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Master's Thesis

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THE RELATIONSHIP BETWEEN CORPORATE SOCIAL RESPONSIBILITY (CSR) AND FINANCIAL PERFORMANCE IN EUROPEAN COMPANIES

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Yritysvastuu (CSR) on kasvava trendi, joka näkyy yritysten raportoinnissa ja uutisotsikoissa skandaaleina. Vaikuttaisi siltä, että kyseisillä skandaaleilla olisi negatiivinen vaikutus yritysten kannattavuuteen laskevien tuottojen vaikutuksesta. Yritysvastuun ja yritysten finanssiperformanssin suhdetta on tutkittu paljon, mutta suhde on epäselvä kausaalisuuden ja eri yritysvastuun kategorioiden osalta. Tämä tutkielma tutki näitä asioita vuosina 2009–2015 eurooppalaisissa yrityksissä käyttämällä paneelidataa yritysvastuun eri kategorioista ja yritysten finanssiperformanssin mittareilla ROA ja ROE. Tutkielma ei löytänyt tilastollisesti merkittävää suhdetta yritysvastuun ja ROE:n välillä, mutta löysi negatiivisen kaksisuuntaisen vaikutussuhteen ROA:n ja yritysvastuun välillä yleisesti, sekä yritysvastuun kategorioiden Ympäristön ja Työntekijöiden välillä. Tutkielman mukaan ROA:lla oli negatiivinen vaikutus Yhteisöön, mutta suhdetta Hallinnon ja finanssiperformanssin välillä ei löytynyt.

ABSTRACT

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Corporate social responsibility (CSR) is a rising trend visible in reporting and in the newspaper headlines as scandals. It appears as though these scandals have a negative impact on corporate financial performance (CFP) through lowering profits. The relationship between CSR and CFP has been studied greatly but the relationship is still unclear regarding causality and different categories of CSR. This thesis studied these issues during years 2009–2015 in European companies by using panel data of different categories of CSR and by using ROA and ROE as measures for CFP. The study found no relationship between CSR and ROE but found a negative bidirectional relationship between ROA and CSR as a whole, and between its categories Environment and Employees. A one-way negative relation of ROA affecting Community was found, and with the Governance category, no relationship was found.

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Polina Vauhkonen
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ABBREVIATIONS

CAPM	Capital Asset Pricing Model
CFP	Corporate Financial Performance
CSID	Canadian Social Investment Database
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
KLD	KLD Research & Analytics, Inc.
MVA	Market Value Added
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales

1 INTRODUCTION

1.1 Research background

The importance of corporate social responsibility (CSR) is growing especially as big international companies suffer due to CSR scandals brought on by largely neglecting their social responsibilities. One of the most well-known incidents being Volkswagen's in 2015 when the company cheated in its emissions tests and suffered great backlash from the markets and in the public eye. Because of the scandal, Volkswagen lost over 16 billion euros in profits and made its first annual loss in over 20 years (Davis and Kollewe, 2016). CSR is also becoming more prominent as over the past several years voluntary and mandatory CSR reporting has been emerging and is assumed to grow in the future (Cao et al., 2016; Huefner and Tschopp, 2015; KPMG, 2011). Companies are starting to be expected in an increasing matter to be socially responsible and participate on issues such as the global warming and poverty, and because of it, to address for example their supply chain of products and emissions. As can be seen in the Volkswagen scandal, the implications for companies can be catastrophic otherwise. But is there also a financial "carrot" for companies in being socially responsible or is there only a "stick"? Or is there even a stick in the long term?

Implications of CSR activities being financially profitable for firms would encourage firms to be more socially responsible. Numerous studies have been done on the relationship between CSR and corporate financial performance (CFP) during the couple of past decades and are growing in popularity just as the growing concern for CSR in general. The relationship between CSR and CFP has been studied in great amount and it has been mostly found to be positive (for reviews of the literature see Griffin and Mahon, 1997; Margolis et al., 2009; Margolis and Walsh, 2003; Orlitzky, 2001; Orlitzky et al., 2003).

Even though there appears to be a consensus by the majority of studies in the

past literature of a positive CSR/CFP relationship, the relationship is disputed and mixed in a number of newer studies (including Cardebat and Sirven, 2010; Hillman and Keim, 2001; Schreck, 2011) – especially when considering the different aspects and categories of CSR. The relationship has been studied in plenty of distinctive ways as different CSR categories, data and different methods used in literature make comparing the literature base and the CSR/CFP confusing and impractical. Because of these reasons, further immersion into the topic with new and different data can be considered desirable and reasonable.

1.2 Research problem, objectives and delimitation

Even though the relationship between CSR and financial performance has been studied extensively the ways in which CSR affects financial performance are still relatively unclear. This study wants to define the CSR/CFP relationship, and by using different CSR data it aims to broaden the current existing literature. Also, this study aims to discover the direction in which the relationship moves in, and as such the main research question and the sub-research question of this study are:

1) *What kind of a relationship exists between CSR and corporate financial performance?*
    a) *Does the relationship differ with different categories of CSR?*

What many studies fail to differentiate is the different categories of CSR. There is a semi–proven record of the connection between CSR and financial performance but is it a given that corporate social actions for the environment or the employees have the same relationship? Is the reason why some studies find no relationship between CSR and CFP due to the use of a specific CSR category that in actuality holds no relationship with financial performance? Rowley and Berman (2000) and Schreck (2011) argue that CSR should be considered as a brand for a research topic, rather than a label for one theoretical operational construct, which compounds all the CSP measures and scenarios as one. The different categories

used in this study can be seen as different measures of CSR and thus have possible different relationships with corporate financial performance. It is considered in this study that some categories will have no or a negative relationship with CFP.

The CSP/CFP research started in the 1970s and still a couple of decades later Waddock and Graves (1997) consider that the underlying reason for the existence of a relationship might not have been studied or found. One reason might be that the CSR measure used typically in studies is a wide measure holding different categories together. The underlying movers of the relationship might be that there are many different relationships under the vague overall CSR measure used in previous studies (Schreck**,** 2011).

This study plans to address the different categories of CSR instead of just the broad aggregate measure of CSR when studying the relationship between CSR and CFP. And just like with the first research question, this study aims to figure out the causality and direction of the CSR/CFP relationship also with the different categories of CSR. The categories chosen from the data to study the relationship are Community, Environment, Employees and Governance (CSRHub, 2017).

This study aims to continue the CSR/CFP research by studying the relationship on a longer term, as suggested also by Makni et al. (2009). The time period for this study spans from 2009 to 2015. The time frame can be seen as being after the financial crisis of 2008. The effects of the financial crisis can still probably be seen in the financial performance of the companies but the time frame is consistent in such a way, that the financial shock does not happen in the middle of the time period. In this study, the sample size is also expanded to 500 European public companies.

The contribution of this study to the literature base of CSR research is twofold. First, this study adds to the small number of causality studies done of European

companies, especially to the studies with many measures of CSR (including Maignan and Ralston, 2002). Second, this study extends the sample size by a bigger and more current time period and sample size than many previous studies and by using a different CSR data source than is currently “de facto” (Schreck, 2011; Chatterji et al., 2009). The CSR data in this study is from CSRHub (2017) and it consists of each category given a score between 0–100. This differs from data used by previous studies, that use mostly KLD data, which has only dichotomous data of the CSR strengths and weaknesses as compared to an overall range score for each category in CSRHub (2017). As such, the data used in this study is more complex and thus better suited for studying different effects and causality relations of the CSP/CFP relationship.

1.3 Organization of the study

This study is organized into five chapters and their sections and subsections. It is arranged in the way that is standard for empirical studies: introduction, theoretical part, methodology, and results. First, after the introduction, the study analyses the theoretical framework around the concept of CSR. This includes the definition, history and main strains of research in the topic, and its relation to corporate financial performance. In this chapter, the different ways of measuring the CSR/CFP relationship and its measures are also disclosed. After this, the research model of the study is developed and the methodology is explained in chapter three. This includes data description, collection and analysis, as well as explaining the empirical method to be used and finally the formulation of the empirical models.

