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Corporate Social Responsibility:

Impact on Firms' Financial Performance

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Dissertation presented as partial requirement for obtaining
the Master's degree in Statistics and Information
Management with specialization in Risk Analysis and
Management

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ABSTRACT

The aim of this study is to provide a comprehensive and structured analysis of the relationship between firm's financial performance and Corporate Social Responsibility (CSR) on a global scale. Evidence from previous studies suggests no consensus in the relationship between CSR and firms' performance. This study is conducted with a sample of 744 companies from 31 countries and 147 different industries, between 2005 and 2019. The CSR performance analysis is conducted through firms' Environment, Social and Governance (ESG) scores whilst the financial performance is evaluated by Return on Assets (ROA) and Return on Equity (ROE). All data is extracted from Thomson Reuters Eikon. The results suggest there is a positive relationship between CSR and the financial performance of the companies. The findings also suggest that companies that have a low value of Total Revenues do not benefit from an investment on ESG Factors, as the results show a negative relationship between ESG Score and Return on Assets. Lastly, this study allows to conclude that when considering the three pillar scores individually, the Social Pillar is the only one that leads to a better performance of the companies. The outcomes of this study are important not only for the investment decision-making of both values-driven and profit-driven investors but also to increase awareness of how sustainable financial markets can contribute positively to reduce global risks.

KEYWORDS

Corporate Social Responsibility, Environmental Social Governance (ESG), Financial Performance

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List of Abbreviations

CEO	Chief Executive Officer
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
EPS	Earnings-per-Share
ESG	Environmental, Social and Governance
E&G	Environmental and Governance
OLS	Ordinary Least Squares
P/E	Price/Earnings
R&D	Research and Development
ROA	Return-on-Assets
ROE	Return-on-Equity
SIP	Social Issue Participation
SM	Stakeholder Management
SR	Social Responsibility
SRI	Socially Responsible Investment

1. INTRODUCTION

In recent years, the world has seen exponential growth in the number of companies considering Corporate Social Responsibility (CSR) criteria. Although the recent spike in the popularity of CSR, this concept was originally coined in 1953 by the American economist Howard R. Bowen (1953) in his book *Social Responsibilities of the Businessman*. As such, Bowen is often referred to as the father of CSR (Carroll, 2009). A decade later, several authors contributed to the development of the concept (Falck & Heblich, 2007).

Since that moment, companies started to focus their goals beyond profit maximization by participating in activities that contribute to an increase in stakeholders' welfare, by investing in production processes that are environment-friendly, excluding suppliers that use child labour, and forming plans to help the poor in countries that are less developed (Liang & Renneboog, 2017).

Prior research has shown a positive relationship between CSR and firms' performance (see, e.g., Backhaus, Stone, & Heiner, 2002; Dyck, Lins, Roth, & Wagner, 2019; Kempf & Osthoff, 2007; Rettab, Brik, & Mellahi, 2009; R. A. Wood & Cochran, 1984), while other studies found a negative relationship (see, e.g., Barnea & Rubin, 2010; Groening & Kanuri, 2013; López, Garcia, & Rodriguez, 2007), and also some other authors found no relation between CSR and firms performance (see, e.g., Abbott & Monsen, 1979; Alexander & Buchholz, 1978; Fogler & Nutt, 1975).

The aim of this thesis is to study the relationship between Corporate Social Responsibility and firm's financial performance, both through total ESG scores and each individual pillar scores. In terms of methods, we use standard panel data regression analysis considering alternative financial performance measures, control variables (size, risk, industry and country headquarters). The dataset comprises a sample of 744 companies from 31 countries worldwide and 147 different industries from 2005 and 2019 retrieved from Thomas Reuters Eikon. Econometric regressions will be performed by using Stata, a complete and integrated statistical software. Despite previous studies done on this subject, it is still missing an understanding of how corporate social performance can contribute to firm's performance and this study may help researchers and companies to improve and develop a wider knowledge on this topic and its implications.

Our results show that investing on ESG score contributes to a higher Return on Assets and therefore there is a positive relationship between CSR and company's financial performance.

Finally, results demonstrate that when analysing the 3 pillars individually, Social Pillar is the only one that contributes to a better company's performance since it has a positive and statistically relationship with Return on Assets ratio.

The structure of the thesis is as follows. Section 2 describes the evolution of the CSR concept followed by an overall view of how this concept is seen around the world. Section 3 outlines the theoretical framework and the methods used in this study. The Data and Methodologies applied for the empirical analysis is described afterwards. Section 4 describes and analyses the empirical results obtained. Section 5 draws the main conclusions of this research.

1.1. THE ESG FRAMEWORK

Throughout this study we will consider Environment, Social and Governance factors to analyse the Corporate Social Responsibility performance of the worldwide companies' dataset.

All information concerning CSR performance is retrieved from Thomson Reuters Eikon as it captures and computes over 400 company-level ESG measures, of which a subgroup of 178 of the most comparable and relevant fields to power the global company evaluation and scoring process is selected. According to Thomson Reuters Eikon, the underlying measures are based on considerations around comparability, data availability and industry relevance. Thomson Reuters Eikon analyses the company's ESG performance, commitment and effectiveness based on publicly reported information. A three Pillar Score is set and subdivides the 3 scores in 10 categories as shown in Figure 1, that are weighted proportionately to the count of measures within each category, from 0 to 100, being 0 the lowest score and 100 the highest (Table 1).

Environmental	Social	Governance
• Resource use • Emissions • Innovation	• Workforce • Human Rights • Community • Product responsibility	• Management • Shareholders • Corporate Social Responsibility (CSR) strategy

Figure 1- The three pillars of the ESG framework.
Source: Thomson Reuters, 2020.

Table 1 - ESG Pillar Scores, Category Weights and Pillar Weights.

PILLAR	CATEGORY SCORE	CATEGORY WEIGHTS*	SUM OF CATEGORY WEIGHTS*	PILLAR WEIGHTS*
ENVIRONMENTAL	Emissions	0.15	0.44	0.35
ENVIRONMENTAL	Resource use	0.15		0.35
ENVIRONMENTAL	Innovation	0.13		0.29
SOCIAL	Community	0.09	0.31	0.28
SOCIAL	Human Rights	0.05		0.17
SOCIAL	Product Responsibility	0.04		0.13
SOCIAL	Workforce	0.13		0.43
CORPORATE GOVERNANCE	Shareholders	0.05	0.26	0.2
CORPORATE GOVERNANCE	CSR Strategy	0.03		0.13
CORPORATE GOVERNANCE	Management	0.17		0.67

Source: Thomson Reuters, 2020. Notes: *decimals to be considered.

2. LITERATURE REVIEW

Since the early 1950's the concept of Corporate Social Responsibility within the Firms has been increasing and reached unprecedented momentums. Companies no longer seek sole profit maximization. Firms' goals are now expanding to have in consideration the wellbeing of our Society.

Although many authors have studied this topic, there are still some disagreements regarding the relation between the impact of CSR on corporate firm performance. Findings from studies consider this relationship as positive, negative or insignificant.

2.1. EVOLUTION OF CORPORATE SOCIAL RESPONSIBILITY

To help understanding CSR evolution, Patrick Murphy (Murphy, 1978) classified four eras of CSR before and after the 1950s. The first era corresponds to the period up to the 1950s and defines it as the "*philanthropic*" era in which companies donated to charities more than anything else; Secondly, Patrick Murphy classified the period 1953–67 as the "*awareness*" era, as the overall responsibility of business and its involvement in community affairs arose. Thirdly, the period 1968–73 was labelled as the "*issue*" era, as companies started to focus on issues such as racial discrimination and pollution problems. The last era corresponded to period 1974–8 and was identified as "*responsiveness*" era and, continuing beyond, companies began taking serious management and organizational actions to address CSR issue (Carroll, 2009).

A more recent analysis was done by Bhaduri & Selarka (2016), and defined that the history of the evolution of the concept CSR can be split in different phases from 1950s to after 2000 respectively:

- 🕒 1950s and 1960s— Phase of Introduction of CSR in the academic field and corporate philanthropy as CSR;
- 🕒 1970s—Phase of rapid growth in the concept of CSR;
- 🕒 1980s—Period of Stakeholder Theory and Business Ethics;
- 🕒 1990s—Period of CSR Practicing by Corporate;

- 🌐 2000 onwards—Period of empirical works to investigate the determinants and consequences of CSR on corporate strategy.

2.1.1. CSR in the 1950's

As stated previously, Howard R. Bowen was the pioneer of the concept of CSR by publishing in 1953 the book *Social Responsibilities of the Businessman*. He set an initial definition of the social responsibilities of businessmen: *"It (SR) refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society"* (Bowen, 1953, p.6).

Still in the 1950's, William C. Frederick (Frederick, 1960) also contributed to the initial definitions of social responsibility, by outstanding three core ideas of trusteeship and corporate philanthropy: the idea of public responsibility by corporate managers; the idea of balancing, to corporate resources, competing claims, and the idea of philanthropy acceptance as a manifestation of corporate support of moral causes.

Despite the fact that the decade of the 1950's was more "talk" than "action", it was a decade for changing attitudes, with corporate executives understanding how to get comfortable with CSR discussion. (Carroll, 2009).

2.1.2. CSR in the 1960's

The 1960's marked a decade of important growth in the efforts to formalize the definition of the concept of CSR. One of the first writers in this period was Keith Davis. Davis (1960), wrote *"Can Business Afford to Ignore Social Responsibilities?"* where he defined Social responsibility as a nebulous idea but should be considered in a management context. Also, Davis highlights that socially responsible corporate decisions, through a long and complicated process, can be justified as having a good hypothesis of bringing an economic benefit to the firm in a long-run and consequently paying back for their socially responsible point of view. He further wrote several other textbooks, later revisions, and articles, regarding this topic.

In contrast, Friedman (1962) theorised CSR as a social responsibility of business and that resources should be used to participate in activities to increase its profits as long as it plays within the rules of the game, which is to engage, without fraud or deception, in free and open competition.

In 1967, Clarence Cyril Walton (1967) wrote "*Corporate Social Responsibilities*", a book where he stated many aspects of CSR, and suggested a new concept of social responsibility acknowledging the interaction between the business and society. Walton also emphasizes that costs are involved and may not be possible to assess any direct quantifiable economic returns.

Near the end of the 1960s, corporate practices that can be categorized as social responsibility incorporated such topics as philanthropy, customer and stockholder relations and employee improvements (Heald, 1970).

2.1.3. CSR in the 1970's

New concepts such as corporate social responsiveness and corporate social performance (CSP), arose in the beginning of 1970s (Ackerman 1973; Ackerman and Bauer 1976).

Morrell Heald's, in his book *The Social Responsibilities of Business: Company and Community, 1900–1960* (Heald, 1970), states that social responsibility for businessmen needs to be taken in the actual policies with which they are associated. As per his studies, it is possible to observe that, during this period, corporate people were preoccupied with corporate philanthropy and society relations (Carroll, 2009).

