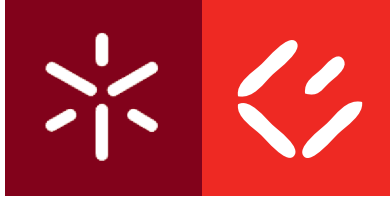




Universidade do Minho
Escola de Economia e Gestão

Rashed Isam Rashed Ashqar

**Does better social performance improve
financial performance? Empirical evidence
for the Japanese market.**



Universidade do Minho
Escola de Economia e Gestão

Rashed Isam Rashed Ashqar

**Does better social performance improve
financial performance? Empirical evidence
for the Japanese market.**

Tese de Mestrado
Mestrado em Finanças

Trabalho efetuado sob a orientação da
**Professora Doutora Florinda Conceição Cerejeira
Campos Silva**

DECLARAÇÃO

Nome: Rashed Isam Rashed Ashqar

Endereço electrónico: rashedessam2@gmail.com

Número do Bilhete de Identidade: 934284719

Título da dissertação: Does better social performance improve financial performance? Empirical evidence for the Japanese market.

Orientador: Professor Doutor Florinda Conceição Cerejeira Campos Silva

Ano de conclusão: 2018

Designação do Mestrado: Mestrado em Finança

É AUTORIZADA A REPRODUÇÃO PARCIAL DESTE TRABALHO APENAS PARA EFEITOS DE INVESTIGAÇÃO, MEDIANTE DECLARAÇÃO ESCRITA DO INTERESSADO, QUE A TAL SE COMPROMETE.

Universidade do Minho, 30 /04 /2018

Rashed Isam Rashed Ashqar

Acknowledgments

I am using this opportunity to express my gratitude to everyone who supported me throughout this thesis. I express my warm thanks to my supervisor Prof. Florinda Silva for her fabulous dedication.

I would like to thank all professors in the Finance Department. I would also like to thank my family and friends.

I dedicate this master's thesis to my parents Prof. Isam and Wafaa, my sister Walaa, and my brothers Mojahed, Huthaifa, Anas, and Omar. Thank you for your support.

Abstract:

The relationship between corporate social performance (CSP) and corporate financial performance (CFP) has long been a central topic of contentious debate in the existing literature. However, prior empirical studies provide indefinite conclusions (Wang et al., 2016). Therefore, the purpose of this dissertation is to explore the impact of CSP on CFP using a panel data of Japanese firms for the period 2006 to 2016. We consider an aggregate measure for CSP which combines a performance score for environmental, social and corporate governance proxies. Also, we analyze each component of the aggregate CSP indicator. Our research is motivated by the lack of consistent evidence and scarcity of research on the Japanese context which is considered the best market in the world in relation to real participation toward corporate social responsibility (CSR). We analyze the Japanese market using a standard approach by regressing accounting and market indicators of financial performance on social performance ratings. Our empirical results based on the estimation using fixed effects models indicate that the relationship between CSP and CFP is negative but not statistically significant. In addition, we point out and address the endogeneity problem using the Instrumental Variable Model estimated by two-stage least squares (2SLS) regression analysis. The results indicate a positive and statistically significant relationship between CSP and CFP. Consequently, these findings support the Stakeholder Theory and Freeman's (1994) view.

Keywords: Corporate Social Performance, Corporate Financial Performance, Japanese Market, Panel Data.

Resumo:

A relação entre Desempenho Social (DS) e Desempenho Financeiro (DF) das empresas tem vindo a constituir um dos temas de debate na literatura da especialidade. No entanto, estudos empíricos anteriores, não permitem ainda chegar a conclusões definitivas (Wang et al., 2016). O objetivo desta dissertação é explorar o impacto entre DS e DF, usando uma base de dados em painel, de empresas japonesas no período de 2006 e 2016. É analisada uma medida agregada para DS que combina um score para o desempenho social, ambiental e de governação corporativa. Adicionalmente, efetuamos uma análise desagregada para cada componente do DS. A motivação para esta pesquisa decorre da falta de evidência consistente e, sobretudo, escassez de estudos no contexto das empresas japonesas, tido como um dos países no Mundo onde a preocupação com o DS é mais notória. A metodologia utilizada consiste na análise de regressão entre indicadores de desempenho financeiro contabilísticos e de mercado e ratings de desempenho social. Os resultados empíricos obtidos baseados na estimação de modelos de efeitos fixos sugerem uma associação entre DS e DF negativa, mas não estatisticamente significativa. De forma a controlar para o problema da endogeneidade, recorremos a um modelo de variáveis instrumentais via regressão 2SLS. Estes resultados mostram que, a associação entre DS e DF é positiva e, estatisticamente significativa. Consequentemente, corroboram o que é afirmado pela Teoria dos Stakeholders e a visão de Freeman (1994).

Palavras-chave: Responsabilidade Social Corporativa, Desempenho Social Corporativo, Desempenho Financeiro Corporativo, Mercado Japonês, Amostra em Painel.

Table of Contents

Acknowledgments	iii
Abstract:	v
Resumo	vii
Abbreviations	xi
Figures and Tables:	xiii
1. Introduction	1
2. Literature review.....	3
2.1 Theoretical background.....	3
2.2 Empirical evidence.....	10
3. Methods	17
4. Data.....	21
4.1 Independent variables (Environmental, Social, and Governance performance indicators) 21	
4.2 Dependent variables (Financial performance)	23
4.3 Control variables	24
4.4 Descriptive statistics.....	24
5. Empirical Results and Discussion	27
5.1 Fixed effects model estimates	27
5.2 Instrumental variable model.....	33
5.3 Discussion	37
6. Conclusions	39
References.....	41
Appendix 1 - DataStream codes	49
Appendix 2 - Description of the environmental performance indicators	50
Appendix 3 - Description of the Social performance indicators.....	51
Appendix 4 - Description of the Corporate Governance performance indicators	52
Appendix 5 - Results of Pooled OLS regressions.....	53

Abbreviations

CSR	Corporate Social Responsibility
CSP	Corporate Social Performance
CFP	Corporate Financial Performance
RBV	Resource-Based View
ROA	Return on Assets
ROE	Return on Equity
Q	Tobin's Q
ESG	Aggregate Performance Score
SOCSCORE	Social Performance Score
ENVSCORE	Environmental Performance Score
CGVSCORE	Corporate Governance Performance Score
FLeverage	Financial Leverage
Size	Total Assets of Firms
OLS	Ordinary Least Squares
FE	Fixed Effects Model
IV	Instrumental Variable Model
2SLS	Two-Stage Least Squares
Index	Firm Listed in the Main Index of Japanese market or not.

Figures and Tables:

List of Figures

Figure 1. The conceptual model.....	19
-------------------------------------	----

List of Tables

Table 1: Some previous empirical findings	12
Table 2: Industries included in the dataset.....	24
Table 3: Descriptive statistics	25
Table 4: Pearson correlation coefficients.....	26
Table 5: Results from FE regressions considering aggregate ESG	29
Table 6: Results from FE regressions considering SOCSCORE.....	30
Table 7: Results from FE regressions considering ENVSCORE	31
Table 8: Results from FE regressions considering CGVSCORE.....	32
Table 9: Results from IV regressions (First-stage/OLS)	34
Table 10: Results from IV regressions (2SLS) considering aggregate ESG	36

1. Introduction

More and more, a business cannot afford to overlook its social setting and, in turn, society itself has become geared towards business. The process of managing this relationship effectively can result in benefits for both. Therefore, managers try to play an increasingly active role to enrich this relationship by means of what is indicated as Corporate Social Responsibility (CSR) (Sadeghi et al., 2016).

CSR has been defined in different ways by different researchers, but most of them emphasize business accountability to the wide range of stakeholders (Sandhu & Kapoor, 2010). CSR is a theme that can be traced back to Adam Smith during the eighteenth century. He emphasized that for public well-being, the entrepreneurs' efforts would focus on protecting the public advantages (Sadeghi et al., 2016). So, CSR is a business approach that contributes to sustainable development by delivering economic, social, and environmental benefits for all stakeholders. A vital issue in corporate governance and management is the influence of CSR on a firm's performance, especially in terms of finance (Galant & Cadez, 2017).

The purpose of this dissertation is to explore the impact of Corporate Social Performance (CSP) on Corporate Financial Performance (CFP) using a dataset composed by Japanese firms over the period 2006 to 2016. We consider aggregate dimension for CSP which combines a performance score for environmental, social and corporate governance proxies.

Japan is one of the largest economies that contribute towards sustainability reporting¹ in comparison to the contribution of many countries in Asia, Europe, and North America (Kolk, 2005; KPMG, 2015, 2017). The Japanese firms are keen to demonstrate that CSR is integral to their business strategy and have various projects and initiatives to support their position and commitment (Eweje & Sakaki, 2015). Only two studies were found on the Japanese market (Andersen & Olsen, 2011; Okamoto, 2009) and so there is an opportunity to explore this market. The abovementioned studies do not focus specifically on the relationship between CSP and CFP. They use different approaches from the ones followed in most earlier studies².

¹ A sustainability report is an organizational report that gives information about economic, environmental, social and governance performance.

² Andersen & Olsen (2011) used a canonical correlation analysis, Okamoto (2009) used artificial neural networks.

Therefore, we chose Japanese firms for this study. We analyze the Japanese market using a more standard approach by regressing accounting and market indicators of financial performance on social performance ratings. Thus, our study contributes to the literature by filling a knowledge gap in CSP regarding the case of Japan.

The relationship between CSP and CFP has long been a central and contentious debate in the literature. However, prior empirical studies provide indefinite conclusions (Wang et al., 2016). Over the last 35 years, numerous researchers have tried to provide a definitive and clear answer to this fundamental question for the benefit of both academics and managers (Garcia-Castro et al., 2010).

When studying CSR, a broader set of stakeholders are included in analyzing the activities of firms. CSP is a multidimensional criterion of CSR that has received great attention from both the academic and the business world. It includes factors related to customers, employees, environment, society, and business (Griffin & Mahon, 1997; Nelling & Webb, 2009; Wood, 1991).

Although several studies tend to support the positive association between social and financial performance based on environmental, social and corporate governance ratings (Halbritter & Dorfleitner, 2015), such a relationship is still far from being well-established in the literature (Orlitzky et al., 2003) and previous results cannot be generalized to all markets and sectors (Soana, 2011).

This dissertation is structured as follows. Section two presents and discusses the related literature review. Section three describes the research methods and the models. Section four presents the dataset that allows us to apply the econometric models. Section five reports and discusses the empirical results. Section six presents the main conclusions.

2. Literature review

2.1 Theoretical background

The philosophy behind the importance of CSR was first properly elaborated a hundred years ago in the work of Carnegie (1906). He argued that the rich hold their money in trust for the rest of the society and can use it for any purpose that society deems legitimate. In his book, “The Gospel of Wealth”, he worked from two principles to introduce the topic: the charity principle, and the stewardship principle. The first principle, the doctrine of social responsibility requires luckier individuals to assist less lucky members of society, while the second principle states that businesses and wealthy individuals should view themselves as caretakers or stewards of their properties.

In contrast to this view, in the 1970s and 1980s, some environmental issues led to the restatement of notions of social responsibility. Friedman (1970) defines the social responsibility of business firms as profit maximization in a legal boundary without any deception and fraud. In his view, managers have a moral responsibility to always act in the long-run best interest of the shareholders. He is not arguing that businesses should never engage in activities that increase social welfare. In fact, he argues that free-market capitalism itself increases social welfare. He also notes that businesses will certainly engage in activities that will increase social welfare. Friedman and Carnegie’s viewpoints including internal and external visions are in sharp contrast with each other. With the passage of time, two perspectives of pure economics and social visions were mixed and created an economic–social view (Sadeghi et al., 2016).