After this study’s theoretical part, the empirical study is conducted and its results are presented in the fourth chapter. In the final fifth chapter the study is concluded with a summary of what has been done, and then the results are analyzed and discussed. This includes concluding the implications and contributions of this study

and assessing their relation to past literature. Finally, the limitations and directions for further research are given.

2 THEORY AND PREVIOUS LITERATURE

This chapter explains the theory behind this study and combines the relevant previous literature regarding the CSR/CFP relationship. The problem with studying CSR arises as even defining the concept of CSR is evolving and varies throughout literature. Because of the nature of both CSR and financial performance as constructs the measurement and classification of them become important in study contexts. There are multiple ways of classifying and measuring both, which affect the results of the previous studies and is one factor why the conclusions on the CSR/CFP have been hard to determine (Scholtens, 2008, 48).

First, the chapter starts with explaining the concept of CSR and then moves on to examine the CSR/CFP relationship in theory and in past literature. The theoretical part includes examining the possible explanations for the relationship and the theories regarding that relationship. After this, the CSR/CFP components' different measures and variables used in the previous literature are explored. Finally, the conceptual model is constructed based on the theoretical part of this study

2.1 Concept of CSR

Corporate social responsibility has been an issue of interest for the past century since it was first introduced to the public with publications by Barnard (1938) and Clark (1939). During its first introduction, it was not yet seen as a research topic but rather one aspect of running a business that should be taken into consideration. As a research topic, CSR rose in 1953 when Howard Bowen gave in his book, "Social Responsibilities of the Businessman", the first definition of CSR:

"*It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the*

objectives and values of our society." (Bowen, 1953, 6)

Bowen's (1953) focus was on the social responsibility of companies to the society. This ignited academic discussion of CSR and resistance due to companies' and managers' top priority being maximizing shareholder wealth and not political and social issues of the society (Friedman, 1970). Friedman (1962) even called CSR a threat to the base of free enterprise society. Since then, CSR has moved on to becoming more widely accepted and even a popular topic and focus of companies and researchers alike.

CSR now has several terms and definitions, which are used in the literature. Because of the high amount of definitions, there has even been conducted an analysis of 37 definitions by Dahlsrud (2008). Out of these definitions, Dahlsrud (2008) found five dimensions of CSR: the environmental, the social, the economic, the stakeholder and the voluntariness dimension. The environmental dimension refers to the natural environment, the social dimension to the relationship between business and society, the economic dimension on socio-economic or financial aspects, the stakeholder dimension refers to the stakeholders or stakeholder groups and finally, the voluntariness dimension refers to the actions not prescribed by law.

The most cited definition (Dahlsrud, 2008) is by Commission of the European Communities (2001): "A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on voluntary basis". Plenty of countries have started to demand CSR reporting as a part of the companies' mandatory reporting next to their financial reporting (Ho et al., 2011). It can be debated if CSR can only be considered as the voluntary social activities of companies because if the reporting of those actitivities is mandatory, it puts out a pressure for conducting those activities in a way that no longer may be considered as voluntary.

The European Commission (2011, 6) defines CSR as follows: “the responsibility of enterprises for their impacts on society”. Since the topic’s rise to prominence CSR’s effect on financial performance has come forth as a study topic. A company’s CSP is considered the configuration of principles, processes, and outcomes, which allow the company to successfully manage moral conflicts (Berman et al., 1999). In accordance with this definition, this study considers CSP as the outcome of measurable CSR activities and CSR is used to refer to CSR issues as a whole.

2.2 Theoretical perspectives on the link between CSR and CFP

As mentioned in the introduction, the CSR/CFP link is viewed as companies being socially responsible in different dimensions, such as employee, community, and environment, and this socially responsible performance is hypothesized as having different effects on CFP. For CSR to have an impact on corporate financial performance it needs mediating and moderating factors, through which CSR influences CFP (Orlitzky, 2008). These effects can be among others lower turnover, good reputation, employee satisfaction and they can be internal or external. Figure 1 illustrates these constructs as the framework of the assumed CSP/CFP relationship and the premise for this study.

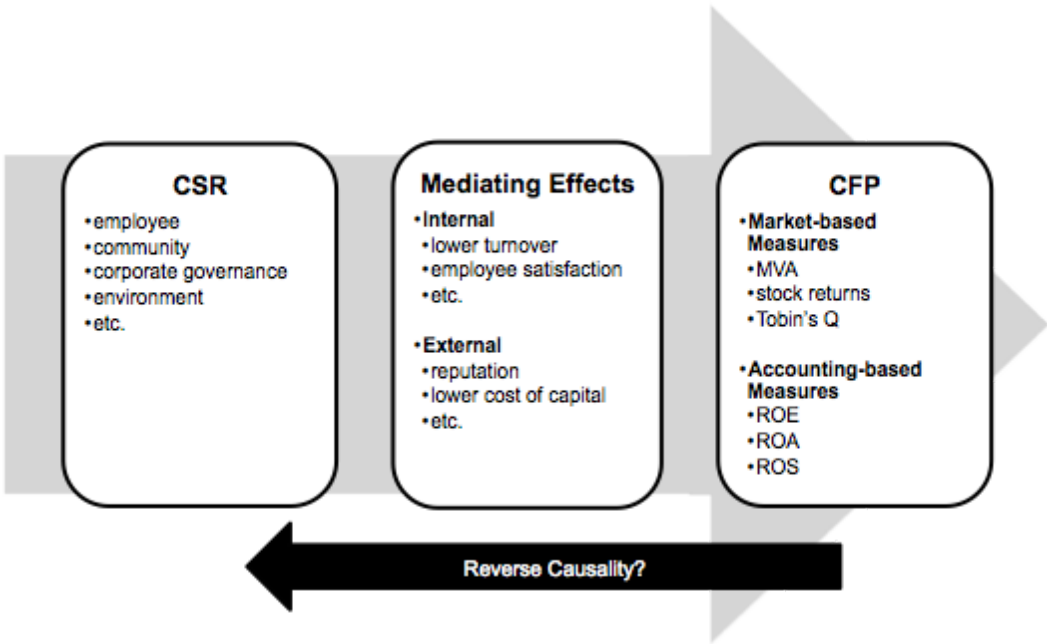


Figure 1. A framework of the CSP/CFP relationship (based on Schreck, 2011).

Preston and O'Bannon (1997) made the distinction that the CSP/CFP relationship should be positive, negative or neutral and that there could be a causal relationship, either by CSP influencing CFP or CFP influencing CSP. The relationship could also be synergistic and bidirectional. They developed six hypotheses for this possible causal relationship: managerial opportunism hypothesis, negative synergy hypothesis, positive synergy hypothesis, slack resources hypothesis, social impact hypothesis and trade-off hypothesis. These hypotheses are cited in later publications as a theoretical basis for studying the CSP/CFP relationship by many (including Cardebat and Sirven, 2010; Makni et al., 2009). The hypotheses are introduced and explained in the following subsections and they are referenced throughout this study.

2.2.1 Social impact

The first hypothesis, the social impact hypothesis, is based on the stakeholder theory which suggests that by meeting stakeholder's needs, firms will be able to

achieve higher financial performance (Freeman, 1984; Ogden and Watson, 1999). A stakeholder is a person or a group that has intrinsic interests in the firm (Donaldson and Preston, 1995) or that has the power to influence the firm and/or has an urgent claim on the firm (Mitchell et al., 1997). According to this hypothesis, disappointing the stakeholders may result in lower financial performance. Considering the financial consequences of for example Volkswagen's scandal, there seems to be some sort of basis for this claim.

2.2.2 Slack resources

Slack resources hypothesis is based on the belief that better financial performance results in slack (financial) resources, which give companies opportunities to invest in socially responsible domains such as employee relations, community or environment (Waddock and Graves, 1997). According to this theory, financial performance would be a predictor of CSP. A study by Campbell (2007) complied with this theory as he found that a firm with relatively low financial performance will be less likely to invest in socially responsible activities.

