

CSR and Financial Performance

Does stakeholder management create competitive advantage?



Abstract:

This research aims to establish a relationship between the Corporate Social Responsibility and financial performance of corporations in Europe during 2001 and 2015. By analyzing the relation between CSR and market capitalization and CSR and the EBITDA, both the internal and external factors of financial performance are taken into account. The companies are determined sustainable if they are included in the Dow Jones Sustainability Index and are compared to companies from its benchmark, the DJGI. Through a mixed model regression analysis, we have found empirical prove that there is a positive relationship between CSR and FP.

Key words: stakeholder management, competitive advantage, value creation, DJSI

ERASMUS UNIVERSITY ROTTERDAM
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Bachelor Thesis Financial Economics

CSR as a Competitive Advantage

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Date final version: 15-08-2017

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2. Introduction

Globalization is a trend that has led governments, companies and individuals to change policies, strategies and behavior. One of the issues that is addressed, is sustainability, which includes, amongst others being aware of the environment and society. For corporations, we have seen a shift in economics from classical economics, in which the main goal was to create shareholder value, to sustainable economics for which it is key to create value for all stakeholders in a balanced matter (Lopez et al., 2007). Earlier believes, amongst whom Friedman (1970), were that businesses do not have social responsibilities, only people do. Businesses' only responsibility is to make as much profit as possible, social responsibilities would not be in the best interest of the company and thus its shareholders. With globalization and the raised environmental awareness, the believe in sustainable economics has increased and thus the believe that shareholders are not the only or most important stakeholders.

Corporate Social Responsibility is a way of incorporating stakeholder management and social issue participation into corporate strategies. The most commonly used definition of CSR is "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" by the Commission of the European Communities (2001) (Dahlsrud, 2006). The value of CSR for corporations and the research on the subject is so far inconclusive: CSR is sometimes seen and proven as a liability that only generates costs especially looking at a short-term period (Lopez et al., 2007; Ameer and Othman, 2011), others prove it, on the other hand, to be a competitive advantage that can ensure long-term value creation (Orlitzky et al., 2003; Hillman and Keim, 2001; Michael and Gross, 2004).

Globalization and the rise in sustainable development have also resulted in political global agreements, which resulted in the first global development goals in 2001. The eight Millennium Development Goals must reduce poverty, improve the quality of people's lives, ensure environmental sustainability and to build partnerships that had to make sure that globalization became a positive force for people worldwide by 2015 (General Assembly, 2001). These goals have been determined very successful and resulted in a follow up: The

Sustainable Development Goals. The SDGs aim to tackle a wider range of problems, focusing not only on developing countries, but also on developed countries, in order to achieve worldwide improvements. In developing countries, the focus is on ending hunger and improving food security, whereas in developed countries the focus is more on making infrastructure and industries more sustainable (General Assembly, 2015). For the developed countries corporations have an important role in implementing sustainable practices in both their own business processes and in facilitating more sustainable day-to-day living, making it important for governments to stimulate CSR in corporations. In order to know how or what to stimulate a benchmark is necessary. This research will look at the period preceding the SDGs, 2001-2015. During this long-term period companies were able to adopt CSR in their corporate strategies and thus generate finances and arrange resources accordingly. As other studies have focused on shorter time periods, this study might be able to offer a different insight.

Corporate Social Responsibility can be defined, interpreted and implemented in many different ways (which will be discussed in the literature review) and it can therefore differ per region, country, industry and company (Dahlsrud, 2006). For the sake of the validity of this study and the scope of this research, the focus will be on one region: Europe. Europe is a developed region with a stable economy and to some extent similar believes and practices across the region, thus creating a favorable environment for companies to include CSR in their corporate strategies.

From a business perspective, the question to answer is which role they should take on in society, either focusing on value creation for only shareholders or creating value for all stakeholders. As financial performance is a key driver in corporate decision making, the question that will be answered in this paper is:

Can we establish a positive relationship between CSR and financial performance for corporations in Europe during the period 2001-2015?

The financial performance is measured by the market capitalization of the selected companies and the Dow Jones Sustainability Index is used to indicate CSR. As CSR practices

are expected to have a positive effect on corporate management, internal control, decision making and cost savings, firms implementing this are expected to create value in the long-term, increasing the companies' worth and thus shareholder value (Orlitzky et al., 2003; Sage 1999; Hart and Milstein, 2003). The market value of a company includes the intangible assets and the perception of the future performance of a company and is therefore likely to capture the value CSR can create in the long-term. The hypothesis is therefore as follows:

H₁: There is a positive relationship between CSR and Market Capitalization

As the market capital is a market-derived measure, it may capture more than just the financial performance and its strategic course (Salzmann et al., 2005). Therefore to establish a correlation between CSR and financial performance, we will also look at an accounting based measure that includes both costs and revenues as CSR is expected to affect both: the EBITDA.