A central statement made by Friedman (1970) is still widely accepted today (Chand & Fraser, 2006). Friedman (1970) stated that managers’ only responsibility is to increase shareholders’ wealth. He thus focused on a very distinct aspect of corporate and managerial responsibility. Managers and even executives are employees of the shareholders. Therefore, their only responsibility is *“to conduct the business in accordance with their [the owners] desires to make as much money as possible conforming to the basic rules of society”* (p. 13).

On another hand, Freeman (1994) argued that social performance is needed to attain business legitimacy. Managers have a fiduciary responsibility to all stakeholders and not just to

shareholders. Freeman's statement anticipated later research on the link between social responsibility and financial performance and suggested a positive correlation in the long run.

The fundamental idea in stakeholder theory is that the success of an organization depends on the extent to which the organization is capable of managing its relationships with key groups, such as financiers and shareholders, but also customers, employees, and even communities or societies (Van Beurden & Gössling, 2008). Most of the previous research on the question concerning whether business ethics has a financial payoff refers to the views of Friedman or Freeman. The concepts of CSR and stakeholder theory are fundamental to the study of business and society (Marom, 2006).

The concept of CSR has a long tradition in the social sciences (Garriga & Melé, 2004) however there is no consensus on exactly what actions should be included in the social responsibility of organizations (Griffin, 2000). CSR has, though, been described as the obligation of organizations to be accountable for their environment and for their stakeholders in a manner that goes beyond mere financial aspects (Gössling & Vocht, 2007).

A particular definition, which puts the concept in a broad yet understandable perspective, was presented at the World Business Council for Sustainable Development: *"CSR is the continuing commitment by business to behave ethically and contribute to economic development, while improving the quality of life of the workforce and their families as of the local community at large"* (Holme & Watts, 1999, p. 3).

CSP is a way of making CSR applicable and putting it into practice (Marom, 2006). CSR is not a variable and therefore impossible to measure. CSP, on the other hand, though difficult to measure, can be transformed into measurable variables (Van Beurden & Gössling, 2008).

"CSP research has employed a variety of theories and methodologies to study the potential relationship between CSR activities and other traditional measures of a firm's success" (Mahoney & Roberts, 2007, p. 234). Also, CSP can be defined as *"a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships"* (Wood, 1991, p. 693).

One of the oldest questions in moral philosophy is whether it pays to be a morally good person (Gössling, 2003). Likewise, one of the oldest and most important questions in the CSR context can be formulated as follows: “*Social performance may be good for society, but does it pay?*” (Brown, 1998, p. 271). Theoretically, it is not obvious that moral behavior is financially and economically beneficial (Brown, 1998; Gössling, 2003).

Both CSP and CFP are broad meta-constructs. Definitional differences make categorization of CSP and CFP difficult. In CSR research, the concepts of CSP and CFP have been applied and correlated (Orlitzky et al., 2003). Even though there are diverse approaches to measure the two, the different results of these researches can be compared if the comparison takes measurement differences into account (Griffin & Mahon, 1997).

Theoretically, the relationship between CSP and CFP includes various hypotheses: namely, Social Impact Hypothesis, Trade-off Hypothesis, and a third hypothesis related to the neutral relationship between the two forces.

First, the social impact hypothesis supposes a positive impact of CSP on financial performance. This hypothesis is based on the stakeholder theory which indicates that meeting the needs of various corporate stakeholders will ultimately lead to appropriate financial performance and vice versa (Andersen & Olsen, 2011)³. According to this hypothesis, serving the implicit claims of stakeholders enhances a firm’s reputation in a way that has a positive impact on its financial performance. On the contrary, disappointing these groups of stakeholders may have a negative financial impact (Preston & O’bannon, 1997).

Freeman's (1994) work is considered as a foundation for defining the positive effect of CSP on CFP. With respect to the stakeholder theory, he argued that the responsibility of the management of the organization now goes beyond its profitability. In addition, social issues must be considered for their decisions because the responsibility of the firm is not just to satisfy the shareholders but also to take into account all types of the firm’s stakeholders. Hence, CSP investment generates positive financial benefits by managing stakeholders (Becchetti et al., 2008).

³ Edward (1984) defines a stakeholder as “*any group or individual who can affect or is affected by the achievement of the firm’s objectives*”. Stakeholder of the firm include shareholders, creditors, employees, customers, suppliers, public interest groups and governmental bodies.

The first to use the term “stakeholder theory” is Ansoff (1965) who included stakeholders in the definition of the objectives of the firm. A main objective of the firm realizes the ability to balance the conflicting demands of various stakeholders in the firm. Ullmann (1985) concluded that stakeholder theory provides an appropriate justification for incorporating strategic decision-making into studies of CSR activities. This theory suggests that firms view their stakeholders as part of an environment that must be managed to ensure revenues, profits, and, eventually, returns to shareholders (Berman et al., 1999).

Attention to stakeholder concerns may help a firm avoid decisions that might prompt stakeholders to undercut or thwart its objectives. This possibility rises because it is the stakeholders who control resources that can facilitate or enhance the implementation of corporate decisions (Salancik & Pfeffer, 1978). It has been shown that employees show greater commitment to a firm that has a good public image in supplying human capital (Dutton et al., 1994).

Furthermore, such firms are often perceived as an attractive employer by job seekers (Backhaus et al., 2002). Customers may respond to a positive social performance by increasing their demand for the firm’s products or services, or by paying premium prices (Bhattacharya & Sen, 2003). Moreover, some investors, particularly certain institutional ones, are more willing to invest in firms known for pursuing CSR (Barnett & Salomon, 2006).

Researchers argue that the financial benefits of investing in CSP exceed its costs (Barnett, 2007). It is argued that CSP investment produces benefits such as enhanced employee morale; goodwill; improved relationships with bankers, investors and government; and better access to capital, each of which is expected to lead to greater financial performance (Sadeghi et al., 2016). For example, Waddock & Graves (1997) found a positive relationship between CSP and CFP. They argued that the actual costs of CSP are minimal upon comparison to the potential benefits for a certain firm.

Others have augmented stakeholder theory with aspects of resource-based view (RBV) (Salancik & Pfeffer, 1978). Drawing upon the RBV, CSR is seen as providing internal or external benefits, or both. Investments in socially responsible activities may have internal benefits by helping a firm to develop new resources and capabilities which are related, namely, to know-how and corporate culture. Investing in social responsibility activities and disclosure has important

consequences on the creation of fundamental intangible resources (Sadeghi et al., 2016), which allow the most efficient and competitive use of the firm's assets and helps it acquire a competitive advantage over its rivals (Surroca et al., 2010).

The external benefits of CSR are related to its effect on a corporate reputation that links CSR activities to shareholder value from the corporate reputation theory (Muller & Kräussl, 2011). Corporate reputation can be considered as a fundamental intangible resource which can be created because of the decisions regarding whether to engage in social responsibility activities and disclosure. Firms with good social responsibility reputation may improve relations with external actors. They may also attract better employees or increase current employees' motivation, morale, commitment and loyalty to the firm (Sadeghi et al., 2016). Actually, this view suggests that CSP is positively associated with financial performance because the firms which invest in CSP create greater intangible resources which produce higher financial performance (Barney, 1986).

Second, the trade-off hypothesis supposes a negative impact of CSP on CFP. This hypothesis deals with the neoclassical economists' position which holds that social performance can impose additional costs on firms and will finally cause a decline in their earning and shareholders' interests (Sadeghi et al., 2016). *“This hypothesis reflects the classic Friedman position and is supported by the well-known early finding of Vance (1975) that corporations displaying strong social credentials experience declining stock prices relative to the market average”* (Preston & O'bannon, 1997, p. 421).

Due to the direct cost incurred by socially responsible firms (Barnett & Salomon, 2006), some researchers believe that those firms have a disadvantage compared to the firms who do not engage in CSR activities (Aupperle et al., 1985). In this way, researchers argue for a negative relationship between social and financial performance. This point of view is supported mainly by neoclassical economic theory (Wang et al., 2016). According to this view, the opportunity cost of expenditures for social performance exceeds the profitability of such investment, so that a tradeoff exists between CSP and CFP. Thus, where stakeholders exert effective pressure for social performance, we should observe diminished financial performance and firm value (Baird et al., 2012).

In addition, Preston & O'bannon (1997) argue that, in spite of the tradeoff between CSP and CFP, managers may undertake socially responsible investment for their own private benefit (e.g., public acclaim) at shareholders' expense. Through their own "managerial opportunism", managers may seek to divert attention from a poor financial performance by promoting their firms' social performance. In contrast, managers may reduce expenditures on CSP programs to boost short-term profitability and, hence, their personal compensation. In either case, CSP would provide a signal to investors that management is prone to acting for its own private benefit. If so, we should see lower stock prices as investors come to expect that managers of socially responsible firms will act in a variety of ways detrimental to shareholders (Baird et al., 2012).

The principal-agent paradigm is another dominant critique of responsible social involvement for businesses, which suggests that the purpose of the firm is primarily for the profit of the shareholders. Importantly here, Friedman (2009), criticized CSR and asserted that "*There is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud*" (Friedman, 2009, p. 112). In addition, Friedman argues that generating funds and wealth for the shareholder is the only major responsibility of the management of the firm rather than wasting economic resources on socially related obligations (Sadeghi et al., 2016).

Following to agency theory, the agents (the top management team) and the principals (the shareholders) always show a conflict of interests and objectives. Thus, managers may act in their own best interests, but at the expense of the firm's owners. Therefore, the costs involved in agency relationships may be high and damage corporate value (Wang et al., 2016).

Though firms may bear the direct cost and agency cost of social responsibility, they can also obtain benefits from CSR. Actually, numerous academics and practitioners expressed doubts about the point of maximization of shareholders' wealth. That is, frequently exposed corporate scandals led to a debate on the role of the firm within society. Those scandals which followed the global financial crisis, public concern, regulatory forces, media interest, reputation pursuit, consumer pressure, and intra industry peer pressure drove firms' managers to prioritize the CSR issue (Wang et al., 2016). In fact, currently, the value of a firm depends on the cost not only of explicit claims from shareholders but also of implicit claims from other stakeholders (McGuire et

al., 1988). Besides shareholders and bondholders, other stakeholders also have implicit contracts. If corporate management fails to respond to these implicit claims, parties to implicit contracts may attempt to transform these implicit agreements into explicit agreements that will, as a result, be more costly (Wang et al., 2016).

Third, according to a neutral relationship between CSP and CFP, there is simply no relationship, positive or negative. This idea is supported by the argument that the environment in which firms and society operate is so complex that a simple and direct relationship between CSP and CFP seems unlikely (Waddock & Graves, 1997). Proponents of this line of reasoning (see Ullmann, 1985) argue that there are so many intervening variables between social and financial performance that there is no reason to expect a relationship to exist, except by chance. On the other hand, the measurement problems that have plagued CSP research may mask any linkage that does exist (Waddock & Graves, 1997).

McWilliams & Siegel (2000) also tried to find out the impact of CSP on CFP. They have explored the shortcomings of the past research by criticizing shortcomings in existing econometric studies regarding this relationship. They have also stated that these studies have investigated the effect of CSP by regressing firm performance on CSP and several control variables. This model is improperly specified because it does not control the category of investment in R&D, which has been proven to be an important determinant of firm performance. This misspecification results in highly biased estimates of the financial impact of CSP. When the model was properly specified, the researchers found that CSP has a neutral impact on the financial performance of the firm (Sadeghi et al., 2016).

In the same vein, McWilliams & Siegel (2001) argue that there is no relationship between CSP and CFP based on supply and demand theory. They believe managers' main objective is to maximize shareholder wealth. Accordingly, managers will choose the level of the attributes (including CSP attributes) that maximize firm value given the demand for various attributes and the costs of supplying them. Therefore, in equilibrium, there should be a neutral CSP–CFP relationship.