Another important author in the 1970's was Harold Johnson. Johnson (1971) wrote *Business in Contemporary Society: Framework and Issues* (1971) and presented various definitions of CSR. Firstly, Johnson describes Corporate Social Responsibility as convention wisdom, where socially responsible firms are the ones whose corporate members balance a multiplicity of interests. Additionally, instead of attempting solely greater profits for its stockholders, responsible firms also need to consider "*employees, suppliers, dealers, local communities, and the nation*" (Johnson, 1971, p. 50).

Eilbirt & Parket (1973), outstands that the concept of Social Responsibility is not easy to formulate, and mention that SR should be understood as a “*good neighbourliness*” (Eilbirt & Parket, 1973, p. 7). Using a sample of major U.S. corporations, Eilbirt and Parket conducted a survey concerning social responsibility activities in which those corporations were involved, and found a positive relationship between company size and SR efforts, and also usual activities performed by most of the corporations were related to contribution to arts and education (Eilbirt & Parket, 1973; Parket & Eilbirt, 1975).

Another author that cites the difficulty of defining the term social responsibility is Dow Votaw, in 1975, where he highlights different meanings of SR to people. Votaw states that SR can be defined as a concept of legal responsibility or liability but can also be seen from a more ethical perspective meaning a social responsibility behaviour; for some it can also take a causality mode of “*responsible for*”; for those who embrace it most enthusiastically, Votaw states that they see it as a plain synonym for legitimacy, in the context of “*belonging*” (Votaw, 1973).

Hay & Hay (1974) described the evolution of SR through three distinct historical phases of managerial values. The first phase refers that business managers only have one single goal: maximization of profits. The second phase corresponds to the 1920’s and 1930’s where they introduce the concept of trusteeship management. In this period, the goal of business managers began to consider the interest of other groups that contributed to their firm such as employees, customers, suppliers and the community. Robert Hay and Ed Hay also referred that this phase was characterized by two structural trends responsible for the appearance of the new point of view of social responsibility: “*(a) the increasing diffusion of ownership of the shares of American corporations and (b) the development of a pluralistic society*” (Hay & Hay, 1974, p. 136). The last and third phase introduced the concept of quality of life in SR definition, where corporates were now involved in considering and solving the major problems of society. It is stated that each of these phases did not replace the previous one, but instead, it was superimposed on it (Hay & Hay, 1974).

Sethi (1975) differentiates CSR, CSP and corporate behaviours by defining the dimensions of corporate behaviour social performance, social obligation, social responsibility, and social responsiveness. Additionally, Sethi affirms that social responsibility implies that corporate

behaviours need to take in account values, community norms, and performance' expectations.

In the book *Private Management and Public Policy: The Principle of Public Responsibility* (1975), Lee Preston and James Post moves their attention from the concept of Social Responsibility to the notion of Public Responsibility., with the aim of emphasizing the importance of the process of public policy, instead of the individual conscience and opinion (Preston & Post, 1975).

In the mid-1970's, Bowman & Haire (1975) conducted a study using a sample of companies and examining their annual reports. By measuring the Return-on-Equity (ROE) with CSR, the authors concluded that more attention to CSR is not associated with less profits for the stockholders.

Bragdon & Marlin (1972), Fogler & Nutt (1975) and Spicer (1978), performed an analysis based on a small sample of companies, and used the pollution control performance at firm level as a CSR measure. These studies were founded on the 1970-1971 pollution assessments produced by the Council Economic Properties (CEP). Bragdon & Marlin (1972) and Spicer (1978) concluded that there was a positive relation between economic performance and pollution performance, in the sense that corporations which halted pollution the most, accomplished a better economic performance. On the other hand, Fogler & Nutt (1975) did not find any relation between these variables. These authors also used earnings-per-share (EPS) and price/earnings (P/E) ratios as measures of accounting returns. We can also observe the utilization of these measures in studies conducted by Preston & Post (1975) and Bowman & Haire (1975).

Both Moskowitz (1972) and Vance (1975) performed the first studies using the investor return, from a shareholders perspective, as a measure of financial performance. Both authors used variations in price-per-share as an index for investors returns. Despite using the same metric, these studies had contradictory conclusions. Moskowitz (1972) analysis indicates that companies with elevated CSR ratings, lead to an outperform of the market, while Vance (1975) reached to opposite results. These results can be associated to the period which the analysis was conducted. The first half of 1972, studied by Moskowitz was a bull market, and the period

analysed by Vance, 1972-1974, was considered a bear market, and consequently, the disparity between the riskiness of the returns of the companies (R. A. Wood & Cochran, 1984).

Followed by Moskowitz (1972) and Vance (1975), Abbott & Monsen (1979) presented a study where they analysed the investors return measure not only using changes in price-per-share but also including the dividends. Abbott and Monsen reached out to the conclusion of no linkage between CSR and financial performance.

Another study followed by Moskowitz (1972) and Vance (1975) was performed by Alexander & Buchholz (1978). The main methodological distinction from Vance's analysis corresponds to the incorporation of risk adjustment for the corporations mentioned in the reputational survey. Alexander and Buchholz used a sensitivity measure of a firm's stock price, denominated as Beta, in order to adjust the performance of the firms. The authors reached out to a conclusion of no relation between stock risk levels and SR.

One more relevant study of this decade was conducted by Holmes (1976). The author used a sample of corporate executives with the goal of examining their opinions and attitudes concerning corporate social responsibility. Holmes presented to corporate executives a set of statements regarding CSR to evaluate how many agreed or disagreed with those statements. The most chosen statement among the executives was that business should help to solve social problems regardless the fact that that business contributed or not to create those problems, even if in a long or short run, there was no potential profit. In this study, the executives were also asked to consider the outcomes of SR. The results show that there was a greater agreement on positive outcomes than negative ones. Almost all believed that firm goodwill and reputation would be enhanced, and a substantial percentage considered that the economic and social systems would be reinforced by corporate social engagement.

At the end of 1970's, Archie B. Carroll suggested a corporate social performance conceptual model where Carroll distinguished three aspects of CSP that must be interrelated: the first consist in a basic definition of SR; secondly, an understanding of issues for which a SR existed and, thirdly, a *"specification of the philosophy of response"* to the issues (Carroll, 1979, p. 499). The author also stated that in defining Social Responsibility to fully address all obligations corporations have to society, it is necessary to incorporate discretionary, ethical, legal and economic business performance categories.

Despite the fact that the 1970's was still a decade with more "talk" than "action", legislative initiatives emerged and urged firms to develop organizational mechanisms to comply with federal laws regarding the environment, employment discrimination, safety of the workers and products (Carroll, 2009).

2.1.4. CSR in the 1980's

The decade of the 1980's was marked by the development of new and polished definitions of CSR. Complementary or alternative concepts, models and theories, such as corporate social performance, corporate social responsiveness and public policy, stakeholder theories and business ethics, among others, emerged and began to gain more attention (Carroll, 2009).

In 1980, Thomas M. Jones was one of the first writers regarding CSR discussion of the decade. In his paper, Jones (1980), firstly defined CSR as a voluntary obligation from corporations to society. Jones then summarizes different arguments being some in favour and some against CSR. In contrast to Preston & Post (1975), Jones states that Public Responsibility is not useful in terms of decision-making criteria, even though it could be useful to narrow the scope of adequate corporate social involvement. One of the Jones' key contributions in this paper was the vision of CSR as a process instead of a set of outcomes, highlighting the difficulty in defining what constitutes a socially responsible behavior.

Tuzzolino & Armandi (1981) proposed a need-hierarchy framework based on Maslow (1954) need-hierarchy¹, considering it useful in order to conceptualize the organization in its emerging socially responsible part. The authors also mention that a taxonomic framework such as the one they create and describe facilitates the CSR operationalization. The authors accepted the definition of CSR given by Carroll (1979) considering it as appropriate for their purposes. The aim of the authors was not to redefine the concept of CSR. Instead, they considered organizations in the same way as individuals, in the sense that corporations also

¹ Maslow's need-hierarchy is a motivational theory in psychology that comprises a five-level model of human needs, frequently depicted as hierarchical tiers within a pyramid. From the bottom to the top of the hierarchy, the needs are: physiological, safety, love and belonging, esteem, and self-actualization. Needs should be satisfied from the lower to the upper level.

had criteria that required to be fulfilled, just as individuals do as described in the Maslow's hierarchy.

Wood & Cochran (1984), through a sample of firms, studied the impact of CSR on financial performance using three measures of accounting returns: the operating earnings to assets ratio, the operating earnings to sales ratio and the excess of operation valuation (R. A. Wood & Cochran, 1984, p. 49). The authors also considered asset age and asset turnover as explanatory variables. After regressions were performed, the authors established a positive correlation between accounting performance and SR. Wood and Cochran also concluded that corporates with older assets, tend to have lower CSR ratings.

A good example of "going beyond" CSR during the decade of the 1980's was the increasing recognition of the idea of "corporate social performance" as a more comprehensive hypothesis under which the concept of CSR might be classified (Carroll, 2009). As mentioned above in the decade of the 1970's, the notion of CSP has been studied and analysed by some authors. In 1985, further research was made by Cochran & Wartick (1985) where they described an evolution of CSP model by concentrating on three concepts of CSR: social responsibility, social responsiveness and public responsibility, followed by a "*principle/process/policy approach*", respectively (Cochran & Wartick, 1985, p. 763).

Still in the mid-1980's, Aupperle, Carroll & Hatfield (1985) performed an analysis through the application of a forced-choice survey instrument to chief executive officers (CEOs). The authors concluded that no significative relation existed between corporate social performance and corporate's risk adjusted return-on-assets (ROA).

In 1987, Edwin M. Epstein suggested a new concept named "*Corporate Social Policy Process*" by incorporating key components from business ethics, corporate responsiveness and CSR concepts (Epstein, 1987, p. 102).

Mcguire, Sundgren & Schneeweis (1988) used risk-adjusted return and total return as market performance measures and beta and standard deviation of total return as measures for market risk, to produce a study with a sample of firms in order to analyse the correlation between CSR and Firm Performance. The results revealed an insignificant relation between SR

and stock-market-based performance measures. In contrast, the authors identified a positive relationship between CSR and ROA and total assets.

As mentioned above, the decade of 1980's was marked by two important and alternative subjects: the stakeholder theory and business ethics. In 1984, R. Freeman (1984) published "*Strategic management: a stakeholder approach*" centring on strategic management. It was further developed in the following years and decades. The business ethics topic emerged in this decade that was marked by the ethical scandals around the world such as the explosion in India of Union Carbide Bhopal, in 1984, the questionable support of firms in relation to apartheid by maintaining businesses in South Africa and the inside trading scandal of Ivan Boesky (Carroll, 2009).