As the revenues are expected to increase in the long run and costs increase in the short run, but decrease in the long run when resources can be reallocated, we expect to see a positive relationship between CSR and EBITDA in the long run:

H₂: There is a positive relationship between CSR and the EBITDA

In chapter 3. this paper will expand on prior research done on the relationship between corporate social performance and corporate financial performance. In chapter 4 we will discuss the Dow Jones Sustainability Index with the selected dataset and the methodology of the Linear Mixed Model Analysis will be described. This will be followed by the results of the analysis in chapter 5 and the conclusion and its implications in chapter 6.

3. Literature Review

So far researchers that have studied the relationship between corporate social performance and corporate financial performance have found a positive, negative or neutral effect. To look at the theories behind these inconclusive results in this section first the purpose of a corporation will be discussed, followed by its relation to Corporate Social Responsibilities and how this can be measured in firms.

3.1 Purpose of a Corporation

In the introduction, the question is posed whether corporations should focus on only shareholders or on all stakeholders. To answer this question the first thing to know is: what is considered the purpose of a corporation. This purpose is determined by the owners of the corporation, and as publicly traded companies have thousands of shareholders, thus owners, this is more difficult to define. As creating shareholder value is beneficial to all owners, value maximization is the main goal and purpose of corporations. There are however several theories on how to best maximize the value of the corporation.

Bowman and Ambrosini (2007) argues that firm value creation is affected by three types of activities: (1) the creation of products or services, thus the core operations of a firms; (2) increasing revenues through increasing sales and acquiring money from customers; and (3) reducing costs by making sure the outflow to suppliers is as minimal possible. Through optimizing each of these activities, firm value can be maximized, these activities should therefore be the top priority in decision making. One of the ways to get there could be by gaining a competitive advantage through stakeholder management, this is however not the objective.

Another theory is the stakeholder theory. According to the stakeholder theory, managers should include all stakeholders in their decision making, assuming that management goals are aligned with the shareholders and all management decision making is in the interest of the firm to maximize value (Jensen, 2001). The stakeholders include all the groups that affect or are affected by the corporation, besides the shareholders, these are the employees,

customers, communities and governments. As it is impossible for firms to maximize the value for each of the stakeholders, it is key to balance all the interests focusing on the trade-off between firm interest and stakeholder interest (Jensen, 2001).

Hillman and Keim (2001) provide a different, in depth, perspective on the stakeholder theory. They argue that there is a division in stakeholders; primary and secondary stakeholders. The primary stakeholders are the stakeholders that have invested something, for example financial capital, human capital and time, in the corporation and thus have something to lose. Without these stakeholders, firms have no chance of existing (Clarkson 1994, 1995). Secondary stakeholders are those that are not directly related to the corporation or its primary stakeholders and corporations do not necessarily have to interact with these stakeholders. Companies would interact with these stakeholders if they want to participate in social issue participation focusing on issues not directly related to surrounding communities or other stakeholders. Social issue participation is included in a broader definition of CSR (see 3.2).

To achieve value maximization Hillman and Keim (2001) argue that firms should focus on the primary stakeholders. Through the long-term relations and intangible assets, corporations can create a competitive advantage with these stakeholders, thus outperforming rivals and realizing shareholder value maximization. This research will focus on the primary stakeholders as they have a direct relation with the firm and can influence financial performance the most.

3.2 Measuring Corporate Social Responsibility

Corporate Social Responsibility is the interpretation of stakeholder management implemented in firms. This is a broad concept that different researchers have tried to define, as “there is no single concept of sustainability; nor is there a commonly accepted way of measuring it” (Lopez et al., 2007).

In the Brundtland Report in 1987, when sustainable development first became part of international policy-making, a still frequently quoted definition of sustainable development was introduced: “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Dahlsrud (2006) has since done the most extensive research on the concept and analyzed 37 studies that give definitions for CSR and the frequency by which the definitions in those

studies were used to get to a justified and commonly used definition for the concept CSR. The outcome was the definition by the Commission of the European Communities (2001): CSR is “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis”. Within the concept of CSR five different dimensions can be established:

- environmental dimension
- social dimension
- economic dimension
- stakeholder dimension
- voluntariness dimension

These dimensions enclose the different interpretations and directions used to describe corporate sustainability, including corporate governance, environmental management, brand reputation, customer loyalty, ethics and employee satisfaction (Lopez et al., 2007). As defined in the prior section one can divide CSR into stakeholder management and social issue participation, and from these dimensions, the environmental, social, economic and stakeholder dimensions are considered stakeholder management, whereas the voluntariness dimension is considered social issue participation. We shall see that in most research on CSR we also see this division or another selection of these dimensions.

