\text{VI. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(AC_{i,t}) + \beta_{2\Box}(HR_{i,t}) + \beta_{3\Box}(ENV_{i,t}) + \beta_{4\Box}(LR_{i,t}) + \beta_{5\Box}(LogSize_{i,t}) + \beta_{6\Box}(Age_{i,t}) + \sum \beta_{7\Box}(Sector_{i,t}) + \mu_{i,t}$$

Finally, we also intend to evaluate how the additional control variables - size and age - influence the relationship that the ESG and GC Score establish with company performance. In this sense, 4 models were estimated, where there is an interaction between the variables indicated above and the SR indexes (ESG and GC Score).

$$\text{VII. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(ESG_{i,t}) + \beta_{2\Box}(Age_{i,t}) + \beta_{3\Box}(ESG * Age_{i,t}) + \beta_{4\Box}(LogSize_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

$$\text{VIII. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(ESG_{i,t}) + \beta_{2\Box}(Age_{i,t}) + \beta_{3\Box}(GCscore * Age_{i,t}) + \beta_{4\Box}(LogSize_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

$$\text{IX. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(ESG_{i,t}) + \beta_{2\Box}(ESG * LogSize_{i,t}) + \beta_{3\Box}(LogSize_{i,t}) + \beta_{4\Box}(Age_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

$$\text{X. } Business_performance_{i,t} = \beta_{0\Box} + \beta_{1\Box}(ESG_{i,t}) + \beta_{2\Box}(GCscore * LogSize_{i,t}) + \beta_{3\Box}(LogSize_{i,t}) + \beta_{4\Box}(Age_{i,t}) + \sum \beta_{5\Box}(Sector_{i,t}) + \mu_{i,t}$$

4. Results

This chapter will analyze the results obtained in the estimated empirical models, comparing them with the results of other studies. The models in question were all estimated in the "R" software. It should also be noted that, in this research, due to the fact that regression models with panel data are used, all the models in the study were estimated in the form of pooled OLS, random effects and fixed effects, in order to understand which one was appropriate. After this estimation, the models were subjected to three tests: F-test, Breush-Pagan test, and Haussman test. Each one of these tests

identifies the fixed-effects, random-effects, or pooled OLS model that best fits the case under study. More precisely, the F-test allows us to understand which is the best model between the fixed effects model and the pooled OLS model; the Breush-Pagan test provides evidence to choose between the pooled OLS and the random effects model; and finally, the Haussman test identifies whether it would be more correct to use the fixed effects model or the random effects model. To emphasize that in all models, the additional control variables were the same, that is, size (logarithm of assets), sector, and age. The country was also to be used as a control variable, however, with the insertion of this variable in the models, it was found to be non-significant, so it was not considered in the estimated models.

Finally, it should be noted that in certain models there will be a distinction between the best and worst overall ESG and GC Score, as well as the dimensions of the ESG index. This distinction will be made using an adjusted relative frequency plot. First, a score scale ranging from 0% to 100% is presented, with amplitude classes of 5%. Subsequently, the worst scores are considered to be those below the 1st quartile and the best scores will be those above the 3rd quartile (note that the score is rounded to the nearest class and subject to change in order to improve model results).

4.1. F-Test, Breush-Pagan and Haussman

Table 1. Results of Test F, Breush-Pagan and Haussman.

	Dependent variable	P-value		
		F-Test	Breush-Pagan	Haussman
Model I (ESG - Direct relation)	ROA	1,227e-13	1,909e-09	1,201e-09
	Tobin's Q	< 2,2e-16	< 2,2e-16	4,614e-12
	ROE	< 2,2e-16	< 2,2e-16	0,0006502
Model II (GC Score - Direct relation)	ROA	1,248e-14	6,599e-10	7,13e-11
	Tobin's Q	< 2,2e-16	< 2,2e-16	8,934e-09
	ROE	< 2,2e-16	< 2,2e-16	1,418e-07
Model III (Best and Worst ESG)	ROA	1,175e-12	1,025e-09	3,548e-07
	Tobin's Q	< 2,2e-16	< 2,2e-16	< 2,2e-16
	ROE	< 2,2e-16	< 2,2e-16	0,001576
Model IV (Best and Worst GC Score)	ROA	1,382e-13	3,294e-10	< 2,2e-16
	Tobin's Q	< 2,2e-16	< 2,2e-16	1,504e-09
	ROE	< 2,2e-16	< 2,2e-16	5,01e-08
Model V (ESG Dimensions)	ROA	3,547e-15	6.136e-10	3,086e-10
	Tobin's Q	< 2,2e-16	< 2,2e-16	1,591e-08
	ROE	< 2,2e-16	< 2,2e-16	2,42e-07
Model VI (Dimensions GC Score)	ROA	1,483e-13	2,473e-08	1,815e-10
	Tobin's Q	< 2,2e-16	< 2,2e-16	2,67e-05
	ROE	< 2,2e-16	< 2,2e-16	3,239e-07
Model VII (ESG: Age)	ROA	6,785e-15	4,373e-10	1,658e-10
	ROE	< 2,2e-16	< 2,2e-16	0,0001224
Model VIII (GC Score: Age)	ROA	< 2,2e-16	1e-10	< 2,2e-16
	ROE	< 2,2e-16	< 2,2e-16	3,999e-08
Model IX (ESG: Size)	ROA	< 2,2e-16	1,06e-10	< 2,2e-16
	ROE	< 2,2e-16	< 2,2e-16	2,629e-13

Model X (GC Score: Size)	ROA	< 2,2e-16	2,132e-07	< 2,2e-16
	ROE	< 2,2e-16	< 2,2e-16	< 2,2e-16

4.2. Discussion

Model I contains three econometric regressions that aim to analyze the existence of a direct relationship between the dependent variables (ROA, Tobin’s Q and ROE) and the ESG index. The results are presented in Table 2.

Regarding model I, it can be seen that when the dependent variable is ROA, the ESG variable (which represents the ESG scores obtained by firms), Log(Size) and Age are statically significant at least at the 0.1% level. This means that, these variables influence the operating performance of European firms. However, at the sector level, it can be seen that the energy, financial and utilities sectors are relevant in this regression, with the financial and energy sectors being statistically significant at least at the 10% level, and the utilities sector at least at the 5% level.

Through the results, it can be seen that the additional control variables exhibit diverse relationships with ROA. That is, while age and the energy, financial and utilities sectors exhibit a positive relationship with operating performance, Log(Size), in turn, presents a contrary relationship with this economic-financial ratio. As far as the ESG variable is concerned, it shows an estimated negative impact on the operating performance of European firms. More precisely, when the ESG variable varies by one percentage point, the operating performance of firms decreases by about 0.53 p.p., ceteris paribus. With this conclusion, there is therefore evidence to reject hypothesis 1 which assumed a positive relationship between SR and ROA.

Table 2. Model I Results.