2.1.5. CSR in the 1990's

The analysis of the relationship between financial performance and corporate social performance was further developed in the decade of 1990's.

In 1991, Carroll re-examined his framework performed in 1979 and defined a four-part conceptualization of economic, legal, ethical and philanthropic/discretionary responsibilities (Carroll, 1991, p. 40). In a pyramidal shape, Carroll defined the four responsibilities in tiers as shown in Figure 2.:



Figure 2 - The Corporate Social Responsibility Pyramid.
Source: Adapted from Carroll (1991, p.42).

Carroll defends that, despite these concepts have different meanings, they are not communally exclusive and are not meant to compare a company's economic responsibilities, with its other responsibilities.

In 1992, *Business for Social Responsibility* (BSR), a non-profitable organization was founded to embody programs and help corporates to implement and successfully develop SR practices. BSR also states that empowers its representatives to leverage CSR as a competitive advantage.

Swanson (1995) and D. J. Wood (1991) conducted studies with the aim of including the position of social issues into evaluation of CSP. Through the computation of regression analysis, the authors used size, industry and risk as control variables and used the level of debt held by the firm as a proxy for management's risk tolerance (Waddock & Graves, 1997, p. 309). As conclusion, the authors found a positive relation between CSP and financial performance. Waddock and Graves also highlight that corporations with available resources may choose to expend it on "doing good by doing well" and consequently an improvement of overall corporate social performance.

In 1997, Waddock & Graves (1997) conducted a study with the objective of testing if CSP is both a predictor and a consequence of corporations' financial performance.

At the end of the decade, several books were published including new and redefined concepts. Some examples of it is Elkington (1998), as he built a concept of Triple Bottom Line (TBL), by applying stakeholder theory to evaluate the impact of corporate social responsibility with focus on economic, social and environmental concepts. Another important book published was "*Stakeholders, Social Responsibility, And Performance: Empirical Evidence and Theoretical Perspectives*", written by Harrison & Freeman (1999), where they provided a detailed overview of six efforts to accomplish ideas regarding social responsibility, stakeholders and performance.

During the end of the decade of 1980's and into the decade of 1990's, the philanthropic notion grew significantly (Carroll, 2009). At the end of 1990's, Muirhead (1999) defined this decade of firm contributions as diversified and globalized.

2.1.6. CSR in the 2000's

In the 2000's, the theoretical work done on previous decades has contributed to a growth on empirical research and developments beyond the notion and meaning of CSR concept, such as the stakeholder theory, sustainability, business ethics and corporate citizenship (Carroll, 2009). One example of the increasing importance of CSR concept among the business performance is the first report released by the Organisation for Economic Co-operation and Development (OECD, 2001) with CSR guidelines for its constituent countries with voluntary projects in this area.

In the early 2000's, Husted (2000) presented a contingency theory of CSP gathering the notion of social issue and its corresponding structures and approaches. The author suggests that a high CSP may be achieved by closing existing gaps of social issues that occur between the visions of the company and its stakeholders, and integrates in this model elements of CSR, corporate social responsiveness, management issues and stakeholder management (Husted, 2000, p. 41).

McWilliams & Siegel (2000) revisited the econometric model used by Waddock & Graves (1997) and considered it was an inconsistent and mis specified model due to the omission of certain variables that control the company's rate of investments in Research and Development (R&D) and the advertising intensity of the business. In order to overcome this problem, McWilliams & Siegel included on the original econometric model performed by Waddock & Graves, two covariates: "*R&D intensity of firm (R&D expenditure/sales)*" and "*advertising intensity of the industry of firm*" (McWilliams & Siegel, 2000, p. 604). The authors observed a high correlation between R&D and CSP, and with R&D intensity included in the model, CSP and firm profitability have a neutral relationship.

Rowley & Berman (2000) supported the idea of a linkage between CSP and Financial Performance (FP) and that the future path of CSP needed to be created not by including all features of CSP but instead operation measures should be narrowed. Followed by these authors, Griffin (2000) defended the idea that existing studies in related fields such as psychology, marketing and human relations can contribute to an increase of the understanding of CSP. In a study conducted by R. Jones & Murrell (2001), the authors

concluded that public recognition of a firm for good social performance can contribute as a positive signal of the company's performance to its shareholders.

Backhaus, Stone, & Heiner (2002) performed a study to analyse the employment attractiveness to CSP. They concluded that job seekers tend to consider CSP as an important topic to the assessment of a firm and that women and other minorities have a higher interest and concerns on good social performance of a firm.

Hillman & Keim (2001) tested the relationship between stakeholder management (SM), shareholder value and social issue participation (SIP) and concluded that by creating better relations with primary stakeholders such as customers, employees, suppliers and communities could contribute to a growth on the shareholder capital and consequently be a competitive advantage. With a sample of firms and testing econometric regressions using the following variables: Market-to-book Assets, Market Value Added, ROA, ROE, Net Sales and Net Income as proxies for size, Industry, Beta as a measure of risk, SIP and SM (Hillman & Keim, 2001, p. 133), the authors established a negative relation between social issue participation and shareholder value, in contrast with a positive relation between stakeholder management and shareholder value.

After the studies conducted by Carroll (1979, 1991) where he defined a three-domain approach and a CSR pyramid with four categories, Schwartz & Carroll (2003) reviewed these models and narrowed the categories to three: economic, legal, and ethical domains (Schwartz & Carroll, 2003, p. 525). This new Venn model, according to the authors, contributed the discussion of business ethics, converged the philanthropic theory into the ethical element and defined that philanthropy could be hypothesized in discretionary and ethical terms.

In 2007, Kempf & Osthoff (2007) performed an analysis of the effect of Socially Responsible Investing (SRI) on portfolio performance. The authors studied whether investors can rise their performance using a simple strategy of buying stocks with high SRI ratings and selling stocks with low SRI ratings. To do so, they used KLD ratings data to evaluate the SR of a company, and six qualitative measures: "*community, diversity, employee relations, environment, human rights, and product*" (Kempf & Osthoff, 2007, p. 910). As results, the authors concluded that market-risk, size, book-to-market and the momentum factor have a substantial effect on the portfolios' excess returns.

Contrarily, López, Garcia, & Rodriguez (2007) report a negative relationship between CSR and financial performance, establishing that the result of sustainability methods on performance measures is negative in the first years in which the indicators are applied.

Wahba (2008) in his study stated that the market compensates companies for being environmental conscious and concluded that corporate environmental responsibility contributed to a positive and significant coefficient on the market-value of a company by using Tobin's q ratio a measure. Also, Rettab, Brik & Mellahi (2009) established a positive association between CSR and financial performance.

2.1.7. CSR in the 2010's until today

The past decade was marked by a continuous increasing of the awareness and importance of CSR within the performance of the firms. Gholami (2011) described in his paper the value creation for a firm and society because of a common dependency between them due to the link between corporate performance and CSR, including not only financial but also non-financial performance. The author proposed a new framework comprising a value creation cycle based on organization performance and Carroll's pyramid (Carroll, 1991) in which the four responsibilities outlined in the pyramid ought to be delivered by a firm in order to create value for the society and for the organization.

Groening & Kanuri (2013) and Barnea & Rubin (2010) showed a negative relationship of CSR in the companies' performance stating that firms may be using valuable and limited resources in CSR activities that could instead been used to invest in more profitable projects.

In 2017, Wang & Sarkis (2017) studied the effect of CSR outcomes in the relationship between financial performance and CSR governance. The authors used a sample of 1980 firm-year observations from 423 companies for year between 2009 and 2013. As independent values, the authors used Environmental, Social and Governance (ESG) criteria and as dependent values, ROA and Tobin's Q were considered. After an econometric analysis, the conclusion accomplished is that corporate CSR outcomes contribute to better financial outcomes.

Dyck, Lins, Roth & Wagner (2019) conducted an analysis using a sample of traded companies from 41 countries and concluded that institutional investors are seeking for firms that have a

strong level of Environmental and Social performance. The authors also conclude that companies are motivated not only by financial returns but also social returns.

Fernandes (2019) analysed the relationship between CSR and the financial performance of European companies. The author used ESG scores to estimate the CSR performance and ROA, ROE and Tobin's Q to represent financial performance of the companies. The author concluded that companies with higher CSR performance have higher returns, however, no evidence was found that companies with a lower CSR performance are linked to worse financial outcomes. The author also concluded that each individual pillar of ESG has different relationships with the performance of the firms, highlighting that Social and Governance performance have a positive relationship with the companies' performance whilst Environmental performance has a negative relationship with the firms' performance and firms' value.

In 2020, Szegedi, Khan, & Lentner conducted a study to analyse CSR impact on the financial performance in the Pakistan's banking sector. The authors used data from 2008 to 2018 and 4 financial indicators to examine the financial performance of the Pakistani Banks: ROA, ROE, Earnings per Share (EPS) and Tobin's Q. The authors observed an increase of 14.58% in CSR disclosure during period analysed and concluded that the Pakistan's banking sector participation in CSR practices benefits their accounting-based economic performance.

3. MATERIALS AND METHODS

3.1. DATA

This analysis will be conducted with a sample of 744 companies from 31 countries (Appendix A and B) around the world. These companies correspond to 147 different industries. This analysis comprises data from the past 15 Fiscal Years, between 2005 and 2019. All Data is retrieved from Thomas Reuters Eikon (data retrieved on August 2020) and treated as a panel data model, as variables' behaviour is observed over a given period.

3.2. VARIABLES

The variables used on this study can be classified as Dependent Variables, Independent Variables and Control Variables. Figure 3 summarizes the Framework used in this study (Szegedi et al., 2020).