Research on CSR and how to measure it, can be divided into two groups, one that uses the sustainability indices as an indicator of CSR and a second that has created their own frameworks to measure the level of CSR both selecting different criteria (dimensions) CSR should include.

As society has shown more interest in sustainability, investors have shown more interest in investing in socially and environmentally conscious companies. This has resulted in the emergence of several sustainability indexed at the start of this millennium. Fowler and Hope (2007) studied the different sustainability indices and the way each index measures CSR. There are currently six relevant sustainable indices each having its own focus and methodology of which the following two indices capture the most used practices.

The FTSE4Good index is based on the Fortune 500 and performs “negative screening”, meaning screening on companies that have a negative effect on society or the environment, thereby excluding companies operating or participating in tobacco, alcohol, weapons, nuclear

systems, and uranium industries. This is considered screening on social issue participation; they focus on the effect the company has on a grand society and not on the directly surrounding (primary) stakeholders. The companies that are included are judged based on only publicly available data focused on criteria within 3 pillars: environmental, social and governance, with, in total, 14 sub theme scores each of which is scored and rated.

The Dow Jones Sustainability Index (DJSI) selects companies from the Dow Jones Global Index through yearly component selection via questionnaires (to be filled out by the companies), public statements, and input from NGOs, consultants and academics. Their selection is based on the principles: innovation, governance, shareholders, leadership and society, within the economic, social and environmental dimensions {see appendix 1 for the complete overview of criteria}, which are the 4 dimensions included in stakeholder management.

Studies on measuring CSR, all established different frameworks that must process the qualitative information gathered on different companies. Through these frameworks, that are based on different criteria that are given a certain level of importance based on assumptions, companies are rated.

Caroll (2001), for example, established a framework called the “Pyramid of Corporate Social Responsibility”. This pyramid has a base of economic responsibilities, meaning companies must be sustainable through being profitable. Once this base is satisfied, companies can fulfil their legal responsibilities, which entails obeying the law. The next step is to abide ethical responsibilities, to abide the societal norms and values. The pyramid is topped by the philanthropic responsibilities a firm has, including improving the quality of life. Each of these layers have given priorities and certain criteria that companies must meet and through a matrix of these layers and the different stakeholders you can determine which companies meet the standards. By including philanthropic responsibilities this framework looks at CSR in the broad sense, both stakeholder management and social issue participation.

The Global Reporting Initiative (2011) established a framework on how firms should report their sustainability practices. This framework includes extensive guidelines and a wide range of aspects that they can attribute to sustainable development. Assessment of the aspects should be done by looking at the impact it has on the stakeholders and the firm itself. To know the weight that should be given to each aspect you should look at the balance between the

impact it has on the firm or the stakeholders. If it is only significant for either one, the weight should be less than when it provides significance for both parties. This is a typical framework for stakeholder management as discussed in section 3.1.

When it comes to the relationship between CSR practices and financial performances, previous research has shown that indices provide the most carefully composed lists and for this study particularly the Dow Jones Sustainable Index. The DJSI focuses on stakeholder management only, selects based on the extensive list of criteria and questionnaires, leads in research and data availability on most topics (SustainAbility, 2004) and is the main reference point when it comes to sustainability investing (Fowler and Hope, 2007; Knoepfel, 2001; ROBECOSAM, 2015). Therefore it is the most relevant and suitable index for this research.

4. Data & Methodology

To examine the relationship a statistical test must be performed and as we want to examine the relationship between variables, CSR and market capitalization and CSR and EBITDA, a regression analysis is an appropriate measure. In this section, first the data and how and why this sample is selected will be discussed. Followed by an overview of the variables and the methodology on how the regression method is selected and performed.

4.1 Data

This study covers the period between 2001 and 2015 using data from the European companies on the Dow Jones Sustainability Index and the Dow Jones Global Index. Europe is a relatively wealthy and stable region with a well-developed economy and a stable society, which has enabled CSR development and implementation. Also politically, the stand on CSR has evolved in Europe and the European Union is trying to stimulate CSR within companies. They adjusted their definition from “CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis” to “the responsibility of enterprises for their impacts on society” (European Commission, 2014). This makes CSR a greater responsibility of corporations instead of a rarely governmental issue.

