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A global perspective on the relationship between corporate social performance and corporate financial performance

Abstract
This study empirically analyses the relationship between corporate social performance and corporate financial performance. A micro-econometric methodology is applied on panel data for the time period 2014 till 2018. The corporate social performance (CSP) is proxied by inclusion in the DJSI World. The corporate financial performance (CFP) is proxied by the return on assets and Tobin's Q. Though globalization has led towards the integration of developing economies into the global economic system, the institutional environments of developed and developing economies are still considerably different. These cross-sectional differences may influence the strength of the CSP-CFP relationship since one can argue that CSP is significantly more visible in developed countries. The increased visibility in the developed countries is due to the more mature institutional environment. The empirical results of this study show that the relationship between CSP and CFP is neutral in developed countries and negative in developing countries. The observed difference in the CSP-CFP relationship is statistically significant and indicates a strong influence of the institutional environment.

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1. INTRODUCTION

The notion that a corporation has a responsibility towards society for its operations exists in American business circles since the 1920s (Frederick, 2006). In the last few decades, society increased its' pressure on corporations to contribute to both social and sustainable development (Lopez, Garcia & Rodriguez, 2007). This increased pressure led towards a growing number of corporations that report on the environmental and social aspects of their operations. KPMG has been monitoring the developments in the field of social and environmental reporting for almost twenty years. The results of their survey indicate that the percentage of corporations that report on their social and environmental performance rose from 12% in 1993 to 75% in 2017 (Blasco & King, 2017).

The observed percentual change implies that the bulk of the corporations is aware of the societal concern for social and sustainable behaviour. Whether this awareness leads towards improved social and environmental performance is ambiguous. This ambiguity results from the fact that the social and environmental reporting of corporations is not regulated by legislation. Most corporations wonder whether the costly social and environmental investments will lead to increased financial performance and are therefore solely focused on being perceived as socially just. To paint the picture of a social and sustainable organisation, the corporations include absent or overestimated social practices in their reports (Bazillier & Vauday, 2009). Evidence of a positive relationship between social behaviour and financial performance could act as a catalyst for corporations to increase the current social and sustainable efforts.

A multitude of concepts referring to a more social and sustainable way of doing business have been proposed in academic debates. Of all these different concepts, Corporate Social Responsibility (CSR) is the most regularly used (Van Marrewijk, 2003). Ever since the debate on CSR began, scholars have been articulating arguments for and arguments against the concept of CSR. The case against the concept of CSR is generally build upon the classical economic theory of Milton Friedman (1970). His shareholder theory postulates that the sole responsibility of corporations is the maximization of financial profits to the shareholders, within the legal and ethical framework of the country (Carroll & Shabana, 2010). The case for CSR is generally substantiated through the stakeholder theory. This theory argues that corporate management has a principal obligation towards all stakeholders and not merely towards its' shareholders (Freeman, 1984).

According to the shareholder theory, corporations should solely invest in CSR if the investment is a direct contribution to the maximization of shareholder value. The stakeholder theory hypothesizes a positive relationship between CSR and the financial performance of a corporation. Freeman argued that the financial success of a corporation is contingent upon the extent to which the corporation is managing its' stakeholder relationships competently. According to Freeman, CSR is the

principal manner to improve these stakeholder relationships and is therefore positively related with financial performance (Barnett & Salomon, 2012).

Though the concept of CSR is widely discussed in academic literature, CSR is not a variable and is therefore impossible to measure. A way of making CSR measurable is by using Corporate Social Performance (CSP), which can be transformed into multiple variables (Gössling, 2011). Hundreds of scholars tried to analyse whether the relationship between CSP and corporate financial performance (CFP) is positive or negative, but the results so far are inconclusive (Barnett et al., 2012). The meta-analytic findings of Orlitzky, Schmidt and Rynes (2003) suggest a positive relationship between CSP and CFP. They analysed 52 different studies and found that socially responsible practices are positively related to indicators of financial performance. Lopez et al. (2007) found evidence for a negative link between different financial performance indicators and CSP. This led them to conclude that the influence of sustainability practices on financial performance is negative during the first years in which they are applied. Furthermore, Curran and Moran (2007) did not find any evidence for a significant relationship between financial returns and social practices, since the movements following positive and negative announcements regarding CSP are insignificant.

The consulted literature produces an inconclusive image of the relationship between CSP and CFP. To contribute to current academic literature, this study focusses on the following research question:

What is the relationship between corporate social performance, which is proxied by the inclusion in the Dow Jones Sustainability World Index (DJSI World), and corporate financial performance?

The mixed results can be partly explained by the diverse approaches to measure the broad meta-concepts of CSP and CFP (Van Beurden & Gössling, 2008). Inclusion in the DJSI World is used as a proxy for CSP in this study. The DJSI World is widely regarded as a suitable indicator of corporate environmental practices, corporate sustainability practices and CSP (Ziegler, 2012). CFP can be defined as the capability to generate revenue from the key operations (Brealey, Myers & Allen, 2011). The measures of CFP in the academic literature can be categorized into a group of accounting-based measures and a group of market-based measures. Previous studies indicate that the observed CSP-CFP relationship is possibly contingent upon the use of either accounting-based measures or market-based measures of financial performance (Orlitzky et al., 2003). To take this contingency into account, this study uses both an accounting-based and a market-based measure of financial performance.

This research contributes to the academic literature through the provision of an empirical analysis for a recent period of a time. Global data for the time period between 2014 till 2018 are used. The relationship between CSP and CFP has been thoroughly studied for the United States and Europe, but studies which use global data are relatively rare. Furthermore, the use of a global sustainability index as a proxy for CSP is an infrequent method in empirical studies. This study provides new insights into the CSP-CFP relationship, by investigating whether the strength of the relationship is contingent upon the institutional environment. The focus on cross-sectional differences allows scientists to gain further understanding of the factors of relevance in the CSP-CFP relationship.

The result of this study can be of importance for corporate management, investors and policymakers. If a higher level of CSP is positively related to a subsequent higher level of CFP, it can give rise to increased socially responsible behaviour of corporate management. Furthermore, numerous investors question whether sustainable investing contributes to increased financial performance. Sustainable investing incorporates ethical, social and environmental criteria in the investment decision (Sandberg, Juravle, Hedesström, & Hamilton, 2009). Additionally, the results of this study are important to policymakers due to its focus on possible cross-sectional differences. These cross-sectional differences can give rise to an increased understanding of the factors of relevance in the CSP-CFP relationship. The gained insights may allow policymakers to adjust the current institutional systems in such a way that socially responsible behaviour is not merely ethically but also financially motivated.

The remainder of this paper has the following structure. In section 2, this paper defines the concept of corporate social responsibility and describes various theories. Preceding theoretical and empirical studies on the CSP-CFP relationship are presented in section 2 as well. The methodology of previous studies and the mathematical model for this study are presented in section 3. Subsequently, the fourth section describes the data and the fifth section provides the results of the empirical analysis. In the final section, a conclusion is drawn and suggestions for future research are presented.

2. LITERATURE REVIEW

2.1 Defining corporate social responsibility

The concept of CSR has been the subject of an ongoing discussion for more than fifty years. In 1953, Howard Bowen wrote the book 'Social Responsibilities of the Businessman'. He viewed large corporations as indispensable centres of power and decision making and believed that the day-to-day actions of these corporations influenced the lives of almost every citizen. Bowen was one of the first to define the social responsibilities of corporate management and stated that these were captured by the obligation to operate in line with the objectives of society (Carroll, 1999).