Model I					
Dependent Variable	ROA		Tobin’s Q		ROE
(Intercept)	56,2975		-103,4017		93,0034 *
	(35,3371)		(123,7120)		(47,3294)
ESG	-0,5299	***	1,1806	**	-0,2873
	(0,1350)		(0,4324)		(0,2030)
Log(Size)	-13,4628	***	-32,5093	***	-11,7498 **
	(2,6385)		(8,4492)		(3,9672)
Age	1,1830	***	4,8626	***	0,5528
	(0,3497)		(1,1197)		(0,5258)
Communications	44,8211		192,5739		16,8540
	(30,5089)		(123,1635)		(28,1524)
Discretionary	17,2841		102,6174		3,6217
Consumer	(23,8628)		(101,5504)		(15,6232)
Energy	54,5738	.	186,0681		23,7354
	(29,1450)		(117,0898)		(27,4659)
Financial	37,6405	.	54,3678		26,7183
	(21,2958)		(88,6440)		(16,6518)
Real Estate	80,2708		313,8690		30,2296
	(49,7251)		(200,8820)		(45,7377)
Industry	17,9122		96,2197		5,5788

	(21,7734)	(92,1816)	(14,9592)
Materials	17,1674	96,5854	5,3366
	(22,9546)	(97,6384)	(15,0999)
Health	17,9273	268,5160	** 17,1204
	(24,1098)	(103,2770)	(14,7214)
Technology	47,7049	313,6768	* 5,1306
	(31,0373)	(123,5408)	(30,3666)
Utilities	64,7885	* 202,8814	34,7373
	(31,2897)	(124,1920)	(30,9466)
Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.			
Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1			

Contrarily, in the literature review, Kamatra & Kartikaningdyah (2015) and Cheng et al. (2015) identified a positive relationship between SR and operational and financial performance. Rossi et al. (2021), who also focused their study on European firms using the ESG index to measure SR, found a positive relationship between ESG and ROA ratio, thus contrasting the relationship identified in this study. However, these authors used companies from the major European economies (France, Spain, Germany and Italy) with quite large results and excluded companies from the financial sector. On the contrary, the sample of this research included listed firms from smaller countries, such as Portugal or Ireland, as well as firms belonging to other large economies, such as the United Kingdom. These differences may be the cause of the contrast between these two studies. In short, one of the possible justifications for this contrast in results may be associated with the fact that the companies in the sample adopt socially responsible behaviors to have a positive impact on stakeholders, not giving so much importance to the relationship that SR establishes with business performance, something already argued by Wuttichindanon (2017).

However, it should be noted that the results of the first regression equation of model I support several studies that have also resulted in confirming the existence of a negative and significant association between operational performance and SR practices (Buallay, 2019; Hirigoyen & Poulain-Rehm, 2015; Oh & Park, 2015, referenced by Guzman et al., 2016). An interesting fact of Buallay's (2019) study, is that this author also used a sample of companies from different European economies (considering smaller countries) and identified an inverse relationship between SR and ROA. This inverse relationship could be justified for several reasons. While Buallay (2019) justifies the use of SR for managers' own benefit as one of the reasons, Oh & Park, 2015, referenced by Guzman et al., 2016, point out that the costs of SR are very high. Despite this negative relationship, Western European companies will most likely continue with a SR policy, due to the high pressure they feel from society (Dobrea & Găman, 2011).

Regarding the second regression equation of the first model, highlight that the independent variable ESG is statistically significant at least at the 1% level and the additional control variables age and Log(Size) are statistically significant at least at the 0.1% level. On the other hand, the health and technology sectors are relevant for assessing market performance since both sectors are statistically significant at least at the 1% and 5% level, respectively.

It should be noted that the additional control variables show a positive relationship with Tobin's Q, with the exception of the Log(Size) variable which shows a negative relationship. Regarding the ESG variable, it is possible to see a positive estimated impact between this variable and market performance. That is, when ESG increases 1 p.p., market performance increases 1.18 p.p., ceteris paribus. Given this observation, it is possible to accept hypothesis 2 raised earlier.

This positive relationship identified in this study is contrary to that identified by some authors in the literature. Specifically, Bannier et al. (2019) identified no relationship between market

performance and ESG, while Hirigoyen & Poulain-Rehm (2015) found a negative relationship between SR and market performance.

However, the identification of a positive relationship between SR and market performance is not unprecedented in the literature, with other authors having identified the same relationship (Cho et al., 2019; Giannarakis et al., 2016; Li et al., 2018; Okafor et al., 2021; Tarmuji et al., 2016; Yoo & Managi, 2022). The justification given by most authors for the existence of this positive relationship with the market is essentially related to the responsible image that companies convey to stakeholders, especially to investors, whose investments are influenced by ESG scores. Since SR is increasingly present in investors’ lives, a socially responsible company performs better through reputation and investor trust, which consequently increases its market value, and naturally the Tobin’s Q ratio (Tarmuji et al., 2016). From another perspective, this positive relationship between this ratio and ESG scores can also be justified by the view presented by Yoo & Managi (2022). That is, the companies in this sample that show a high value in this ratio have a higher market value and greater financial capacity, so they adopt a greater number of socially responsible actions, thus increasing their ESG scores.

Contrary to the previous ones, the last regression equation of model I is not very relevant in explaining the relationship between social responsibility and financial performance, since ROE is not significant at the reasonable confidence level. Therefore, it is not possible to accept or reject hypothesis 3. In fact, the only variable in this equation that is statistically significant at the 1% level is Log(Size), which shows a negative relationship with ROE. This finding is in line with findings from several other studies that also found no relationship between SR and ROE (Crisóstomo et al., 2011; Hirigoyen & Poulain-Rehm, 2015; Kamatra & Kartikaningdyah, 2015; Madorran & Garcia, 2016; Nollet et al., 2016). The absence of this relationship between SR and ROE in Western European companies may be associated with the fact that these companies use SR as a strategy to create additional value for the product, without the intention that this will influence financial performance, a view advocated in the study by Nollet et al. (2016).

Model II (whose results are presented in Table 3) was developed with three regression equations to assess the relationship between GC Score and financial, market, and operational performance. Highlight that this social responsibility index is obtained not only in a distinct way from the ESG but is also composed of other dimensions (anti-corruption, environment, human right, and labor right). In short, highlight that this index is associated with a normative basis, namely the UN Global Compact.

Table 3. Model II Results.

Model II					
Dependent Variable	ROA		Tobin's Q		ROE
(Intercept)	56,8859		-5,8142		120,3114
	(34,3362)		(122,7539)		(46,1045)
GC Score	-0,7196	***	-0,0176		-0,8324
	(0,1532)		(0,4945)		(0,2297)
Log(Size)	-11,6192	***	-35,6977	***	-10,4995
	(2,6045)		(8,4088)		(3,9058)
Age	1,1238	**	4,8936	***	0,4933
	(0,3484)		(1,1249)		(0,5225)
Communications	43,3004		191,2110		14,7331
	(29,3922)		(123,5256)		(27,5662)
Discretionary	15,8444		100,1998		1,3061
Consumer	(22,7509)		(101,8279)		(14,9408)

Energy	51,0736	187,7025	20,1558
	(28,1060)	(117,4431)	(26,9262)
Financial	34,2836	57,5069	23,7142
	(20,3934)	(88,8881)	(16,1479)
Real Estate	78,4026	306,4406	26,0538
	(47,8989)	(201,4727)	(44,7793)
Industry	16,9344	97,2770	4,7428
	(20,7772)	(92,4257)	(14,3564)
Materials	17,7729	99,0612	6,7087
	(21,8841)	(97,8979)	(14,4361)
Health	19,1379	266,2908	17,9055
	(22,9480)	(103,5421)	(13,9519)
Technology	47,0158	311,7208	3,8044
	(29,9769)	(123,9079)	(29,8080)
Utilities	62,1481	207,1666	32,8701
	(30,2316)	(124,5512)	(30,3809)

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Source: Own elaboration.