The companies included from the DJSI are those that have been on the index at least ten out of the fifteen years and the companies selected from the DJGI as the control group are not nor have ever been on the DJSI, to ensure a substantial difference in CSR practices between the two groups. This has resulted in a selection of 77 sustainable companies operating in 8 different sectors.

The control group is selected from the benchmark index, the Dow Jones Global Index, during the same time period. The control group should be compiled in a way that ensures that they are as similar as possible to make sure that all factors, apart from CSR, are equal, this way the average effect of CSR can be estimated. This can be done through randomization, but as we cannot assign which firms implement CSR systems and which do not, randomization of the groups cannot be realized. Another way to create groups with similar distributions is through pairing, so that companies will be matched on certain similar factors. As this study is using a

mixed model fixed effect analysis it is not necessary to have completely similar groups though they should be comparable. The comparison has been done on size, measured through revenue, risk, measured through debt over assets, and industry. The result is a list of 83 companies from eight different industries.

In total, this panel data set covers 161 European companies from 8 different sectors with a wide range in size and risk. The financial data and company information is retrieved from Thomson One Banker.

4.2 Variables

The *dependent variables* used in this study are the market capitalization and the EBITDA, these variables are the indicators used to measure financial performance. The financial performance of a corporation can be measured in different ways, resulting in different outcomes and conclusions. There are accounting and market-derived measures, each focusing on different aspects of performance and thus each having advantages and disadvantages (Salzmann, et. al, 2004), this research will therefore look at both measures.

The *market capitalization* is the share price * numbers of shares outstanding (measured in €), and this value, thus, directly reflects the shareholder value of a firm. The market capitalization is a widely accepted financial performance indicator that includes the current and future expected value and therefore able to capture the long-term effect CSR has on companies (Hillman and Keim, 2001). To adjust this variable for normality, the variable is transformed into its natural logarithm in the statistical analyses.

The EBITDA, *Earnings Before Interest, Taxes, Depreciation and Amortization*, is a measure derived from accounting, derived through subtracting expenses from the net earnings. This measure would hence include the effect CSR has on both sales, that might increase due to the positive sustainability perception, and cost efficiency, that might result from for example more efficient employees. It can be argued that CSR has a lagged effect on the EBITDA, but as there is no defined period for this lag and the market capitalization already includes future performance, this study will not include a lag. Also for the mixed model fixed effect analysis that is used in this study it is not considered beneficial to use a lagged dependent variable (Allison, 2015). For the EBITDA it would also be optimal to use its natural logarithm for the analyses, the EBITDA, however, includes negative values, making this more difficult. Osborne (2002) argues that the solution is to add a constant, so that the lowest value of the variable

equals 1. This shifts the mean, but the standard deviation remains the same. In this dataset, though, the lowest value of this variable is such that adding a constant to compensate for this value, the other variables are taken out of proportion. To still adjust for normality and meet the assumptions set to do a regression, the natural logarithm is used and the negative values are set to 0. I am aware that this is not an optimal solution, but this way the negative values are taken into account to some extent.

The *independent variables* used in this study are CSR, size, risk and industry have been chosen. The firms included in the index are very diversified, it is therefore necessary to control for some variables. Size, risk and industry are commonly used control variables in studies on the long-term effect of CSR on performance using a regression (MacWilliams and Siegel, 2000; Lopez et al., 2007). As this research is looking at a long-term period during which several events have affected the economy, this study also controls for time. A quick overview of the variables can be found in Table 1.

Corporate Social Responsibility is included as a dummy variable with a value of 1 for the companies included in the DJSI and a value of 0 if the company is not included in the DJSI. Through the combination of extensive selection criteria of the DJSI and the selection of companies in this research bases on the years they are included in the index, we expect sufficient difference exists between the two groups.

To control for the difference in size of the companies used in the dataset, a *size* variable is added to the regression model. In research on CSR both revenue and assets have been used as size indicators, as assets are also included in the risk variable and assets differences can also be assigned to industry differences (Rastogi and Narwal, 2014), this study uses revenues to control for size. To adjust for normality the natural logarithm is used in the analyses.