Friedman (1970) was sceptical of this view and postulated that the only direct responsibility of corporate management is towards the ownership of the corporation. Since corporate managers are merely employees of the shareholders, they must act in line with the desires of the shareholders. The desires of the shareholders are predominantly focused on the maximization of financial performance, while adhering to the rudimentary ethical and legal customs of society. Furthermore, Friedman viewed socially responsible practices as part of the domain of policymakers. This shareholder approach is widely regarded as the classical view within the CSR context and can be summarized by stating that corporations should be solely concerned with CSR to the extent that it contributes to the creation of shareholder value (Van Marrewijk, 2003).

Freeman (1984) argues that the corporate responsibility extends further than merely incorporating the shareholders' interests in the corporate strategy. The stakeholder theory argues that shareholders are simply one of the many stakeholder groups whose interests must be considered by corporate management (Ruf, Krishnamurty, Brown, Janney & Paul, 2001). Freeman introduced the stakeholder theory in 1984 and defined the term stakeholder as any group or individual who can affect, or is affected by, the achievement of the corporate objectives. A distinction can be made between the classical and modern perspective on stakeholders. The classical perspective on stakeholders is confined to the investors, employees and customers of a corporation. The modern perspective acknowledges a broader group of stakeholders, divided in the direct and indirect stakeholders. The direct stakeholders comprise the stakeholders of greatest importance, being the shareholders and the employees. The indirect stakeholders comprise all individuals and organizations which can influence, or are influenced by, the operations of the corporation (Daub, Karlsson & Stiller, 2005).

Wood (1991) distinguishes three principles of CSR, each operating on a different level. The first principle of CSR operates on an institutional level and is the principal of legitimacy. According to this principal, society allows corporations to be centres of power. Conforming to the rules of society is the single manner for corporation to remain in control. The power of corporations which do not act in a legitimate manner, will diminish in time. The second principle of CSR is the principle of public

responsibility and operates on an organizational level. The principle of public responsibility states that corporations are accountable for the consequences of their operations. These consequences are related to both the primary and secondary areas of involvement with society. According to this principle, corporations cannot be held accountable for all problems in society. However, there is a corporate responsibility to provide help in resolving the problems which the corporation has caused directly or indirectly. The third and final principle is the principle of managerial discretion. This principle operates on an individual level and regards managers as moral actors with a responsibility towards society to behave discretionary. The general operationalization of these discretionary responsibilities is focused on social problems and involves cooperative arrangements with public parties (Wood, 1991).

A widely used definition of CSR, which takes the broad responsibilities of corporations into account, was defined by the European Commission in 2001 and defines CSR as: "*a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis."* This definition is selected for this study, since it incorporates multiple fundamental elements of CSR. One of those elements refers to the interaction of corporations with their stakeholders, as previously discussed.

Furthermore, this definition comprises the integration of both social and environmental concern. The integration of these elements is in line with the concept of sustainable development. The Brundtland commission defined sustainable development as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (United Nations, 1987). The concept of sustainable development simultaneously incorporates economic growth, environmental protection, and social equality on a macro-level (Figge & Hahn, 2004). This integration is in line with the well-known concept of the Triple Bottom Line. This concept is defined by John Elkington and considers the future economic success of companies to depend upon their ability to satisfy three bottom lines. These bottom lines are related to the financial, environmental and social performance of a corporation (Elkington, 1998).

2.2 The relationship between CSP and CFP

Barnett and Salomon (2012) stated that hundreds of scholars sought to theorize and determine the relationship between CSP and CFP. However, this great interest has led to ambiguous results so far. Researchers hypothesized positive, neutral and negative relationship between CSP and the CFP within numerous studies. This subsection discusses the contradicting hypotheses and results.

Multiple studies predict a negative relationship between CSP and CFP. The existence of a negative relationship is generally substantiated through the arguments of Friedman (1970), who hypothesized that socially responsible practices increase costs and worsen financial performance.

Preston and O'Bannon (1997) capture this perspective in their trade-off hypothesis, stating that the financial benefits of CSP do not outweigh the increased costs. One of the studies that found evidence for a negative relationship between CSP and CFP is the study by López et al. (2007). They created two corresponding groups of 55 corporations, distinguished by the fact that one group merely existed of corporations which applied the CSR strategies of the DJSI World. They analysed the relationship between multiple financial performance indicators and CSP. The observed parameter estimates made them conclude that the CSP-CFP relationship was negative during the first years.

A second perspective regards the relationship between CSP and CFP as neutral. McWilliams and Siegel (2001) created a supply and demand model of CSR. They hypothesized that a corporation's level of CSR depends on numerous characteristics and stated that there is a supreme level of CSR for each corporation. This ideal level can be discovered through cost-benefit analysis. Soana (2011) stated that a mixed relationship between CSP and CFP can appear in two shapes. The *'U'* shape can be explained by the hypothesis that an increased level of socially responsible behaviour will initially cause a bigger increase in costs than profits. However, this inclination will reverse in time. The *'inverted U'* is in line with the supply and demand model of McWilliams and Siegel. This shape is explained by the subsistence of an ideal amount of CSR, after which socially responsible behaviour becomes financially detrimental.

A third perspective claims that CSP and financial performance are positively related. The existence of a positive relationship is often explained by the stakeholder theory of Freeman (1984). The stakeholder theory argues that incorporating stakeholders' interests into the corporate strategy results in an increased financial performance. This rise in financial performance will be due to the impact of the advanced social reputation, which increases the corporate attractiveness towards consumers and employees. Numerous scholars confirm this hypothesis and state that the main reason for engagement in CSR is the competitive advantage accrued by corporations. Goodman, Branco and Rodrigues (2006) contended that CSR provides both internal and external benefits. The internal benefits arise from the contribution of CSR to the development of new resources and capabilities, such as improved morale of employees. The external benefits of CSR are primarily attached to its effect on the corporate reputation. The reputation of a corporation can be characterized as an important resource and can improve or deteriorate because of decisions related to social responsibility behaviour.

Researchers also hypothesized contradicting directions of causality. The slack resource theory postulates that an increment in financial performance can potentially result in the availability of slack resources. These slack resources give rise to an opportunity for corporations to invest in socially responsible practices. According to the slack resource theory, corporate social behaviour is positively associated with preceding financial performance. The good management theory claims that there exists

a positive relationship between good management practice and CSR activities. This theory argues that an increased level of CSR results in an enhanced relationship with key stakeholders. According to the good management theory, corporate social behaviour is positively associated with future financial performance (Waddock & Graves, 1997).

Wang, Dou and Jia (2016) compared the results of 42 different empirical studies to investigate the relationship between CSP and CFP. They shed light on the causal relationship between CSP and CFP and did not find any evidence for the slack resource theory, since prior financial performance was not significantly related to the subsequent social performance. The results provide evidence for the good management theory, since subsequent financial performance is positively associated with prior social responsibility. The relationship between CSP and CFP is still ambiguous in the academic literature, but the bulk of the studies indicate that the CSP-CFP relationship is positive. Most of these studies used the stakeholder theory as the theoretical substantiation of the observed relationship. Based on the preceding literature, this research hypothesizes that there is a positive relationship between CSP and CFP. The first hypothesis is formulated as:

H1: A corporation that is included in the DJSI World has a significantly higher subsequent level of corporate financial performance than a corporation that is not included.