2.2 Empirical evidence

In a literature review of the empirical evidence on the relationship between CSP and CFP, Van Beurden & Gössling (2008, p. 407) conclude that “*Good ethics is good business*” by which they mean that good CSP leads to good CFP. While the evidence suggests that, on balance, this is the case, it is not true for all firms under all conditions. Social performance is multidimensional, and there is no consensus on what should be considered part of an organization’s social responsibility (Van Beurden & Gössling, 2008). Furthermore, whether social performance leads to good financial performance seems to depend on how social performance is measured (Baird et al., 2012).

Researchers further shed light on the causal relation between CSP and CFP. Two views on the direction of causality between CSP and CFP have been tested empirically: (a) the view that prior CSP positively influences CFP, and (b) the view that prior CFP positively influences CSP (Surroca et al., 2010).

The first research view, related to stakeholder theory, RBV, and reputation theory suggests that prior CSP positively influences subsequent CFP. This view was confirmed by many empirical studies conducted in different contexts, such as Barnett & Salomon (2006), Bhattacharya & Sen (2003), Brammer & Millington (2004), Godfrey et al. (2009).

The second research view is supported by slack resources theory, which proposes that firms with available slack resources from high levels of financial performance may spend those resources on “doing good by doing well” and those resource allocations may result in improved CSP overall (Waddock & Graves, 1997). In contrast, firms that are in financial trouble may have little freedom to invest in CSP activities such as philanthropy. Some of the empirical evidence, particularly McGuire et al. (1990) and Godfrey et al. (2009), provides support for the slack resources theory.

In a recent meta-analysis of 42 studies, Wang et al. (2016) shed light on the causal relationship between CSR and CFP, they conclude that subsequent financial performance is associated with prior social responsibility, while the reverse direction is not supported.

Post et al. (2002, p. 28) summarized the empirical evidence found in the field: they concluded that the empirical evidence on this matter is somewhat unreliable and the results are mixed.

However, it is important to note that there is very little evidence of a negative association between social and financial performance. To put it in another way, the empirical studies do not prove that corporations can *'do well by doing good'*, but neither do they disprove that view, and there is no substantial evidence that corporations can *'do well by doing harm'*.

Wang et al. (2016) found a positive relationship between CSR and CFP. These results support the stakeholder theory and show that the CSR and CFP relationship is stronger for firms from advanced economies than for firms from developing economies.

Gutsche et al. (2017) found for S&P 500 firms from 2011 to 2014, that CSP scores related to the environment and governance are positively associated with firm value while the social score is negatively associated.

In the most comprehensive survey analyzing the link between social performance and financial performance, Margolis & Walsh (2003) reviewed 127 studies published in articles and books since the early study of Moskowitz (1972). Out of the investigated 127 studies, 109 studies identified social performance as the independent variable to predict financial performance: one-half (54 studies) indicated a positive relationship; 20 studies showed mixed results; 28 studies reported no-significant relationship, and only 7 studies showed a negative relationship.

Several studies showed a positive relationship between social and financial performance, based on the measurement of market or accounting indicators (Choi et al., 2010; Ehsan & Kaleem, 2012; Flammer, 2015; Orlitzky et al., 2003; Roman et al., 1999; Ruf et al., 2001; Simpson & Kohers, 2002; Wang et al., 2016; Wu, 2006).

However, some previous studies find more ambiguous or negative relationships (Aupperle et al., 1985; McWilliams & Siegel, 2000, 2001; Moore, 2001; Nelling & Webb, 2009; Preston & O'bannon, 1997; Wright & Ferris, 1997). While others show mixed results (Griffin & Mahon, 1997; Margolis & Walsh, 2001; Margolis & Walsh, 2003; Post et al., 2002; Roman et al., 1999; Ullmann, 1985).

In sum, previous empirical studies show mixed results. In table 1 we present some detail and results for some recent studies namely Garcia-Castro et al., 2010, Gutsche et al., 2017, and Surroca et al., 2010.

Table 1: Some previous empirical findings

Study	Garcia-Castro et al. (2010)	Gutsche et al. (2017)	Surroca et al. (2010)
Year	1991–2005	2011 to 2014	2002-2004
Data	658 firms in KLD ⁴ and DataStream	S&P 500 firms in KLD and DataStream	599 firms from 28 countries in KLD
Financial performance	ROA, ROE, MVA, Tobin's Q	Firm Value	Tobin's Q
Finding	Positive CSP-CFP relation when standard OLS is used and non-significant or negative when FE or IV estimation is used	CSR performance scores related to the environment and governance is positively associated with firm value while the social score is negatively associated.	Positive CSP-CFP relationship
Method	OLS, fixed effects, and random effects estimations	Fixed effects	Fixed effects
Account for endogeneity	Yes	No	No
Sample	Panel data	Panel data	Panel data
Instrumental variables	Yes	No	No
Observations	3000	1862	1204

The Japanese economy was considered as a miracle economy for three decades; from the 1960s to 1980s, gaining continuous rapid improvement in the international business arena. As a first developed nation in non-western regions, Japan has progressed consistently in terms of CSR determination too (Gnanaweera & Kunori, 2018).

⁴ KLD is an independent rating agency specialized in the assessment of CSP across a range of dimensions related to stakeholder concerns.

Japan is a remarkable example in the global context for improving the environment and economy with experience and lessons learned in the latter half of the Twentieth Century that Japan has the worst record of environmental damages among the advanced economies (Gnanaweera & Kunori, 2018).

Brouwers et al. (2014) explain that Japan is one of the most prominent regions in Asia to consider in any discussion of the impact of environmental regulation on firm performance. In the twenty-first century, Japan reinforced its procedures to safeguard the accountability for the environmental protection policies and governmental plans.

Eweje & Sakaki (2015) draw attention to the CSR and sustainability discourse in Japan. That is, the authors demonstrate that CSR initiatives and practices are vital for the establishment of a cordial relationship between Japanese companies and their stakeholders as more pressure is put on companies to show their responsibility to society. Moreover, the Japanese firms are keen to demonstrate that CSR is integral to their business strategy. They, therefore, implement various projects and initiatives to support their position and commitment.

For example, the tsunami disaster in March 2011 demonstrates how Japanese companies pulled their resources together to support the victims. However, there are other areas such as volunteering, diversity in the workplace and work-life balance that require more business attention. Therefore, Japanese firms have embraced CSR and identify its significance to their business by creating initiatives regarded as their CSR practices and identified as being necessary as a license to operate (Eweje & Sakaki, 2015).

According to the International Survey of Corporate Responsibility Reporting KPMG (2017), Japan is one of the best 49 countries who have their firms publishing CSR reports (2017) with a percentage of 99%, the same percentage as in England, followed by the US with 92%, the Netherlands with 82% and New Zealand with 69%. Jennifer & Taylor (2007) also find that the extent of overall triple-bottom-line (TBL)⁵ reporting is higher for Japanese firms compared to US firms.

⁵ TBL is a concept which seeks to broaden the focus on the financial bottom line by businesses to include social and environmental responsibilities. A TBL measures a firm's degree of social responsibility, its economic value, and its environmental impact.

Moreover, it is interesting to note that inclusion of a corporate governance section in the sustainability report is frequently referred to by Japanese companies. Sometimes, these references are much more frequent than in the European and US companies' reports. Accordingly, the percentage of companies that include a corporate governance section for instance in 2005 came as follows: Europe: 70%, Japan: 64%, and the US: 46% (Kolk, 2005). Hence the importance of studying the Japanese market.

To the best of our knowledge, there are only two studies on the Japanese market that analyze the relationship between CSP and CFP: Andersen & Olsen (2011) and Okamoto (2009). So, it is important to further explore this market. The abovementioned studies do not focus specifically on the relationship between CSP and CFP and use different approaches from the ones followed in most earlier studies.

Andersen & Olsen (2011) used a canonical correlation analysis for over 3,000 firms from KLD dataset during the year 2007. They found a strong relationship between CSP and CFP. Moreover, this association differs across industries. In examining social performance, both strengths and concerns are important and should be considered separately. In addition, this study points to the importance of operating income as a key financial performance measure.

Okamoto (2009) used an artificial neural network model using 10-year follow-up survey data. They found a positive relationship between CSP and CFP. Therefore, in this study, we analyze the Japanese market using a more standard approach by regressing accounting and market indicators of financial performance on social performance ratings. Thus, our study contributes to the literature by filling a knowledge gap in CSP for the case of Japan.

Many indicators of social and financial performance have been used in the literature to test the possible relationship between them. Theory unanimously recognizes a good proxy for CFP in accounting and market indicators. In contrast, there is no consensus on social performance measures, yet, there have been five different methods to quantify social performance according to Soana (2011):

- a) Content analysis: it measures the amount of social responsibility as declared in published documents.

- b) Questionnaire surveys: researchers analyze the questionnaires completed by firm managers and directors for evaluating the level of firm social performance.
- c) Reputational measures: which means ratios to calculate a score on the 'goodwill' associated with the firm reputation based on a subjective definition of social performance. Although Moskowitz (1972) and the journal *Business and Society Review* were the first to develop such indicators, the reputational measurement most used in literature is the Corporate Reputational Index (CRI) calculated by the Fortune magazine.
- d) One-dimensional indicators: indicators of one single aspect of various socially responsible practices.
- e) Ethical rating: Specialized agencies calculate a multi-dimensional index. Each agency has designed its own quantification model involving the selection of indicators concerning different stakeholder groups.

These five methodologies have all been used to quantify social performance in empirical studies.

Ethical rating (multidimensional indicator nature) of social performance is widely recognized. Empirical research has used the multidimensional indicators of ethical rating to assess social performance. Of the most recent quantitative studies that proxy social performance using these indicators, some studies find a positive relationship (e.g., Griffin & Mahon, 1997; Johnson & Greening, 1999; Knoepfel, 2001; Ruf et al., 2001; Van de Velde et al., 2005), other studies show that there is no relationship (e.g., Waddock et al., 2000), and other studies find a negative relationship (e.g., Brammer et al., 2006).

Previous studies have actually adopted heterogeneous approaches: different CSP measures, different CFP indexes (accounting measures, market ratios, sometimes 'adjusted' according to corporate risk) as well as different historical series. Even the range of samples is disparate, as is the choice of dependent and independent variables, of control variables and of statistical methodologies (correlations, regressions, t-tests, ANOVA and event studies) (Soana, 2011).

To sum up, some research tends to support the positive link between social and financial performance based on environmental, social, and corporate governance ratings, but this relationship remains uncertain in literature.

3. Methods

The purpose of this dissertation is to explore the impact of CSP on CFP. To address the research purpose, we run regressions using panel data. The social performance indicators used include environmental, social, and corporate governance (ESG) ratings.

The models used follow Garcia-Castro et al. (2010) and combine OLS, fixed effects, and instrumental variable estimation. We perform several tests to decide the appropriate estimation method used to test the hypothesis under panel data: Pooled OLS, Fixed effects or Random effects models. Also, we deal with endogeneity using the Instrumental variable estimation.

When estimating models from panel data, one should determine whether there is a correlation between the unobservable heterogeneity η_i of each firm and the explanatory variables of the model. If there is a correlation one should use a fixed effects model and if not one should use a random effects model. To determine whether the effects are fixed or random the Hausman (1978) test under the null hypothesis $E(\eta_i/X_{it})=0$ should be used. In this test, we reject the null hypothesis, so the effects are considered to be fixed. Also, we perform the F-test for the Fixed effects model and Pooled OLS, under the null hypothesis that all dummy parameters are zero. According to this test, we reject the null hypothesis, so the appropriate model is confirmed to be the fixed effects model.