To determine the *risk* of a company leverage ratios can be used; as the leverage of firms rises the risk to shareholders is considered to increase with it (Berk and DeMarzo, 2014). The leverage ratio used in preceding CSR studies and a common leverage ratio is the debt-to-asset ratio and is therefore also used in this study. The ratio does not fully adhere to the normality standards, but is still sufficient and will therefore not be adjusted.

For the *industry* control variable, a dummy is used based on the one-digit Standard Industrial Classification (SIC) code. The SIC code is a widely accepted and used code to distinguish industries in both studies and financial databases. The SIC code is a 4-digit code to determine the specific industry, using only the first three, two or one numbers of the code results in

more broadly defined sectors. As this research includes a dataset of 161 companies, only the first digit is used to still have sensible results.

A dummy variable for *time* can be added to a model to assign some variation in the data to unobserved events during that time. This study is looking at the period between 2001 and 2015 during which several economic fluctuations have occurred, one of which was the financial crisis in 2008. The dummy is able to attribute some of these fluctuations to the year it happened instead of attributing it to the intercept or other independent variables.

Variables	Measure
Dependent Variables	
Market Capitalization	Share Price * Numbers of Shares Outstanding in €, variation for period t
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization in €, variation for period t
Independent Variables	
CSR	Dummy variable, 1 if company belongs to DJSI
Size	Revenue in €, variation for period t
Risk	Debt to Assets in %, variation for period t
Industry (IND)	Dummy for Industry, determined through 1-digit SIC code, 1 if firm is in that industry
Time	Dummy for years 2001-2015

Table 1, t = time

4.3 Methodology

The data and variables discussed are used to explore a relationship between CSR and financial performance, using two regressions to address both hypotheses. This section explores the regression analyses criteria and its implications.

As both dependent variables are indicators of the financial performance the regressions have similar independent variables. The market capitalization is regressed on CSR, the natural log of revenue (Size), the debt-to-assets ratio (Risk), an industry dummy and a dummy for time.

$$Market\ Capitalization_t = \beta_0 + \beta_1 CSR + \beta_2 SIZE_t + \beta_3 RISK_t + \beta_4 IND + \beta_5 TIME + \epsilon \quad (1)$$

The regression for EBITDA includes the same independent variables, apart from the time dummy. This variable is excluded from this regression, because accounting indicators reflect the internal performance of the firm and is considered less likely to be affected by the market and thereby time and the economic fluctuations (Salzmann et al., 2005; Lopez et al., 2007).

$$EBITDA_t = \beta_0 + \beta_1 CSR + \beta_2 SIZE_t + \beta_3 RISK_t + \beta_4 IND + \epsilon \quad (2)$$

Regressions are sensitive to various criteria such as outliers and influence points, so in order to perform a satisfactory multiple linear regression, the following assumptions have to be satisfied: multivariate normality, linearity, homoscedasticity, no multicollinearity, no auto correlation (Hill et al., 2012). To check the assumptions, statistical tests are performed. Basic tests show that the adjusted variables, as discusses in section 4.2, meet the criteria for normality and linearity. To see whether the homoscedasticity, multicollinearity and auto correlation assumptions are also met, a linear regression is performed to check the variance inflation factors for multicollinearity, the scatterplot on residuals for homoscedasticity and the Durbin- Watson test for autocorrelation.

As this study uses a panel dataset containing observations of multiple variables over multiple years it is likely autocorrelation exists, demanding a mixed model fixed effect analysis to be performed to control for the auto collinearity.

5. Results

In this section, we will first discuss the results the tests that check for the regression assumptions and second, as we will see that the autocorrelation assumption is not satisfied, the results of the mixed model fixed effect analysis of regression (1) and (2). For both the results will be interpreted and the hypotheses will be confirmed or rejected.

5.1 Tests on Regression Assumptions

To test for multicollinearity, you can look at the variance inflation factors (VIF), this is assumed to be present is the values are 5 or higher. The Durbin-Watson test is used to look as auto correlation, assuming that when the outcome of the test is a value between 1.5 and 2.5 no correlations exists.

For regression (1) the highest variance inflation factor (VIF) is 1.88, we can therefore assume that there is no multicollinearity present in this regression. To assess homoscedasticity, one can look at the scatterplot of the residuals, looking at this it is assumed that this assumption is satisfied. The observed Durbin-Watson is however (0,346) very low which indicates autocorrelation, as expected when using a panel data set. To adjust for this we will do a mixed model fixed effect analysis.