As discussed previously, the relationship with the stakeholders is the principal manner for corporations to gain positive financial returns from increased CSR practices. The stakeholders require the information regarding the social performance of a corporation, to be able to adjust their behaviour accordingly. The ongoing globalization led towards the swift integration of developing economies into the global economic system, but vast differences in the institutional environments between developed and developing economies remained. These cross-sectional differences may have an impact on the degree to which CSP gives rise to increased CFP, since one can postulate that CSP is significantly more noticeable in developing countries. This increased visibility of CSP in developed countries can be explained by the more mature institutional system, which is characterized by the advanced media exposure and well-regulated market supervision (Wang et al., 2016). Based on this reasoning, the second hypothesis is formulated as follows:

H2: The positive relationship between CSP and CFP is significantly stronger for corporations from developed countries than for corporations from developing countries.

3. METHODOLOGY

3.1 Methodology in academic literature

Multiple types of empirical analysis were used by scholars to explore the relationship between CSP and CFP. Three of the most widely used types of analysis are event-studies, portfolio-analysis and micro-econometric studies. The event study methodology is widely used to assess the short-term financial impact of the socially responsible practices of corporations (McWilliams and Siegel, 2000). These studies analyse the impact of CSR-related events on the stock returns of the involved corporations. However, the event study methodology has some drawbacks. This methodology is confined to using the stock performance as the only measure of financial performance and primarily focuses on short-term effects. McWilliams and Siegel (1997) investigated the use of event studies and discovered that there was insufficient awareness among scholars regarding the research design of the event studies. The lack of awareness led to false conclusions with respect to the significance and the validity of the results. According to McWilliams and Siegel, these issues may be specifically important in the CSR context.

A second method to examine the nature of the relationship between CSP and CFP is portfolio-analysis. Bauer, Koedijk and Otten (2005) use an international database, containing 103 ethical funds, and examine the performance of these funds. Their results do not indicate a significant difference in the risk-adjusted returns between ordinary and ethical funds. Schröder (2007) analysed whether socially responsible stock indices exhibit different performance patterns compared to the conventional benchmark indices. In contrast to the study of Bauer et al., the analysis of Schröder concentrates on indices and not on investment funds. This approach is beneficial since Schröder does not have to take the transaction costs and the skill of the fund management into account. Portfolio-analysis primarily focusses on the investor perspective instead of the corporation perspective and was widely used in preceding studies to gain understanding of the CSP-CFP relationship.

A third and relatively rare type of methodological approach examines the nature of the relationship between some measure of CSP and measures of financial performance (McWilliams and Siegel, 2000). Whilst event-studies and portfolio-analysis capture the CSP-CFP relationship from the perspective of the investor, the micro-econometric approach focusses on the firm-specific perspective. This type of analysis makes use of firm-level data and is characterized by its' model-based approach. Telle (2006) utilized a micro-econometric approach to study the relationship between CSP and CFP. He made use of the emissions per pollutant as a proxy for CSP and the return on sales (ROS) as a proxy of CFP. Although more sustainable corporations did experience higher financial performance, there was no evidence for a causal relationship between the two. Since this study focusses on the firm-specific perspective, a micro-econometric methodology is used.

3.2 Measurement of CSP and CFP in academic literature

The failure to reach consensus on the relationship between CSP and CFP could be due to the numerous different ways CFP and CSP were defined and measured. Several studies only focussed on measures of environmental performance (Telle, 2006; Fuji, Iwata, Kaneko & Manegi, 2013). Both Telle and Fuji et al. measure the environmental performance of firms using two different pollutants. Besides, Fuji et al. used toxic chemical substances and CO2 emissions as indicators of environmental performance as well. A study by Brammer, Brooks and Pavelin (2006) used three disaggregate measures of CSR instead of one aggregated measure. The disaggregate measures used were the employee performance, environmental performance and community performance. Values for each of these measures were calculated through numerous characteristics.

Various other studies used inclusion in the DJSI World as a proxy for CSP (Lopez et al., 2007; Ziegler, 2012). The DJSI World is entirely checked by an independent and external auditor. The index is composed of the corporations belonging to the top 10% per industry in terms of environmental, social and economic performance (RobecoSAM, 2018). The corporations are evaluated on criteria imposed in these three areas of performance. These criteria are defined and weighted, after which a rating is assigned to each corporation. The selected criteria used to measure CSR in the DJSI World are in line with those proposed by the most frequently used CSR guides (Lopez et al., 2007).

A broad range of measures of CFP can be observed in the previous literature. These measures can be categorized into a group of accounting-based measures and a group of market-based measures. Both groups focus on different characteristics of financial performance. Accounting-based measures of financial performance accentuate the short-term profitability of a corporation. Some of the most extensively used accounting-based measures in academic literature are the return on equity (ROE) and the return on assets (ROA). Furthermore, the market-based measurements of financial performance comprise the expectations of investors with respect to the future firm performance. Stock returns are one of the most frequently used market-based measures but generally fail to incorporate the financial risks. Stock returns could therefore produce varying results which are contingent upon the different market cycles. Several authors anticipate to this shortcoming by making use of the risk-adjusted return and other scholars use Tobin's Q, which is a market-based measure that does not require risk adjustment (Marti, Rovira-Val & Drescher, 2015).

For measurement of CFP, the preceding academic literature is followed and both accounting-based and market-based measures of financial performance are used. The results of previous studies indicate that the correlation between accounting-based measures and CSP exceeds the correlation between market-based measures and CSP (Orlitzky et al., 2003). This study uses ROA as the accounting-based measure of financial performance. ROA represents the efficiency of a corporations'

use of assets and is computed as the proportion of earnings before interest expense, tax expanses, depreciation and amortization (EBITDA) over total assets (Inoue and Lee, 2011). Tobin's Q is used as the market-based measure of financial performance and captures the perceived market value of a corporation relative to its book value. Tobin's Q is forward-looking and robust to possible differences in accounting standards (Inoue and Lee, 2011). Tobin's Q is often defined as the proportion of the market value of a corporation over the replacement costs of the assets, but this calculation is infrequently used in micro-econometric studies due to limited data availability (Ziegler, 2012). In this study, Tobin's Q is considered as the sum of market value and total liabilities divided by the book value of total assets.

3.3 Mathematical model specification

This study performs a micro-econometric analysis and makes use of global panel data. Both pooled OLS models and static panel data models are employed to study the impact of CSP on CFP. A pooled OLS model merely considers the cross-sectional dimension of the panel data, whilst a static panel data model considers both the time-series and the cross-sectional dimension. The explanatory variables are lagged by one year to reduce possible simultaneity biases which could be caused by reverse causality. As mentioned before, this study makes use of ROA and Tobin's Q as proxies for CFP. The following pooled OLS regression models are used in this study:

$$(1)\ ROA_{i,t} = \alpha + \beta DJSI_{i,t-1} * Developed_i + \delta DJSI_{i,t-1} * Developing_i + \varphi X_{i,t-1} + \theta Z_{i,t-1} + \epsilon_{i,t}$$

$$(2)\ Q_{i,t} = \alpha + \beta DJSI_{i,t-1} * Developed_i + \delta DJSI_{i,t-1} * Developing_i + \varphi X_{i,t-1} + \theta Z_{i,t-1} + \epsilon_{i,t}$$

The financial performance of corporation *i* in year *t* is denoted by $ROA_{i,t}$ in the first regression and by $Q_{i,t}$ in the second regression. $DJSI_{i,t}$ is a binary variable that takes the value one if corporation *i* is included in the DJSI World in year *t-1*. In all other cases, the value of the variable is zero. The variables $Developed_i$ and $Developing_i$ are combined with $DJSI_{i,t}$ to create interactive binary variables. The interactive binary variables are used to investigate whether the CSP-CFP relationship differs between developed and developing countries. A Wald test is used to test whether this difference is significant. The binary variable $Developed_i$ takes on the value one if the corporation is legally registered in a developed country and the value zero otherwise. The opposite is true for the binary variable $Developing_i$. This variable takes on the value one if the corporation is legally registered in a developing country. In all other cases, the value of the variable is zero. Several economic control variables are included in the model. These variables might influence the financial performance of a corporation and are represented by the Vector $X_{i,t}$. The vector Zi,t exists of dummy variables to control for time, sector

and country effects. These control variables limit the likelihood of omitted variable biases. Furthermore, the error term is denoted by $\epsilon_{i,t}$ and α, β, δ, γ, φ and θ are the unknown parameters that have to be estimated.