2.2.3 Trade-off

According to the trade-off theory, there is a negative relationship between CSP and CFP. The hypothesis can be seen, as the name implies, as a trade-off between CSP and CFP. If a company wishes to invest in socially responsible activities, its financial performance will fall, and vice versa. The theory is based on the neoclassical economists' position in which socially responsible activities will reduce profits and shareholder wealth through their numerous costs while having few economic benefits (Waddock and Graves, 1997).

2.2.4 Managerial opportunism

The managerial opportunism hypothesis supposes that corporate managers will pursue their own private objectives at the expense of shareholders and stakeholders of the company (Weidenbaum and Sheldon, 1987; Williamson, 1985). In practice, this kind of opportunism would appear when CFP is strong, managers may reduce social spending to maximize their own short-term gains. When CFP is low, the managers might engage in social spending to undermine bad financial performance (Preston and O'Bannon, 1997). One of these own private objectives of managers' opportunistic behavior is considered to be a better personal reputation, so the private objectives are not necessarily monetary for managers (Barnea and Rubin, 2010).

2.2.5 Positive synergy

The positive synergy hypothesis states that higher levels of CSR lead to improved financial performance, which then offers possibilities to reinvest in socially responsible actions through more financial resources (Allouche and Laroche, 2005). The relationship is then positive and it can also be simultaneous, forming a virtuous circle between CSR and CFP (Waddock and Graves, 1997). The positive synergy hypothesis can be seen as a combination of social impact hypothesis and slack resources hypothesis, as according to the former, investing in socially responsible actions by catering to stakeholders' needs enhances CFP and according to the latter, a company's "slack resources" motivate companies to invest in CSR.

2.2.6 Negative synergy

Negative synergy hypothesis is, as the name implies, the opposite of positive

synergy hypothesis. The hypothesis suggests that high levels of CSP lead to a decrease in financial performance, which then limits the future investing in socially responsible activities (Makni et al., 2009). The relationship between CFP and CSR can then be considered as a vicious circle.

2.3 Previous studies

The CSP/CFP relationship has a long research history starting from Bowen's (1953) introduction to the topic. Comparing the different studies is difficult due to the indiosyncratic methods used in each study (Graafland et al., 2004; Griffin and Mahon, 1997). Because of this, this section and its subsections aim to examine and compare the different studies on the relationship between CSR and CFP, and their methods and results.

2.3.1 Measures

This subsection introduces and discusses the different ways of measuring CSR and corporate finance performance, that have appeared in the previous literature. There can be considered of being four main sources of measures for assessing CSR: (1) contents of annual reports (Bowman and Haire, 1975), (2) reputation indexes (such as Fortune Corporate Reputation Index [Griffin and Mahon, 1997]), (3) data produced by assessment organisations, such as KLD or CSRHub (McWilliams and Siegel, 2001), and (4) primary data gathered from surveys (Theo et al., 1999).

In the past, MSCI ESG Research's (formerly known as KLD Research & Analytics, Inc.) data are used by most to account for CSR data, as can be seen from Table 1. KLD data evaluates U.S. companies' CSR activities in 12 categories wherein each of them a company is rated for different strengths and weaknesses, which are

represented by dichotomous variables (‘1) or (‘0)’, depending on if the strength or weakness is present in the company (Schreck, 2011, 173). In the KLD data, an aggregate and different CSR scores must be constructed by summing or subtracting CSR “strengths” and “concerns”, which is done on the assumption that the two measures would negatively covary. The scores are then studied (Chatterji et al., 2009; Hillman and Keim, 2001; Waddock and Graves, 1997) or the strengths and concerns are treated as separate measures (Pätäri et al., 2014, 2016; Mattignly and Berman, 2006). Mattingly and Berman (2006) found that often there is no correlation between strengths and concerns and that sometimes the measures even co-vary positively. This implies that constructing for example an aggregate score of CSR cannot be done by simply subtracting the weaknesses from the strengths.

Schreck (2011) and Hillman and Keim (2001) have criticized the KLD rating dataset and called for the use of alternative datasets. Chatterji, Levine and Toffel (2009) also found evidence that KLD ratings are not using available data optimally and hope for identifying valid measures of CSR in future research.

Canadian Social Investment Database (CSID) is similar to KLD ratings but for Canadian companies. While CSID ratings differ from KLD ratings in a way, that they have 3 possible ratings on a scale of 0–2, they are still seen as having similar limitations as the dichotomous KLD ratings (Mahoney and Roberts, 2007, 236).

Financial performance has been studied by using market-based (such as MVA [Market Value Added], stock returns and Tobin’s Q), accounting-based (such as ROA [Return on Assets] and ROE [Return on Equity]) and survey measures. Accounting-based and survey measures are retrieved from the financial statements of the companies or from the managers themselves, while market-based measures are based on data collected from the markets, reflecting the stock market’s estimation of the companies’ financial performance.

When measuring the financial performance of companies, accounting-based measures are more short term in nature than market-based measures (Hayes and Abernathy, 1980; Ouchi, 1980), reflect only the historical performance of the firms and are greatly manipulated by managers (Watts and Zimmerman, 1978, 1990). Moral hazard as earnings manipulation by managers is a known problem that concerns all financial reporting (Dechow et al., 1996; Erickson et al., 2003; Miglo, 2013). However, market participants expectations of firm performance are based on the financial statements of the companies, so it too can be seen as having the same effects of moral hazard. Because of this, Hillman and Keim (2001) argued that accounting-based measures, such as ROA and ROE are less useful in measuring financial performance in the CSP/CFP context because they are not successful in measuring the firm's long-term value or the value created for shareholders, and that their use of MVA was an improvement over accounting-based measures when studying the CSR/CFP relationship. Hillman and Keim (2001) make a point of accounting-based measures not reflecting stakeholder value creation which also includes firm reputation and customer service, and not just the financial aspect of firm value (Watts and Zimmerman, 1990).

Rappaport (1992) argued that market-based measures of financial performance outperform accounting-based measures due to their ability to capture the future value of income streams and the value of the company. According to Hillman and Keim (2001) accounting-based measures also suffer in comparison because of them being inadequate in measuring intangible assets. However, they note the same problem with the market-based measure Tobin's Q. Also, according to McWilliams, Siegel and Wright (2006) measuring financial performance with the use of stock prices is not desirable as stock prices relate only to financial stakeholder while non–financial stakeholders are also affected by CSR.

Ali, Muhammad, Rafeh and Rabia's literature review (2012) found that of their 25 studies reviewed that used stock returns as a measurement of financial

performance only 28 % found a positive correlation between CSR and financial performance. Of all the studies reviewed six used either price/book ratio or Tobin's Q as a financial performance indicator and all of those studies found a positive relationship. Out of studies using accounting-based measures such as ROE, ROA and ROS as the measurement for financial performance, Ali et al. (2012) found that 77,8 % of the 45 studies reviewed found a positive correlation between CSR and financial performance. McGuire et al. (1988) found that that lagged financial performance measures improve the CSP measures, but that CSP does not affect financial performance. Pätäri et al. (2016) suggest in their study with ROA and ROE, that different measures of CSR should be used when studying the relationship.

2.3.2 Results

This subsection concentrates on interpreting and comparing the results of the CSR/CFP literature base. Because of the vast number of different studies of the relationship, Perrini, Russo, Tencati and Vurro (2011) underline the importance of generating comparable results in CSP/CFP research. Due to a generous amount of studies in the area, meta-studies have been done to try to simplify the field: Griffin and Mahon (1997), Margolis et al. (2009), Margolis and Walsh (2003), Orlitzky (2001), Orlitzky et al. (2003). Orlitzky et al. (2003) reviewed over 30 years of empirical research on the CSR and financial performance's relationship and came to the conclusion that CSR and financial performance are positively correlated. Lin, Yang and Liou (2009) also found a positive relationship but the positive effect of CSR on financial performance was very small on short-term, but a remarkable advantage could be gained long-term.