For regression (2) the highest VIF value is 1.437, assuming there is also no multicollinearity present in this regression model. As the negative values for the EBITDA are adjusted to 0.0 the scatterplot of residuals does not show a completely homoscedastic image, this deviation will, however, be ignored. The observed Durbin-Watson for regression (2) nearly meets the minimum criterion of 1.5 with a value of 1.428, but also for this model this will be adjusted in a mixed model fixed effect analysis.

5.2 Mixed Model Fixed Effect Results

Now the correct regression, using a Mixed Model Fixed Effects, can be run. To study the influence of the independent variables on the dependent variables, different models will be run ending with adding the CSR dummy to the models.

Regression on Market Capitalization

The results of the first regression can be viewed in Appendix 2. The table shows the results for the different models 1, 2, 3 and 4. To draw conclusions on the effect of CSR on the market capitalization, in controlled for other independent variables, this way we first assess the influence of these control variables and end by looking at the complete model including CSR.

Looking at the differences per model, apart from the intercept only small changes in the coefficients can be observed, though the significance of these coefficients shifts.

What catches the eye is that, with 2015 as the reference category, each year negatively influences the market capitalization, though not all years significantly. As an economy is generally growing and in 2015 the economy was fully recovered from the crisis, this is not surprising.

Also one can see a positive effect of size on market capitalization and a negative effect of risk, the with a larger coefficient assigned to risk than to size. This implies that investors when making investments decisions value the risk level over a companies' size.

Most importantly for this study, one can observe that, with a significance threshold of 10%, a weak significant relationship can be confirmed between CSR and market capitalization. However, turning to the first hypothesis:

H₁: There is a positive relationship between CSR and Market Capitalization

a one-sided hypothesis is stated. In a one-sided hypothesis, the value of significance obtained from the model can be divided by two. This means that the observed value of 0,097 can be divided 2, which is 0,0485. One can now conclude that the first hypothesis can be confirmed with a 5% significance level, proving a significant positive relationship between CSR and market capitalization.

Regression on EBITDA

Now that the first hypothesis is confirmed and a positive relationship between CSR and market capitalization thus exists, The results on the second regression are shown in Appendix 3. This model is set up in the same manner as the first regression.

In this model, we see, similar to the first regression model, positive coefficients for industry, size and CSR and a negative coefficient for risk. What stands out, however, is the significance levels of the estimates.

The risk variable is not considered significant in this model. As risk does not directly influence costs or revenues and the leverage costs are excluded from the EBITDA valuable, this is not remarkable. What is remarkable is that some industry estimates are insignificant. As it is assumed that the EBITDA level is dependent on the industry, one would assume this to be a significant factor in this model.

Looking at the CSR estimate, on the other hand, here we can observe a significant relationship with the EBITDA, with a 5% significance level. Again, the hypothesis for this regression is one-sided:

H₂: There is a positive relationship between CSR and the EBITDA

This indicates that the obtained significance value in the model, 0,014, can again be divided by two, resulting in a value of 0,007. The second hypothesis, stating a positive relationship between CSR and EBITDA, can thus be confirmed with a high significance level.

Comparing the two models, we observe a higher log likelihood in the second regression model, which could imply that this model better captures the fit of the coefficients. The coefficient for CSR in the EBITDA regression model is higher than in the market capitalization regression model suggesting that CSR has a bigger impact on the EBITDA than it does on the market capitalization. One must be careful drawing conclusions like this however, as the models are different and are not directly comparable.

6. Conclusion

Over the last decades different trends are changing the world and society, of which sustainable development is an important factor. A lot of research has been done on how companies respond to this development and what the impact is once companies adopt sustainability in their strategies, on both the companies and their stakeholders. As sustainability is becoming a more pressing issue, more companies are expected to take their responsibility (European Commission, 2014). Financial performance is a key driver in the decision making of companies and the relationship to sustainability is therefore relevant. The studies on this relationship are, however, inconclusive, and has hence been further explored in this research.

This paper examined the relationship between Corporate Social Responsibility and the financial performance using a mixed model fixed effect analysis to reject or accept the hypotheses. The hypotheses were: (H_1) there is a positive relationship between CSR and market capitalization and (H_2) there is a positive relationship between CSR and the EBITDA. Both hypotheses can be confirmed.

The confirmation of the first hypothesis is in line with the research by Hillman and Keim (2001), who similarly looked at market indicated measures, but focused on only the market value added between two years.

The confirmation of the second hypothesis contradicts the results by Lopez et al. (2007). Their research examined the profit before tax (comparable accounting method to the EBITDA) and found a negative short-term relationship and a neutral relationship over seven years. As this study examines fifteen years, one could conclude that somewhere between seven and fifteen years there is a tipping-point, moving from a neutral relationship to a positive relationship.