A major impairment of pooled OLS models is that it is infeasible to fully control for firm heterogeneity. Possible biases due to unobserved firm heterogeneity are prevented in this study by utilizing static panel data models. The following static panel data models[1] are used in this study:

$$(3)\ ROA_{i,t} = \alpha + \beta DJSI_{i,t-1} * Developed_i + \delta DJSI_{i,t-1} * Developing_i + \varphi X_{i,t-1} + \theta Z_{i,t-1} + \mu_i + \upsilon_{i,t}$$

$$(4)\ Q_{i,t} = \alpha + \beta DJSI_{i,t-1} * Developed_i + \delta DJSI_{i,t-1} * Developing_i + \varphi X_{i,t-1} + \theta Z_{i,t-1} + \varepsilon_i + \upsilon_{i,t}$$

The corporate financial performance of firm *i* in year *t* is denoted by $ROA_{i,t}$ in the third regression and by $Q_{i,t}$ in the fourth regression. The third model is a fixed effects model which includes a time-invariant characteristic of individual corporations, μ_i. This allows us to assess the net effect of the regressors. The fourth regression model is a random effects model which differs from the fixed effects model due to the assumption that the individual effect, ε_i, can be considered as independent of all regressors.

4. DATA

The total population for the panel data model consists of the continuous constituents of the S&P 1200 index for the period 2014 till 2018. The S&P 1200 index is a composition of 7 leading indices around the world. The constituents are obtained from the Compustat Global Index Constituents database, the market values are obtained from the Datastream database and the other financial fundamentals are obtained from the Compustat Global Annual Fundamentals database. This study uses a balanced panel since corporations that are only included for a short period of time might bias the results, due to the unobserved firm heterogeneity in the analysed period (Ziegler, 2012). Furthermore, corporations without the necessary data available are also excluded in this study. These two measures cause the final sample to consist of 397 corporations. The obtained financial variables of the corporations differ with respect to the currency used. The historical exchange rates of the OECD are used to convert the currencies to US Dollars (OECD, 2019).

The two explanatory variables of importance are the interactive binary variables for inclusion in the DJSI World. The DJSI World index is a collaboration of Dow Jones Indexes and the Sustainable Asset Management (SAM) Group and the historical constituents are obtained from the website of

[1] It should be mentioned that a Hausman test is used to decide whether a fixed effects model or random effects model is used.

RobecoSAM. The corporations in the sample are legally registered in 32 different countries which are separated into developed countries and developing countries. The World Economic Situation and Prospects report (WESP) is used to determine whether each country classifies as developed or developing (United Nations, 2019).

Following Ziegler (2012), multiple control variables are included in the models. The first economic control variable is the size of the firm. There are several reasons for the inclusion of firm size as a control variable, whereof the possible existence of economies of scale is the most paramount. The value of total assets is used as an indicator for the firm size. However, the distribution of the total assets is unlikely to be normally distributed. This study follows preceding studies and makes use of the natural logarithm of total assets as a proxy for firm size (Elsayed and Paton, 2005). Leverage is also included as a control variable and is calculated by the ratio of total liabilities to total assets. Leverage is frequently used to control for the influence of corporate risk. Furthermore, the revenue growth is also used as a control variable and is considered as the proportion of net revenue growth over the preceding level of revenue. The capital intensity is also used as an economic control variable and is calculated as the ratio of capital expenditures to net revenue. The capital intensity of a corporation provides an indication of the long-term growth opportunities (Ziegler, 2012). The different variables and measurements are presented in table 1.

Table 1 *Definition and measurement of the dependent and independent variables. The market value of the corporations is obtained from the Datastream database and the other financial characteristics are obtained from Compustat Global Annual Fundamentals database. The WESP (2019) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

Key variables	**Definition**
Return on assets (ROA)	EBITDA / total assets
Tobin's Q	(Market value + total liabilities) / total assets
DJSI	Inclusion in DJSI World in a certain year
Developed	Inclusion in WESP report as a developed country
Developing	Inclusion in WESP report as a developing country
Firm size	Natural logarithm of the book value of total assets
Leverage	Total liabilities / total assets
Net revenue growth	[Total revenue (*t*) – total revenue (*t-1*)] / total revenue (*t-1*)
Capital intensity	Capital expenditure / total revenue
Sector	GIC sectors

Table 2 presents the detailed descriptive statistics for the total sample of observations. ROA, Tobin's Q, revenue growth and capital intensity exhibit substantial kurtosis and skewness and are not likely to conform to the distributional assumptions of a parametric test. Consequently, these four variables are winsorized at a 5% level. Winsorizing limits the excessive influence of outliers and improves the statistical efficiency of an analysis (Salkind, 2010). There are some shortcomings to winsorizing as well. According to Tukey (1960), it is common practice for statisticians to think of extreme values as strays and to focus their attention on how normally distributed the rest of the distribution is. To ensure that both the merits and demerits of winsorizing are considered, both the winsorized and untreated variables are utilized in this study. The detailed descriptive statistics for the winsorized variables are provided in the appendix.

Table *2* *Detailed descriptive statistics for the dependent variables and the economic control variables. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the other financial characteristics are obtained from the Compustat Global Annual Fundamentals database.*

Variable	Mean	Median	Std. dev.	Min.	Max.	Skew.	Kurt.
ROA	0.119	0.109	0.063	-0.189	0.539	1.831	10.276
Tobin´s Q	1.660	1.339	1.163	0.190	16.174	4.854	41.131
Ln total assets	10.046	9.897	1.099	6.482	13.201	0.299	2.914
Leverage	0.559	0.566	0.185	0.053	1.400	0.009	3.724
Revenue growth	0.011	0.014	0.189	-0.858	5.332	11.691	327.547
Capital intensity	0.078	0.051	0.092	0.002	1.828	6.354	86.802

The summary statistics for the winsorized variables are presented in Table 3. The observations are divided into two different groups, based upon the inclusion of an observation in the DJSI World. The mean of both proxies of financial performance is higher for the panel of socially responsible observations. This observation is consistent with the first hypothesis, which states that the relationship between CSP and CFP is positive. Nevertheless, it is impossible to draw any conclusions based on these summary statistics. The observed mean of the natural logarithm of total assets in panel B exceeds the mean of the natural logarithm of total assets in panel A. This indicates that the leading socially responsible corporations are relatively large. Besides, the leverage of the corporations in panel B surpasses the leverage of the corporations in the panel A as well. The opposite observation is made for the average revenue growth, which is a mere 0,1% for the members of the DJSI World whilst being 1,1% for the rest of the observations. Furthermore, the capital intensity is also marginally lower for the members of the DJSI World.