Based on the previous literature we formulate the following research hypotheses (Garcia-Castro et al., 2010; Makni et al., 2009; Preston & O'bannon, 1997; Sadeghi et al., 2016).

H1: Higher (Lower) levels of the aggregate social performance score lead to Higher (Lower) levels of financial performance.

H2: Higher (Lower) levels of social performance score lead to Higher (Lower) levels of financial performance.

H3: Higher (Lower) levels of environmental performance score lead to Higher (Lower) levels of financial performance.

H4: Higher (Lower) levels of corporate governance performance score lead to Higher (Lower) levels of financial performance.

The baseline model used to test the hypotheses under panel data is a Fixed effects model. The following regressions are estimated:

$$FP_{it} = \alpha_i + \beta_1 ESG_{it} + \beta_2 Size_{it} + \beta_3 FLeverage_{it} + \beta_4 Industry_{it} + u_{it} \quad \dots (1)$$

$$FP_{it} = \alpha_i + \beta_1 SOCScore_{it} + \beta_2 Size_{it} + \beta_3 FLeverage_{it} + \beta_4 Industry_{it} + u_{it} \quad \dots (2)$$

$$FP_{it} = \alpha_i + \beta_1 ENVScore_{it} + \beta_2 Size_{it} + \beta_3 FLeverage_{it} + \beta_4 Industry_{it} + u_{it} \quad \dots (3)$$

$$FP_{it} = \alpha_i + \beta_1 CGVScore_{it} + \beta_2 Size_{it} + \beta_3 FLeverage_{it} + \beta_4 Industry_{it} + u_{it} \quad \dots (4)$$

Where:

FP_{it} = ROA, ROE and Tobin's Q of the firm (i) in time (t).

α_i = Is the unknown intercept for each firm (i).

ESG_{it} = Average of the aggregate social performance score including environmental, social, and corporate governance performance scores of the firm (i) in time (t).

$SOCScore_{it}$ = Social performance score of the firm (i) in time (t).

$ENVScore_{it}$ = Environmental performance score of the firm (i) in time (t).

$CGVScore_{it}$ = Corporate governance performance score of the firm (i) in time (t).

$Size_{it}$ = Firm size as measured by the log of total assets of the firm (i) in time (t).

$FLeverage_{it}$ = Financial leverage as measured by the ratio total debt to common equity of the firm (i) in time (t).

$Industry_{it}$ = dummy variables for different industries of the firm (i) in time (t).

u_{it} = Error term of the firm (i) in time (t).

We present our hypotheses in a conceptual model (see figure 1) showing the indicators of CSP as independent variables and CFP as dependent variables adjusting for control variables. That is, the independent variables are the aggregate measure for CSP which combines the performance scores for environmental, social and corporate governance proxies and also each specific performance score. The dependent variables are Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q. The control variables are firm size, financial leverage, and industry dummies. Next, we detail all variables in the data section.

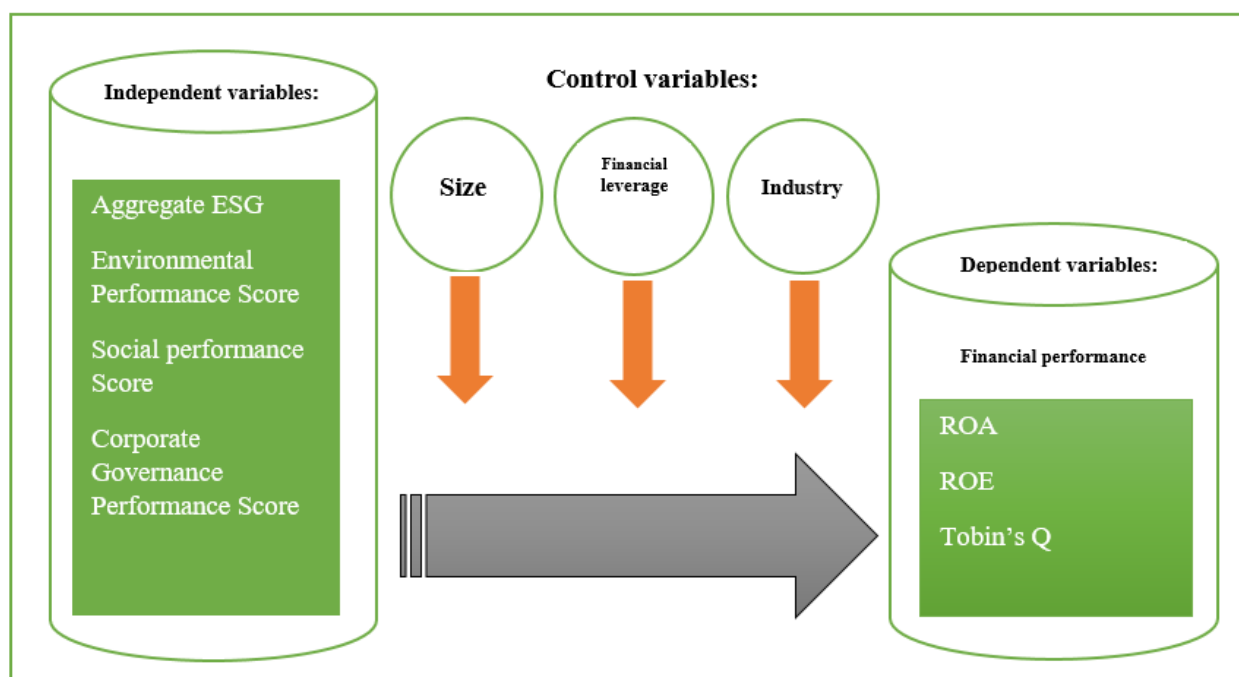


Figure 1. The conceptual model

Source: adapted from Garcia-Castro et al. (2010); Makni et al. (2009); Sadeghi et al. (2016).

4. Data

4.1 Independent variables (Environmental, Social, and Governance performance indicators)

Most studies focus on US and UK markets almost exclusively on investigating the possible link between CSP and CFP mainly on samples of multiple industries (Soana, 2011).

To address the research questions, this study collects a panel dataset on social performance indicators from Thomson Reuters. The data includes firm environmental, social, and corporate governance (ESG) ratings for Japanese firms since 2006 until 2016. During this period the number of listed Japanese firms is 4165. However, there is a lack of ESG data availability for a high number of these firms in the ASSET4 database. Also, we exclude from dataset the utilities and financial firms because the high leverage that is normal for these firms probably does not have the same meaning as for non-financial firms, that high leverage more likely indicates distress. The final dataset is composed of 353 Japanese firms, for which ESG scores are available. The total number of observations is 3595⁶.

These ratings are from the ASSET4 ESG database which rates the ESG practices of a universe of 4,600 firms worldwide firms listed in the S&P 500, NASDAQ 100, STOXX 600, Russell 1000, FTSE 100, ASZ 300, MSCI World, MSCI Europe, and MSCI Emerging Market into 226 key indicators of ESG performance (Thomson, 2014). Also, this dataset consists of four pillars (ASSET4): environmental, social, economic, and governance performance and the ASSET4 ESG database provides separate scores for each of these four dimensions. Previous studies that used Thomson Reuters (ASSET4) include Gutsche et al. (2017), Halbritter & Dorfleitner (2015), Luo et al. (2015), Lys et al. (2015) and Qiu et al. (2016).

Although some studies use MSCI ESG Stats⁷ (KLD) (Huang & Watson, 2015), KLD does not provide the aggregate measure for all three dimensions, unlike ASSET4.

⁶ Garcia-Castro et al. (2010), Gutsche et al. (2017) and Surroca et al. (2010) use datasets consisting of 658, 500, and 599 firms respectively with a total number of observations of 3000, 1862, and 1204 respectively.

⁷ MSCI analysts rate firms using binary scores across a variety of subcategories (known as either “strengths” or “concerns”) within major categories such as community, corporate governance, diversity, environment, products, and controversial industry involvement (Huang & Watson, 2015).

The environmental pillar measures a firm's impact on living and non-living natural systems, including the air, land, and water, as well as complete ecosystems. It reflects how well a firm uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long-term shareholder value (David, 2014).

The social pillar measures a firm's capacity to generate trust and loyalty with its workforce, customers, and society, through its use of best management practices. It is a reflection of the firm's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value (David, 2014).

The corporate governance pillar measures a firm's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders. It reflects a firm's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances in order to generate long-term shareholder value (David, 2014).

The indicators employ these data, applying different levels of importance depending on the industry, country, and regional focus of a firm's operations. These ESG indicators reflect the performance of major global benchmarks via firms that have higher ESG ratings than weighted average for those benchmarks (Thomson, 2014).

We consider aggregate dimension for CSP which combines a performance score for environmental, social and corporate governance proxies as measured by the average of these three scores. In addition to analyzing the aggregate indicators, we also analyze each component of the aggregate CSP indicator alone. So we also focus on the environmental score, social score, and corporate governance score as independent variables representing CSP, as in Gutsche et al. (2017), Lys et al. (2015) and Qiu et al. (2016). These CSP scores are measured on a scale from 0 to 100 using data from the Thomson Reuters ASSET4 ESG database⁸.

The environmental score quantifies the consequences of a firm's performance on living and non-living natural systems, with a low score indicating the existence of environmental risks. The social score reflects a firm's attitude and behavior toward its employees, customers, and society.

⁸ For more detail about the codes of the variables see Appendix 1.

The corporate governance score evaluates a firm's processes and structures to ensure that the board's interests are aligned with those of long-term shareholders.

Environmental performance refers to the firm's resources reduction, emission reduction, and product innovation benefiting the environment. Social performance refers to the firm's product responsibility, community, human rights, diversity, training and development, health and safety, and employment quality. Corporate governance performance refers to the board functions, board structure, compensation policy, shareholders' rights, and vision and strategy⁹.

4.2 Dependent variables (Financial performance)

In order to compare our results with previous evidence, this study uses three measures of financial performance: ROA, ROE, and Tobin's Q. These three measures are the measures of performance most often used in previous studies (e.g., Garcia-Castro et al., 2010; Margolis & Walsh, 2001) which makes the results comparable to pre-existing research. All the variables are collected from DataStream Thomson Financials¹⁰.

Consistent with previous studies, ROA is calculated as operating income over total assets and ROE is calculated as net income over total equity. Following Mahoney & Roberts (2007) and Waddock & Graves (1997), ROA and ROE are used separately to measure a firm's financial performance.

For Tobin's Q, this study uses the ratio of market capitalization to total assets. Tobin's Q presents some benefits over other traditional measures of firm's performance, as it is seen as a forward-looking measure of firm performance and incorporates the value of the firm's tangible and intangible assets based on predicted revenues and streams of costs. Tobin's Q is favored by several economists who are better informed of the market constraints and not the accounting constraints (Demsetz & Villalonga, 2001).

⁹ For more detail about the ESG performance indicators see Appendixes 2,3,4.

¹⁰ For more detail about the codes of the variables see Appendix 1.

4.3 Control variables

As the CSP and CFP relationship may also be affected by firm size, financial leverage, and industry we include these as control variables (Mahoney & Roberts, 2007; Waddock & Graves, 1997).

Size is measured by the log of total assets; financial leverage is measured by the ratio of total debt to common equity of the firm and Industry represents the firm's general industry classification, measured by a dummy variable for the different industries. All these control variables are collected from DataStream Thomson Financials¹¹.

Table 2 presents the industries included in the dataset and the number of firms and observations for each industry.

Table 2: Industries included in the dataset

Industry	Number of firms	Number of observations
Industrial	310	3411
Transportation	17	184

4.4 Descriptive statistics

Our panel data is unbalanced and includes Japanese firms over the period 2006 to 2016. Table 3 presents descriptive statistics on the variables for the 353 Japanese firms that compose our dataset. The total number of observations is 3595. Also, we have dealt with the problem of outliers by using the winsorize procedure at 1% for ROA, ROE, Tobin's Q, FLeverage, and Size.