With regard to the results of model II, it can be seen that in the first regression equation, GC Score and Log(Size) are statistically significant at the 0.1% level. The control variable age, on the other hand, is statistically significant at least at the 1% level, while the energy and financial sectors are at the 10% level. It should be noted that the utilities sector is statistically significant at least at the 5% level. Regarding the relationship that these variables establish with operational performance, it can be seen that the control ones have an estimated positive impact on ROA, with the exception of Log(Size) which is negatively related. Although GC Score scores assess other aspects of social responsibility that the ESG index does not assess (such as human rights, labor law, and anti-corruption), it is still possible to see that it causes a decrease in asset efficiency, i.e., a decrease in operating performance. That is, an increase of 1 p.p. in this index implies a decrease of 0.71 p.p. in ROA, ceteris paribus. Given this scenario, this observation further reinforces the rejection of hypothesis 1.

Unlike model I, the regression equation of model II, which evaluates the impact of the GC Score on market performance, does not present results with great relevance, and thus it is not possible to accept or reject hypothesis 2. It was only verified that the additional control variables Log(Size), age and health, technology and utilities sectors are shown to have sufficient significance to influence Tobin's Q. Thus, it can be concluded that market performance is not influenced by GC Score, contrary to the view of Cetindamar & Husoy (2007) who argue for a strong and positive influence on market performance by the UN Global Compact. The lack of monitoring and auditing in this SR measure may be factors that justify the lack of a relationship between GC Score and market performance.

Finally, the last regression equation in model II assesses the impact of GC Score on financial performance. Unlike what was found in model I, in this case this independent variable is statistically significant at least at the 0.1% level. Log(Size) on the other hand is statistically significant at least at the 1% level. Both the Log(Size) variable and GC Score show a negative relationship with ROE. More precisely, for an increase of 1 p.p. in the

GC Score corresponds to a decrease of 0.83 p.p. in ROE, ceteris paribus. Given these results, it is possible to reject hypothesis 3, which assumed a positive relationship between SR and financial

performance. This identified relationship between this index and market performance, contradicts the view of Alareeni & Hamdan (2020) and Li et al. (2018) who found a positive relationship between ROE and SR. Moreover, it also contradicts the view of authors who advocate a neutral relationship between these variables (Crisóstomo et al., 2011; Madorran & Garcia, 2016).

In fact, it is possible to conclude that GC Score negatively influences both operational and financial performance and shows no influence on market performance. This is an important contribution, since in the literature consulted it was only mentioned that the participation of companies in the UNGC has a positive influence on profit, sales volume, reputation, employee satisfaction and customer satisfaction (Erro & Sánchez, 2012; Orzes et al., 2018; Orzes et al., 2020). To further highlight that the fact that companies’ participation in the UNGC entails lower costs compared to other SR standards (Orzes et al., 2020), this benefit is ultimately not enough to change the relationship that GC Score has with business performance.

In short, when relating the results of the estimates of Models I and II, there seems to be evidence that companies implement SR strategies through the GC Score dimensions (estimates are significant and higher in ROA and ROE), although investors (market) place greater value on social responsibility (SR) activities developed in the ESG dimensions. This can be a sign of how management should converge to stakeholder expectations.

Model III was developed to ascertain what impact high and low ESG index scores have on firms’ financial, market, and operational performance.

More precisely, two dummy variables were defined for the overall ESG scores. The Best ESG dummy variable takes value 1 when the firms in the sample score above 65% in the ESG scores (3rd quartile) and otherwise take value zero. As for the dummy variable Worst ESG, it takes value 1 when the firm obtains values below 50% in the overall ESG scores (1st quartile) and value zero otherwise.

Regarding the results of model III, they are presented in Table 4.

Table 4. Model III Results.

Model III					
Dependent Variable	ROA		Tobin's Q		ROE
(Intercept)	25,0044		-66,5434		76,7376
	(33,34985)		(122,8678)		(44,7015)
Best_ESG	-5,7393	**	22,6582	***	-5,1803
	(1,89531)		(6,0195)		(2,8353)
Worst_ESG	-0,4733		-6,5320		-2,9372
	(1,71387)		(5,4432)		(2,5638)
Log(Size)	-12,3277	***	-33,562	***	-10,9562
	(2,63349)		(8,3640)		(3,9395)
Age	1,0803	**	5,2850	***	0,4778
	(0,35243)		(1,1193)		(0,5272)
Communications	41,1374		210,8077		14,1171
	(28,8695)		(130,8880)		(27,5870)
Discretionary	17,2856		106,9201		3,9855
Consumer	(22,1145)		(108,9587)		(14,7081)
Energy	50,2262		203,595		20,5873
	(27,61321)		(124,284)		(26,9245)
Financial	35,7212		58,7898		25,2937
	(19,8974)		(94,7027)		(16,0125)
Real Estate	76,4221		341,2388		27,5276

	(47,0500)	(213,531)		(44,8298)
Industry	16,7181	101,1738		4,9925
	(20,2151)	(98,8043)		(14,1688)
Materials	15,1692	103,0750		4,0705
	(21,2701)	(104,7382)		(14,2030)
Health	17,6293	272,5094	*	16,8176
	(22,2802)	(110,9341)		(13,6828)
Technology	43,6404	334,734	*	2,2064
	(29,5252)	(130,9392)		(29,8984)
Utilities	58,6815	224,7551	.	30,2457
	(29,7660)	(131,4879)		(30,4279)

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Source: Own elaboration.

As can be seen from the results obtained in the first equation of model III, the variable Best ESG and age are statistically significant at least at the 1% level. On the other hand, the variable Log(Size) and the utilities sector are statistically significant at least at the 0.1% and 5% level, respectively. The energy and financial sectors are statistically significant at least at the 10% level. This means that all these variables mentioned have an influence on ROA. It should be noted that the dummy variable Worst ESG has no statistical relevance in this regression equation. In terms of interpreting the results of the variables, it can be seen that all the additionally significant control variables relate positively to ROA, with the exception of Log(Size) whose relationship is negative. As for the Better ESG variable, it can be seen that operating performance worsens when firms score higher than 65% on the ESG index. That is, when the Better ESG dummy variable assumes value 1, ROA decreases by 5.74 p.p., ceteris paribus. Therefore, it can be concluded that European firms that want to achieve high levels of operational performance should pay attention to high ESG index scores, as there are indications that these may impair operational performance. In the direct relationship between ESG scores and ROA this inverse relationship had already been found, but it was more pronounced for high scores.