Conceptual Framework:

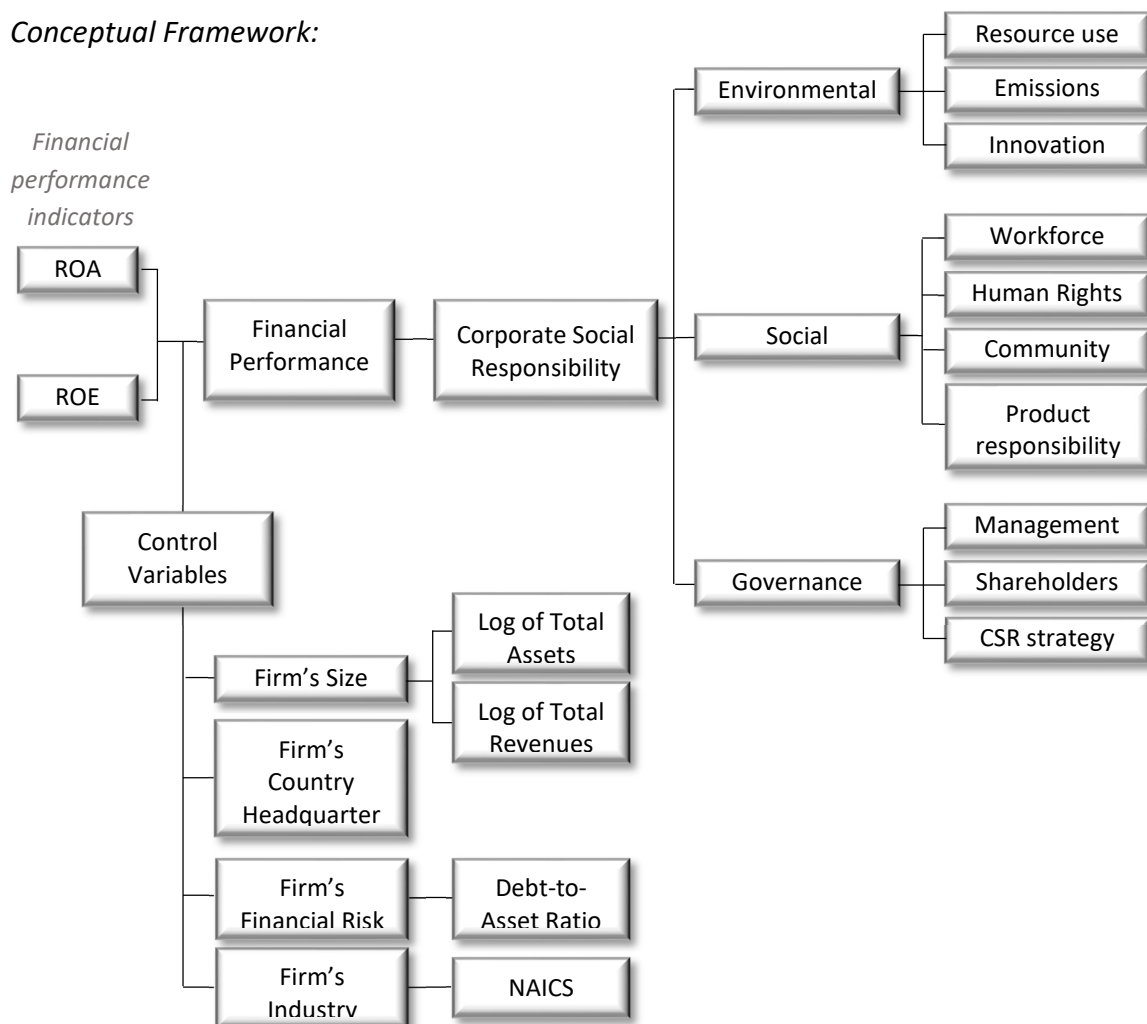


Figure 3 – Conceptual Framework of the study.
Source: Author's elaboration.

Dependent Variables

The dependent variables used in this study are market and accounting-based measures of financial performance. As accounting-based measures, it will be considered Return on Assets (ROA) (Aupperle et al., 1985; Hillman & Keim, 2001; McGuire et al., 1988; Wang & Sarkis, 2017) and Return on Equity (ROE) (Bowman & Haire, 1975; Hillman & Keim, 2001; Szegedi et al., 2020). This selection follows similar studies analysing corporate financial performance.

Independent Variables

As Independent variables, it is considered the company's total ESG scores and the three pillars that constitute the ESG score: Environmental Pillar Score, Governance Pillar Score and Social Pillar Score. The three Pillar Score subdivides these 3 scores in 10 categories as shown in Figure 1., that are proportionately weighted to the count of measures within each category. The ESG Score is an equally weighted average of these three pillars' scores. These scores are classified between 0 and 100, being 100 the highest score that a firm can accomplish.

Control Variables

Other factors can influence the performance of companies. Therefore, as control variables we consider Size, Risk, Industry and Country Headquarters (Hillman & Keim, 2001; Swanson, 1995; Waddock & Graves, 1997). Size is a relevant factor since it influences the performance of a company and there is evidence from previous studies that bigger companies may exhibit more socially responsible behaviours than smaller companies. Size is evaluated using the Log of Total Assets and the Log of Total Revenues (Hillman & Keim, 2001; Swanson, 1995; Waddock & Graves, 1997; D. J. Wood, 1991). To control companies' financial Risk we compute the leverage ratio debt-to-asset, following previous analysis suggesting a higher leverage ratio might correspond to a higher financial risk, and consequently, worse financial performance (Hillman & Keim, 2001; Waddock & Graves, 1997; Wang & Sarkis, 2017). As social and environmental activities may differ among industries, it is relevant to consider Industry as a control variable. Industry is determined by NAICS National Industry Name system and represented by dummy variables (Hillman & Keim, 2001; Waddock & Graves, 1997; Wang & Sarkis, 2017). Since this analysis includes a sample of companies from all over the world, it is also important to consider the company's headquarter location, also represented by dummy

variables. Lastly, as this study is being conducted with data from the last 15 Fiscal Years, time dummies are also important to be considered and included, to capture the influence of time trends.

3.3. METHODOLOGY

The aim of this study is to analyse whether Corporate Social Responsibility, through Total ESG scores and each individual pillar score, has a positive/negative/mixed/inexistence effect on firm's performance. To investigate this relationship, this study will be performed using the standard regression analysis using Ordinary Least Squares (OLS) method. In this analysis it is used the estimation model Least Square Dummy Variable (LSDV) and the individual effect is assumed as fixed over time for each individual. The estimated standard errors are robust as we use the White Matrix in the model estimation.

Dummy variables used in the following set of regressions are defined as per below:

$$year_x = \begin{cases} 1, & \text{if } t = x \\ 0, & \text{if } t \neq x \end{cases} \quad (1)$$

where in total there are 14 dummies and the variable "i.year" already includes all those dummies.

$$nNAICS_x = \begin{cases} 1, & \text{if } t = x \\ 0, & \text{if } t \neq x \end{cases} \quad (2)$$

where in total there are 146 dummies and the variable "i.nNAICS" already includes all those dummies.

$$nCountryHeadquarters_x = \begin{cases} 1, & \text{if } t = x \\ 0, & \text{if } t \neq x \end{cases} \quad (3)$$

where in total there are 30 dummies and the variable "i.nCountryHeadquarters" already includes all those dummies.

Firstly, regressions will be computed to analyse each dependent Variable (ROA and ROE) with the Total ESG Score of the firms. These regressions will include the control variables described in the section 3.2. *Variables*.

Regression set 1:

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 lTotalAssets_{it} + \beta_3 lTotalRevenues_{it} + \beta_4 i.nNAICS_{it} \\ & + \beta_5 i.year_{it} + \beta_6 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (4)$$

$$\begin{aligned} ROE_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 lTotalAssets_{it} + \beta_3 lTotalRevenues_{it} + \beta_4 i.nNAICS_{it} \\ & + \beta_5 i.year_{it} + \beta_6 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (5)$$

where α_i denotes unobservable individual fixed effects (constant effect over time) and ε_{it} is an error term, with errors normally distributed and homoscedasticity, i.e., $\varepsilon_{it} \sim N(0, \sigma^2)$.

These regressions will also be performed excluding the Countries Dummies from the analysis (Fernandes, 2019):

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 lTotalAssets_{it} + \beta_3 lTotalRevenues_{it} + \beta_4 i.nNAICS_{it} \\ & + \beta_5 i.year_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (6)$$

$$\begin{aligned} ROE_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 lTotalAssets_{it} + \beta_3 lTotalRevenues_{it} + \beta_4 i.nNAICS_{it} \\ & + \beta_5 i.year_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (7)$$

Secondly, based on the evolution of the Companies' ESG Score represented on Figure 4, and given the increase of the ESG Score average after 2014, a dummy variable is inserted (AFTER__ESGScore) to analyse the relationship between ESG Score and firm's performance after 2014. AFTER__ESGScore assumes a value equal to 1 if year is equal or after 2014, and assumes a value of 0, otherwise.

Regression set 2:

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 AFTER_ESGScore_{it} + \beta_3 lTotalAssets_{it} \\ & + \beta_4 lTotalRevenues_{it} + \beta_5 i.nNAICS_{it} + \beta_6 i.year_{it} \\ & + \beta_7 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (8)$$

$$\begin{aligned}
ROE_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 AFTER_ESGScore_{it} + \beta_3 lTotalAssets_{it} \\
& + \beta_4 lTotalRevenues_{it} + \beta_5 i.nNAICS_{it} + \beta_6 i.year_{it} \\
& + \beta_7 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it}
\end{aligned} \tag{9}$$

$$\begin{aligned}
ROA_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 AFTER_ESGScore_{it} + \beta_3 lTotalAssets_{it} \\
& + \beta_4 lTotalRevenues_{it} + \beta_5 i.nNAICS_{it} + \beta_6 i.year_{it} + \alpha_i + \varepsilon_{it}
\end{aligned} \tag{10}$$

$$\begin{aligned}
ROE_{it} = & \beta_0 + \beta_1 ESGscore_{it} + \beta_2 AFTER_ESGScore_{it} + \beta_3 lTotalAssets_{it} \\
& + \beta_4 lTotalRevenues_{it} + \beta_5 i.nNAICS_{it} + \beta_6 i.year_{it} + \alpha_i + \varepsilon_{it}
\end{aligned} \tag{11}$$

Thirdly, as the sample used in this investigation contain companies with different sizes, the following set of regressions include dummy variables that analyse the relationship between ESG Score and the 20% companies with higher values of total revenues and the relationship between ESG Score and the 20% of companies with lower values of total revenues, considering data from the last fiscal year (2019).

Regression set 3:

$$\begin{aligned}
ROA_i = & \beta_0 + \beta_1 ESGscore_i + \beta_2 HIGH_lTotalRevenues_i + \beta_3 LOW_lTotalRevenues_i \\
& + \beta_4 lTotalAssets_i + \beta_5 lTotalRevenues_i + \beta_6 i.nNAICS_i \\
& + \beta_7 i.nCountryHeadquarters_i + \alpha_i + \varepsilon_i
\end{aligned} \tag{12}$$

$$\begin{aligned}
ROE_i = & \beta_0 + \beta_1 ESGscore_i + \beta_2 HIGH_lTotalRevenues_i + \beta_3 LOW_lTotalRevenues_i \\
& + \beta_4 lTotalAssets_i + \beta_5 lTotalRevenues_i + \beta_6 i.nNAICS_i \\
& + \beta_7 i.nCountryHeadquarters_i + \alpha_i + \varepsilon_i
\end{aligned} \tag{13}$$

$$\begin{aligned}
ROA_i = & \beta_0 + \beta_1 ESGscore_i + \beta_2 HIGH_lTotalRevenues_i + \beta_3 LOW_lTotalRevenues_i \\
& + \beta_4 lTotalAssets_i + \beta_5 lTotalRevenues_i + \beta_6 i.nNAICS_i + \alpha_i + \varepsilon_i
\end{aligned} \tag{14}$$

$$\begin{aligned}
ROE_i = & \beta_0 + \beta_1 ESGscore_i + \beta_2 HIGH_lTotalRevenues_i + \beta_3 LOW_lTotalRevenues_i \\
& + \beta_4 lTotalAssets_i + \beta_5 lTotalRevenues_i + \beta_6 i.nNAICS_i + \alpha_i + \varepsilon_i
\end{aligned} \tag{15}$$

Lastly, to have a deeper analysis of the relationship of each ESG pillar, Environment, Social and Governance, and the firm's performance, the following regressions were performed. The results of these regressions allow to draw conclusions of which factor has a higher impact on the performance of the companies.