The social performance scores exhibit mean values of 42.9, 51.7, 65.2, and 11.7 for ESG, SOCSCORE, ENVSCORE, and CGVSCORE, respectively. ROA presents a mean value of 6.4 percent, ROE is 6.8 percent, and Tobin's Q is 0.63.

From the standard deviation, we observe that ESG, SOCSCORE, and ENVSCORE are fairly volatile while CGVSCORE is fairly stable. Further, FLeverage behavior also shows considerable volatility. In relation to the financial performance measures, Tobin's Q exhibits the lowest volatility while ROE presents the highest volatility.

¹¹ For more detail about the codes of the variables see Appendix 1

Table 3: Descriptive statistics

This table reports the descriptive statistics for the dataset over the period 2006 to 2016. For each of the independent, dependent and control variables, the number of observations, mean values, standard deviation, minimum and maximum are reported. The dependent and control variables are winsorized at 1%.

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Independent variables					
Aggregate ESG Score	3,595	42.84	22.84	4.69	82.93
Social Score	3,595	51.73	32.88789	3.51	98.59
Environmental Score	3,595	65.17	32.2383	8.64	96.87
Corporate Governance Score	3,595	11.68	11.09	1.12	81.90
Dependent variables					
ROA	3,595	6.38	4.93	-5.16	24.10
ROE	3,595	6.83	9.77	-44.65	32.34
Tobin's Q	3,595	0.78	0.63	0.02	3.65
Control variables					
Financial Leverage	3,595	75.41	105.79	0.00	907.51
Size	3,595	20.36	1.09	17.96	24.50

Table 4 shows the correlation matrix for the different variables. There is a significant negative correlation between all dependent variables (ROA, ROE, and Tobin's Q) and the performance score for environmental, social and corporate governance. In the same way, the correlation with the aggregate measure for CSP (ESG) is negative and significant. Regarding the correlations between the independent variables, high values are found e.g., between the social score and environmental score (0.82) and corporate governance score (0.55). We considered this in the subsequent analyses in order to avoid potential multicollinearity problems. Therefore, in addition to analysis aggregate ESG, we analyze each component of the aggregate CSP indicator separately.

Table 4: Pearson correlation coefficients

This table reports the Pearson correlation coefficients between dependent, independent and control variables.

	ROAw	ROEw	Qw	ESG	SOCSCORE	ENVSCORE	CGVSCORE	Sizew	FLeveragew
ROAw	1								
ROEw	0.652***	1							
Qw	0.730***	0.397***	1						
ESG	-0.150***	-0.0781***	-0.177***	1					
SOCSCORE	-0.122***	-0.0655***	-0.147***	0.951***	1				
ENVSCORE	-0.169***	-0.0767***	-0.200***	0.937***	0.815***	1			
CGVSCORE	-0.0712***	-0.0662***	-0.0811***	0.644***	0.553***	0.473***	1		
Sizew	-0.261***	-0.00416	-0.362***	0.473***	0.468***	0.406***	0.362***	1	
FLeveragew	-0.321***	-0.187***	-0.369***	0.0191	0.0163	0.0188	0.0139	0.347***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5. Empirical Results and Discussion

First, we perform some tests to decide the appropriate estimation method to test the research hypotheses under panel data: Pooled OLS, Fixed effects or Random effects models. Then we run the empirical models to analyze the relationship between CSP (aggregate ESG, environmental score, social score, and corporate governance score) and CFP (ROA, ROE, and Tobin's Q) for Japanese firms in the period 2006 to 2016. Afterward, we deal with the endogeneity problem by employing the instrumental variables method (IV) estimated using two-stage least squares (2SLS) regression analysis. Finally, we discuss our findings compared to previous studies.

As described in section 3, we perform an F-test for Fixed effects model and Pooled OLS. In this test, the null hypothesis is that all dummy parameters are jointly equal to zero. We reject this hypothesis and thus conclude that the appropriate model is the fixed effects model. Then we perform a Hausman (1978) test on fixed effects (FE) and random effects (RE) models to test for consistency. From this test, we confirm the appropriate method is the fixed effects model.

Previous studies use mainly the Pooled OLS estimation. For comparison purpose, we report in an appendix the results for regression estimates obtained using pooled cross-sectional OLS. The results suggest some evidence of a negative relationship and statistically significant for all independent variables in ROE and for the environmental score in ROA and Tobin's Q and others suggest a neutral relationship for aggregate ESG score, social score, and corporate governance score in ROA and Tobin's Q¹².

5.1 Fixed effects model estimates

We estimate the FE model to control for unobservable firm characteristics which may affect CSP. Besides firm fixed effects, we also analyze regression estimates controlling for year fixed effects and industry fixed effects.

In addition, we test for heteroskedasticity using a modified Wald statistic for group-wise heteroskedasticity in the residuals of the fixed effects regression model, following Greene (2000). Also, we test for serial correlation in the idiosyncratic errors of a linear panel-data model

¹² For more detail see Appendix 5.

using Wooldridge test (2010). We have these problems in our model. Therefore, we use FE regressions with cluster option in order to correct these problems.

Table 5 reports regressions estimates considering the aggregate ESG score as the independent variable. For each dependent variable (ROA, ROE, Tobin's Q), the table reports the estimates considering only firms FE, firm and year FE, and firm, year, and industry effects. As can be observed, the coefficients for ESG are negative and statistically significant when we only control for firm FE. When we add also year FE and year and industry FE the coefficients continue to be negative but not statistically significant.

In what regards the coefficients for control variables, the results show negative and statistically significant coefficients for the FLeverage variable. In relation to Size, the coefficients change across the different regressions.

Our results using fixed effect for the aggregate ESG considering firm, year and industry effects agree with previous results of Garcia-Castro et al. (2010) in ROA, ROE, and Tobin's Q.

Table 5: Results from FE regressions considering aggregate ESG

This table presents regressions estimates from FE regressions considering aggregate ESG as the independent variable, for each dependent variable (ROA, ROE, Tobin's Q). Also, we include firm size, financial leverage, and industry as control variables. Regressions are estimated controlling only firms FE, firm and year FE, and firm, year, and industry effects¹³.

	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	ROA	ROA	ROA	ROE	ROE	ROE	Q	Q	Q
VARIABLES	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies
ESG	-0.045***	-0.007	-0.007	-0.088***	0.000	0.000	-0.005***	0.000	0.000
	(0.009)	(0.009)	(0.010)	(0.016)	(0.017)	(0.018)	(0.001)	(0.001)	(0.001)
Size	-0.287	-0.437	-0.437	2.284*	0.985	0.985	-0.122	-0.254***	-0.254**
	(0.613)	(0.715)	(0.753)	(1.164)	(1.453)	(1.530)	(0.087)	(0.093)	(0.098)
FLeverage	-0.015***	-0.012***	-0.012***	-0.063***	-0.055***	-0.055***	-0.001***	-0.001***	-0.001***
	(0.002)	(0.002)	(0.002)	(0.008)	(0.007)	(0.007)	(0.000)	(0.000)	(0.000)
1. Industry			5.677***			25.71***			-0.438
			(2.144)			(4.914)			(0.288)
Constant	15.26	17.93	11.65	-31.17	-5.265	-19.93	3.559**	6.340***	6.638***
	(12.39)	(14.4)	(13.43)	(23.61)	(29.4)	(27.25)	(1.773)	(1.883)	(1.753)
Observations	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.068	0.183	0.683	0.15	0.24	0.481	0.057	0.308	0.811
No. of firms	353	353	353	353	353	353	353	353	353

Notes: Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Tables 6 to 8 present regressions estimates for each component of the aggregate ESG: social score, environmental score, and corporate governance score, respectively. The results for each component are similar to the ones for the aggregate ESG.

¹³ The years not reported in the table.

Table 6 reports regressions estimates considering the social score as the independent variable. For each dependent variable (ROA, ROE, Tobin's Q), the coefficients are negative and statistically significant when the regressions only control for firm FE and not statistically significant when we control for a year and industry FE.

Table 6: Results from FE regressions considering SOCSCORE

This table presents regressions estimates from FE regressions considering social score as the independent variable, for each dependent variable (ROA, ROE, Tobin's Q). Also, we include firm size, financial leverage, and industry as control variables. Regressions are estimated controlling only firms FE, firm and year FE, and firm, year and industry effects¹⁴.

	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	ROA	ROA	ROA	ROE	ROE	ROE	Q	Q	Q
VARIABLES	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies
SOCSCORE	-0.022***	-0.001	-0.001	-0.046***	0.002	0.002	-0.002***	0.000	0.000
	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)	(0.011)	(0.001)	(0.001)	(0.001)
Size	-0.313	-0.459	-0.459	2.275*	0.972	0.972	-0.124	-0.254***	-0.254**
	(0.633)	(0.719)	(0.758)	(1.196)	(1.46)	(1.537)	(0.088)	(0.093)	(0.098)
FLeverage	-0.015***	-0.012***	-0.012***	-0.063***	-0.055***	-0.055***	-0.001***	-0.0001***	-0.001***
	(0.002)	(0.002)	(0.002)	(0.008)	(0.007)	(0.007)	(0.000)	(0.000)	(0.000)
1. Industry			5.775***			25.78***			-0.437
			(2.168)			(4.954)			(0.289)
Constant	15.04	18.16	12.01	-32.36	-5.105	-19.72	3.520*	6.345***	6.642***
	(12.77)	(14.46)	(13.5)	(24.25)	(29.49)	(27.38)	(1.803)	(1.886)	(1.756)
Observations	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.063	0.182	0.682	0.148	0.24	0.481	0.054	0.308	0.811
No. of firms	353	353	353	353	353	353	353	353	353

Notes: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

¹⁴ The years not reported in the table.

Table 7 reports regressions estimates considering the environmental score as the independent variable. For each dependent variables ROA, ROE and Tobin's Q, the coefficients are negative and statistically significant when the regressions only control for firm FE and not statistically significant when we control for a year and industry FE.

Table 7: Results from FE regressions considering ENVSCORE

This table presents regressions estimates from FE regressions considering environmental score as the independent variable, for each dependent variable (ROA, ROE, Tobin's Q). Also, we include firm size, financial leverage, and industry as control variables. Regressions are estimated controlling only firms FE, firm and year FE, and firm, year and industry effects¹⁵.

	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	ROA	ROA	ROA	ROE	ROE	ROE	Q	Q	Q
VARIABLES	FE	FE with year dummies	FE with year& industry dummies	FE	FE with year dummies	FE with year& industry dummies	FE	FE with year dummies	FE with year& industry dummies
ENVSCORE	-0.028***	-0.008	-0.008	-0.047***	-0.002	-0.002	-0.003***	-4.76E-06	-4.76E-06
	(0.007)	(0.006)	(0.007)	(0.010)	(0.010)	(0.011)	(0.001)	(0.001)	(0.001)
Size	-0.391	-0.419	-0.419	1.975*	0.998	0.998	-0.139	-0.252***	-0.252**
	(0.602)	(0.712)	(0.749)	(1.135)	(1.446)	(1.523)	(0.086)	(0.093)	(0.097)
FLeverage	-0.015***	-0.012***	-0.012***	-0.062***	-0.055***	-0.055***	-0.001***	-0.001***	-0.0001***
	(0.002)	(0.002)	(0.002)	(0.008)	(0.007)	(0.008)	(0.000)	(0.000)	(0.000)
1. Industry			5.609***			25.66***			-0.445
			(2.116)			(4.882)			(0.287)
Constant	17.3	17.81	11.39	-25.58	-5.392	-20.15	3.864**	6.325***	6.615***
	(12.19)	(14.37)	(13.37)	(23.13)	(29.34)	(27.14)	(1.768)	(1.88)	(1.749)
Observations	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.065	0.183	0.683	0.147	0.24	0.481	0.052	0.308	0.811
No. of firms	353	353	353	353	353	353	353	353	353

Notes: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

¹⁵ The years not reported in the table.