The results of the second regression equation show that the variables Best ESG, Log(Size) and age are statistically significant at least at the 0.1% level, while the healthcare and technology sectors are statistically significant at least at the 5% level. The utilities sector is only statistically significant at the 10% level. In this case, contrary to the results of the first equation, the Improved ESG variable exhibits a positive relationship with market performance. More precisely, when firms score above 65% in ESG, the Tobin’s Q ratio increases by 22.66 p.p. Given this conjuncture, firms in the sample that want to increase their market performance should target their efforts towards achieving better ESG scores, because in addition to the direct positive relationship between these scores and market performance, it was also found that high scores promote considerably higher performance.

Finally, with the results of the last equation of model III, we find that only the control variable Log(Size) is statistically significant at the 1% level. This means that neither scores above 65% on the ESG index nor scores below 50% are able to influence the financial performance of the sample firms. This is a natural conclusion since it has been previously observed that there is no direct relationship between ROE and ESG scores.

Model IV follows the same logic as the previous one, except that in this case, instead of defining the scale of better and worse scores with the ESG index, the GC Score was used.

In the case of GC Score, two dummy variables were also created to distinguish the best and worst scores. The Best GC Score takes value 1 when the scores of the companies are above 65% (class closest to the 3rd quartile), and 0 otherwise. On the other hand, the Worst GC Score variable takes value 1

when the scores obtained by the companies in the sample are below 55% (class closest to the 1st quartile), and 0 otherwise.

For this SR index, as already mentioned, three regression equations were estimated, each with a different business performance variable - ROA, Tobin's Q and ROE - whose results are presented in Table 5. The goal will be to understand how corporate reputation in terms of SR affects business performance.

Table 5. Model IV Results.

Model IV					
Dependent Variable	ROA		Tobin's Q		ROE
(Intercept)	3,8663		-2,1107		66,4196
	(34,4270)		(119,0767)		(44,7225)
Best GC Score	0,4451		-1,3233		-0,4770
	(1,5578)		(5,0044)		(2,3406)
Worst GC Score	7,2915		-2,1455		3,4487
	(1,9793)	***	(6,3586)		(2,9740)
Log(Size)	-12,1180		-35,5193		-10,9212
	(2,6255)	***	(8,4346)	***	(3,9450)
Age	1,2656		4,8293		0,5697
	(0,3543)	***	(1,1381)	***	(0,5323)
Communications	49,7051		188,4286		18,2994
	(32,1458)		(122,6607)		(28,5039)
Discretionary	19,0447		99,3828		4,1404
Consumer	(25,4357)		(100,8033)		(15,8543)
Energy	57,2090		185,2191		24,0350
	(30,6705)	.	(116,6294)		(27,7882)
Financial	36,5225		56,7872		25,7014
	(22,5694)		(88,0632)		(16,8215)
Real Estate	90,1731		301,6760		33,4438
	(52,4263)	.	(200,1212)		(46,3743)
Industry	18,8419		96,3730		5,6962
	(23,1753)		(91,5160)		(15,1535)
Materials	17,3749		98,5617		5,3159
	(24,4520)		(96,8892)		(15,2759)
Health	20,5583		265,4292		18,2167
	(25,7370)		(102,4756)	**	(14,9465)
Technology	52,9572		308,8540		6,7446
	(32,5912)		(123,1097)	*	(30,7010)
Utilities	67,9621		203,9237		35,0911
	(32,8488)	*	(123,8143)	.	(31,3146)

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Source: Own elaboration.

As can be seen, the results of model IV are not very interesting, even though they have been subjected to several adjustments. In fact, we find that the variables Best GC Score and Worst GC Score do not influence the market and financial performance of the sample companies, since at no time do these variables assume statistical significance. In the case of Tobin's Q, this was an expected result given that a direct relationship between market performance and GC Score was not previously identified. The same cannot be said for ROE since this variable was previously negatively related to GC Score at a reasonable significance level.

In both the equation containing Tobin's Q as dependent variable and that for ROE, only the additional control variables show some statistical significance. More precisely, in the second equation the variables Log(Size) and age are statistically significant at least at the 0.1% level, the health, technology and utilities sectors are statistically significant at least at the 1%, 5% and 10% level, respectively. With the exception of Log(Size), all other variables establish a positive relationship with Tobin's Q. In the third regression equation, only the Log(Size) variable is statistically significant at the 1% level and establishes a negative relationship with ROE.

In the case of the first equation that contains ROA as the dependent variable, the scenario is already different. In this case, the independent variable Worst GC Score is statistically significant at the 0.1% level, which means that there is evidence that this variable affects operating performance. A curious fact is that low or reasonable scores lead to better operational performance. That is, when the dummy variable Worst GC Score takes value 1, operational performance increases by 7.29 p.p., ceteris paribus. Again, there is here a reinforcement of the theory that focusing on the UN Global Compact standards does not appear to be the best means for companies to improve their operational performance. This is because, in addition to previously being able to see an inverse relationship between ROA and GC Score, from model IV it was also found that scores below 55% can be beneficial for operational performance. It should also be noted that in the results of the first regression equation of model IV, the additional control variables Log(Size) and age are statistically significant at the 0.1% level, while the energy and real estate sectors are statistically significant at least at the 10% level. The utilities sector is statistically significant at least at the 5% level. Regarding the relationship that these variables establish with ROA, it can be seen that, with the exception of Log(Size), all the remaining statistically significant additional control variables show a positive relationship with operating performance.

Model V was estimated to assess the impact of obtaining better and worse scores in the dimensions of the ESG index on the financial, market and operational performance of the sample companies.

- In this case, the division between high and low scores was done as follows:
- In the Environment dimension, a score less than 60% (1st quartile) is considered worse and a score greater than 70% (3rd quartile) is considered better.
 - In the Social dimension, a score lower than 55% (1st quartile) is considered worse and a score higher than 65% (3rd quartile) is considered better.
 - In the Government dimension, a score lower than 35% (1st quartile) is considered worse and a score higher than 70% is considered better (in this variable the third quartile value was 60%, however, considering the 70% score the model results improved).

The results for model V are shown in Table 6.

Table 6. Model V Results.

Model V				
Dependent Variable	ROA	Tobin's Q	ROE	
(Intercept)	29,5092 (32,5665)	-35,2489 (122,4913)	86,7199 (43,8887)	*
Best_Environment	-3,6120 (1,4997)	-0,6819 (4,9058)	-4,2768 (2,2632)	.