Since the meta-study by Orlitzky et al. (2003), a positive relationship between CSP and CFP has also been found by Allouche and Laroche (2005); Arya and Zhang (2009); Barnett and Salomon (2006); Brammer and Millington (2004); Doh,

Howton, Howton and Siegel (2010); Lev, Petrovits and Radhakrishnan (2006); Lo and Sheu (2009); Mackey, Mackey and Barney (2007) and Wu (2006). Margolis and Walsh (2003, 277) conclude in their meta-analysis that “there is a positive association, and certainly very little evidence of a negative association, between a company’s social performance and its financial performance”. However, Griffin and Mahon (1997, 6) concluded in their meta-study before that “the number of researchers finding a negative relationship is impressive”.

As previously mentioned, one aspect of the CSP/CFP relationship is the possibility of a bidirectional relationship, where CSP affects CFP and CFP affects CSP. Waddock and Graves (1997, 307) considered CSP as “both a predictor and consequence of firm financial performance”. Orlitzky et al. (2003) found the relationship to be bidirectional and simultaneous. They also found that 15 to 100 % of the cross-study variation in CSR to financial performance correlations could be explained by stakeholder mismatching, sampling error, and measurement error. This suggests that previous ambiguous results in CSR/CFP literature would be due to failures in research methods and result interpretation. Still, Surroca, Tribó and Waddock (2010) critized the studies before them as not accounting for mediating effects of intangible resources in their studies. Surroca et al. (2010) found no direct relationship between CSR and CFP when accounting for the intangible resources. This further suggests that the mixed results of the CSR/CFP research will continue to exist as new angles on the relationship and methods grow as new studies emerge.

It has been speculated that firm size confounds the relationship between CSR and financial performance as studies showing a positive correlation between CSR and financial performance have been made using samples containing large companies (among others Stanwick & Stanwick [1998] with *Fortune 500* companies as their sample). However, Orlitzky’s (2001) meta-analysis shows that that the positive correlation between CSR and financial performance still holds after controlling for firm size. Hillman and Keim (2001) also controlled for firm size by using net sales

and found positive and negative results on the relationship with different aspects of CSR. Orlitzky (2001, 175) argues that even with firm size counted for there are still other variables that might cause the positive relationship to disappear such as managerial talent, social capital, organizational learning and organizational knowledge and implicates further research to be made controlling with these variables.

Since the previously mentioned meta-studies and in the past decade, CSR/CFP literature has evolved and grown into different directions. One of these directions is studying beyond the CSR/CFP relationship by also including different stakeholder domains when studying the effects on CFP (Giacomo et al., 2016; Rutherford et al., 2016). Another direction is focusing on CSR reporting and its relationship with financial reporting (Cao et al., 2016; Huefner and Tschopp, 2015). CSR reporting's effect has been studied on companies' market valuations and stock prices. Reverte (2016) found that CSR disclosure has a direct and indirect effect on companies' stock prices and that it boosts market valuations in environmentally sensitive industries compared to other industries.

CSR's effect on firm value has also come forth in current literature. Servaes and Tamayo (2013) found CSR activities to be value-enhancing in companies with high public awareness and insignificant or negative in companies with low public awareness. Clearly, studies on the CSR/CFP relationship continue as a research topic due to a still unclear view of that relationship. The research has also evolved to include more CSR measures (Hillman and Keim, 2001; Makni et al., 2009; Schreck, 2011), use of different datasets (Cardebat and Sirven, 2010), and to compare the CSR/CFP relationship between different industries (Makni et al., 2009; Pätäri et al., 2014; Schreck, 2011).

One aspect of CSR is companies' relationship to its employees. The idea is that companies' socially responsible actions towards its employees will result in higher employee satisfaction and productivity, which in turn will increase financial

performance through operational efficiency (Branco and Rodriguez, 2006). The hypothesized effect goes even further as satisfied employees give out a positive employer reputation, which helps the company recruit skilled and productive people and keep them, which reduces employee turnover (Albinger and Freeman, 2000).

Bang and Chun (2016) found that CSR affects brand image and customer trust positively and that it acts as a contributor to customer loyalty through those relations. The relationship can also have negative effects through customer reputation scandals. If a company or its suppliers have for example poor working conditions, it can lead to consumer boycott and through bad reputation it can have a negative effect on financial performance. Scandals, such as corruption and price collusion, have been proved to worsen consumer behavior and employee morale (SustainAbility, 2006).

Some still argue that the benefits of environmental performance would be bigger than its costs through customer reputation (Schreck, 2011). When a company is perceived of having a positive environmental relationship, it in most cases has a positive effect on the company's customer reputation (Schwaiger, 2004; Sen and Bhattacharya, 2001). Conversely, negative effects can be seen in Volkswagen's scandal as through bad customer reputation profits seemingly fell greatly. Environmental performance by companies can also be seen as an effective way of risk reduction by earning legitimacy in the eyes of external stakeholders (Bansal and Clelland, 2004; Maxwell et al., 2000).

Hillman and Keim (2001) studied a company's relationship with the community. The category of CSR includes activities such as charitable contributions and the overall relationship with the community in which the company operates. These community activities such as sponsoring sports events could be used as a competitive advantage by boosting productivity through improving employee morale (Porter and Kramer, 2002). Like the environmental aspect of CSR, the

relationship with the community too can act as risk-reducing through maintaining good relations with the community's external stakeholders, which helps build trust. Customer reputation can also be thought of being increased through for example charitable actions towards the community, in a similar way to the environmental relationship (Smith and Alcorn, 1991). Having a good relationship with the community can also have a positive influence on the company's reputation in capital markets (Lev et al., 2006). According to Russo and Fouts (1997), also industry sctructure and dynamics moderate the CSP/CFP relationship in such a way that the benefits are greater in high-growth industries than in industries without growth prospects.

To account for the vast amount of research done on the CSR/CFP relationship, Table 1 clarifies the broad range of different studies on the relationship. The studies are chosen to show the different, yet similar methods of study. Emphasis has been on the studies, which have studied different CSR categories as it is also the focus of this study.

Table 1. Overview of the relevant current literature.

Authors (Year)	*N*	*Measure of CSP*	*Measure of CFP*	*Findings*
Cardebat and Sirven (2010)	154	CSR reports from Corporate Register	Expected return on the capital asset	CSR was negatively and significantly associated with the financial return
Hillman and Keim (2001)	308	KLD ratings, divided into stakeholder management and social issue participation	MVA, Tobin's Q, ROA, ROE	Stakeholder management had a positive relationship and social issue participation had a negative relationship.
Mahoney and Roberts (2007)	300	CSID ratings, individual variables: community, diversity, employee relations, environment, international, product, business practices, and other	ROA, ROE	A significant relationship only with environmental and international activities and CFP.
Makni et al. (2009)	179	KLD and CSID ratings, individual variables: community and society, corporate governance, employees, environment, customers and human rights	ROA, ROE, Stock returns	Positive relationship between stock returns and CSR with aggregate and employee measure of CSR. Negative relationship between stock returns and environment measure.
Pätäri et al. (2016)	44	KLD ratings, divided into two variables: CSR "strengths" and "concerns"	ROA, market capitalization	Some evidence of bidirectional causality.
Schreck (2011)	69	Oekom research AG ratings: Employees, Corporate Governance, Environmental Management, Product & Customer Responsibility, Society & Community	ROE, Tobin's Q	Positive correlation between Tobin's Q and CFP with Environmental Management and Corporate Governance. Negative correlation with Product & Customer Responsibility and Tobin's Q.

Mahoney and Roberts (2007) studied the relationship in Canadian companies with ROA and ROE as means for CFP and individual and aggregate measures for CSR. They found a significant relationship between environmental and international activities and CFP. However, they did not find a statistically significant

causal relationship between CFP and the composite measure and the rest of the individual measures of CSP. Makni et al. (2009) continued this research by using the Granger causality approach and an aggregate CSP score and individual measures of CSP. Granger causality approach is used for determining if one time series' prior values can be used to forecast another time series' future values, which is referred to as Granger-causing because it finds only predictive causality (Diebold, 2001, 254). With the Granger causality approach, it is not possible to achieve results of whether or not the relationship is positive or negative, only that if there is Granger-causality. They measured CFP by using the same accounting-based variables ROA and ROE. They also added a market-based measure (stock market returns) to their study for robustness. They used size (natural logarithm of total assets), risk (long-term debt total assets ratio and beta factor) and industry as their control variables.