Regression set 4:

$$\begin{aligned}
 ROA_{it} = & \beta_0 + \beta_1 EnvironmentPillarScore_{it} + \beta_2 SocialPillarScore_{it} \\
 & + \beta_3 GovernancePillarScore_{it} + \beta_4 lTotalAssets_{it} \\
 & + \beta_5 lTotalRevenues_{it} + \beta_6 i.nNAICS_{it} + \beta_7 i.year_{it} \\
 & + \beta_8 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it}
 \end{aligned} \tag{16}$$

$$\begin{aligned}
 ROE_{it} = & \beta_0 + \beta_1 EnvironmentPillarScore_{it} + \beta_2 SocialPillarScore_{it} \\
 & + \beta_3 GovernancePillarScore_{it} + \beta_4 lTotalAssets_{it} \\
 & + \beta_5 lTotalRevenues_{it} + \beta_6 i.nNAICS_{it} + \beta_7 i.year_{it} \\
 & + \beta_8 i.nCountryHeadquarters_{it} + \alpha_i + \varepsilon_{it}
 \end{aligned} \tag{17}$$

$$\begin{aligned}
 ROA_{it} = & \beta_0 + \beta_1 EnvironmentPillarScore_{it} + \beta_2 SocialPillarScore_{it} \\
 & + \beta_3 GovernancePillarScore_{it} + \beta_4 lTotalAssets_{it} \\
 & + \beta_5 lTotalRevenues_{it} + \beta_6 i.nNAICS_{it} + \beta_7 i.year_{it} + \alpha_i + \varepsilon_{it}
 \end{aligned} \tag{18}$$

$$\begin{aligned}
 ROE_{it} = & \beta_0 + \beta_1 EnvironmentPillarScore_{it} + \beta_2 SocialPillarScore_{it} \\
 & + \beta_3 GovernancePillarScore_{it} + \beta_4 lTotalAssets_{it} \\
 & + \beta_5 lTotalRevenues_{it} + \beta_6 i.nNAICS_{it} + \beta_7 i.year_{it} + \alpha_i + \varepsilon_{it}
 \end{aligned} \tag{19}$$

To perform these regressions, the variable year was constructed to be a panel variable, in order to analyse the data behaviour across time.

4. RESULTS

4.1. DESCRIPTIVE DATA

To summarize the data used in this analysis, a descriptive statistic table was performed. Table 2 includes the mean, standard deviation, minimum value and maximum value of the variables used in this study for a sample of 744 companies from 31 countries.

Table 2 – Data Summary Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ESGScore	11,160	57.68605	18.04758	3.021774	95.07291
EnvironmentPillarScore	11,160	57.86344	23.31439	0.171233	99.05801
SocialPillarScore	11,160	56.75433	22.79391	0.871795	98.63627
GovernancePillarScore	11,160	58.0879	21.56919	2.271605	99.33484
ROE	11,159	0.133341	1.006666	-53.3255	15.51351
ROA	11,160	0.049366	0.061883	-0.7856	0.720259
Risk	11,160	0.255082	0.19907	1.98E-06	8.508082
lTotalRevenues	11,149	22.8776	1.414485	16.59456	26.98469
lTotalAssets	11,160	23.37185	1.429315	18.33105	28.06805

Notes: This sample contains of Fiscal Year observations from 2005 to 2019. All data is retrieved from Thomson Reuters Eikon. The summary includes number of observations, mean, standard deviation, minimum and maximum, for independent and control variables.

Concerning the dependent variables, the sample of countries has an average of Return on Assets (ROA) of 4.94% and an average of Return on Equity (ROE) of 13.33%.

Regarding independent variables, ESG global score has a mean on 57.69, and for each individual pillar, Environmental Pillar Score, Social Pillar Score and Governance Pillar Score, we observe a mean of 57.86, 56.75 and 58.08, respectively.

Lastly, on the control variables, the ratio Debt to Asset used to control the companies' financial Risk we observe an average of 0.26; the Log of Total Revenues and the Log of Total Assets used to evaluate the size of the companies in the sample, have an average of 22.88 and 23.37, respectively. Figure 4 outlines the evolution of average of ESG Score for the companies in the sample in the past 15 fiscal years.

Figure 4 demonstrates a clear evolution of the investment done by these companies on ESG factors. Between 2005 and 2008 it is possible to observe a constant increase on ESG Score

from 41.93 to 53.8 points, followed by a smooth increase until 2011 reaching an average of 59.84. Between 2011 and 2014 the ESG Score average remained constant. From 2014 to 2019 it is possible to observe again a constant increase reaching 67.22 points in 2019. These results observed from 2014 are also sustained by a study conducted by Roncalli & Mortier (2019) where the authors conclude that since 2014, the integration of ESG factors created alpha in portfolios in the Eurozone and North America.

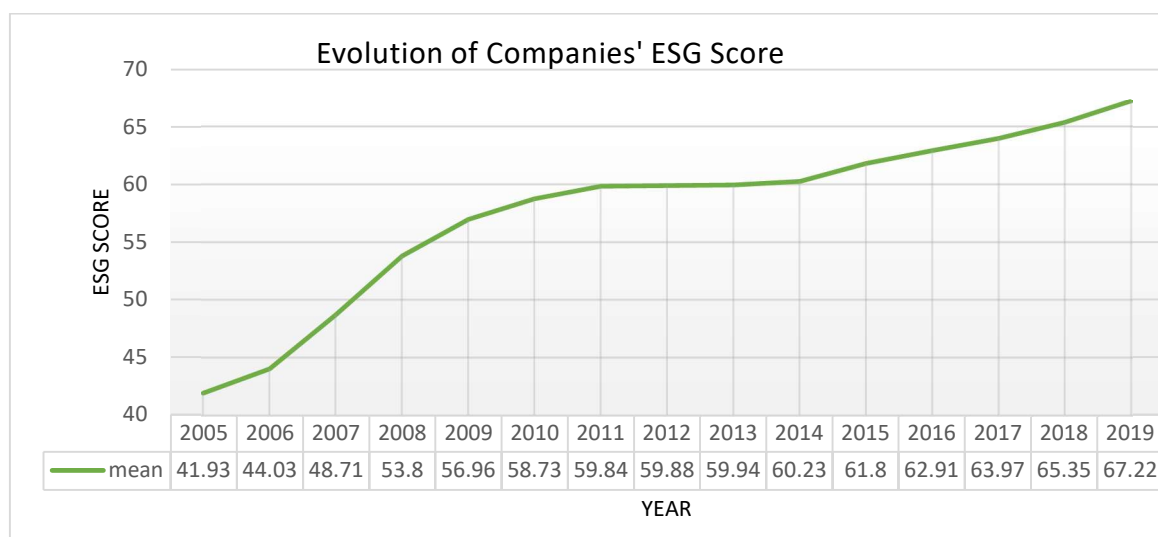


Figure 4 – Representation of the average of companies' ESG Score evolution considered in this sample, from 2005 to 2019.

Source: Author's elaboration.

4.2. RESULTS

Table 3 shows the results of Regression Set 1 described above on Methodologies. Regressions (1) and (3) have as dependent variable Return on Assets (ROA) and regressions (2) and (4) have as dependent variable Return on Equity (ROE). (1) and (2) regressions were performed with independent variable ESGScore and control variables Risk ITotalAssets, ITotalRevenues, nNAICS, year and nCountryHeadquarters. Regression (3) and (4) excludes variable nCountryHeadquarters.

Analysing regression (1), all variables are statistically significant, being ESGScore statistically significant at the 10% level and all others at the 1% level. On regression (3), all are statistically significant on level 1%. These results allow to reject the null hypothesis.

On regression (2) only Risk variable has significance at the 10% level. On regression (4) variables Risk and ITotalAssets are statistically significant at 10% level.

All other variables do not have any statistical significance.

The ESGScore is statistically significant at the 10% level on regression (1) and at the 1% level on regression (3). This variable also shows a positive relationship with the performance of the companies on regressions (1) and (3), meaning that an increase of 1 in ESGScore, in terms of the dependent variable, the companies have on average a positive increase of ROA and ROE, respectively. These results allow to conclude that an investment on Corporate Social Responsibility contribute to a better performance of the companies. However, ESGScore has no statistical significance on regression (2) and (4).

The ratio Debt-to-Asset used to control the firms' financial Risk, described as variable Risk, as a negative relationship on all regressions, with the dependent variable. It can be interpreted as the higher the ratio Debt to Asset, the lower the value of ROA.

Regarding the firm size, examined by the Log of Total Assets and the Log of Total Revenues, the regressions show mixed results. The variable lTotalRevenues has a positive relationship with the dependent variables, whilst lTotalAssets has a negative relationship with the dependent variables.

Table 3 - Regression Set 1: results from OLS coefficients and t-statistic analysis from the regressions of ROA and ROE and ESG Score.

VARIABLES	(1) ROA	(2) ROE	(3) ROA	(4) ROE
ESGScore	7.75e-05* (4.32e-05)	-4.28e-08 (0.000878)	0.000167*** (4.09e-05)	0.00103 (0.000739)
Risk	-0.0369*** (0.0125)	-0.186* (0.101)	-0.0401*** (0.0129)	-0.191* (0.104)
lTotalAssets	-0.0242*** (0.00176)	-0.0311 (0.0293)	-0.0194*** (0.00174)	-0.0397* (0.0220)
lTotalRevenues	0.0233*** (0.00177)	0.0454 (0.0298)	0.0173*** (0.00178)	0.0370 (0.0262)
nNAICS	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
nCountryHeadquarters	Yes	Yes	No	No
Constant	0.175*** (0.0232)	0.146 (0.258)	0.206*** (0.0228)	0.509** (0.252)
Observations	11,149	11,148	11,149	11,148
R-squared	0.279	0.037	0.231	0.034

Notes: Regressions include Industry Dummies, Year Dummies, Country Headquarter Dummies, where indicated. Robust standard errors in parentheses. The significance of 1%, 5% and 10% of the coefficients are represented by ***, ** and *, respectively.

On Regression Set 2, a dummy variable is inserted, AFTER__ESGScore, whereas AFTER__ESGScore corresponds to 1 for years equal and after 2014 and 0 for years before 2014.