As both hypotheses have been confirmed, the research question posed in the introduction can be answered.

Can we establish a positive relationship between CSR and financial performance for corporations in Europe during the period 2001-2015?

Yes, considering both the market capitalization and the EBITDA are positively related to CSR, we can establish a positive relationship between CSR and financial performance within European corporations during the period between 2001 and 2015. This implies that in order to create value it is beneficial for companies include stakeholder management into their corporate strategies.

This conclusion can be used to stimulate companies to start implementing sustainable practices into their operations and strategies of further explore the opportunities optimal stakeholder management has to offer.

A careful comment must placed on this conclusion however. When interpreting this conclusion one should be aware that this research uses a sustainable investment index, selecting companies from the Dow Jones Global Index. As this index includes only publicly traded companies, and these companies are usually larger companies, a similar research on smaller European companies might find a different conclusion.

7. Limitations and Recommendations

Due to the scope of this research and the data availability, this research is subject to certain limitations and is therefore based on certain assumptions.

First of all this research has assumed a binary worldview using a dummy variable for CSR: a company is either on the DJSI, and considered to be a fully sustainable company, or it is not. Within the companies on the list as well as the companies off the list, there are likely to be differences in the extent to which they are sustainable or not. There are other CSR indicators that present a degree of sustainability, the question is whether these degrees can all be related to financial performance separately or the increase in financial performance is obtained through the synergy of the different sustainability factor or optimal stakeholder management.

The Dow Jones Sustainability Index weighs the economic factors of sustainability higher than the other factor. As they are an investment index this is a reasonable action, it however creates a bias towards larger companies (Fowler and Hope, 2007). This has also affected our sample groups, the average size of the companies in the DJSI group was double the average size of the DJGI group. Even though the regression has been controlled for size, in future research

The negative values of the EBITDA have in the regression been set to 0, this is not optimal and either a different accounting measures should be chosen to examine this relationship or a different way of transforming the variable so that it is correctly normally distributed.

This research has analyzed the relationship of CSR and financial performance, but not necessarily its causality. It is assumed that CSR causes better financial performance, the inverse could however also be true as well as a synergetic relationship (Salzmann et al., 2005).

As most of the limitations are based on the subjectivity of the terms CSR and sustainability, it is wise to first study and establish a widely accepted manner of defining, measuring and implementing CSR.

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Appendices

Appendix 1

TABLE III
DJSI weightings: corporate sustainability assessment criteria

Dimension	Criteria	Weighting (%)
Economic: 30.6%	Codes of Conduct/Compliance/Corruption	3.0
	Corporate Governance	5.4
	Customer Relationship Management	3.0
	Financial Robustness (1)	3.6
	Investor Relations	2.4
	Risk & Crisis Management	3.6
	Scorecards/Measurement Systems	4.2
	Strategic Planning	5.4
	Industry Specific Criteria (2)	Industry dependent
Environment: 9.2%	Environmental Policy/Management	3.2
	Environmental Performance	4.2
	Environmental Reporting (1)	1.8
	Industry Specific Criteria (2)	Industry dependent
Social: 20.4%	Corporate Citizenship/Philanthropy	2.4
	Stakeholders Engagement	4.2
	Labor Practice Indicators	3.0
	Human Capital Development	1.8
	Knowledge Management	3.0
	Social Reporting	1.8
	Talent Attraction & Retention	2.4
	Standards for Suppliers	1.8
	Industry Specific Criteria (2)	Industry dependent
Industry Criteria & Media/ Stakeholder analysis: 39.8%		39.8
Total		100.0

Notes:

1. Criteria assessed based on the basis of publicly available information only.
2. Weightings depend on the industry.

Source: SAM

Source: Hillman and Keim (2001)