Makni et al. (2009) found a positive relationship of CFP to the aggregate CSR score with using market returns but not with the accounting-based measures. The results were repeated with the individual employee measure of CSR. With the rest of the individual CSP measures, they found a statistically significant relationship only with the environment measure. The environment relationship was negative with all the CFP variables used. This is consistent with the trade-off hypothesis and somewhat with the negative synergy hypothesis, according to which, firms that are socially responsible tend to have lower profits and limited shareholder wealth, which in turn reduces future socially responsible investments of the companies.

There can be seen as being a divide of CSR to stakeholder management, which includes a company's relationship with its employees and corporate governance, and to social issue participation, which includes the company's relationship with the environment and community and actions regarding that relationship (Hillman and Keim, 2001). Hillman and Keim (2001) hypothesized stakeholder management as being value-adding to the company and social issue participation

of being value-degenerating. They studied the relationship by using those as categories of CSR to study against corporate financial performance with MVA. According to Hillman and Keim's (2001) study, they have opposite relationships to corporate financial performance. Stakeholder management had a positive relationship and social issue participation had a negative relationship. The relationship between environmental activities of a company and CSR has also been proven to be negative by Makni et al. (2009). Mahoney and Roberts (2007) found a strong relationship but could not determine the direction of that relationship. According to Hillman and Keim (2001), the measure of CSR used in previous studies might explain the ambiguous study results when compared to their divided CSR measure. They also bring forth the need for knowing companies' motives to social responsibility.

Cardebat and Sirven (2010) also studied the CSP/CFP relationship but by using the Capital Asset Pricing Model (CAPM) for panel data. They studied 154 European firms between 2000 and 2008 with using CSP reports from Corporate Register, which holds non-financial reports from companies (Corporate Register Ltd., 2017). They found a negative and significant relationship between financial returns and CSR. However, the data holds some limitations as it is based on companies' own reports of CSR which are bound to be biased towards their desire to appear socially responsible. This is especially as CSR reporting is not yet fully mandatory and as such, voluntary CSR reporting of companies can be because of wanting to seem better to the companies' stakeholders. Even though Cardebat and Sirven (2010) found a negative link between CFP and CSR, they made an important realization regarding the effect of CSR studies on actual actions of companies and investors. Since the majority of CSP/CFP studies consider there to be a positive link between CSR and CFP, according to mimicry on financial markets, if investors believe that CSR leads to better financial returns (through CFP), then this will happen through self-realisation (Cardebat and Sirven, 2010, 26).

Corporate governance is also one of the categories of CSR, which comprises of shareholder related matters such as transparency of compensation schemes, shareholder democracy and companies' efforts to fair business practices through for example codes of conduct. The empirical evidence of the relationship is mixed but a number of studies have found a positive relationship to market-based measures of financial performance (Bauer et al., 2004; Black et al., 2006; Drobetz et al., 2004). The link has been mainly established via the capital market's reaction to companies' meeting corporate governance codes, or them failing to do so (La Porta et al., 2000).

2.4 Conceptual model

In this section, the hypotheses of the study are formed based on the theory and previous literature on the research topic. The first research question considers the possible relationship between CSR and CFP. Because the relationship is assumed to be positive by the majority of the studies in the area, the first hypothesis of this study is as follows:

H_1: There is a positive relationship between a company's aggregate CSP and financial performance.

The second research question considers the same relationship but with using different categories of CSR. The study results of these different categories are mixed and the measures and categories of previous literature are assorted. Because of this discussion, and because the aggregate CSR score is hypothesized to be positive, this study hypothesizes its rest of the hypotheses as follows:

H_2: There is a positive relationship between a company's relation to its employees and financial performance.

H_3: There is a positive relationship between company governance and financial performance.

H_4: There is a positive relationship between a firm's relation with the environment and financial performance.

H_5: There is a positive relationship between a company's relation with the community and financial performance.

However, regardless of the positive nature of the assumed relationships between different categories of CSR and CFP presented here, this study takes into consideration the issues presented in introduction regarding the possible non-existent relationship between some of those categories of CSR and CFP. But for the sake of conducting the study, these hypotheses are decided as the basis for the empirical research of this study.

3 EMPIRICAL RESEARCH METHODOLOGY

This chapter clarifies the methodology used in the study by explaining the tools and steps in going from theory to practice. First, this chapter explains the data collection methods and introduces the data and sample to be used in the study. After this, the methods and models of the study are presented.

3.1 Data description and data analysis

This study is done on panel data from a sample of 500 European public companies during a time period of 2009–2015. Panel data accounts for individual heterogeneity by allowing to control for variables that change over time but not across entities (for example international agreements). This helps to account among others for firm-specific variables. Panel data includes more data than time series or cross-sectional samples, thus allowing for more degrees of freedom and a more efficient estimation, than with traditional time series and cross-sectional data. Panel data also reduces collinearity between variables because of the added variability from cross-sections. (Baltagi, 2001).

European companies are chosen for delimitation because of many studies focusing solely on the companies of the United States due to them using KLD ratings and as such, studying only companies from the US. However, Maignan and Ralston (2002) found that companies' socially responsible emphasis differs substantially between countries while studying the CSR in the biggest companies from France, the Netherlands, the United Kingdom and the United States. Nevertheless, the study's observations were limited to the companies' websites, which could be interpreted as more of a difference in CSR communications than actual differences in socially responsible practices. These limitations were also brought on by the authors. Cardebat and Sirven (2010) also criticize past literature for having low-quality samples: limited size, lack of international or temporal

scope. European companies on average have been found to perform more socially responsible than the companies in other continents (Ho et al., 2011).

3.1.1 Data collection

The sample consists of top 500 public companies in Europe in 2015 according to a list by Financial Times (2016). The companies are listed by their market capitalization. The list has been chosen as the sample because it can be assumed that the biggest companies have the most accurate and thorough exhaustive information regarding their financial numbers and CSR data. Thus, minimizing sample manipulation afterward and having to discard companies to adjust the data. Even though the sample is limited to the biggest companies in Europe, the size of the companies varies greatly as the biggest company has a market value of 267 897 million dollars compared to the smallest company with 4 694 million. Because of the largeness and the variance of the sample, it can be assumed that the size variable and its effect on the hypotheses can be studied accordingly without bias.

The CSR data is collected from CSRHub which is a database for sustainability management tools. The database collects CSR data from different sources and rates companies on a scale of 0 to 100. The companies have been assigned CSR scores for different months from mid-2008 to mid-2016. There is an overall CSR score that is divided into different categories and then by subcategories. The categories are Community, Employees, Environment and Governance. The first category, Community, represents the company's investment to the local and global community where it conducts business by measuring the companies' human rights record and supply chain management. The category's subcategories are Community Development & Philanthropy, Human Rights & Supply Chain and Product. (CSRHub, 2017)

The category Employees evaluates companies' quality and initiative among others of policies, programs, labor rights and relations, and compensation of the companies' employee relations. The category comprises of subcategories Compensation and Benefits; Diversity and Labor Rights; Training, Safety, and Health. The third category Environment evaluates companies' interactions with the environment through environmental performance, compliance with regulations, mitigation of environmental footprint. The category consists of the subcategories Energy and Climate Change, Environment Policy and Reporting, and Resource Management. The final category, Governance, rates corporate policies and practices, the transparency to stakeholders and sustainability goals to cover the companies' governance. The subcategories of Governance are Board, Leadership Ethics, and Transparency and Reporting. (CSRHub, 2017)

For the purposes of this study, only the broad categories and the overall aggregate score are used to represent the CSR of a company. The overall score of CSR does not include data of companies with partial ratings, and thus it is not the mean of the available CSR category ratings. However, to accommodate the econometric models, a mean score is constructed as the aggregate variable when necessary due to missing values. The time period chosen for this study (2009 to 2015) fits well with the data as there is available data for most companies.