Table 8 reports regressions estimates considering the corporate governance score as the independent variable. For each dependent variable (ROA, ROE, Tobin's Q), the coefficients are negative and statistically significant when the regressions only control for firm FE and not statistically significant when we control also for a year and industry FE.

Table 8: Results from FE regressions considering CGVSCORE

This table presents regressions estimates from FE regressions considering corporate governance score as the independent variable, for each dependent variable (ROA, ROE, Tobin's Q). Also, we include firm size, financial leverage, and industry as control variables. Regressions are estimated controlling only firms FE, firm and year FE, and firm, year and industry effects¹⁶.

	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	ROA	ROA	ROA	ROE	ROE	ROE	Q	Q	Q
VARIABLES	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies	FE	FE with year dummies	FE with year & industry dummies
CGVSCORE	-0.026**	0.003	0.003	-0.071***	0.002	0.002	-0.005***	0.000	0.000
	(0.013)	(0.013)	(0.013)	(0.027)	(0.027)	(0.028)	(0.001)	(0.001)	(0.001)
Size	-0.799	-0.47	-0.47	1.261	0.983	0.983	-0.178**	-0.253***	-0.253***
	(0.592)	(0.711)	(0.748)	(1.116)	(1.454)	(1.531)	(0.085)	(0.092)	(0.097)
FLeverage	-0.015***	-0.011***	-0.011***	-0.063***	-0.055***	-0.055***	-0.001***	-0.001***	-0.001***
	(0.002)	(0.002)	(0.002)	(0.008)	(0.007)	(0.007)	(0.000)	(0.000)	(0.000)
1. Industry			5.826***			25.72***			-0.444
			(2.116)			(4.92)			(0.284)
Constant	24.07**	18.29	12.19	-13.3	-5.251	-19.91	4.559***	6.328***	6.620***
	(12.06)	(14.36)	(13.350)	(22.81)	(29.42)	(27.27)	(1.748)	(1.876)	(1.741)
Observations	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.057	0.182	0.682	0.145	0.24	0.481	0.051	0.308	0.811
No. of firms	353	353	353	353	353	353	353	353	353

Notes: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

¹⁶ The years not reported in the table.

The correlation between the explanatory variable and the error term (or the failure of the zero-conditional mean assumption $E(u|X) = 0$) is a reason for the endogeneity problem. The correlation between x and u may arise for other reasons including the measurement error in the explanatory variable and unobservable or latent factors.

Instrumental variables estimation is most widely known as a solution to endogenous regressors: explanatory variables correlated with the regression error term. IV estimation provides a way to obtain consistent parameter estimates. We deal with this potential problem in the next section.

5.2 Instrumental variable model

In this subsection, we address the endogeneity problem by using the IV model estimated by 2SLS regression analysis.

Much of the accounting and finance empirical literature is plagued by the endogeneity problem, particularly in corporate governance studies (Roberts & Whited, 2013). The endogeneity has several dimensions in terms of econometrics. First, it is a problem of omitted variables, that is, variables other than the ones specified provide alternative or additional explanation for the relationship modeled. Second, endogeneity is a problem of simultaneity. That is a case when the dependent variable and one or more of the explanatory variables are jointly determined. A third problem is that related to measurement error when proxies are used for unobservable or difficult to measure independent or dependent variables (Gippel et al., 2015).

One of the assumptions of the classical linear regression model is that the conditional expectation of the error term vector (u) is equal to zero, conditioned to the observation of the regressor's data matrix X . This assumption implies that the covariance of X and u is zero. A problem arises when the researcher suspects that this assumption is not true and that some of the variables in the data matrix are correlated with the error term. In this setting, the OLS estimator is biased and inconsistent.

In the field of social issues in management, and more specifically in CSP and CFP research, Garcia-Castro et al. (2010) argue the heterogeneity in the conclusions shown by previous findings could suggest that endogeneity is a relevant issue. Also, this problem could have important consequences, leading, in extreme cases, to opposite conclusions.

The most difficult issue in the IV estimation is the ability to find valid instruments. Two important characteristics of a valid instrument are that: 1) it reasonably predicts the endogenous variable (ESG in our models) and 2) it is not correlated with the disturbance terms in our main models (ROA, ROE, Tobin's Q).

Therefore, we consider the aggregate ESG score as endogenous. As an instrument, we consider the variable Index, which is a dummy variable taking the value of 1 if a firm is listed in the main index of the Japanese market and the value of zero if not.

In Table 9, we present the estimates of the first-stage regression (OLS regression) for the aggregate ESG score on all the variables including the instrumental variable, year (not reported) and industry dummies. As can be observed, all the coefficients are statistically significant when the regressions control for FE with the year and industry dummies.

Table 9: Results from IV regressions (First-stage/OLS)

This table presents the estimates of the first-stage regression (OLS regression) for the aggregate ESG score on all the variables. Year (not reported) and industry FE are also included.

(1)	
VARIABLES	ESG
	FE with year& industry dummies
1.Index	4.539** (1.790)
Size	10.500*** (0.266)
FLeverage	-0.006** (0.001)
1. Industry	-16.289*** (1.565)
Constant	-177.909*** (1.56)
Observations	3,595

Notes: Robust Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

We checked the validity of our assumptions to make sure that our selections of the aggregate ESG score being endogenous, and of the instrumental variable index being valid and strong, are accurate. Based on the first stage regression, the F-values of Shea's partial R^2 for ROA, ROE, and Tobin Q using the method of Sanderson & Windmeijer (2016) are all statistically significant at the 5% level when the regressions control a year and industry FE, evidencing a strong predictive power of the chosen instrument (see table 10).

Furthermore, we performed the Durbin (1954) and Wu-Hausman (Hausman, 1978; Wu, 1974) tests, to determine whether endogenous regressors in the model are in fact exogenous, both tests are statistically significant in the three models when the regressions control a year and industry FE, this indicates the variable ESG must treat as endogenous. Also, we performed the underidentification test using Kleibergen & Paap (2006) approach to examine the rank the canonical correlations of the endogenous regressors and the instrumental variable matrices in the three models (i.e. ROA, ROE, and Tobin's Q) when the regressions control a year and industry FE. The results of p-value are lower than 0.05, which means the aggregate ESG score in all the models could be identified as endogenous (see table 10).

The output of the first stage also includes two statistics that provide weak-instrument robust inference for testing the significance of the endogenous regressors in the three models (ROA, ROE, and Tobin's Q). The first statistic is the Anderson & Rubin (1949) test and the second is the Stock & Wright (2000) test. The null hypothesis was tested in both statistics in which the coefficients of the endogenous regressors in the structural equation are jointly equal to zero. Both tests indicate the presence of strong instrumental variable and the parameters of the endogenous regressors are statistically significant in all models when the regressions control a year and industry FE (see table 10).

As our model has passed all the abovementioned tests, it appears that the instrumental variable estimation could be used as a consistent method. We run an Instrumental variable model (2SLS)¹⁷ with a robust option to correct heteroskedasticity. We estimate again the impact of ESG on ROA, ROE, and Tobin's Q, where ESG is modeled using the Instrumental Variable Index, which is included in the first-stage OLS regression shown in table 9 above.

¹⁷ We get the same findings when estimating IV using Generalized Method of Moments (GMM).

Table 10 reports the regressions' estimates considering the aggregate instrumented ESG score as the independent variable. For all the dependent variables (ROA, ROE, Tobin's Q), the coefficients are positive and statistically significant when the regressions control for a year and industry FE. The relatively high negative values for R-squared in ROA and ROE are due to that R-squared has no statistical meaning in the context of instrumental variable estimation (2SLS) (Stata, 2018).

Table 10: Results from IV regressions (2SLS) considering aggregate ESG

This table presents regressions estimates from IV regressions (2SLS) considering aggregate ESG as the independent variable modeled using the IV Index included in the first-stage, for each dependent variable (ROA, ROE, Tobin's Q). Also, we include firm size and financial leverage as control variables. Regressions are estimated controlling for a year (not reported) and industry FE.

	(1)	(2)	(3)
VARIABLES	ROA IV FE with year & industry dummies	ROE IV FE with year & industry dummies	Q IV FE with year & industry dummies
ESG	0.627** (0.265)	1.458** (0.667)	0.053** (0.023)
Size	-7.729*** (2.796)	-15.41** (7.041)	-0.763*** (0.235)
FLeverage	0.002 (0.002)	0.007 (0.004)	0.000 (0.000)
1. Industry	9.100** (4.396)	23.44** (11.07)	0.667* (0.371)
Constant	139.9*** (46.30)	265.5** (116.6)	14.53*** (3.894)
Sanderson-Wind F statistic	6.41	6.41	6.41
Durbin (score)	53.84	72.29	23.29
Wu-Hausman F statistic	54.41	73.46	23.34
Kleibergen-Paap LM statistic	6.12	6.12	6.12
Anderson-Rubin Wald test	35.23	35.23	35.23
Stock-Wright LM statistic	33.65	33.65	33.65
Observations	3,595	3,595	3,595
R-squared	-6.150	-8.770	-2.480

Notes: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Finally, the findings shown in Table 10 suggest that CSP has a positive effect on CFP. Accordingly, we confirm there is a significant influence when we deal with the endogeneity problem. Moreover, these findings are supportive of the stakeholder theory and Freeman's (1994) view. This indicates that meeting the needs of various corporate stakeholders will ultimately lead to better financial performance. The findings of our study and analysis have practical implications for the boards of directors as they stand as solid evidence that all social policies increment financial resources.

5.3 Discussion

In this section, we discuss our results with reference to previous empirical studies. We investigate a dataset of 353 Japanese firms. The total number of observations is 3595. Previous studies by Garcia-Castro et al. (2010), Gutsche et al. (2017) and Surroca et al. (2010) use datasets consisting of 658, 500, and 599 firms respectively and a total number of observations of 3000, 1862, and 1204 respectively.

Garcia-Castro et al. (2010) study of 658 US firms in KLD (1991 to 2005) found a negative relationship when using fixed effects and instrumental variable estimations. However, this was not statistically significant between CSP and CFP. In a comparison of our results with the ones from Garcia-Castro et al. (2010), we found consensus in the FE estimation, but we found a statistically significant positive relationship when using IV estimation.

The reason for this may be the instrumental variables, we use Index if a firm is listed in the main index of the Japanese market or not, while Garcia-Castro et al. (2010) use limited executive compensation (LEC), ownership strength (OWS), transparency in social and environmental reporting (TRS), and industry dummies. Most the coefficients of these variables and other variables included in the IV model first-stage regression are not statistically significant. But, we find all the coefficients are statistically significant shown in table 9 above.

Therefore, we argue what conclude Garcia-Castro et al. (2010) that the positive relationship found in several previous studies if endogeneity problem is properly taken into account may become a non-significant or even negative relationship. In opposition to this, our results show that the relationship between CSP and CFP become positive and significant when we consider endogeneity problem.

Choi et al. (2010) study of 1222 Korea firms from the year 2002 to 2008, measured CSP by stakeholder-weighted CSR index and CFP by ROA, ROE, and Tobin's Q. The study found a positive relationship which was statistically significant between CSP and CFP when using instrumental variable estimation. In a comparison of our results with the ones from Choi et al. (2010), we found consensus in the IV estimation.

Finally, for these findings, it must be a growing awareness for firms to engage in corporate social responsibility activities to contribute to good citizenship. Also, it must support considerations of social concerns widely beyond the interest of shareholders. Therefore, firms should consider the needs of their customers, suppliers, employees, communities, and the environment when making a business decision as these factors have been shown to influence profit, at least in the case of Japan. The increasing awareness about the relationship between CFP and CSP can contribute to the greater importance of corporate performance measures that are social as well as financial in nature.