Worst_Environment	3,0032 (2,9903)		-1,4427 (9,7817)		3,7655 (4,5127)	
Better_Social	-2,6692 (1,4636)		9,1955 (4,7877)		-3,9701 (2,2087)	
Worst_Social	6,1457 (1,8850)	**	-0,9112 (6,1662)		7,0753 (2,8447)	*
Best_Gov	-17,4477 (3,1922)	***	20,7269 (10,4422)	*	-18,8991 (4,8174)	***
Worst_Gov	0,9573 (1,6601)		-0,4373 (5,4304)		-3,0144 (2,5052)	
Log(Size)	-12,4470 (2,6037)	***	-35,9577 (8,5172)	***	-10,5080 (3,9293)	**
Age	1,0535 (0,3504)	**	5,1783 (1,1463)	***	0,3444 (0,5288)	
Communications	39,7902 (28,3032)		205,6374 (129,6002)		7,2476 (26,9023)	
Discretionary Consumer	16,0625 (21,5687)		105,2927 (107,3261)		0,6927 (13,5685)	
Energy	48,0983 (27,0830)		202,0661 (123,1227)		12,9912 (26,3080)	
Financial	34,5453 (19,4537)		63,3500 (93,4842)		21,5027 (15,3054)	
Real Estate	71,4941 (46,1318)		331,5835 (211,4327)		12,9895 (43,7223)	
Industry	15,6735 (19,7222)		102,1911 (97,3593)		2,0129 (13,2026)	
Materials	14,8529 (20,7221)		102,7696 (103,1209)		2,3053 (13,0280)	
Health	17,1280 (21,6989)		270,8265 (109,1727)	*	15,1703 (12,3086)	
Technology	42,4794 (28,9280)		326,3588 (129,7203)	*	-4,6753 (29,1926)	
Utilities	57,9886 (29,2484)	*	222,3987 (130,4869)		23,6051 (29,9109)	

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Source: Own elaboration.

From the results of the first regression equation of model V, it is possible to observe that the best scores in the Environment, Social and Government dimensions, as well as the worst score in the Social dimension, influence the operational performance of Western European companies. This is because the variables Better_Gov, Better_Environment and Better_Social are statistically significant at least at the 0.1%, 5% and 10% level, respectively. The variable Worst_Social is statistically significant at least

at the 1% level. Regarding the additional control variables, it can be seen that Log(Size), age and the utilities sector are statistically significant at least at the 0.1%, 1% and 5% level, respectively. The energy and financial sectors are also statistically significant, but this time at the 10% level.

In terms of the interpretation of the variables, high scores in the Environment dimension impair the operational performance of the companies in the sample, thus confirming hypothesis 7 raised earlier. More precisely, scores above 70% in this dimension decrease the ROA ratio by about 3.61 p.p., *ceteris paribus*.

Regarding the Social dimension, the relationship between the variable Better_Social and the operational performance is identical since scores higher than 65% imply a 2.66 p.p. decrease in ROA. This finding thus confirms hypothesis 4, which argues for a negative relationship between social practices and operational performance. Interestingly, scores below 55% positively influence operational performance, i.e., if the Worst_Social variable assumes value 1, the ROA ratio increases about 6.15 p.p., *ceteris paribus*.

As far as the Government dimension is concerned, scores above 70% significantly harm the operational performance of European companies. That is, when the Better_Gov variable takes value 1, the ROA ratio decreases by 17.44 p.p., *ceteris paribus*. Finally, it should be noted that the additional control variables are positively related to ROA, with the exception of the Log(Size) variable, which shows an inverse relationship.

Through the results of the second regression equation it is possible to conclude that of the independent variables, only the Best_Social and the Best_Gov have an influence on the market performance of the sample companies, since both variables are statistically significant at least at the 10% and 5% level, respectively. The additional control variables Log(Size) and age show statistical significance at least at the 0.1% level, while the healthcare and technology sectors are statistically significant at the 5% level. Finally, the utilities sector is statistically significant at least at the 10% level. It should be noted that in this equation the variables associated with the environmental dimension do not present any significance, so that a relationship between environmental practices and Tobin's Q was not identified, thus it is not possible to validate hypothesis 8.

Interestingly, the relationship that the Better_Gov and Better_Social variables establish with market performance is contrary to the relationship established by these variables with operational performance. That is, in the results of the second equation it is possible to see that if scores higher than 65% in the Social dimension, the Tobin's Q ratio increases 9.20 p.p., *ceteris paribus*. Scores above 70% in the Government dimension imply an increase of about 20.73 p.p. in the Tobin's Q ratio, *ceteris paribus*. Given these results, hypothesis 5 is rejected since it advocated an inverse relationship between social practices and market performance. As for the additional control variables, all are positively related to the dependent variable, with the exception of Log(Size), which shows an opposite relationship.

Regarding the last regression equation of model V, which contains ROE as the dependent variable, it presents two statistically significant variables at least at the 10% level (Better_Environment and Better_Social), one statistically significant variable at least at 5% (Worse_Social) and another variable at 0.1% (Better_Gov). Note that of the additional control variables used, only Log(Size) is statistically significant at the reasonable level (1%), and as has been usual in previous models, this variable is negatively related to ROE.

From the results of the last regression equation of the model presented above, several conclusions can be drawn. First, an inverse relationship was observed between the independent variables Better_Environment, Better_Social and Better_Gov and the dependent variable ROE. More precisely, scores higher than 70% in the environment dimension result in a decrease of about 4.28 p.p. in financial performance, *ceteris paribus*. In the case of the Social dimension, a score higher than 55% implies a decrease of 3.97 p.p. in the ROE variable, *ceteris paribus*. The Government dimension is the one where the inverse relation is more accentuated, that is, when scores in this dimension are higher than 70%, ROE decreases 18.90 p.p., *ceteris paribus*. It should also be noted that the Worst_Social variable is positively related to ROE. This means that scores below 55% in the Social dimension imply a 7.08 p.p. increase in financial performance, *ceteris paribus*. Through these results, both hypothesis

6 and 9, which argued for a negative relationship of social and environmental practices with ROE, are accepted.

As it was possible to see from the results presented above, obtaining high scores on the environment dimension hurts the operational and financial performance of Western European companies. In congruence with the results of this research, Alareeni & Hamdan (2020), Elouidani & Zoubir (2015), Faria (2018), Makni et al. (2009), Riyadh et al. (2019) and Sameer (2021) also identified an inverse relationship between environmental practices and operational and financial performance. In fact, it can be seen that this is a very recurrent conclusion in the literature, being justified by the high costs associated with these practices, whose benefits in business performance are only reflected in the long term and from a certain level of investment (Arsić et al., 2017; Elouidani & Zoubir, 2015; Madueño et al., 2016; Nollet et al., 2016). On the other hand, it should be noted that the positive relationship between the Environmental dimension of SR and business performance is also advocated in the literature (Alareeni & Hamdan, 2020; Buallay, 2019; Kamatra & Kartikaningdyah, 2015; Pham et al., 2022). To highlight the study by Alareeni & Hamdan (2020) that verified both interactions, that is, first, like in this research, the authors observed an inverse relationship between environmental practices and operational and financial performance. However, these authors also found a positive relationship between these practices and market performance, thus contradicting the absence of a relationship identified in this research between these variables.