To account for omitted-variables bias, firm size is used as a control variable (Claessens et al., 2002; Hillman and Keim, 2001; McWilliams and Siegel, 2001; Waddock and Graves, 1997). Stanwick and Stanwick (1998) suggest that because CSR depends on the economical, social and legal context in which the firm operates, firm size or industry should be used as control variables. Firm size is known to affect CSP in such a way, that smaller firms may not invest in socially responsible actions as much as larger firms (Roberts, 1992). For this study, firm size is chosen for the control variable of the study. Firm size was measured by a natural logarithm of total assets of the company.

Accounting-based corporate financial performance measures ROA and ROE are chosen for this study because they have been used the most in previous literature and also because of the conclusions by Pätäri et al. (2016), which state that more than one CFP measure should be used when studying the CSP/CFP relationship. Market-based CFP measures such as market capitalization and Tobin's Q are not used in this study because of their problems of correlation with firm size, which is used as the control variable of this study. The financial data is collected from Amadeus database, which holds company financial information for 21 million European companies (Bureau van Dijk, 2017). The financial data collected are for ROA, ROE and total assets of the companies during the time 2009–2015. Finally, the sample has narrowed to 345 companies mainly due to partial financial data, and it not being available on Turkish companies and companies from the financial industry. The data collected is year-end for the CSR and the financial data.

3.1.2 Descriptive analysis

This subsection presents the properties of the variables used in this study. First, the CSR variables' evolution through the chosen time period 2009–2015 is presented graphically in Figure 2, and then the evolution of the CFP variables is presented in Figure 3. After this, the descriptive statistics of all the variables are presented.

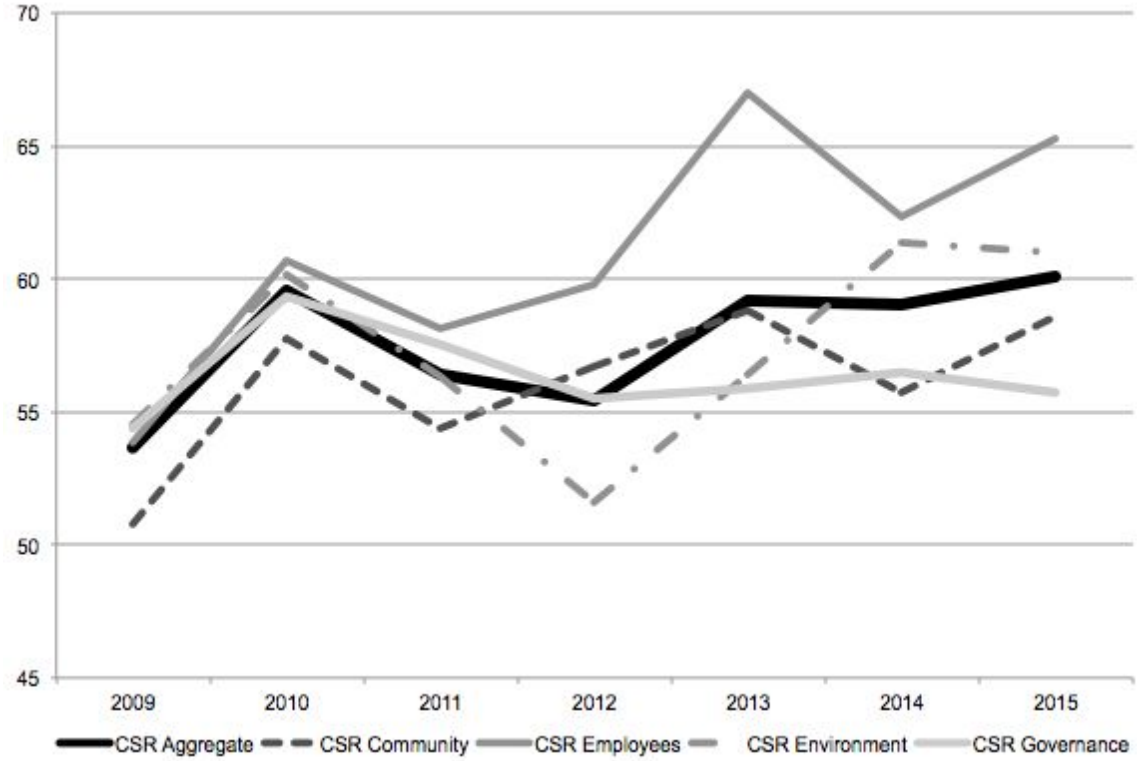


Figure 2. The evolution of the CSR variables.

Figure 2 shows the evolution of the CSR dimensions as the average of all of the companies studied per year. Interpreting the evolution graphically, it can be seen that all of the dimensions have grown during this study's time period. All of the CSR dimensions seem to have started in 2009 at around the same values of 50–55 but at the end of the time period in 2015, the scores seem to vary between circa 55–65. The variance between the CSR dimensions has in other words widened during the time period. There can be seen a drop in the scores of all of the CSR dimensions in 2010, after which the dimensions have continued in their own individual but ultimately growing directions. The biggest change and growth can be seen in *CSR Employees*, which also has the highest end value.

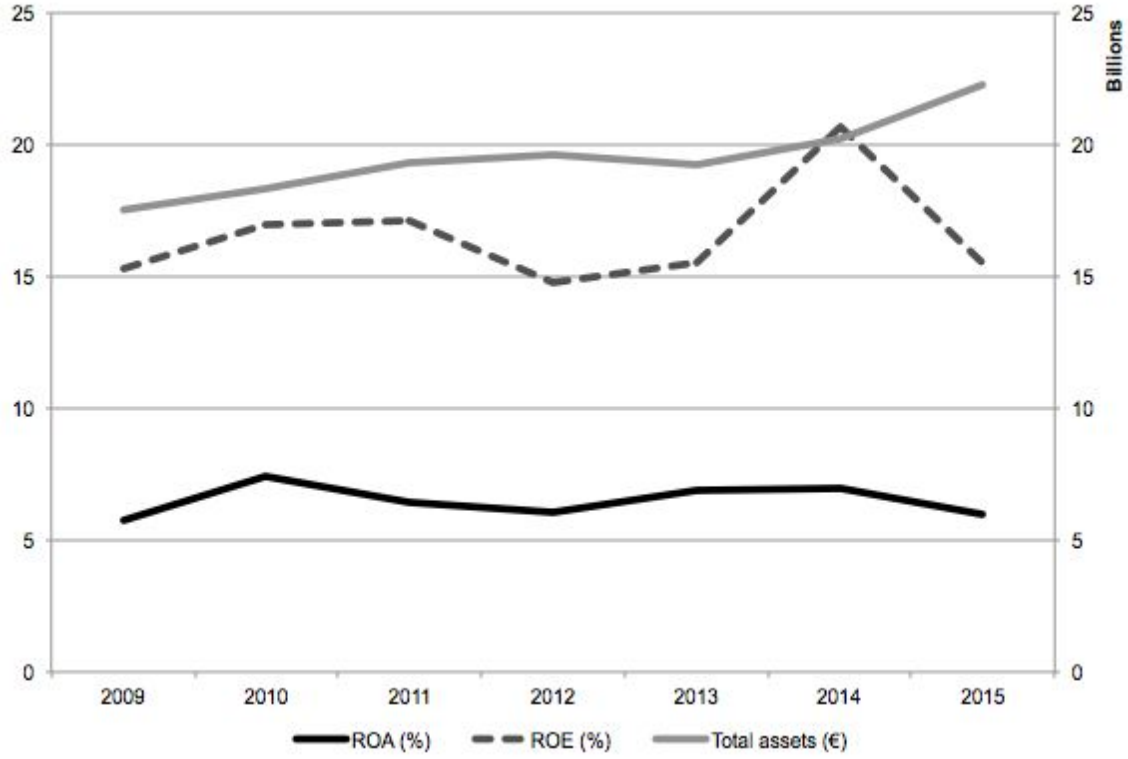


Figure 3. The evolution of ROA and ROE (left) and Total assets (right).