Table 3 *Descriptive statistics for the dependent and economic control variables after winsorizing. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database, the other financial characteristics are obtained from Compustat Global Annual Fundamentals database and the list of historical DJSI World constituents is obtained from RobecoSAM.*

Panel A: Not included in DJSI World					
Variable	**Obs.**	**Mean**	**Std. dev.**	**Min.**	**Max.**
ROA	1,420	0.116	0.049	0.046	0.236
Tobin's Q	1,420	1.550	0.692	0.824	3.352
Ln total assets	1,420	9.951	1.101	6.481	13.201
Leverage	1,420	0.544	0.190	0.053	1.400
Revenue growth	1,420	0.011	0.010	-0.179	0.185
Capital intensity	1,420	0.073	0.058	0.014	0.221
Panel B: Included in DJSI World					
ROA	565	0.120	0.053	0.046	0.236
Tobin's Q	565	1.602	0.698	0.824	3.352
Ln total assets	565	10.283	1.058	7.383	13.053
Leverage	565	0.599	0.165	0.170	1.287
Revenue growth	565	0.001	0.097	-0.179	0.185
Capital intensity	565	0.070	0.057	0.014	0.221

Table 4 presents the mutual correlation coefficients between the dependent variables and the lagged independent variables. The mutual correlation coefficient between ROA and Tobin´s Q is positive and exceeds all other mutual correlation coefficients. Furthermore, the mutual correlation coefficients between the first interactive binary variable and both proxies for financial performance are positive. This observation is in line with the first hypothesis. The mutual correlation coefficient between the second interactive binary variable and ROA is positive as well. However, the mutual correlation coefficient between the second interactive binary variable and Tobin's Q is negative. This observation is unexpected and not in line with the first hypothesis.

The mutual correlation coefficients between the independent variables are generally weak. Gujarati (1995) developed a guideline for the threat of multicollinearity. He formulated that the threat of multicollinearity is negligible if none of the absolute values of the mutual correlation coefficients between the independent variables exceed 0.8. The statistical analysis in this study is unlikely to be affected by multicollinearity, since the highest absolute value of a mutual correlation coefficient between independent variables is 0.512.

Table 4 *Mutual correlation coefficients between the dependent variables and lagged independent variables after winsorizing. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database. The World Economic Situation and Prospects (WESP) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. ROA	1							
2. Tobin´s Q	0.688	1						
3. DJSI*Developed	0.032	0.041	1					
4. DJSI*Developing	0.012	-0.062	-0.092	1				
5. Ln total assets	-0.370	-0.512	0.145	0.057	1			
6. Leverage	-0.226	-0.154	0.164	-0.073	0.224	1		
7. Revenue growth	0.163	0.177	-0.045	0.011	-0.056	-0.084	1	
8. Capital intensity	0.070	-0.185	-0.039	0.084	0.197	-0.040	-0.083	1

5. EMPIRICAL RESULTS

This study examines whether corporate social behaviour has a positive influence on the financial performance of a corporation. In addition, this study investigates whether the strength of this relationship is contingent upon the institutional environment. The sign and strength of the relationship are examined through pooled OLS models and static panel data models. The multivariate analysis used provides the opportunity to control for the potential influences of firm size, leverage, net revenue growth, capital intensity, year, sector and country. Both the first and the second hypothesis are assessed in this section. The first hypothesis states that a member of the DJSI World has a significantly higher subsequent level of CFP than a corporation that is not included in the DJSI World. The second hypothesis argues that the CSP-CFP relationship is significantly stronger for corporations from developed countries than for corporations from developing countries.

Table 5 and table 6 provide the various estimation results of the micro-econometric analysis, based on the balanced panel of 397 corporations. The regression results for the pooled OLS models are presented in the first subsection. The second subsection elaborates on the regression results for the static panel data models. The added tables provide insight in the possible influence of either untreated or winsorized data on the regression results. This section will focus on the regressions results of the winsorized data, but the regression results of the untreated data are also discussed in the case of contradictory results.

5.1 Regressions results of the pooled OLS models

The primary explanatory variables of interest are the interactive binary variables for inclusion in the DJSI World in a certain year. The first interactive binary variable focusses on the relationship between CSP and CFP in developed countries. The second interactive variable targets the same relationship in developing countries. A Wald test is used to test whether the CSP-CFP relationship is significantly different between developed and developing countries. White standard errors are used in the pooled OLS models to control for heteroskedastic standard errors. The coefficients, t-statistics, significance levels and Wald test statistics for the pooled OLS models are presented in table 5. According to the corresponding F tests for the pooled OLS models, the null hypotheses that the aggregate explanatory power of all variables is zero can be rejected without exception at a 1% significance level. The dependent variable for the first two regressions is the ROA. The dependent variable for the subsequent two regressions is Tobin's Q. The regression results for both the untreated and winsorized data are sequentially presented in table 5.

The primary finding for the first model is that the parameter estimates for the first interactive binary variable are positive and statistically significant at a 1% level. The first interactive binary variable represents the relationship between CSP and CFP in developing countries. These parameter estimates are in line with the first hypothesis and imply that an increased level of CSP is associated with an 1,0% higher ROA in developed countries. Furthermore, the parameter estimates for the first interactive binary variable in the second model are positive and statistically significant at a 1% level as well. This observation is also in line with the first hypothesis. The parameter estimates imply that a higher level of CSP results in an 0.175 increase in Tobin's Q in developed countries.

The parameter estimates for the first and second interactive binary variable differ strongly. None of the parameter estimates for the second interactive binary variable is statistically significant at any usual level of significance. The lack of statistical significance and the observed negative coefficients are unexpected and not in line with the first hypothesis. The Wald test is used to test whether the observed difference between developed and developing countries is statistically significant. The Wald test statistics for the first three regressions are not in line with the hypothesized statistical difference. However, the Wald test statistic for the fourth regression is statistically significant at a 10% level. This observation implies a statistically different CSP-CFP relationship between developed and developing countries if Tobin's Q is used as a proxy of CFP. The observed statistically significant difference is in line with the second hypothesis.

The sign and the statistical significance of the parameter estimates for firm size are equal in in both models and in line with preceding studies in academic literature (Lo & Sheu, 2007). The observed coefficient indicates that the CFP decreases when the size of a corporation increases. The sign of the

parameter estimate for the leverage is also equal in both models, but solely significant in the first model. The relationship between revenue growth and both proxies for CFP is positive, but only statistically significant when the winsorized variables are used. The relationship between the capital intensity and ROA is positive and significant, which contradicts with foregoing research (Ziegler, 2012). The parameter estimates for capital intensity in the second model are highly influenced by extreme values, since the strength and statistical significance differ strongly between the third and fourth regression. The categorical variables for year, sector and country are also included in the models, but these are not presented for the sake of brevity.