Given the increase on the average of ESGScore after 2014 until 2019, observed on Figure 4, the following regressions aimed to test if after 2014, the ESGScore influenced or not ROA and ROE, respectively.

The results on Table 4 shows that variable AFTER__ESGScore does not have statistical significance on any regression in terms of the dependent variables.

These results state that, given no statistical significance of the dummy variable inserted, there is no evidence that after 2014, there was higher contribution of ESG Score to the performance of the companies.

The control variables show similar results as described on Regression 1 analysis.

Only on regression (3) ESGScore shows statistical significance at the 1% level.

Table 4 – Regression Set 2: results from OLS coefficients and t-statistic analysis from the regressions of ROA and ROE and ESG Score and AFTER__ESGScore Dummy.

VARIABLES	(1) ROA	(2) ROE	(3) ROA	(4) ROE
ESGScore	3.90e-05 (5.06e-05)	0.000137 (0.000962)	0.000144*** (4.76e-05)	0.00122 (0.000803)
AFTER__ESGScore	9.98e-05 (6.31e-05)	-0.000356 (0.00110)	6.18e-05 (6.57e-05)	-0.000499 (0.00110)
Risk	-0.0368*** (0.0125)	-0.186* (0.101)	-0.0400*** (0.0129)	-0.191* (0.104)
ITotalAssets	-0.0242*** (0.00176)	-0.0310 (0.0292)	-0.0195*** (0.00174)	-0.0397* (0.0220)
ITotalRevenues	0.0233*** (0.00177)	0.0453 (0.0297)	0.0173*** (0.00178)	0.0369 (0.0261)
nNAICS	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
nCountryHeadquarters	Yes	Yes	No	No
Constant	0.177*** (0.0234)	0.137 (0.257)	0.207*** (0.0231)	0.498** (0.254)
Observations	11,149	11,148	11,149	11,148
R-squared	0.279	0.037	0.231	0.034

Notes: Regressions include Industry Dummies, Year Dummies, Country Headquarter Dummies, where indicated. Robust standard errors in parentheses. The significance of 1%, 5% and 10% of the coefficients are represented by ***, ** and *, respectively.

On Regression Set 3, represented on Table 5, since the sample being considered in this dissertation contains companies with different sizes and consequently different amounts of Total Revenues, it was included two dummy variables, one that refer to the 20% of companies with higher amount of ITotalRevenues named HIGH__ITotalRevenues and another one that correspond to the 20% of companies with lower values of ITotalRevenues, named LOW__ITotalRevenues. The 20% high and low were defined based on the data from the last fiscal year (2019), and therefore the variable year was removed from the set of equations.

On regression (1), with ROA as dependent variable, ESGScore variable is statistically significant on the 5% level, and shows a negative relationship with the dependent variable. Also, on this regression, variable LOW__ITotalRevenues shows a statistical significance on the 1% level while the HIGH__ITotalRevenues variable does not show any statistical significance. All other control variables are statistically significant at 1% level, and variables Risk and ITotalAssets are negative coefficients.

On regression (2), with ROE as dependent variable, all variables are not statistically significant except Risk, being significant at the 10% level.

On regression (3), ESGScore does not show statistical significance, while all other variables show the same results as described on regression (2), except dummy HIGH__ITotalRevenues, that displays a positive coefficient and a statistical significance at 5% level.

On regression (4), HIGH__ITotalRevenues is statistically significant at the 10% level, Risk and ITotalAssets have a negative relationship with ROE and are statistically significant at the 10% and 5% levels, respectively.

These results show that an increase of 1 on variable LOW__ITotalRevenues, has a positive impact of 0.000662% on ROA in regression (1), however an increase of 1 on ESGScore decreases ROA by $8.64e^{-05}$ units.

Table 5 – Regression Set 3: results from OLS coefficients and t-statistic analysis from the regressions of ROA and ROE and ESG Score. Dummies HIGH__ITotalRevenues and LOW__ITotalRevenues were included.

VARIABLES	(1) ROA	(2) ROE	(3) ROA	(4) ROE
ESGScore	-8.64e-05** (3.70e-05)	-0.000767 (0.000898)	-1.24e-05 (3.65e-05)	0.000155 (0.000743)
HIGH__ITotalRevenues	5.18e-05 (9.24e-05)	0.00207 (0.00140)	0.000183** (9.32e-05)	0.00257* (0.00133)
LOW__ITotalRevenues	0.000662*** (0.000114)	-0.000294 (0.00177)	0.000878*** (0.000118)	0.000438 (0.00163)
Risk	-0.0385*** (0.0130)	-0.189* (0.101)	-0.0409*** (0.0132)	-0.193* (0.105)
ITotalAssets	-0.0245*** (0.00177)	-0.0356 (0.0277)	-0.0205*** (0.00173)	-0.0469** (0.0207)
ITotalRevenues	0.0271*** (0.00204)	0.0427 (0.0291)	0.0221*** (0.00205)	0.0375 (0.0258)
nNAICS	Yes	Yes	Yes	Yes
year	No	No	No	No
nCountryHeadquarters	Yes	Yes	No	No
Constant	0.107*** (0.0313)	0.342 (0.233)	0.129*** (0.0309)	0.687*** (0.257)
Observations	11,149	11,148	11,149	11,148
R-squared	0.261	0.036	0.215	0.032

Notes: Regressions include Industry Dummies and Country Headquarter Dummies, where indicated. The significance of 1%, 5% and 10% of the coefficients are represented by ***, ** and *, respectively.

Lastly, on Table 6, in Regression Set 4 we consider ESG individual pillars to further understand how each ESG pillar score impacts firm's financial performance.

As presented on Table 6, the variable EnvironmentPillarScore is statistically significant on the 1% level on regression (3) and statistically significant on the 5% level on regression (4) where EnvironmentPillarScore presents a negative relationship with the dependent variable.

The variable SocialPillarScore is statistically significant at the 1% level on regression (1), (3) and (4). It shows a positive relationship with ROE and ROA.

The variable GovernancePillarScore is only significant on regression (3) on the 10% level. Also, this variable has a negative relationship with the dependent variable.

The control variables show similar results as described on Regression 1 analysis.

It is clear that the pillar that contributes the most to a good performance of the firm is the Social Pillar.

Table 6 – Regression Set 4: results from OLS coefficients and t-statistic analysis from the regressions of ROA and ROE and each individual ESG pillar score: Environmental, Social and Governance.

VARIABLES	(1) ROA	(2) ROE	(3) ROA	(4) ROE
EnvironmentPillarScore	1.29e-05 (3.35e-05)	-0.000631 (0.000504)	-0.000116*** (3.32e-05)	-0.000966** (0.000461)
SocialPillarScore	0.000110*** (4.22e-05)	0.000582 (0.000455)	0.000312*** (3.64e-05)	0.00163*** (0.000397)
GovernancePillarScore	-4.30e-05 (2.91e-05)	-8.40e-05 (0.000533)	-5.04e-05* (2.87e-05)	0.000102 (0.000514)
Risk	-0.0370*** (0.0125)	-0.187* (0.101)	-0.0407*** (0.0129)	-0.194* (0.105)
ITotalAssets	-0.0242*** (0.00176)	-0.0304 (0.0296)	-0.0199*** (0.00173)	-0.0410* (0.0222)
ITotalRevenues	0.0231*** (0.00178)	0.0456 (0.0296)	0.0176*** (0.00178)	0.0396 (0.0258)
nNAICS	Yes	Yes	Yes	Yes
year	Yes	Yes	Yes	Yes
nCountryHeadquarters	Yes	Yes	No	No
Constant	0.181*** (0.0233)	0.131 (0.238)	0.212*** (0.0231)	0.495** (0.237)
Observations	11,149	11,148	11,149	11,148
R-squared	0.280	0.037	0.235	0.034

Note: All regressions include Industry Dummies, Year Dummies and Country Headquarter Dummies, where indicated. The significance of 1%, 5% and 10% of the coefficients are represented by ***, ** and *, respectively.

5. CONCLUSIONS

The aim of this study is to form a comprehensive and structured analysis between the performance of CSR and the companies' performance. This dissertation contributes to the existing research and aims to add new findings to this theme.

From the results obtained above in this paper we conclude that there is a positive relationship between Corporate Social Responsibility and the financial performance of the companies. It is possible to observe that an investment on ESG factors contribute to a higher Return on Assets and therefore it can be inferred that the performance of the firms rises.

As observed in Figure 3, the average of ESG Score rose after 2014 until 2019. Therefore, an analysis was conducted to understand if, after 2014, ESG Score influenced the performance of the companies. The results allow to conclude that there is not statistical significance to conclude that ESG score contributed to the performance of the companies between this period.

Another conclusion reached from this study is that companies that have an extremely low value of Total Revenues do not benefit from an investment on ESG Factors, in fact, the results show a negative relationship between ESG Score and Return on Assets. On the other hand, no evidence shows that companies with extremely high value of Total Revenues contribute to a positive or negative relationship with firm's performance.

Lastly, this study allows to conclude that when considering the three pillar scores individually, the Social Pillar is the only one that clearly lead to a better performance of the companies since it has a positive and statistically relationship with Return on Assets ratio. In contrast, the Environmental and Governance pillar scores have a negative relationship with Return on Assets and Return on Equity.

Given these conclusions, we aim that companies start to consider and increase their investment on Environment, Social and Governance factors in their strategies as it not only leads to a better financial performance but also contributes to a healthier world where the companies have an important role to a good development of the society and where future generations can lead by example.

Despite the conclusions found in this study, there is still room to improve and reduce limitations in this analysis.

Firstly, although the concept of CRS was introduced in the 50's, only recently companies started to invest and consider Environmental, Social and Governance factors in their strategies. According to Thomson Reuters Eikon, the first data including these factors was in 2012, therefore, it creates a limitation to perform a deeper historical analysis. Also, based on previous literature research, Corporate Social Responsibility is a wide and difficult concept to define that goes beyond ESG factors and therefore we suggest that on further research other variables such as Research and Development (R&D) variable and the advertising intensity of the business should be considered and taken into account (McWilliams & Siegel, 2000; Waddock & Graves, 1997).

As accounting-based measures, ROA and ROE were considered. The initial aim of this analysis was also to include Tobin's Q ratio as a proxy of firm value (Dowell, Hart, & Yeung, 2000; Fernandes, 2019; Wahba, 2008; Wang & Sarkis, 2017), however due to the high number of missing values in the data, this variable was not included.

For future analysis, since the period being studied include the "credit crunch" in 2007-2008, we suggest making an analysis on the relationship between this event and the companies' investment on ESG.

Lastly, 58% of the Headquarter Countries of the companies are located in Japan, USA and England, it would be interesting to perform a robustness test considering solely this subgroup of companies.