Figure 3 shows the evolution of the CFP variables and *Total assets* as the average of all of the companies studied per year. It can be seen graphically in Figure 4 that there is almost no difference between the starting and ending values of the CFP variables *ROA* and *ROE*, but the in between variance of *ROE* is greater than *ROA*. The movements of both variables seem alike, which is to be assumed as the variables have been chosen to model the same effect, the financial performance of companies. The control variable, *Total assets*, has grown steadily throughout the time period of this study.

The descriptive statistics of the variables used in the study are shown in Table 2. The table shows the basic variables and their lagged correspondents as the econometric models chosen for this study use basic dependent variables and lagged independent variables. The lagged variables are lagged by one year.

Table 2. Descriptive statistics.

	N	*Mean*	*Std Dev*	*Min*	*Max*
CSR Aggregate	2036	58,5582	7,4445	21,3750	80,6667
CSR Aggregate (lagged)	1999	57,4692	8,0405	20,0833	80,6666
CSR Community	2040	57,2331	8,1668	26,0000	85,2899
CSR Community (lagged)	2004	55,9610	8,8136	5,0000	86,2899
CSR Environment	2040	58,0601	9,1129	18,5000	84,0000
CSR Environment (lagged)	2004	57,4692	9,5577	18,5000	84,0000
CSR Employees	2033	62,4293	9,7657	15,0000	92,2899
CSR Employees (lagged)	1997	60,5420	10,4697	12,0000	93,2899
CSR Governance	2041	56,8387	8,2047	20,0000	82,3333
CSR Governance (lagged)	2007	56,6420	9,0045	-19,3333	82,3333
ROA	2011	6,6817	9,5972	-82,4910	96,3130
ROA (lagged)	1998	6,5581	9,3201	-61,1440	98,2490
ROE	1999	16,3959	34,2867	-531,5580	600,0000
ROE (lagged)	1983	16,1756	33,3293	-531,5580	600,0000
Total assets (lagged)	2018	15,5134	2,4387	-1,0906	19,7607

There are between 1983 and 2041 observations for each variable as visible from Table 2. *Total assets (lagged)* is a natural logarithm, which results in the negative minimum value seen in Table 2. The CFP variables *ROA*, *ROE* and their lagged counterparties are as percentages, which results in their negative minimum values. *ROE* and *ROE (lagged)* have clearly the highest standard deviation of circa 33–34 with the values ranging from -531,558 to 600. In comparison, the standard deviation of the other CFP variable *ROA* and *ROA (lagged)* is only circa 9–10. CSR variables' minimum and maximum values range from 5 to circa 93 out of the overall scale of the CSR score, 0–100.

Out of the CSR variables, *CSR Employees* and *CSR Employees (lagged)* have the highest standard deviations with 9,7657 and 10,4697, respectively. *CSR Aggregate* score has the lowest standard deviation of the CSR variables, which is

logical as it is the overall score of the CSR variables. *Total assets (lagged)* has the lowest standard deviation with 2,4387, which is due to the variable being a natural logarithm.

3.1.3 Correlation analysis

This subsection presents and considers the correlations of the variables used in the models of this study. The Pearson correlation coefficients of the variables are shown in Table 3. The correlation matrix shows the correlation of the independent variables in the models against the dependent variables. As can be seen from the Table 3, correlation does not exceed 0,2 in the correlation variable pairs. The correlation coefficients are statistically significant with *Total assets (lagged)*, *ROA* and *ROA (lagged)* and not with *ROE* and *ROE (lagged*). The correlations of *ROA*, *ROA (lagged)* are all negative. *Total assets (lagged)* is positively correlated with the CSR variables and negatively correlated with the CFP variables.

Table 3. Correlation matrix.

	ROA	*ROA (lagged)*	*ROE*	*ROE (lagged)*	*Total assets (lagged)*
CSR Aggregate	-0,0927***	-0,1105***	-0,0101	-0,0098	0,1558***
CSR Aggregate (lagged)	-0,0953***	-0,0703***	-0,0002	0,0096	0,1620***
CSR Community	-0,0509**	-0,0603***	0,0004	0,0169	0,0982***
CSR Community (lagged)	-0,0383**	-0,0325	0,0030	0,0163	0,0957***
CSR Environment	-0,0962***	-0,1057***	-0,0205	-0,0263	0,1703***
CSR Environment (lagged)	-0,1152***	-0,0759***	-0,0076	-0,0062	0,1981***
CSR Employees	-0,0866***	-0,1050***	-0,0076	-0,0108	0,1523***
CSR Employees (lagged)	-0,0754***	-0,0602***	-0,0022	0,0082	0,1381***
CSR Governance	-0,0726***	-0,0926***	-0,0041	0,0008	0,1207***
CSR Governance (lagged)	-0,0789***	-0,0599***	0,0076	0,0188	0,1381***
Total assets (lagged)	-0,1611***	-0,1339***	-0,0333	-0,0257	1,0000

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.

When comparing the correlations between the CSR variables and both *ROA* and *ROA (lagged)*, *ROA (lagged)* has a higher correlation to the CSR variables than *ROA* in all of the correlation pairs. The same discovery is not reproduced when comparing the variables the other way around with CSR and lagged CSR variables against *ROA*. When inspecting both the CSR variables' and *ROA*'s lagged variables together, the correlation is always the lowest with lags than without lags. This could be because the lagged variables have fewer observations than their non-lagged counterparties (visible also in Table 2) or because the correlations of the variables strengthen through time.

3.2 Methodology

In this section, the method of this study is introduced to according to the data presented in the previous section and the models of the study are constructed. In

this study, two methods of regression are applied to the study's panel data: fixed effects and random effects models.

3.2.1 Panel regression methods

The methods to be explained are based on the interpretation of Baltagi (2001). Panel data regression can be expressed by a formula:

$$y_{it} = \alpha + X'_{it}\,\beta + u_{it} \qquad (1)$$

where,

α is the constant term,

β is the slope vector of each explanatory variable,

X'_{it} is the itth observation on each explanatory variable, and

u_{it} is the error component,

which in panel data applications is usually divided into two parts:

$$u_{it} = \mu_i + \varepsilon_{it} \qquad (2)$$

where,

μ_i represents the unobservable heterogeneity, and

ε_{it} is the remainder disturbance.

The unobservable heterogeneity μ_i is constant over time and accounts for any individual-specific effect not included in the regression, whereas the remainder disturbance ε_{it} varies between individuals and time.

Fixed effects model is used, if there is an individual-specific effect that is not included in the regression and is correlated with X_{it}, in other words, when there is

an endogeneity problem:

$$y_{it} = \alpha + X'_{it}\,\beta + \varepsilon_{it} \tag{3}$$

In this model, the unobservable heterogeneity μ_i is assumed to be fixed and the remainder disturbance ε_{it} is assumed to be independent and normally distributed for all individuals and all time period. The model is appropriate to use if forcing on a specific part of the population, such as a specified set of companies, in this case, European companies.

Unlike with the fixed effects model, in the random effects model, the variation across entities μ_i is random and uncorrelated with the independent or predictor variables of the model (Green, 2009, 183):

$$y_{it} = \alpha + X'_{it}\,\beta + \mu_i + \varepsilon_{it} \tag{4}$$

The benefits of using the random effects model over the fixed effects model includes it taking into consideration both within and between variance of the entities and it can be used with variables that stay constant over time (for example category variables such as industries).

To test whether fixed or random effects model should be used, a Hausman test is used. It tests whether the error components μ_i are correlated with the regressors, with the null hypothesis being that they are not. If the null hypothesis is accepted both of the fixed and random effects models' estimators are consistant and can be used. If the null hypothesis is rejected, the random effects model's estimator is biased and the fixed effects model is the correct estimation procedure to be used. In this study, only the fixed effects results are presented in that case.

3.2.2 Models

To be able to use the statistical regression models explored in the previous subsection underlying econometric models need to be constructed. These models are constructed based on the research question of the CSR/CFP relationship and its possible bidirectional causality. The first model studies whether CSR affects financial performance:

$$CFP_{it} = \alpha + \beta_1 CSR_{it-1} + \beta_2 SIZE_{it-1} + \varepsilon_{it} \quad (5)$$

where,

CFP_{it} is the dependent variable *ROA* or *ROE;*

α is the intercept;

CSR_{it-1} is the lagged independent CSR variable *CSR Aggregate*, *CSR Community*, *CSR Employees*, *CSR Environment,* or *CSR Governance*;

$SIZE_{it-1}$ is the lagged control variable *Total assets;* and

ε_{it} is the error term.