Table 5 *Parameter estimates (t statistics) in pooled OLS models. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database. The World Economic Situation and Prospects (WESP) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

	Model 1 (ROA)		**Model 2 (Tobin's Q)**	
	Untreated	Winsorized	Untreated	Winsorized
DJSI*Developed	0.012*** (0.003)	0.010*** (0.002)	0.145*** (0.043)	0.111*** (0.028)
DJSI*Developing	0.015 (0.015)	-0.001 (0.010)	-0.024 (0.111)	-0.076 (0.092)
Ln total assets	-0.019*** (0.002)	-0.017*** (0.001)	-0.387*** (0.026)	-0.290*** (0.013)
Leverage	-0.029*** (0.010)	-0.032*** (0.008)	-0.295 (0.187)	-0.290*** (0.101)
Revenue growth	0.025 (0.016)	0.095*** (0.014)	0.317 (0.254)	1.108*** (0.168)
Capital intensity	0.027 (0.019)	0.152*** (0.022)	-0.303** (0.136)	-0.030 (0.223)
Year	YES	YES	YES	YES
Sector	YES	YES	YES	YES
Country	YES	YES	YES	YES
Constant	0.324*** (0.017)	0.285*** (0.014)	5.655*** (0.287)	4.416*** (0.143)
Observations	1,985	1,985	1,985	1,985
R^2	0.351	0.362	0.392	0.489
Wald statistic	0.020	1.080	2.010	3.810*

, ** and * mean that the underlying null hypothesis which states that the parameter is zero, is rejected at the 10%, 5% and 1% significance level. YES denotes that the year, country and sector effects are estimated but are not reported in this table.*

5.2 Regressions results of the static panel data models

Equal to the pooled OLS models, the main explanatory variables of interest in the static panel data models are the two interactive binary variables for inclusion in the DJSI World in the preceding year. Table 6 presents the coefficients, z-statistics, Wald test statistics and significance levels of both the third and the fourth model approach. Within this table, the research results of four different regressions are provided. The choice between either a fixed effects model or a random effects model is based upon the Hausman test statistics, which are provided in this table. The Hausman test statistic is significant for most of the regressions but insignificant for the third regression. The fourth model approach is therefore estimated with both a fixed effects model and a random effects model. According to the F-tests for the fixed effects models and the Wald test for the random effects model, the null hypotheses that the aggregate explanatory power of all variables is zero can be rejected without exception at a 1% significance level. The dependent variable for the first two regressions is the ROA and the dependent variable for the subsequent two regressions is Tobin's Q. Furthermore, the parameter estimates for the categorical sector and country variables are omitted due to collinearity in the fixed effects models. These variables are omitted, since a fixed effect model filters out anything that is constant within a unit, which is the case for these variables.

The estimation results regarding the DJSI World members from developed countries were incontestable in the case of the pooled OLS regressions. However, the presented results in table 6 are remarkably different, which implies a strong influence of unobserved firm heterogeneity in the pooled OLS models. The parameter estimates for the first interactive explanatory variable are not significant at any usual level of significance, and marginally negative in case the winsorized data are used. This result is not in line with the first hypothesis and implies that an increased level of CSP does not correspond with an increased level of CFP in developed countries.

The parameter estimates for the second interactive binary variable are statistically significant at a 1% significance level in case the winsorized data are used. The observed parameter estimates for the variable indicate a negative CSP-CFP relationship in developing countries. The significantly negative relationship is unexpected and not in line with the first hypothesis. Furthermore, the Wald test statistic is statistically significant at a 1% level of significance in case the winsorized data are used. This indicates that the relationship between CSP and CFP is contingent upon the institutional environment. The statistically different CSP-CFP relationship between developed and developing countries is in line with the second hypothesis. The statistical difference between developed and developing countries is in line with preceding studies (Wang et al., 2016), but the negative relationship in the developing countries differs and is highly remarkable.

The signs and statistical significance of the parameter estimates for the control variables are similar for the pooled OLS and static panel data models. The relationship between firm size and the financial performance is again negative and statistically significant at a 1% level of significance. Furthermore, the relationship between revenue growth and both proxies for financial performance is positive and statistically significant at a 1% level of significance. Another notable observation regards the contradicting results for the capital intensity parameter estimates. The relationship between capital intensity and ROA is negative and statistically significant at a 1% level of significance, whilst the relationship between capital intensity and Tobin's Q is equally significant but positive.

Table 6 *Parameter estimates (z statistics) in static panel data models. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database. The World Economic Situation and Prospects (WESP) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

	Model 3 (ROA)		**Model 4 (Tobin's Q)**	
	Untreated (FE)	Winsorized (FE)	Untreated (RE)	Winsorized (FE)
DJSI*Developed	0.000 (0.002)	-0.000 (0.002)	0.017 (0.030)	-0.002 (0.022)
DJSI*Developing	-0.034*** (0.008)	-0.030*** (0.007)	-0.177 (0.108)	-0.201*** (0.078)
Ln total assets	-0.037*** (0.004)	-0.032*** (0.004)	-0.300*** (0.038)	-0.140*** (0.041)
Leverage	0.008 (0.013)	0.017 (0.011)	-0.150 (0.160)	-0.054 (0.128)
Revenue growth	0.026*** (0.004)	0.064*** (0.007)	0.872*** (0.110)	0.598*** (0.078)
Capital intensity	-0.026*** (0.008)	-0.068*** (0.024)	0.388 (0.370)	0.572** (0.276)
Year	YES	YES	YES	YES
Sector	-	-	YES	-
Country	-	-	YES	-
Constant	0.485*** (0.043)	0.436*** (0.035)	4.577*** (0.493)	2.926*** (0.409)
Observations	1,985	1,985	1,985	1,985
R^2	0.123	0.122	0.391	0.256
Hausman statistic	38.940***	147.370***	14.050	29.050***
Wald statistic	16.130***	18.420***	2.98*	6.02***

, ** and * mean that the underlying null hypothesis which states that the parameter is zero, is rejected at the 10%, 5% and 1% significance level. YES denotes that both the country and sector effects are estimated but are not reported in this table.*

5.3 Robustness tests

With the objective to test the robustness of the primary results, this study carries out further statistical analyses. The primary results of the pooled OLS models are the positive and statistically significant parameter estimates for the first interactive binary variable. Furthermore, the parameter estimates for the second interactive binary variable are marginally negative and insignificant. In line with preceding studies, numerous control variables are incorporated in the pooled OLS models. Although the categorical variables for sector and country may influence the financial performance, they are not expected to influence the CSP-CFP relationship. To investigate whether the observed parameter estimates are influenced by the categorical variables, the pooled OLS models are also estimated without them. The parameter estimates of these pooled OLS models are provided in the appendix. The statistically significant and positive parameter estimates for socially responsible corporations from developed countries remained. Furthermore, the statistical insignificant relationship for the socially responsible corporations from developing countries remained as well. The most noteworthy difference regards the Wald test statistics for the second model, which are both statistically significant at a 1% level. This provides further evidence for the strong influence of the institutional environment.

Another manner to consider the robustness of the results is by examining whether the use of the natural logarithm of Tobin's Q provides similar results as Tobin's Q. The second and fourth model are therefore also studied with the natural logarithm of Tobin's Q as a dependent variable. The parameter estimates for these log-linear models are provided in the appendix. The most noteworthy result of the first log-linear model regards the increased statistical significance of the Wald test statistics. A remarkable difference of the second log-linear model concerns the Hausman test statistics. Both Hausman test statistics are statistically significant at a 1% level which lead to the use of two fixed effects models. The parameter estimates for the second interactive binary variable are negative and significant in both fixed effects models. This provides further evidence for the negative and statistically significant relationship between CSP and CFP in developing countries.