With regard to the social dimension, through the results of model V, it was possible to verify the existence of two relationships, i.e., a negative relationship between social practices and operational and financial performance, as well as a positive relationship with these same practices and market performance. In fact, both Makni et al. (2009) and Li et al. (2018) had previously verified in their studies quite identical results. In short, in the literature, there are several authors who defend the view that social practices harm the performance of companies, claiming the high costs associated with these activities, which ultimately outweigh their economic benefits (Elouidani & Zoubir, 2015; Nejati et al., 2017; Riyadh et al., 2019; Sameer, 2021). Importantly, the positive relationship between social practices and business performance has also been argued in some studies (Kamatra & Kartikaningdyah, 2015; Li et al., 2018). In fact, Kamatra & Kartikaningdyah (2015) and Li et al. (2018), recorded findings close to this research, in the sense that the Social dimension is positively related to market performance. The reason for this relationship is associated with access to substantial investment from the market when companies perform well in terms of social practices. This is because investors increasingly look for socially responsible companies in order to build their investment portfolios that meet their fiduciary responsibility (Okafor et al., 2021).

At the level of the Governance dimension, it was possible to see that high scores cause a decrease in the asset efficiency (ROA) and return on equity (ROE) of Western European companies. This is an interesting finding, since this dimension is associated with corporate and management policies implemented in the firm. In fact, this observation conveys evidence that the management of European companies has been geared towards satisfying the interests of board members, therefore creating agency problems between board members and shareholders, and consequently a decrease in company value (Pham et al., 2022). However, this study is not the first to observe this relationship between these variables, as Pham et al. (2022) and Buallay (2019) identified the same relationship in North American, Chinese, and European companies. In contrast, it was also observed in the results of model V that a high score on the Government dimension results in better market performance. This is an already expected result, since investors are paying attention to quality management policies by companies, so the deliberations of managers, may influence shareholders' investment decisions (Li et al., 2018; Okafor et al., 2021).

About the GC Score, because it has higher scores in the quartiles of its categories, it would not make sense to make a division between the worst and best scores, since most of the worst scores are significantly above the neutral point. In sum, in tests performed, it was found that the distinction between good and bad scores was not beneficial for the GC Score categories, since thus the estimated models did not show variables with statistical significance. Therefore, given these facts, it was

preferable to understand what direct relationship each variable has with financial, market and operational performance, the results of which are presented in Table 7.

Table 7. Model VI Results.

Dependent Variable	Model VI			
	ROA	Tobin's Q	ROE	
(Intercept)	54,6171 (34,1692)	-2,9792 (124,3971)	114,6714 (46,2765)	*
AC	0,1194 (0,1365)	-0,7662 (0,4423)	0,0038 (0,2050)	
HR	-0,3400 (0,1373)	0,2492 (0,4451)	-0,9698 (0,3085)	**
ENV	-0,6400 (0,2053)	0,5171 (0,6656)	-0,3137 (0,2063)	*
LR	0,2324 (0,2047)	-0,2042 (0,6636)	0,5564 (0,3076)	
Log(Size)	-11,2563 (2,5962)	-36,5874 (8,4160)	-10,1000 (3,9006)	**
Age	1,0863 (0,3475)	5,0153 (1,1266)	0,4788 (0,5221)	**
Communications	40,3464 (28,7189)	198,3099 (126,0131)	12,4183 (27,3914)	
Discretionary Consumer	14,4491 (22,0740)	102,8323 (104,1935)	-0,3837 (14,6935)	
Energy	48,5980 (27,4782)	194,1678 (119,7716)	18,2004 (26,7655)	
Financial	31,3579 (19,8662)	62,0130 (90,8839)	19,5120 (16,0335)	
Real Estate	71,1608 (46,8384)	323,1841 (205,6363)	19,8074 (44,5893)	
Industry	14,7111 (20,1835)	101,7730 (94,5686)	2,4194 (14,1783)	
Materials	16,6444 (21,2406)	101,8496 (100,1841)	5,6210 (14,2212)	
Health	16,7395 (22,2558)	268,8817 (106,0127)	14,2701 (13,7190)	*
Technology	44,0658 (29,3391)	319,0572 (126,2913)	1,5930 (29,6491)	*
Utilities	59,4935 (29,6068)	214,5032 (126,9460)	30,8386 (30,2437)	*

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Source: Own elaboration.

From the results of model VI, it is possible to ascertain which GC Score dimensions affect ROA, Tobin's Q, and ROE. Thus, we can observe that only the practices associated with Human Rights (HR) affect more than one dependent variable. More precisely, the HR variable is statistically significant at the 1% level when the dependent variable is ROA and ROE. The remaining independent variables uniquely influence each of the business performance variables. That is, the Anti-Corruption (AC) and Labor Rights (LR) variables are statistically significant at the 10% level when analyzing market performance for the AC variable and financial performance for the LR variable. The Environment variable (ENV) is statistically significant at the 5% level when the dependent variable is ROA. Regarding the additional control variables, it can be seen that only the variables Log(Size), age and the energy, health, technology and utilities sectors are shown to be relevant in the estimated regression equations. More precisely:

- The variable Log(Size), in the first two regression equations, is statistically significant at least at 0.1%, and in the last equation at 1%;
- The age variable is statistically significant at least at the 1% level when the dependent variable is ROA and 0.1% when the dependent variable is Tobin's Q.
- When the dependent variable is ROA and Tobin's Q, the utilities sector is statistically significant at least at the 5% and 10% level, respectively.
- The health care and technology sectors are statistically significant at the 5% level when the dependent variable is Tobin's Q. When the dependent variable is ROA, the energy sector is statistically significant at least at the 10% level.

In terms of interpreting the results, we verify that anti-corruption related activities slightly decrease market performance. That is, an increase of 1 p.p. in the AC variable implies a decrease of 0.77 p.p. in the Tobin's Q. Human Rights related activities show an inverse relationship with operational and financial performance, which means that an increase of 1 p.p. in the HR variable leads to a decrease of about 0.34 p.p. in ROA and 0.97 p.p. in ROE. Regarding environmental practices, these negatively affect financial performance, i.e., an increase of 1 p.p. in the Environment dimension of the GC Score, leads to a decrease of 0.64 p.p. As for the last variable (labor rights), this is the only one that shows a positive relationship with business performance, since an increase of 1 p.p. in the independent variable LR implies an increase of about 0.56 p.p. in ROE. Finally, all additional control variables, with the exception of Log(Size), show a positive relationship with the business performance variables.

As it was possible to ascertain, anti-corruption practices negatively influence market performance, and this may be justified by the question that by presenting a transparent image of their companies to the market, managers can no longer enjoy illicit benefits that could even promote business performance.

Regarding the results of the ENV (environment) variable of the GC Score, it is clear that environmental practices negatively influence corporate performance. This conclusion is consistent with the results of model V, since an inverse relationship was also identified between the Environment dimension of the ESG index and the performance of European companies.

Previously, it has been found that SR practices that take employees' interests into consideration, affect their loyalty, motivation, productivity, and satisfaction in the workplace, so this may have positive consequences on firm performance (European Commission, 2008, referenced by Adda et al., 2016; Duarte & Neves, 2011; Sameer, 2021). In short, with an SR policy, companies save resources that were intended to increase employee satisfaction and retention (Tiep et al., 2021). In this research, the variable LR was used to represent employees, as this dimension is associated with several factors that influence this group of stakeholders, such as workplace health and safety, diversity, compensation, training and development, and job quality. The results of the relationship between ROE and the variable LR, are in line with what is defined by the authors referenced above, since the assumption that European companies increase financial performance when they define a SR policy that takes into

account the interests of employees is confirmed. Therefore, it is possible to accept the hypothesis 10 referenced above.