REFERENCES

- Abbott, W. F., & Monsen, J. R. (1979). On the Measurement of Corporate Social Responsibility : Self-Reported Disclosures as a Method of Measuring Corporate Social Involvement [^]. *Academy of Management Journal*, 22(3), 501–515.
- Ackerman, R. W. (1973). *How companies respond to social demands*. Harvard Bus Rev 51(4):88–98
- Ackerman, R. W., & Bauer R.A. (1976). *Corporate social responsiveness*. Reston, Reston, VA
- Alexander, G. J., & Buchholz, R. A. (1978). Corporate Social Responsibility and Stock Market Performance. *The Academy of Management Journal*, 21(3), 479–486.
- Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability. *Academy of Management Journal*, 28(2), 446–463.
- Backhaus, K. B., Stone, B. A., & Heiner, K. (2002). Exploring the Relationship Between Corporate Social Performance and Employer Attractiveness. *Business & Society*, 41(3), 292–318. <https://doi.org/10.1177/0007650302041003003>
- Barnea, A., & Rubin, A. (2010). Corporate Social Responsibility as a Conflict Between Shareholders. *Journal of Business Ethics*, 97(1), 71–86. <https://doi.org/10.1007/s10551-010-0496-z>
- Bhaduri, S. N., & Selarka, E. (2016). *Corporate Social Responsibility Around the World—An Overview of Theoretical Framework, and Evolution*. 11–32. https://doi.org/10.1007/978-981-10-0925-9_2
- Bowen, Howard R. (1953). *Social Responsibilities of the Businessman*. New York: Harper & Row
- Bowman, E. H., & Haire, M. (1975). *Corporate Social Responsibility*. XVIII(2), 49–58.
- Bragdon, H. H. & Marlin, J. T. (1972). *Is pollution profitable*. Risk Management, 19(2): 9-18.
- Carroll, A. B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance. *The Academy of Management Review*, 4(4), 497–505.
- Carroll, A. B. (1991). The Pyramid of Corporate Social Responsibility : Toward the Morai Management of Organizational Stakeholders. *Business Horizons*, 34, 39–48.
- Carroll, A. B. (2009). A History of Corporate Social Responsibility: Concepts and Practices. In *The Oxford Handbook of Corporate Social Responsibility*. <https://doi.org/10.1093/oxfordhb/9780199211593.003.0002>
- Cochran, P. L., & Wartick, S. L. (1985). The Evolution of the Corporate Social Performance Model. *Academy of Management Review*, 10(4), 758–769. <https://doi.org/https://doi.org/10.5465/amr.1985.4279099>
- Davis, K. (1960). *Can Business Afford To Ignore Social Responsibilities ?* 70–76.
- Dowell, G., Hart, S., & Yeung, B. (2000). Do corporate global environmental standards create or destroy market value? *Management Science*, 46(8), 1059–1074. <https://doi.org/10.1287/mnsc.46.8.1059.12030>
- Dyck, A., Lins, K. V., Roth, L., & Wagner, H. F. (2019). Do institutional investors drive corporate social

- responsibility? International evidence. *Journal of Financial Economics*, 131(3), 693–714.
<https://doi.org/10.1016/j.jfineco.2018.08.013>
- Eilbirt, H., & Paret, I. R. (1973). The Current Status of Corporate Social Responsibility. *Business Horizons*, 16(4), 5. [https://doi.org/10.1016/0007-6813\(78\)90071-X](https://doi.org/10.1016/0007-6813(78)90071-X)
- Elkington, J. (1998). *CANNIBALS WITH FORKS: The Triple Bottom Line of 21st Century Business*. New Society Publishers.
- Epstein, E. M. (1987). The Corporate Social Policy Process : Beyond Business Ethics , Corporate Social Responsibility , and Corporate Social Responsiveness. *California Management Review*, 29(3), 99–114.
- Falck, O., & Heblich, S. (2007). Corporate social responsibility: Doing well by doing good. *Business Horizons*, 50(3), 247–254. <https://doi.org/10.1016/j.bushor.2006.12.002>
- Fernandes, P. (2019). *The impact of Corporate Social Responsibility on the performance of European firms*. (January).
- Fogler, H. R., & Nutt, F. (1975). A NOTE ON SOCIAL RESPONSIBILITY AND STOCK VALUATION. *Academy of Management Journal*, 18(1), 155–160.
- Frederick, W. C. (1960). The Growing Concern over Business Responsibility. *Public Relations Review*, 23, 8–16. [https://doi.org/10.1016/s0363-8111\(97\)90078-3](https://doi.org/10.1016/s0363-8111(97)90078-3)
- Freeman, R.E. (1984) *Strategic management: a stakeholder approach*. Pitman, Boston
- Friedman, M. (1962) *Capitalism and freedom*. University of Chicago Press, Chicago
- Gholami, S. (2011). Value Creation Model through Corporate Social Responsibility (CSR). 6(9), 148–154. <https://doi.org/10.5539/ijbm.v6n9p148>
- Griffin, J. J. (2000). Corporate Social Performance: Research Directions for the 21st Century. *Bus*, 39(4), 479–491. <https://doi.org/10.1177/000765030003900407>
- Groening, C., & Kanuri, V. K. (2013). Investor reaction to positive and negative corporate social events. *Journal of Business Research*, 66(10), 1852–1860.
<https://doi.org/10.1016/j.jbusres.2013.02.006>
- Harrison, J. S., & Freeman, R. E. (1999). Stakeholders, Social Responsibility, and Performance: Empirical Evidence and Theoretical Perspectives. *Academy of Management Journal*, 42(5), 479–485.
- Hay, R., & Hay, E. (1974). Social of Responsibilities Managers. *The Academy of Management Journal*, 1(1), 135–143.
- Heald, Morrell (1970). *The Social Responsibilities of Business: Company and Community, 1900–1960*. Cleveland: The Press of Case Western Reserve University
- Hillman, A., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: what's the bottom line? *Strategic Management Journal*, 25(August 2008), 125–139.
[https://doi.org/10.1002/1097-0266\(200101\)22:2<125::AID-SMJ150>3.0.CO;2-H](https://doi.org/10.1002/1097-0266(200101)22:2<125::AID-SMJ150>3.0.CO;2-H)
- Holmes, S. L. (1976). Executive Perceptions of Corporate Social Responsibility. *Business Horizons*, 34–

40. [https://doi.org/https://doi.org/10.1016/0007-6813\(76\)90049-5](https://doi.org/https://doi.org/10.1016/0007-6813(76)90049-5)
- Husted, B. W. (2000). A Contingency Theory of Corporate Social Performance. *Business & Society*, 39(1), 24–48. <https://doi.org/10.1177/000765030003900104>
- Jones, R., & Murrell, A. J. (2001). Signaling Positive Corporate Social Performance. *Business & Society*, 40(1), 59–78. <https://doi.org/doi:10.1177/000765030104000105>
- Jones, T. M. (1980). Corporate Social Responsibility. *California Management Review*, 1, 59–67. <https://doi.org/https://doi.org/10.2307/41164877>
- Kempf, A., & Osthoff, P. (2007). The Effect of Socially Responsible Investing on Portfolio Performance. *European Financial Management*, 13(5), 908–922. <https://doi.org/10.1111/j.1468-036X.2007.00402.x>
- Liang, H., & Renneboog, L. (2017). On the Foundations of Corporate Social Responsibility. *Journal of Finance*, 72(2), 853–910. <https://doi.org/10.1111/jofi.12487>
- López, M. V., Garcia, A., & Rodriguez, L. (2007). Sustainable development and corporate performance: A study based on the Dow Jones sustainability index. *Journal of Business Ethics*, 75(3), 285–300. <https://doi.org/10.1007/s10551-006-9253-8>
- Maslow, A. H. (1954). *Motivation and Personality* (1st ed.; P. Harper & Row, Ed.). Harper & Row, Publishers.
- Mcguire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate Social Responsibility and Firm Financial Performance. *Academy of Management Journal*, 31(4), 854–872.
- McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification? *Strategic Management Journal*, 21(5), 603–609.
- Moskowitz, M. R. (1972). Choosing Socially Responsible Stocks. *Business and Society Review*, 1, 71–75.
- Muirhead, S. A. (1999). *Corporate contributions: the view from 50 years*. The Conference Board, New York
- OECD. (2001). *Corporate responsibility: private initiatives and public goals*. Paris.
- Parke, I. R., & Eilbirt, H. (1975). The practice of business social responsibility: the underlying factors. *Business Horizons*, 18(4), 5–10. [https://doi.org/10.1016/0007-6813\(75\)90019-1](https://doi.org/10.1016/0007-6813(75)90019-1)
- Preston, Lee E. & Post, James E. (1975). *Private Management and Public Policy: The Principle of Public Responsibility*. Englewood Cliffs, NJ: Prentice-Hall.
- Rettab, B., Brik, A. Ben, & Mellahi, K. (2009). A study of management perceptions of the impact of corporate social responsibility on organisational performance in emerging economies: The case of Dubai. *Journal of Business Ethics*, 89(3), 371–390. <https://doi.org/10.1007/s10551-008-0005-9>
- Roncalli, T., & Mortier, V. (2019). The Alpha and Beta of ESG investing / 01 / 2019 / Article / Research Center. Retrieved December 13, 2020, from <https://research-center.amundi.com/page/Article/2019/01/The-Alpha-and-Beta-of-ESG-investing> website: <https://research-center.amundi.com/page/Article/2019/01/The-Alpha-and-Beta-of-ESG->

investing

- Rowley, T., & Berman, S. (2000). A Brand New Brand of Corporate Social Performance. *Business & Society*, 39(4), 397–418. <https://doi.org/10.1177/000765030003900404>
- Schwartz, M. S., & Carroll, A. B. (2003). Corporate Social Responsibility: A Three-Domain Approach. *Business Ethics Quarterly*, 13(4), 503–530. <https://doi.org/10.2307/3857969>
- Sethi, S. P. (1975). Dimensions of Corporate Social Performance: An Analytical Framework. *California Management Review*, 17(3), 58–64. <https://doi.org/10.2307/41162149>
- Spicer, B. H. (1978). *Investors, corporate social performance and information disclosure: An empirical study*. *The Accounting Review*, 53(1), 94–111.
- Swanson, D. L. (1995). Addressing a Theoretical Problem by Reorienting the Corporate Social Performance Model. *The Academy of Management Review*, 20(1), 43–64.
- Szegedi, K., Khan, Y., & Lentner, C. (2020). Corporate social responsibility and financial performance: Evidence from Pakistani listed banks. *Sustainability (Switzerland)*, 12(10), 1–19. <https://doi.org/10.3390/SU12104080>
- Tuzzolino, F., & Armandi, B. R. (1981). A Need-Hierarchy Framework for Assessing Corporate Social Responsibility. *Academy of Management Review*, 6(1), 21–28. <https://doi.org/https://doi.org/10.5465/amr.1981.4287982>
- Waddock, S. A., & Graves, S. B. (1997). The Corporate Social Performance – Financial Performance Link. *Strategic Management Journal*, 18(4), 303–319.
- Wahba, H. (2008). Does the market value corporate environmental responsibility? An empirical examination. *Corporate Social Responsibility and Environmental Management*, 15(2), 89–99. <https://doi.org/10.1002/csr.153>
- Walton C. C. (1967). *Corporate social responsibilities*. Belmont, CA: Wadsworth
- Wang, Z., & Sarkis, J. (2017). Corporate Social Responsibility Governance, Outcomes, and Financial Performance. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2017.06.142>
- Wood, D. J. (1991). Corporate Social Performance Revisited. *The Academy of Management Review*, 16(4), 691–718.
- Wood, R. A., & Cochran, P. L. (1984). Corporate Social Responsibility and Financial Performance. *Academy of Management Journal*, 27(1), 42–56.
- Vance, S. (1975). *Are socially responsible corporations good investment risks?* *Management Review*, 64(8), 18–24
- Votaw, D. (1973). *Genius becomes Rare*, in Dow Votaw and S. P. Sethi (eds.), *The Corporate Dilemma*. Englewood Cliffs, NJ: Prentice-Hall.