6. Conclusions

The previous empirical evidence on the link between CSP and CFP provide mixed results. The objective of this research is to examine the effects of corporate social performance on corporate financial performance for Japanese companies during the period from 2006 to 2016. Our research is motivated by the lack of consistent evidence and scarcity of research on the Japanese context which is considered the best market in the world in relation to real participation toward CSR. We analyze the Japanese market using a standard approach by regressing accounting and market indicators of financial performance (ROA, ROE and Tobin's Q) on social performance ratings (aggregate ESG score, social score, environmental score, and corporate governance score).

Our empirical results using fixed effects model indicate negative and statistically significant between aggregate ESG and CFP when the regressions only control for firm FE and not statistically significant when we control for year and industry FE. The results for each component are similar to the ones for the aggregate ESG. Also, we address the endogeneity problem by using the instrumental variable model estimated by 2SLS regression analysis. Our empirical results using IV model show a positive and statistically significant relationship between CSP and CFP.

The implications of these results are twofold. First, they indicate the importance of dealing with the endogeneity problem when analyzing the relationship between CSP and CFP. Second, they suggest that better social performance leads to higher financial performance. The limitations of this research are lack of data availability ESG for all Japanese firms in ASSET4 database. We suggest that future research investigates the relationship between CSP and CFP in different large markets such as those in Europe, the US, and the UK.

References

- Andersen, M. L., & Olsen, L. (2011). Corporate social and financial performance: A canonical correlation analysis. *Academy of Accounting and Financial Studies Journal*, 15(2), 17–37.
- Anderson, T. W., & Rubin, H. (1949). Estimation of the parameters of a single equation in a complete system of stochastic equations. *The Annals of Mathematical Statistics*, 46–63.
- Ansoff, H. I. (1965). *Corporate strategy: business policy for growth and expansion*. McGraw-Hill Book.
- 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.
- Baird, P. L., Geylani, P. C., & Roberts, J. A. (2012). Corporate social and financial performance re-examined: Industry effects in a linear mixed model analysis. *Journal of Business Ethics*, 109(3), 367–388.
- Barnett, M. L. (2007). Stakeholder influence capacity and the variability of financial returns to corporate social responsibility. *Academy of Management Review*, 32(3), 794–816.
- Barnett, M. L., & Salomon, R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal*, 27(11), 1101–1122.
- Barney, J. B. (1986). Organizational culture: can it be a source of sustained competitive advantage? *Academy of Management Review*, 11(3), 656–665.
- Becchetti, L., Di Giacomo, S., & Pinnacchio, D. (2008). Corporate social responsibility and corporate performance: evidence from a panel of US listed companies. *Applied Economics*, 40(5), 541–567.
- Berman, S. L., Wicks, A. C., Kotha, S., & Jones, T. M. (1999). Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Academy of Management Journal*, 42(5), 488–506.
- Bhattacharya, C. B., & Sen, S. (2003). Consumer-company identification: A framework for understanding consumers' relationships with companies. *Journal of Marketing*, 67(2), 76–88.

- Brammer, S., Brooks, C., & Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial Management*, 35(3), 97–116.
- Brammer, S., & Millington, A. (2004). The development of corporate charitable contributions in the UK: A stakeholder analysis. *Journal of Management Studies*, 41(8), 1411–1434.
- Brouwers, R., Schoubben, F., Van Hulle, C., & Van Uytbergen, S. (2014). The link between corporate environmental performance and corporate value: A literature review. *Review of Business and Economic Literature*, 58(4), 343–374.
- Brown, B. (1998). Do stock market investors reward companies with reputations for social performance? *Corporate Reputation Review*, 1(3), 271–280.
- Carnegie, A. (1906). The gospel of wealth. *The North American Review*, 183(599), 526–537.
- Chand, M., & Fraser, S. (2006). The relationship between corporate social performance and corporate financial performance: Industry type as a boundary condition. *The Business Review*, 5(1), 240–245.
- Choi, J.-S., Kwak, Y.-M., & Choe, C. (2010). Corporate social responsibility and corporate financial performance: evidence from Korea. *Australian Journal of Management*, 35(3), 291–310.
- David, T. (2014). Environmental, Social and Governance Performance. Retrieved August 21, 2017, from <https://www.thomsonreuters.com/en/about-us/corporate-responsibility-inclusion/esg-performance.html>
- Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance*, 7(3), 209–233.
- Durbin, J. (1954). Errors in variables. *Review of the International Statistical Institute* 22: 23-32.
- Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational images and member identification. *Administrative Science Quarterly*, 239–263.
- Edward, F. R. (1984). Strategic Management: A stakeholder approach. *Boston: Pitman*, 46.
- Ehsan, S., & Kaleem, A. (2012). An empirical investigation of the relationship between corporate social responsibility and financial performance (Evidence from manufacturing sector of Pakistan). *Journal of Basic and Applied Scientific Research*, 2(3), 2909–2922.
- Eweje, G., & Sakaki, M. (2015). CSR in Japanese companies: Perspectives from managers. *Business Strategy and the Environment*, 24(7), 678–687.
- Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance?

- A regression discontinuity approach. *Management Science*, 61(11), 2549–2568.
- Freeman, R. E. (1994). The politics of stakeholder theory: Some future directions. *Business Ethics Quarterly*, 409–421.
- Friedman, M. (1970). The Social Responsibility of Business is to make profit. *New York Times Magazine*, 13.
- Friedman, M. (2009). *Capitalism and freedom*. University of Chicago press.
- Galant, A., & Cadez, S. (2017). Corporate social responsibility and financial performance relationship: a review of measurement approaches. *Economic Research-Ekonomska Istraživanja*, 30(1), 676–693.
- Garcia-Castro, R., Ariño, M. A., & Canela, M. A. (2010). Does social performance really lead to financial performance? Accounting for endogeneity. *Journal of Business Ethics*, 92(1), 107–126.
- Garriga, E., & Melé, D. (2004). Corporate social responsibility theories: Mapping the territory. *Journal of Business Ethics*, 53(1), 51–71.
- Gippel, J., Smith, T., & Zhu, Y. (2015). Endogeneity in Accounting and Finance Research: Natural Experiments as a State-of-the-Art Solution. *Abacus*, 51(2), 143–168.
- Gnanaweera, K. A. K., & Kunori, N. (2018). Corporate sustainability reporting: Linkage of corporate disclosure information and performance indicators. *Cogent Business & Management*, 5(1), 1423872.
- Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis. *Strategic Management Journal*, 30(4), 425–445.
- Gössling, T. (2003). The price of morality. An analysis of personality, moral behaviour, and social rules in economic terms. *Journal of Business Ethics*, 45(1–2), 121–131.
- Gössling, T., & Vocht, C. (2007). Social role conceptions and CSR policy success. *Journal of Business Ethics*, 363–372.
- Greene, W. H. (2000). *Econometric analysis* (International edition).
- Griffin, J. J. (2000). Corporate social performance: Research directions for the 21st century. *Business & Society*, 39(4), 479–491.
- Griffin, J. J., & Mahon, J. F. (1997). The corporate social performance and corporate financial performance debate: Twenty-five years of incomparable research. *Business & Society*,

36(1), 5–31.

- Gutsche, R., Schulz, J.-F., & Gratwohl, M. (2017). *Firm-value effects of CSR disclosure and CSR performance. Working Paper*. New York.
- Halbritter, G., & Dorfleitner, G. (2015). The wages of social responsibility—where are they? A critical review of ESG investing. *Review of Financial Economics*, 26, 25–35.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, 1251–1271.
- Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: what's the bottom line? *Strategic Management Journal*, 125–139.
- Holme, R., & Watts, P. (1999). Corporate social responsibility. *Geneva: World Business Council for Sustainable Development*.
- Huang, X., & Watson, L. (2015). Corporate social responsibility research in accounting. *Journal of Accounting Literature*, 34, 1–16.
- Jennifer Ho, L., & Taylor, M. E. (2007). An empirical analysis of triple bottom-line reporting and its determinants: evidence from the United States and Japan. *Journal of International Financial Management & Accounting*, 18(2), 123–150.
- Johnson, R. A., & Greening, D. W. (1999). The effects of corporate governance and institutional ownership types on corporate social performance. *Academy of Management Journal*, 42(5), 564–576.
- Kleibergen, F., & Paap, R. (2006). Generalized reduced rank tests using the singular value decomposition. *Journal of Econometrics*, 133(1), 97–126.
- Knoepfel, I. (2001). Dow Jones sustainability group index: A global benchmark for corporate sustainability. *Corporate Environmental Strategy*, 8(1), 6–15.
- Kolk, A. (2005). Sustainability reporting. *VBA Journal*, 21(3), 34–42.
- KPMG. (2015, November 23). The KPMG Survey of Corporate Responsibility Reporting 2015 | KPMG | GLOBAL. Retrieved April 3, 2018, from <https://home.kpmg.com/xx/en/home/insights/2015/11/kpmg-international-survey-of-corporate-responsibility-reporting-2015.html>
- KPMG. (2017, October 11). KPMG Survey of Corporate Responsibility Reporting 2017 | KPMG | GLOBAL. Retrieved April 3, 2018, from <https://home.kpmg.com/xx/en/home/campaigns/2017/10/survey-of-corporate-responsibility->

reporting-2017.html

- Luo, X., Wang, H., Raithel, S., & Zheng, Q. (2015). Corporate social performance, analyst stock recommendations, and firm future returns. *Strategic Management Journal*, 36(1), 123–136.
- Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics*, 60(1), 56–72.
- Mahoney, L., & Roberts, R. W. (2007). Corporate social performance, financial performance and institutional ownership in Canadian firms. In *Accounting forum* (Vol. 31, pp. 233–253). Elsevier.
- Makni, R., Francoeur, C., & Bellavance, F. (2009). Causality between corporate social performance and financial performance: Evidence from Canadian firms. *Journal of Business Ethics*, 89(3), 409–422.
- Margolis, J. D., & Walsh, J. P. (2001). *People and profits?: The search for a link between a company's social and financial performance*. Psychology Press.
- Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48(2), 268–305.
- Marom, I. Y. (2006). Toward a unified theory of the CSP–CFP link. *Journal of Business Ethics*, 67(2), 191–200.
- McGuire, J. B., Schneeweis, T., & Branch, B. (1990). Perceptions of firm quality: A cause or result of firm performance. *Journal of Management*, 16(1), 167–180.
- 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. *Strategic Management Journal*, 21(5), 603–609.
- McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *Academy of Management Review*, 26(1), 117–127.
- Moore, G. (2001). Corporate social and financial performance: An investigation in the UK supermarket industry. *Journal of Business Ethics*, 34(3), 299–315.
- Moskowitz, M. (1972). Choosing socially responsible stocks. *Business and Society Review*, 1(1), 71–75.
- Muller, A., & Kräussl, R. (2011). Doing good deeds in times of need: A strategic perspective on corporate disaster donations. *Strategic Management Journal*, 32(9), 911–929.