On the other hand, an inverse relationship was also found between human rights practices and business performance. This means that the investments made by companies in a human rights-oriented CSR policy may be higher than the economic benefits provided by this policy, and, consequently, harm business performance. It should be noted that this dimension was not used to represent employees, since it also focuses on other stakeholders. That is, although the Human Rights dimension considers factors that may influence employees (human rights, labor law, job quality, among others), it also includes practices that affect the community and consumers (such as product quality and safety, access to the product, and the relationships established with the community).

In the literature review, it was possible to see that SR can indirectly affect the performance of companies, being mediated by other factors. Therefore, the next estimated models will aim to verify how size and age can influence the impact of SR on firm performance. Other variables, such as sector, were not considered, since only these variables present interesting results in mediating between social responsibility and firm performance. In short, not all performance variables present interesting results, so in the results only the impact on ROA and ROE is presented.

Table 8 presents the results of the models that use age as a mediator between corporate performance and ESG/GC Score.

Table 8. Model VII and VIII Results.

	Model VII				Model VIII			
Dependent Variable	ROA		ROE		ROA		ROE	
(Intercept)	16,7223 (35,7306)		27,8461 (48,6327)		11,3218 (33,3581)		71,0669 (46,8890)	
ESG	0,1138 (0,2055)		0,7726 (0,3083)	*				
GC					0,2722 (0,2301)		0,2395 (0,3482)	
Age	1,6197 (0,3622)	***	1,2719 (0,5435)	*	1,7933 (0,3617)	***	1,2168 (0,5475)	*
ESG:Age	-0,0093 (0,0023)	***	-0,0153 (0,0034)	***				
GC:Age					-0,0148 (0,3618)	***	-0,0159 (0,0039)	***
Log(Size)	-12,0455 (2,6362)	***	-9,4163 (3,9559)	*	-10,7204 (2,5624)	***	-9,5282 (3,8776)	*
Communications	39,3488 (28,7005)		7,8443 (26,6092)		30,1709 (25,3014)		0,5431 (26,0620)	
Discretionary Consumer	14,9885 (22,0540)		-0,1579 (13,5332)		12,0980 (18,4912)		-2,7429 (12,5414)	
Energy	47,9359 (27,4749)		12,8067 (26,0852)		38,9023 (24,2925)		7,0014 (25,5355)	
Financial	31,2947 (19,8811)		16,2704 (15,3657)		29,2630 (16,9941)		18,2881 (14,5850)	
Real Estate	74,9934		21,5408		61,6628		7,9619	

	(46,7352)	(43,1300)	(41,1397)	(42,1637)
Industry	15,7222	1,9731	12,6236	0,0838
	(20,1591)	(13,1811)	(16,9918)	(12,3518)
Materials	14,1888	0,4326	13,2488	1,8191
	(21,2237)	(13,1231)	(17,8019)	(12,1658)
Health	15,0853	12,4413	14,9756	13,4069
	(22,2350)	(12,4040)	(18,5076)	(11,2339)
Technology	41,9034	-4,4210	33,8359	-10,4401
	(29,3216)	(28,9517)	(26,1179)	(28,4427)
Utilities	56,5016	21,0937	47,3932	16,9233
	(29,6184)	(29,6242)	(26,4251)	(29,0853)

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Source: Own elaboration.

By analyzing model VII it can be seen that the ESG:Age variable is statistically significant at the 0.1% level, either when the dependent variable is ROA or ROE. In both regression equations of this model, the additional control variables Log(Size) and age are statistically significant but at different levels. That is, when the dependent variable is ROA, Log(Size) and age are statistically significant at least at the 0.1% level. On the other hand, when the dependent variable is ROE, these variables increase their significance level to 5%. However, it should be noted that only when the dependent variable is ROA, the energy and utilities sector variables assume a reasonable significance level (10%).

Similarly, in model VIII, the GC:Age variable is also statistically significant at the 0.1% level, which means that the interaction between the GC Score index and age influences the operational and financial performance of Western European companies. At the level of significance of the additional control variables Log(Size) and age, these assume exactly the same behavior as that observed in model VII. It should be noted that in the first equation of this model, the financial and utilities sector is also statistically significant at least at the 10% level.

The results of models VII and VIII contradict Sun’s (2021) view, since as the sample companies age, the impact of SR on operational and financial performance degrades. This is a consequence of the fact that firms fail to keep up with SR trends as the years go by, and therefore fail to take the necessary actions, which has negative implications on their performance. In the literature, Han & Kim (2020) also identified a negative relationship between SR and business performance when it is mediated by age. It should also be noted that the statistically significant additional control variables show a positive relationship with ROA and ROE, with the exception of Log(Size).

Finally, Table 9 presents the last two estimated models, each with two regression equations, which assess the impact of GC Score on firms’ performance through size.

Table 9. Model IX and X Results.

Dependent Variable	Model IX		Model X	
	ROA	ROE	ROA	ROE
(Intercept)	377,7254 (51,7576)	495,1821 (73,3493)	415,5302 (49,5679)	512,7427 (70,0879) ***
ESG	-6,5237 ***	-7,7869 ***		

	(0,6988)		(1,0651)				
GC					-7,2952 (0,6424)	*** (0,9920)	***
ESG: Log(Size)	0,6055 ***		0,7576 (0,1057) ***				
GC: Log(Size)					0,6650 (0,0633)	*** (0,0978)	***
Log(Size)	-48,4470 (4,7395)	***	-55,5229 (7,2235)	***	-51,5666 (4,5247)	*** (6,9878)	***
Age	1,4564 (0,3366)	***	0,8949 (0,5131)		1,5073 (0,3300)	*** (0,5097)	
Communicati ons	59,6085 (35,3910)		35,3564 (31,8337)		56,9826 (36,3600)		29,7042 (31,9489)
Discretionary Consumer	23,6103 (28,9384)		11,5372 (20,9104)		21,8673 (30,0042)		7,8965 (21,2408)
Energy	62,8655 (33,6449)		34,1102 (30,7253)		64,9205 (34,5675)		35,3072 (30,8940)
Financial	45,6380 (25,3466)		36,7249 (20,2762)		34,5876 (26,1708)		24,0469 (20,4345)
Real Estate	99,8885 (57,6949)		54,7758 (51,7298)		106,1697 (59,3260)		56,4368 (52,0374)
Industry	23,0166 (26,2854)		11,9655 (19,4722)		24,0987 (27,2336)		12,5820 (19,7579)
Materials	21,5806 (27,8213)		10,8586 (20,1411)		24,9701 (28,8487)		14,5840 (20,4722)
Health	22,3280 (29,3994)		22,6267 (20,5293)		23,9028 (30,5125)		23,1192 (20,8929)
Technology	58,7492 (35,5566)		18,9496 (33,4920)		65,1939 (36,4747)		23,6949 (33,6419)
Utilities	77,0294 (35,7644)	*	50,0534 (34,0021)		79,5680 (0,0633)	*	51,9310 (34,1116)

Note: The values in parentheses correspond to the estimated standard error of each coefficient in the model.