Appendix 2

Result Mixed Model Fixed Effects								
Variables	Model 1		Model 2		Model 3		Model 4	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
Intercept	3,1880*	0,6232	13,5180*	3,4847	9,4564**	2,6879	9,3519**	2,6550
Year 2001	(-)0,5720*	0,0716	(-)0,5721*	0,0711	(-)0,3680*	0,0646	(-)0,3586*	0,0648
Year 2002	(-)0,8618*	0,0701	(-)0,8618*	0,0697	(-)0,6510*	0,0636	(-)0,6504*	0,0635
Year 2003	(-)0,7309*	0,0698	(-)0,7310*	0,0694	(-)0,5175*	0,0637	(-)0,5183*	0,0636
Year 2004	(-)0,6002*	0,0683	(-)0,6002*	0,0681	(-)0,4187*	0,0623	(-)0,4221*	0,0622
Year 2005	(-)0,3532*	0,0657	(-)0,3532*	0,0655	(-)0,2156*	0,0596	(-)0,2196*	0,0595
Year 2006	(-)0,1735*	0,0627	(-)0,1735*	0,0625	(-)0,0762	0,0569	(-)0,8138	0,0570
Year 2007	(-)0,1484**	0,0599	(-)0,1484**	0,0598	(-)0,0806	0,0549	(-)0,8579	0,0549
Year 2008	(-)0,7622*	0,0567	(-)0,7622*	0,0566	(-)0,6888*	0,0523	(-)0,6940*	0,0523
Year 2009	(-)0,6032*	0,0528	(-)0,6032*	0,0527	(-)0,5047*	0,0494	(-)0,5090*	0,0494
Year 2010	(-)0,4219*	0,0495	(-)0,4219*	0,0495	(-)0,3660*	0,0466	(-)0,3690*	0,0466
Year 2011	(-)0,5759*	0,0449	(-)0,5759*	0,0449	(-)0,5400*	0,0424	(-)0,5428*	0,0425
Year 2012	(-)0,4107*	0,0400	(-)0,4107*	0,0400	(-)0,4008*	0,0381	(-)0,4038*	0,0381
Year 2013	(-)0,1753*	0,0347	(-)0,1753*	0,0347	(-)0,1607*	0,0335	(-)0,1625*	0,0336
Year 2014	(-)0,0993*	0,0262	(-)0,0993*	0,0262	(-)0,0866**	0,0259	(-)0,0863**	0,0259
Year 2015 (Reference)								
Industry Construction			2,2367*	0,7001	1,5963**	0,5346	1,5742**	0,5277
Industry Manufacturing			2,4472*	0,5957	2,0459*	0,4540	2,0259*	0,4482
Industry Durables Manufacturing			1,7169*	0,6032	1,2223**	0,4599	1,2020**	0,4540
Industry Utilities & Transportation			1,7340*	0,6053	1,4441**	0,4611	1,4298**	0,4552
Industry Retail			1,1920***	0,6286	0,8262***	0,4786	0,8127***	0,4724
Industry Financials			1,6282*	0,5822	1,3333**	0,4431	1,3168**	0,4374
Industry Services			1,085***	0,6449	0,9707*	0,4904	0,9646**	0,4840
Industry (Reference)								
Size (Revenue)					0,3573*	0,0271	0,3589*	0,0271
Risk (Debt/Assets)					(-)0,6432*	0,1021	(-)0,6513*	0,1022
CSR							0,0540***	0,0325
(-)2 Log Likelihood		1732,222		1705,623		1545,888		1548,219
Observations		2362		2362		2362		2362
Dependent Variable: Market Capitalization (€ in millions) (ln of market capitalization)								
Significance: *p<0,001 ; **p<0,05 ; ***p<0,1								

Appendix 3

Result Mixed Model Fixed Effects						
Variables	Model 1		Model 2		Model 3	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
Intercept	19,1517*	3,6057	6,0803**	2,6879	6,2370**	2,1088
Industry Construction	2,8981*	0,7357	1,3234**	0,4255	1,2823**	0,4182
Industry Manufacturing	2,4856*	0,6262	1,4512*	0,3594	1,4106*	0,3533
Industry Durables Manufacturing	1,9590**	0,6339	0,7746**	0,3644	0,7372**	0,3583
Industry Utilities & Transportation	2,2263**	0,6363	1,3543*	0,3660	1,3183*	0,3598
Industry Retail	1,4812**	0,6609	0,5994	0,3783	0,5739	0,3716
Industry Financials	1,9214**	0,6137	1,1700*	0,3511	1,1337*	0,3452
Industry Services	0,9535	0,6780	0,6431***	0,3865	0,6282	0,3796
Industry (Reference)						
Size (Revenue)			0,8027*	0,0400	0,7789*	0,0397
Risk (Debt/Assets)			(-)0,0719	0,2885	(-)0,0458	0,2850
CSR					0,2270**	0,0923
(-)2 Log Likelihood	7708,762		7447,990		7381,647	
Observations	2257		2257		2257	
Dependent Variable: EBITDA (€ in millions) (ln of EBITDA, with values 0 for negative EBITDA)						
Significance: *p<0,001 ; **p<0,05 ; ***p<0,1						