APPENDIX

Appendix A: List of Headquarter Countries of the companies from the sample.

Headquarter Countries	Companies	% of companies
Australia	27	3.63%
Austria	8	1.08%
Belgium	9	1.21%
Brazil	1	0.13%
Canada	20	2.69%
China	3	0.40%
Denmark	6	0.81%
Finland	11	1.48%
France	47	6.32%
Germany	34	4.57%
Greece	3	0.40%
Hong Kong	13	1.75%
Republic of Ireland	8	1.08%
Italy	10	1.34%
Japan	186	25.00%
Republic Korea (S. Korea)	2	0.27%
Luxembourg	3	0.40%
Mexico	1	0.13%
Netherlands	13	1.75%
New Zealand	4	0.54%
Norway	9	1.21%
Portugal	2	0.27%
Russia	1	0.13%
Singapore	6	0.81%
South Africa	1	0.13%
Spain	17	2.28%
Sweden	25	3.36%
Switzerland	25	3.36%
Taiwan	1	0.13%
United Kingdom	117	15.73%
United States of America	131	17.61%

Source: Thomson Reuters, 2020.

Appendix B: List of industry composition of the companies from the sample. Industry is determined by NAICS - National Industry Name system.

Industry composition of the sample	Companies	% of companies
Activities Related to Credit Intermediation	1	0.13%
Advertising, Public Relations, and Related Services	3	0.40%
Aerospace Product and Parts Manufacturing	10	1.34%
Agencies, Brokerages, and Other Insurance Related Activities	2	0.27%
Agriculture, Construction, and Mining Machinery Manufacturing	7	0.94%
Alumina and Aluminum Production and Processing	1	0.13%
Animal Slaughtering and Processing	2	0.27%
Architectural, Engineering, and Related Services	3	0.40%
Audio and Video Equipment Manufacturing	3	0.40%
Automotive Equipment Rental and Leasing	1	0.13%
Bakeries and Tortilla Manufacturing	2	0.27%
Basic Chemical Manufacturing	22	2.96%
Beverage Manufacturing	14	1.88%
Boiler, Tank, and Shipping Container Manufacturing	2	0.27%
Building Material and Supplies Dealers	5	0.67%
Business Support Services	1	0.13%
Cement and Concrete Product Manufacturing	7	0.94%
Chemical and Allied Products Merchant Wholesalers	1	0.13%
Clay Product and Refractory Manufacturing	7	0.94%
Clothing Stores	7	0.94%
Coal Mining	2	0.27%
Coating, Engraving, Heat Treating, and Allied Activities	1	0.13%
Commercial and Industrial Machinery and Equipment Rental and Leasing	1	0.13%
Commercial and Service Industry Machinery Manufacturing	7	0.94%
Communications Equipment Manufacturing	8	1.08%
Computer and Peripheral Equipment Manufacturing	3	0.40%
Computer Systems Design and Related Services	8	1.08%
Converted Paper Product Manufacturing	3	0.40%
Couriers and Express Delivery Services	4	0.54%
Cut and Sew Apparel Manufacturing	3	0.40%
Data Processing, Hosting, and Related Services	1	0.13%
Deep Sea, Coastal, and Great Lakes Water Transportation	5	0.67%
Department Stores	3	0.40%
Drinking Places (Alcoholic Beverages)	2	0.27%
Drugs and Druggists' Sundries Merchant Wholesalers	2	0.27%
Electric Power Generation, Transmission and Distribution	48	6.45%
Electrical Equipment Manufacturing	5	0.67%
Electronic Shopping and Mail-Order Houses	1	0.13%
Electronics and Appliance Stores	2	0.27%
Employment Services	1	0.13%

Engine, Turbine, and Power Transmission Equipment Manufacturing	7	0.94%
Facilities Support Services	2	0.27%
Farm Product Raw Material Merchant Wholesalers	1	0.13%
Footwear Manufacturing	2	0.27%
Foundries	3	0.40%
Freight Transportation Arrangement	1	0.13%
Fruit and Vegetable Preserving and Specialty Food Manufacturing	2	0.27%
Full-Service Restaurants	3	0.40%
Furniture and Home Furnishing Merchant Wholesalers	1	0.13%
Gambling Industries	2	0.27%
Gasoline Stations	1	0.13%
Glass and Glass Product Manufacturing	3	0.40%
Grain and Oilseed Milling	3	0.40%
Grocery Stores	17	2.28%
Highway, Street, and Bridge Construction	6	0.81%
Household and Institutional Furniture and Kitchen Cabinet Manufacturing	2	0.27%
Household Appliance Manufacturing	2	0.27%
Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	1	0.13%
Industrial Machinery Manufacturing	8	1.08%
Insurance Carriers	19	2.55%
Investigation and Security Services	1	0.13%
Iron and Steel Mills and Ferroalloy Manufacturing	7	0.94%
Lessors of Real Estate	21	2.82%
Limited-Service Eating Places	4	0.54%
Lumber and Other Construction Materials Merchant Wholesalers	2	0.27%
Management, Scientific, and Technical Consulting Services	2	0.27%
Medical Equipment and Supplies Manufacturing	10	1.34%
Metal and Mineral (except Petroleum) Merchant Wholesalers	1	0.13%
Metal Ore Mining	12	1.61%
Metalworking Machinery Manufacturing	1	0.13%
Motion Picture and Video Industries	2	0.27%
Motor Vehicle Body and Trailer Manufacturing	2	0.27%
Motor Vehicle Manufacturing	18	2.42%
Motor Vehicle Parts Manufacturing	11	1.48%
Natural Gas Distribution	5	0.67%
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	19	2.55%
Newspaper, Periodical, Book, and Directory Publishers	5	0.67%
Nondepository Credit Intermediation	2	0.27%
Nonferrous Metal (except Aluminum) Production and Processing	2	0.27%
Nonmetallic Mineral Mining and Quarrying	3	0.40%
Nonresidential Building Construction	11	1.48%
Office Supplies, Stationery, and Gift Stores	2	0.27%

Oil and Gas Extraction	17	2.28%
Other Chemical Product and Preparation Manufacturing	4	0.54%
Other Electrical Equipment and Component Manufacturing	9	1.21%
Other Fabricated Metal Product Manufacturing	7	0.94%
Other Financial Investment Activities	8	1.08%
Other Food Manufacturing	4	0.54%
Other General Purpose Machinery Manufacturing	6	0.81%
Other Heavy and Civil Engineering Construction	2	0.27%
Other Investment Pools and Funds	2	0.27%
Other Leather and Allied Product Manufacturing	1	0.13%
Other Miscellaneous Manufacturing	5	0.67%
Other Nonmetallic Mineral Product Manufacturing	1	0.13%
Other Telecommunications	1	0.13%
Other Textile Product Mills	1	0.13%
Other Transportation Equipment Manufacturing	3	0.40%
Other Wood Product Manufacturing	1	0.13%
Outpatient Care Centers	1	0.13%
Paint, Coating, and Adhesive Manufacturing	8	1.08%
Paper and Paper Product Merchant Wholesalers	1	0.13%
Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	3	0.40%
Petroleum and Coal Products Manufacturing	15	2.02%
Petroleum and Petroleum Products Merchant Wholesalers	1	0.13%
Pharmaceutical and Medicine Manufacturing	26	3.49%
Pipeline Transportation of Crude Oil	1	0.13%
Pipeline Transportation of Natural Gas	3	0.40%
Plastics Product Manufacturing	3	0.40%
Postal Service	2	0.27%
Printing and Related Support Activities	3	0.40%
Pulp, Paper, and Paperboard Mills	8	1.08%
Radio and Television Broadcasting	5	0.67%
Rail Transportation	7	0.94%
Railroad Rolling Stock Manufacturing	1	0.13%
Residential Building Construction	10	1.34%
Resin, Synthetic Rubber, and Artificial and Synthetic Fibers and Filaments Manufacturing	14	1.88%
Rubber Product Manufacturing	8	1.08%
Satellite Telecommunications	1	0.13%
Sawmills and Wood Preservation	1	0.13%
Scheduled Air Transportation	9	1.21%
School and Employee Bus Transportation	1	0.13%
Securities and Commodity Contracts Intermediation and Brokerage	3	0.40%
Securities and Commodity Exchanges	2	0.27%
Semiconductor and Other Electronic Component Manufacturing	15	2.02%
Services to Buildings and Dwellings	1	0.13%
Ship and Boat Building	3	0.40%

Soap, Cleaning Compound, and Toilet Preparation Manufacturing	10	1.34%
Software Publishers	5	0.67%
Special Food Services	1	0.13%
Specialty (except Psychiatric and Substance Abuse) Hospitals	1	0.13%
Sporting Goods, Hobby, and Musical Instrument Stores	1	0.13%
Spring and Wire Product Manufacturing	2	0.27%
Steel Product Manufacturing from Purchased Steel	3	0.40%
Support Activities for Air Transportation	5	0.67%
Support Activities for Mining	5	0.67%
Support Activities for Road Transportation	2	0.27%
Tobacco Manufacturing	4	0.54%
Travel Arrangement and Reservation Services	1	0.13%
Traveler Accommodation	3	0.40%
Urban Transit Systems	2	0.27%
Veneer, Plywood, and Engineered Wood Product Manufacturing	1	0.13%
Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	4	0.54%
Waste Collection	2	0.27%
Waste Treatment and Disposal	2	0.27%
Water, Sewage and Other Systems	3	0.40%
Wired Telecommunications Carriers	7	0.94%
Wireless Telecommunications Carriers (except Satellite)	12	1.61%

Source: Thomson Reuters, 2020.