- Nelling, E., & Webb, E. (2009). Corporate social responsibility and financial performance: the “virtuous circle” revisited. *Review of Quantitative Finance and Accounting*, 32(2), 197–209.
- Okamoto, D. (2009). Social relationship of a firm and the CSP–CFP relationship in Japan: Using artificial neural networks. *Journal of Business Ethics*, 87(1), 117–132.
- Orlitzky, M. (2001). Does firm size comfound the relationship between corporate social performance and firm financial performance? *Journal of Business Ethics*, 33(2), 167–180.
- Orlitzky, M., & Benjamin, J. D. (2001). Corporate social performance and firm risk: A meta-analytic review. *Business & Society*, 40(4), 369–396.
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403–441.
- Post, J. E., Preston, L. E., & Sachs, S. (2002). Managing the extended enterprise: The new stakeholder view. *California Management Review*, 45(1), 6–28.
- Preston, L. E., & O’bannon, D. P. (1997). The corporate social-financial performance relationship: A typology and analysis. *Business & Society*, 36(4), 419–429.
- Qiu, Y., Shaukat, A., & Tharyan, R. (2016). Environmental and social disclosures: Link with corporate financial performance. *The British Accounting Review*, 48(1), 102–116.
- Roberts, M. R., & Whited, T. M. (2013). Endogeneity in empirical corporate finance1. In *Handbook of the Economics of Finance* (Vol. 2, pp. 493–572). Elsevier.
- Roman, R. M., Hayibor, S., & Agle, B. R. (1999). The relationship between social and financial performance: Repainting a portrait. *Business & Society*, 38(1), 109–125.
- Ruf, B. M., Muralidhar, K., Brown, R. M., Janney, J. J., & Paul, K. (2001). An empirical investigation of the relationship between change in corporate social performance and financial performance: A stakeholder theory perspective. *Journal of Business Ethics*, 32(2), 143–156.
- Sadeghi, G., Sadeghi, G., Arabsalehi, M., Arabsalehi, M., Hamavandi, M., & Hamavandi, M. (2016). Impact of corporate social performance on financial performance of manufacturing companies (IMC) listed on the Tehran Stock Exchange. *International Journal of Law and Management*, 58(6), 634–659.
- Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly*, 224–253.
- Sanderson, E., & Windmeijer, F. (2016). A weak instrument F-test in linear IV models with

- multiple endogenous variables. *Journal of Econometrics*, 190(2), 212–221.
- Sandhu, H. S., & Kapoor, S. (2010). Corporate social responsibility initiatives: An analysis of voluntary corporate disclosure. *South Asian Journal of Management*, 17(2), 47.
- Simpson, W. G., & Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of Business Ethics*, 35(2), 97–109.
- Soana, M.-G. (2011). The relationship between corporate social performance and corporate financial performance in the banking sector. *Journal of Business Ethics*, 104(1), 133–148.
- Stata. (2018). Stata | FAQ: Negative and missing R-squared for 2SLS/IV. Retrieved April 19, 2018, from <https://www.stata.com/support/faqs/statistics/two-stage-least-squares/>
- Stock, J. H., & Wright, J. H. (2000). GMM with weak identification. *Econometrica*, 68(5), 1055–1096.
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5), 463–490.
- Thomson, D. (2014). CORPORATE RESPONSIBILITY INDICES AND RATINGS. Retrieved August 21, 2017, from <https://financial.thomsonreuters.com/content/dam/openweb/documents/pdf/financial/tr-corporate-responsibility-indices-overview.pdf>
- Ullmann, A. A. (1985). Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms. *Academy of Management Review*, 10(3), 540–557.
- Van Beurden, P., & Gössling, T. (2008). The worth of values—a literature review on the relation between corporate social and financial performance. *Journal of Business Ethics*, 82(2), 407–424.
- Van de Velde, E., Vermeir, W., & Corten, F. (2005). Corporate social responsibility and financial performance. *Corporate Governance: The International Journal of Business in Society*, 5(3), 129–138.
- Vance, S. C. (1975). Are socially responsible corporations good investment risks. *Management Review*, 64(8), 19–24.
- Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial

- performance link. *Strategic Management Journal*, 303–319.
- Waddock, S. A., Graves, S. B., & Gorski, R. (2000). Performance characteristics of social and traditional investments. *The Journal of Investing*, 9(2), 27–38.
- Wang, Q., Dou, J., & Jia, S. (2016). A meta-analytic review of corporate social responsibility and corporate financial performance: The moderating effect of contextual factors. *Business & Society*, 55(8), 1083–1121.
- Wood, D. J. (1991). Corporate social performance revisited. *Academy of Management Review*, 16(4), 691–718.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.
- Wright, P., & Ferris, S. P. (1997). Agency conflict and corporate strategy: The effect of divestment on corporate value. *Strategic Management Journal*, 77–83.
- Wu, D.-M. (1974). Alternative tests of independence between stochastic regressors and disturbances: Finite sample results. *Econometrica: Journal of the Econometric Society*, 529–546.

Appendix 1 - DataStream codes

This table presents the codes for all the variables used in this dissertation collected from DataStream

Variable	Code
Social Score	SOCSCORE
Environmental Score	ENVSCORE
Governance Score	CGVSCORE
ROA	WC08326
Market capitalization	MV
FLeverage	WC08231
Main Index Market	WC05661
Total Assets	WC02999
Operating Income	WC01250
Common Equity	WC03501
Industry	WC06010

Appendix 2 - Description of the environmental performance indicators

This table presents the description of the environmental performance indicators. For each of emissions reduction, resource reduction, and a product innovation indicator. Also, this table reports for each indicator on which direction to measures a firm's management commitment and effectiveness, and for what reflects the firm's capacity¹⁸.

Overall Environmental performance indicators:	Measures a firm's management commitment & effectiveness towards:	Reflects the firm's capacity:
Emissions Reduction	Reducing environmental emission in the production and operational processes.	To reduce air emissions (greenhouse gases, F-gases, ozone-depleting substances, NOx and SOx, etc.), waste, hazardous waste, water discharges, spills or its impacts on biodiversity and to partner with environmental organizations to reduce the environmental impact of the firm in the local or broader community.
Resource Reduction	Achieving an efficient use of natural resources in the production process.	To reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
Product Innovation	Supporting the research and development of eco-efficient products or services.	To reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed, dematerialized products with extended durability.

¹⁸ Source from (David, 2014).

Appendix 3 - Description of the Social performance indicators

This table presents the description of the social performance indicators. For each of product responsibility, community, human rights, diversity, training and development, health and safety, and employment quality indicator. Also, this table reports for each indicator on which direction to measures a firm’s management commitment and effectiveness, and for what reflects the firm’s capacity¹⁹.

Overall social performance indicators:	Measures a firm’s management commitment & effectiveness towards:	Reflects the firm’s ability:
Product Responsibility	Creating value-added products and services upholding the customer’s security.	To maintain its license to operate by producing quality goods and services integrating the customer’s health and safety and preserving its integrity and privacy also through accurate product information and labeling.
Community	Maintaining the firm’s reputation within the general community (local, national, and global).	To maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.).
Human Rights	Respecting the fundamental human rights conventions.	To maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labor.
Diversity	Maintaining diversity and equal opportunities in its workforce.	To increase its workforce loyalty and productivity by promoting an effective life-work balance, a family-friendly environment, and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation.
Training and Development	Providing training and development (education) for its workforce.	To increase its intellectual capital, workforce loyalty, and productivity by developing the workforce’s skills, competencies, employability, and careers in an entrepreneurial environment.
Health and Safety	Providing a healthy and safe workforce.	To increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well-being and stress level of all employees.
Employment Quality	Providing high-quality employment benefits and job conditions.	To increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focusing on long-term employment growth and stability by promoting from within, avoiding layoffs and maintaining relations with trade unions.

¹⁹ Source from (David, 2014).

Appendix 4 - Description of the Corporate Governance performance indicators

This table presents the description of the social performance indicators. For each of board structure, board function, compensation policy, shareholder rights, and vision and strategy indicator. Also, this table reports for each indicator on which direction to measures a firm's management commitment and effectiveness, and for what reflects the firm's capacity²⁰.

Overall Corporate Governance performance indicators:	Measures a firm's management commitment & effectiveness towards:	Reflects the firm's capacity:
Board Structure	Following best practice corporate governance principles related to a well-balanced membership of the board.	To ensure a critical exchange of ideas and an independent decision-making process through an experienced, diverse and independent board.
Board Function	Following best practice corporate governance principles related to board activities and functions.	To have an effective board by setting up the essential board committees with allocated tasks and responsibilities.
Compensation Policy	Following best practice corporate governance principles related to competitive and proportionate management compensation.	To attract and retain executives and board members with the necessary skills by linking their compensation to an individual or firm-wide financial or extra-financial targets.
Shareholder Rights	Following best practice corporate governance principles related to a shareholder policy and equal treatment of shareholders.	To be attractive to minority shareholders by ensuring them equal rights and privileges and by limiting the use of anti-takeover devices.
Vision & Strategy	The creation of an overarching vision and strategy integrating financial and extra-financial aspects.	To convincingly show and communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

²⁰ Source from (David, 2014).

Appendix 5 - Results of Pooled OLS regressions

Results from Pooled OLS for ESG and CGVSCORE

The following table reports regressions estimates considering the aggregate ESG score and corporate governance score as the independent variable. For each dependent variable (ROA, ROE, Tobin's Q), the table reports the estimates considering year (not reported) and industry effects. As can be observed, the coefficients for ESG are negative and statistically significant in ROE, while a neutral relationship is found in ROE and Tobin's Q. The coefficients for corporate governance score are negative and statistically significant in ROE while a neutral relationship is obtained in ROA and Tobin's Q.

	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	ROA	ROE	Q	ROA	ROE	Q
ESG	-0.014 (0.009)	-0.047*** (0.014)	-0.001 (0.001)			
CGVSCORE				0.007 (0.015)	-0.058** (0.026)	0.003 (0.002)
Size	-0.637*** (0.203)	0.985*** (0.352)	-0.146*** (0.025)	-0.825*** (0.207)	0.713** (0.330)	-0.172*** (0.025)
FLeverage	-0.012*** (0.001)	-0.019*** (0.005)	-0.001*** (0.000)	-0.011*** (0.001)	-0.018*** (0.005)	-0.001*** (0.000)
1. Industry	-0.507 (0.600)	0.370 (1.150)	-0.116* (0.061)	-0.268 (0.596)	0.714 (1.161)	-0.083 (0.059)
Constant	22.02*** (3.980)	-6.579 (6.867)	4.259*** (0.492)	25.18*** (4.154)	-2.291 (6.587)	4.697*** (0.509)
Observations	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.178	0.129	0.267	0.175	0.124	0.267

Notes: Robust standard errors in parentheses

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

Results from Pooled OLS for SOCSCORE and ENVSCORE

The following table presents regressions estimates considering the social score and environmental score as the independent variable. For each dependent variable (ROA, ROE, Tobin's Q), the table reports the estimates considering year (not reported) and industry effects. As can be observed, the coefficients for the social score are or negative and statistically significant while a neutral relationship is obtained in ROA and Tobin's Q. The coefficients for the environmental score are negative and statistically significant in ROA, ROE, and Tobin's Q.

	(1)	(2)	(3)	(1)	(2)	(3)
VARIABLES	ROA	ROE	Q	ROA	ROE	Q
SOCSCORE	-0.004 (0.006)	-0.028*** (0.009)	-2.35e-05 (0.001)			
ENVSCORE				-0.016** (0.007)	-0.029*** (0.010)	-0.002** (0.001)
Size	-0.725*** (0.204)	0.910** (0.355)	-0.159*** (0.0256)	-0.578*** (0.195)	0.864** (0.338)	-0.134*** (0.024)
Fleverage	-0.011*** (0.002)	-0.019*** (0.005)	-0.001*** (0.000)	-0.012*** (0.001)	-0.018*** (0.005)	-0.002*** (0.000)
1. Industry	-0.381 (0.588)	0.555 (1.139)	-0.100* (0.0602)	-0.630 (0.621)	0.431 (1.183)	-0.138** (0.063)
Constant	23.46*** (4.045)	-5.629 (6.983)	4.463*** (0.503)	21.27*** (3.832)	-4.157 (6.627)	4.073*** (0.461)
Observations	3,595	3,595	3,595	3,595	3,595	3,595
R-squared	0.175	0.127	0.265	0.183	0.128	0.272

Notes: Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1