6. CONCLUSION

This paper provides an empirical analysis on the widely discussed relationship between CSP and CFP for a recent period of time. Inclusion in the DJSI World is used as a proxy for CSP in this study. The DJSI World contains the leading corporations in terms of social and sustainable performance in a certain sector. The ROA and Tobin´s Q are used as proxies for the financial performance of a corporation. The ROA is an accounting-based measure of financial performance and captures the short-term profitability of a corporation. Tobin's Q is a market-based indicator of financial performance and is a forward-looking measure. A global perspective is taken in this study, since the population is composed of a balanced panel of constituents of the S&P 1200 index. Both pooled OLS and static panel data models are applied to analyse the relationship between CSP and CFP. This study focusses on the following question: *What is the relationship between corporate social performance, which is proxied by the inclusion in the Dow Jones Sustainability Index (DJSI), and corporate financial performance?*

An interesting finding regards the differing results for the pooled OLS models and the static panel data models. The different methodological approaches present contradicting results regarding both hypotheses. The first hypothesis states that the relationship between CSP, proxied by the inclusion in the DJSI World, and CFP is positive. The second hypothesis argues that this positive relationship is significantly stronger for corporations from developed countries than for corporations from developing countries. Consistent with preceding studies (Telle, 2006; Ziegler, 2012), the estimation results of the pooled OLS models are assumed to be biased due to unobserved firm heterogeneity. Therefore, the static panel data models are used to formulate a conclusion.

The static panel data models indicate an insignificant relationship between CSP and CFP for developed countries. This observation is not in line with the first hypothesis. The static panel data models do provide evidence for a statistically significant CSP-CFP relationship in developing countries. However, the observed relationship is negative and therefore inconsistent with the first hypothesis. Preceding scholars also found evidence for a negative CSP-CFP relationship, but argued that the observed negativity is not robust over time (López et al., 2007). Further research should therefore investigate whether the sign of the observed relationship alters over time.

The Wald test statistics indicate a significantly different CSP-CFP relationship between developed and developing countries. The observed statistical difference indicates that the CSP-CFP is contingent upon the institutional environment. This contingency is in line with the second hypothesis, but the observed negative coefficient is unexpected. The difference in the CSP-CFP relationship between developed countries and developing countries can be explained by the different institutional environments. The costs of socially responsible investments are similar in developed and developing

countries, but socially responsible behaviour is more visible in developed countries due to the more mature institutional environment. According to the stakeholder theory of Freeman (1984), the increased visibility in developed countries will result in a more advanced social reputation which will yield improved financial performance. Further research should disaggregate the institutional environment into various characteristics and investigate the influence of each of these characteristics on the CSP-CFP relationship.

Whilst the different institutional environments provide an explanation for the observed statistical difference in the CSP-CFP relationship, other factors should be analysed in further studies as well. It can, for example, be argued that the CSP-CFP relationship is influenced by the culture of a country. The culture of a country captures the beliefs and norms in the society and is of key importance to economic outcomes (Guiso, Sapienza, & Zingales, 2006). The different norms regarding socially responsible behaviour might therefore influence the CSP-CFP relationship as well. Further research should incorporate the differing societal norms regarding socially responsible behaviour and investigate whether they have a significant impact on the CSP-CFP relationship.

Another interesting methodological approach for future studies is the use of a different measurements of CSP. The DJSI World is characterized by a best-in-class approach which implies a relative assessment of CSP. This allows for socially irresponsible corporations to be leaders in socially irresponsible sectors and socially responsible companies to be followers in socially responsible sectors. The relative assessment of CSP makes it possible for the leaders in a certain sector to become a follower whilst improving their own social responsibility. Furthermore, a significant number of corporations is never assessed on socially responsible behaviour by RobecoSAM (Ziegler, 2012). These limitations of the DJSI World as a proxy for CSP might have a weakening influence on the observed CSP-CFP relationships.

The primary finding of this study is that the relationship between CSP and CFP is strongly dependent on the institutional environment. The observed cross-sectional differences are fundamentally important, in order to gain full understanding of the CSP-CFP relationship. Further insight into the factors of relevance is especially important to corporate management, investors and policymakers. An increased understanding of the CSP-CFP relationship would allow corporate management to make a better comparative assessment between the advantages and disadvantages of CSR practices. Furthermore, investors can use this information to further substantiate their investment decisions, and policymakers can use the gained insights to adjust the institutional environment in such a way that corporations will eventually have a financial incentive to improve their CSR.

7. LITERATURE

Barnett, M. L., & Salomon, R. M. (2012). Does it pay to be really good? Addressing the shape of the relationship between social and financial performance. *Strategic Management Journal*, *33*(11), 1304-1320.

Bauer, R., Koedijk, K., & Otten, R. (2005). International evidence on ethical mutual fund performance and investment style. *Journal of Banking & Finance*, *29*(7), 1751-1767.

Bazillier, R., & Vauday, J. (2009). *The greenwashing machine: is csr more than communication.* Unpublished manuscript.

Blasco, J. L., & King, A. (2017). The road ahead: the KPMG survey of corporate responsibility reporting 2017. Zurich: KPMG International.

Bowen, H. R. (1953). *Social Responsibilities of the Businessman*. New York: Harper & Row.

Brammer, S., Brooks, C., & Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial management*, *35*(3), 97-116.

Brealey, R.A., Myers, S.C., & Allen, F. (2011). Principles of Corporate Finance. *McGraw-Hill, Second edition.*

Carroll, A.B. (1999). Corporate social responsibility: evolution of a definitional construct. Business and Society, 38, 268–295.

Carroll, A.B. Carroll, A.B. (1999). Corporate social responsibility: evolution of a definitional construct. *Business and Society*, *38*, 268–295.

Carroll, A. B., & Shabana, K. M. (2010). The business case for corporate social responsibility: A review of concepts, research and practice. *International journal of management reviews*, *12*(1), 85-105.

Curran, M. M., & Moran, D. (2007). Impact of the FTSE4Good Index on firm price: An event study. *Journal of environmental management*, *82*(4), 529-537.

Daub, C. H., Karlsson, Y., & Stiller, S. (2005). *The growing inportance of stakeholders dialogues in gaining and transferring knowledge.* Unpublished manuscript.

Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental quality management*, *8*(1), 37-51.

Elsayed, K., & Paton, D. (2005). The impact of environmental performance on firm performance: static and dynamic panel data evidence. *Structural change and economic dynamics*, *16*(3), 395-412.

European Commission. Directorate-General for Employment. (2001). *Promoting a European framework for corporate social responsibility: Green paper*. Office for Official Publications of the European Communities.

Figge, F., & Hahn, T. (2004). Sustainable value added: measuring corporate contributions to sustainability beyond eco-efficiency. *Ecological economics*, *48*(2), 173-187.

Frederick, W. C. (2006). *Corporation, be good!: the story of corporate social responsibility*. Indianapolis: Dog Ear Publishing.

Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pitman.

Friedman, M. (1970). 'The Social Responsibility of Business is to Increase its Profits'. *New York Times Magazine, 32*(33), 122-126.

Fujii, H., Iwata, K., Kaneko, S., & Managi, S. (2013). Corporate environmental and economic performance of Japanese manufacturing firms: Empirical study for sustainable development. *Business Strategy and the Environment*, *22*(3), 187-201.

Goodman, M. B., Branco, M. C., & Rodrigues, L. L. (2006). Communication of corporate social responsibility by Portuguese banks. *Corporate communications: An international journal*, *11*(3), 232-248.

Gössling, T. (2011). *Corporate social responsibility and business performance: Theories and evidence about organizational responsibility*. Chelthenham: Edward Elgar Publishing.