Significance Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Source: Own elaboration.

In Model IX, the variable ESG: Log(size), has a positive estimated impact on ROA and ROE and is statistically significant in both regression equations at the 0.1% significance level. At the level of additional control variables, in the first regression equation we find that, with the exception of the industry, materials and health sectors, the remaining variables are statistically significant (age and Log(Size) are at least at the 0.1% level, the utilities sector is at least at the 5% level and the remaining sectors are statistically significant at least at 10%). To highlight that only the Log(Size) variable shows a negative relationship with ROA and ROE, while the remaining additional control variables are positively related to the dependent variables. In the second regression equation only some additional

control variables are no longer statistically significant, such as the communications, energy, real estate, technology and utilities sectors.

In model X, the results are very close to the previous model, with the GC: Log(Size) variable also showing a positive relationship with operational and financial performance, and at the same significance level (0.1%). It is worth noting that, compared to the previous model, in both regression equations, the additional control variables assume the same statistical significance, except for the financial sector which is no longer statistically significant at the reasonable level. The relationship that the statistically significant additional control variables establish with ROA and ROE is the same as in model IX, that is, a positive relationship, with the exception of the variable Log(Size), which establishes a negative relationship.

Overall, we can conclude that regardless of the variable used to measure SR (ESG or GC Score), the size of European companies, measured by the total number of assets, positively influences the impact of SR on operational and financial performance. This means that companies with more assets have more resources available to be used in the development of socially responsible practices. The results of model IX and X are in line with what has been argued by Kamatra & Kartikaningdyah (2015) and Minutolo et al. (2019), in the sense that the size of firms positively influences the relationship between their performance and SR, and therefore contradicts the view of Rossi et al. (2021), who argued for an inverse relationship.

5. Conclusion

Over the last decades, social responsibility has taken on a significant role in society, and many companies have committed to becoming more socially and environmentally conscious. However, this commitment implies costs, which are sometimes high for some organizations, thus negatively affecting business performance. In the literature, we found several studies that defend this perspective, but there are others that show the existence of a positive relationship between social responsibility and business performance, mediated mainly by the way it positively affects large groups of stakeholders, such as consumers, employees and investors.

In fact, it was found that there is no consensus on the relationship between social responsibility and corporate performance, and it is therefore important to seek new findings.

Therefore, this research analyzed impact of social responsibility on the performance of 216 listed companies in Western Europe during the period from 2017 to 2021. To evaluate the corporate performance of companies, the ROA ratio (operating performance), Tobin's Q (market performance) and ROE (financial performance) were used, while quantifying SR used the ESG index and GC Score. This impact was analyzed by estimating ten models for panel data, where six of them have three regression equations and four of them have only two.

Initially it was intended to understand what the relationship is between SR and ESG and GC Score. The results show that this relationship cannot be observed in a linear fashion, since, depending on the type of performance that is intended to be analyzed, SR can take on different meanings. More precisely, when SR is measured by ESG scores, it shows a negative relationship with operational performance and a positive one with market performance. When it comes to financial performance, no relationship was found. When GC Score scores are used to measure SR, the same relationship with operational performance is found, however, a negative relationship with financial performance was identified. However, when it comes to market performance, GC Score shows no relationship. Importantly, even when a distinction is made between the best and worst overall ESG and GC Score (where the best scores were considered those that are higher than the 3rd quartile, and the worst are scores lower than the 1st quartile), the results only confirm that obtaining high scores on these two indices hurts both operational and financial performance. It only pays for companies to have high scores on the ESG index when they want to positively influence market performance.

Subsequently, it was investigated what influence the ESG and GC Score dimensions have on business performance. For the ESG score dimensions a distinction was made between the best and worst scores (adopting the same distinction process previously used for the overall scores). As for the

GC Score dimensions, the same process was not adopted due to the lack of interesting results, thus resorting to a direct relationship.

About ESG scores, the findings show that high scores on the environment dimension hurt the operational and financial performance of European companies. The social dimension also impacts negatively on operational and financial performance, as it was found that high scores on this dimension lead to a decrease in ROA and ROE and a lower score leads to an increase in this financial ratio. However, the relationship with market performance is different, as high scores on the social dimension positively influence Tobins's Q. Finally, high scores on the government dimension show a negative relationship with operating and financial performance, and in contrast, a positive relationship with market performance.

On the other hand, in GC Score it can be seen that practices associated with anti-corruption negatively influence market performance. Practices associated with human rights also show a negative relationship, but this time with operational and financial performance. In congruence with the environment dimension of the ESG index, the environment category of the GC Score also presents a negative relationship with operational performance. Finally, it should be noted that employee practices (labor law dimension) positively influence the financial performance of European companies.

Finally, we sought to determine the relationship of the additional control variables - age and size - with the ESG index and the GC Score. For lack of relevant results, this analysis was not done for sectors of activity, and was only focused on operational and financial performance, thus excluding market performance.

The results show that as firms age, SR, when measured by ESG and GC Score, has a negative impact on financial and operational performance. This finding provides evidence that older companies are not keeping up with trends in social responsibility, and this has negative effects on business performance.

On the other hand, with the results of this research it was possible to ascertain that the variable "size" positively influences the relationship that SR establishes with operational and financial performance. More precisely, as the size of European companies is measured by total assets, it is possible to conclude that companies with more assets have more resources available for the development of socially responsible practices.

The findings of this study make an interesting contribution to the literature on this topic. More precisely, this research focuses on the Western European market, with countries that have been little addressed in this topic, as is the case of Portugal. In short, this research innovates by using two metrics to assess social responsibility - the ESG and the GC Score - something that has not been found in any study consulted and that allows for a more complete and comprehensive analysis of the impact that socially responsible practices have on corporate performance. Furthermore, this study evaluates the performance of companies on three fields, namely, operational, market, and financial performance. In sum, the findings of this research also allow us to identify how the dimensions of ESG scores and GC Score categories relate to the business performance of the sample companies. This is an important point for the managers of European companies, as it allows them to define which SR activity pays off in order to obtain better results in operational, financial or market terms. It should be noted that this study is one of the few that verifies how the additional control variables age and size influence the relationship that the ESG index and GC Score establish with business performance.

The limitations of this research are essentially linked to the fact that the sample is not representative of the European market, since it is mostly made up of small and medium-sized companies. Moreover, even of the listed companies, it was not possible to consider all of them, since several companies were not listed in the ESGBook database and the Finbox database. In short, this study considered only those companies that were assigned ESG and GC Score, which does not mean that the rest that were left out of the sample are not socially responsible.

In the future it would be interesting to develop some study to address these limitations. For example, research that would address the impact of social responsibility on the performance of European small and medium-sized enterprises, identifying the SR activities that effectively improve

business results. These findings would be interesting for SME managers, as they usually operate with limited budgets, so any investment that presents a medium or long term financial return or an uncertain immediate return is considered as a risk.

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