Guiso, L., Sapienza, P., & Zingales, L. (2006). Does culture affect economic outcomes?. *Journal of Economic perspectives*, *20*(2), 23-48.

Gujarati, D. N. (1995). *Basic econometrics.* New York: MacGraw-Hill.

Inoue, Y., & Lee, S. (2011). Effects of different dimensions of corporate social responsibility on corporate financial performance in tourism-related industries. *Tourism Management*, *32*(4), 790-804.

Lo, S. F., & Sheu, H. J. (2007). Is corporate sustainability a value-increasing strategy for business?. *Corporate Governance: An International Review*, *15*(2), 345-358.

López, M. V., Garcia, A., & Rodriguez, L. (2007). Sustainable development and corporate performance: A study based on the Dow Jones sustainability index. *Journal of Business Ethics*, *75*(3), 285-300.

Marti, C. P., Rovira-Val, M. R., and Drescher, L. G. J. (2015). Are Firms that Contribute to Sustainable Development Better Financially?. *Corporate Social Responsible Environmental Management, 22,* 305-319.

McWilliams, A., & Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. *Academy of management journal*, *40*(3), 626-657.

McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification?. *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.

OECD (2020), Exchange rates. Retrieved from: https://data.oecd.org/conversion/exchange-rates.htm

Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization studies*, *24*(3), 403-441.

Preston, L. E., & O'Bannon, D. P. (1997). The corporate social-financial performance relationship: A typology and analysis. *Business & Society*, *36*(4), 419-429.

RobecoSAM (2018), DJSI Historical Consituents. Retrieved from: https://www.spglobal.com/esg/csa/indices/djsi-index-family

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.

Salkind, N. J. (Ed.). (2010). *Encyclopedia of research design (Volume 1)*. Thousand Oaks: Sage.

Sandberg, J., Juravle, C., Hedesström, T. M., & Hamilton, I. (2009). The heterogeneity of socially responsible investment. *Journal of Business Ethics*, *87*(4), 519.

Schröder, M. (2007). Is there a difference? The performance characteristics of SRI equity indices. *Journal of Business Finance & Accounting*, *34*(1-2), 331-348.

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.

Telle, K. (2006). "It pays to be green"– a premature conclusion?. *Environmental and Resource Economics*, *35*(3), 195-220.

Tukey (1960). "*A survey of sampling from contaminated distributions*". Stanford: Stanford University Press.

United Nations (1987). *Our common future. Report of the World Commission on Environment and Development.* New York: United Nations publications.

United Nations (2019). *The World Economic Situations and Prospects report.* New York: United Nations publications.

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.

Van Marrewijk, M. (2003). Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of business ethics*, *44*(2-3), 95-105.

Waddock, S. A., & Graves, S. B. (1997). The corporate social performance–financial performance link. *Strategic management journal*, *18*(4), 303-319.

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.

Ziegler, A. (2012). Is it beneficial to be included in a sustainability stock index? A panel data study for European firms. *Environmental and Resource Economics*, *52*(3), 301-325.

8. APPENDIX

Table 7 *Detailed descriptive statistics for the winsorized dependent and economic control variables. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database.*

Variable	Mean	Median	Std. dev.	Min.	Max.	Skew.	Kurt.
ROA	0.117	0.109	0.050	0.046	0.236	0.755	2.931
Tobin´s Q	1.564	1.339	0.694	0.824	3.352	1.273	3.131
Ln total assets	10.046	9.897	1.099	6.482	13.201	0.299	2.914
Leverage	0.559	0.566	0.185	0.053	1.400	0.009	3.724
Revenue growth	0.008	0.014	0.099	-0.179	0.185	-0.108	2.332
Capital intensity	0.072	0.051	0.058	0.014	0.221	1.293	3.695

Table 8 *Parameter estimates (t statistics) in pooled OLS models without the categorical variables for sector and country. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database. The World Economic Situation and Prospects (WESP) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

	Model 1 (ROA)		**Model 2 (Tobin's Q)**	
	Untreated	Winsorized	Untreated	Winsorized
DJSI*Developed	0.019*** (0.003)	0.014*** (0.002)	0.259*** (0.055)	0.196*** (0.031)
DJSI*Developing	0.020 (0.013)	0.006 (0.009)	-0.156 (0.106)	-0.108 (0.090)
Ln total assets	-0.020*** (0.002)	-0.017*** (0.001)	-0.419*** (0.027)	-0.308*** (0.012)
Leverage	-0.044*** (0.009)	-0.037*** (0.007)	-0.290** (0.144)	-0.203** (0.086)
Revenue growth	0.027 (0.018)	0.103*** (0.015)	0.528* (0.297)	1.437*** (0.177)
Capital intensity	0.016 (0.017)	0.135*** (0.019)	-0.651*** (0.142)	-0.853*** (0.195)
Year	YES	YES	YES	YES
Constant	0.337*** (0.015)	0.296*** (0.010)	5.981*** (0.272)	4.741*** (0.125)
Observations	1,985	1,985	1,985	1,985
R^2	0.167	0.215	0.183	0.310
Wald statistic	0.010	0.810	13.820***	10.830***

, ** and * mean that the underlying null hypothesis which states that the parameter is zero, is rejected at the 10%, 5% and 1% significance level. YES denotes that the year, country and sector effects are estimated but are not reported in this table.*

Table 9 *Parameter estimates (t statistics) in pooled OLS model and parameter estimates (z statistics) in static panel data model. The time dimension refers to the period 2014 till 2018 and a balanced panel is considered with 397 corporations and 1,985 observations. The market value of the corporations is obtained from the Datastream database and the remainder of the financial characteristics are obtained from Compustat Global Annual Fundamentals database. The World Economic Situation and Prospects (WESP) report is used to determine whether a corporation is located in a developing country and the list of historical DJSI World constituents is obtained from RobecoSAM.*

	Model 2 (Ln Tobin's Q)		**Model 4 (Ln Tobin's Q)**	
	Untreated	Winsorized	Untreated (FE)	Winsorized (FE)
DJSI*Developed	0.078*** (0.018)	0.071*** (0.016)	0.002 (0.013)	0.000 (0.012)
DJSI*Developing	-0.051 (0.055)	-0.061 (0.050)	-0.087* (0.047)	-0.090** (0.043)
Ln total assets	-0.198*** (0.008)	-0.172*** (0.006)	-0.079*** (0.025)	-0.086*** (0.023)
Leverage	-0.155** (0.064)	-0.175*** (0.051)	-0.121 (0.077)	-0.060 (0.070)
Revenue growth	0.142 (0.112)	0.627*** (0.092)	0.142*** (0.021)	0.362*** (0.043)
Capital intensity	-0.067 (0.061)	0.072 (0.124)	0.050 (0.047)	0.294* (0.151)
Year	YES	YES	YES	YES
Sector	YES	YES	-	-
Country	YES	YES	-	-
Constant	2.332*** (0.098)	2.020*** (0.076)	1.210*** (0.244)	1.220*** (0.223)
Observations	1,985	1,985	1,985	1,985
R^2	0.523	0.533	0.243	0.289
Hausman statistic	-	-	21.920**	28.750***
Wald statistic	4.900**	6.350**	3.350*	4.090**

, ** and * mean that the underlying null hypothesis which states that the parameter is zero, is rejected at the 10%, 5% and 1% significance level. YES denotes that the year, country and sector effects are estimated but are not reported in this table.*