The second model tests for reverse causality, how corporate financial performance affects CSR:

$$CSR_{it} = \alpha + \beta_1 CFP_{it-1} + \beta_2 SIZE_{it-1} + \varepsilon_{it} \quad (6)$$

where,

CSR_{it} is the dependent CSR variable *CSR Aggregate*, *CSR Community*, *CSR Employees*, *CSR Environment,* or *CSR Governance*;

α is the intercept;

CFP_{it-1} is the lagged independent variable *ROA* or *ROE;*

$SIZE_{it-1}$ is the lagged control variable *Total assets;* and

ε_{it} is the error term.

Both of the models (Formulas 5 and 6) are repeated for all of the CSR measures (aggregate and category variables) and for both of the CFP variables (*ROA* and *ROE*). By using both of the models we can determine if there is a one-way or a bidirectional relationship between CSR and CFP. As is visible from the Formulas (5 and 6), the independent variables are lagged in both of the models to incorporate feedback over time. The lag length in this case is one year.

4 RESULTS

In this chapter, the results of the study are introduced. First, the empirical results of Model 1 are presented in the first section followed by the results of Model 2 in the final section of this chapter. All of the regression models are run by using SAS Enterprise Guide. The regression models are run for each dependent and independent variable separately with the control variable being the only variable that is constantly in all of the regression models. As mentioned in the previous chapter, the independent variables are lagged in all of the models and as such also in the results presented in this chapter, for both fixed effects and random effects models.

When applicable, the random effects results are shown after the fixed effects results. This is determined by the Hausman Test value shown in the result tables. It represents the p-value of rejecting or accepting the null hypothesis that determines if the random effects model's estimator is biased, as explained in the previous chapter. The value after the Hausman Test is the F test for no fixed effects, which reports the p-value, that determines whether or not the companies are statistically significant in their fixed effects.

4.1 CSR's effect on CFP

This section presents the fixed effects results of the first econometric model, which formed the equation for CSR having an effect on corporate financial performance. In this section, first, the results with the CFP variable *ROA* are presented followed by the second CFP variable *ROE*. The empirical results are seen in Table 4 for *ROA* and Table 6 for *ROE*.

Table 4. Fixed effects results for CSR's effect on *ROA*.

	ROA				
	(1)	(2)	(3)	(4)	(5)
CSR Aggregate (lagged)	-0,0754** (-2,21)				
CSR Community (lagged)		-0,0456 (-1,63)			
CSR Environment (lagged)			-0,0516** (-2,11)		
CSR Employees (lagged)				-0,0294 (-1,23)	
CSR Governance (lagged)					-0,0503 (-1,55)
Total assets (lagged)	-1,7069*** (-2,87)	-1,8694*** (-3,18)	-1,8136*** (-3,09)	-1,8418*** (-3,08)	-1,8820*** (-3,22)
Hausman Test	0,1780	0,0965	0,0706	0,1247	0,0929
F test for no fixed effects	<,0001	<,0001	<,0001	<,0001	<,0001
N, per year	345	345	345	345	345
R^2	64,4 %	64,5 %	64,4 %	64,4 %	64,3 %

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

In Table 4, Model 1's results are presented regarding the CFP variable *ROA*. *CSR Aggregate (lagged)* and *CSR Environment (lagged)* variables are the only variables with a statistically significant effect on *ROA*, the effect being negative. In all of the fixed effects models of *ROA*, *Total assets (lagged)* as a control variable is statistically significant and appears to have a negative relationship with *ROA*.

As for the results, for which random effects method could be used according to the Hausman Test the results are as shown in Table 5. Because the Hausman Test results are considered with 10 % significance level, regarding *ROA* the models in question are the ones with *CSR Aggregate (lagged)* and *CSR Employees (lagged)* variables. The F test for no fixed effects is <,0001 in all of the models which means that the companies are statistically significant in their fixed effects.

Table 5. Random effects results for CSR's effect on *ROA*.

	ROA	
	(1)	(2)
CSR Aggregate (lagged)	-0,0876*** (-2,96)	
CSR Employees (lagged)		-0,0411* (-1,94)
Total assets (lagged)	-0,6445*** (-4,02)	-0,6713*** (-4,15)

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

The findings of the fixed effects models regarding the CSR's effect on *ROA* are confirmed with the random effects models in Table 5. The only unique result is with *CSR Employees (lagged)* having a *statistically significant* relationship with *ROA*. The relationship is negative in both the fixed and random effects models.

However, the impacts of the control variable, Total assets (lagged), to ROA seem to be smaller in the random effects results when comparing to the fixed effects results: -1,7069 vs. -0,6445 with CSR Aggregate (lagged) score as the main independent variable and -1,8418 vs. -0,6713 with CSR Employees (lagged) as the main independent variable. The relationship between the control variable and ROA is equally statistically significant in with both of the models of the random effects results.

Table 6. Fixed effects results for CSR's effect on *ROE*.

	ROE				
	(1)	(2)	(3)	(4)	(5)
CSR Aggregate (lagged)	0,0215 (0,14)				
CSR Community (lagged)		-0,0484 (-0,38)			
CSR Environment (lagged)			0,0688 (0,62)		
CSR Employees (lagged)				0,0128 (0,12)	
CSR Governance (lagged)					-0,0148 (-0,10)
Total assets (lagged)	-10,9620*** (-4,11)	-10,7085*** (-4,05)	-11,0240*** (-4,19)	-10,9010*** (-4,06)	-10,8405*** (-4,13)
Hausman test	0,0005	0,0006	0,0004	0,0006	0,0005
F test for no fixed effects	<,0001	<,0001	<,0001	<,0001	<,0001
N, per year	345	345	345	345	345
R^2	45,6 %	45,6 %	45,6 %	45,6 %	45,4 %

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

CSR's effect on *ROE* is shown in Table 6. The independent CSR variables are not statistically significant in the models. Also, the Hausman test scores do not exceed the required 10 % significance level. The control variable *Total assets (lagged)* seems to have a significant negative and large relationship with *ROE*. The companies are statistically significant in their fixed effects in all of the models (the F test for no fixed effects is <,0001).

4.2 CFP's effect on CSR

This section presents the empirical results for CFP's impact on CSR (Model 2). The second model tested for the possible reverse causality of the CSP/CFP

relationship. The fixed effects results of the Model 2 are presented for *ROA* in Table 7 and for ROE in Table 8.

Table 7. Fixed effects results for *ROA's* effect on CSR.

	CSR Aggregate	*CSR Community*	*CSR Environment*	*CSR Employees*	*CSR Governance*
	(1)	(2)	(3)	(4)	(5)
ROA (lagged)	-0,0392** (-2,36)	-0,0660*** (-3,38)	-0,0319 (-1,23)	-0,0706*** (-3,04)	0,0068 (-1,30)
Total assets (lagged)	1,8414*** (4,94)	1,8310*** (4,19)	1,9807*** (3,40)	4,1584*** (7,98)	-0,5356 (-1,30)
Hausman Test	0,0010	0,0032	0,0190	<,0001	0,0181
F test for no fixed effects	<,0001	<,0001	<,0001	<,0001	<,0001
N, per year	345	345	345	345	345
R^2	76,2 %	73,0 %	61,1 %	73,2 %	76,1 %

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

As can be seen from Table 7, *ROA* has a significant negative relationship for the scores of *CSR Aggregate*, *CSR Community,* and *CSR Employees*. The control variable *Total assets (lagged)* is statistically significant in all of the fixed effects models of Table 7, except for its effect on *CSR Governance*. The effect of the control variable is positive in the statistically significant models, which exclude the variable *CSR Governance*. The Hausman Test scores are below the determined significance level of 10 %. The F test for no fixed effects is <,0001 in all of the models, thus the companies are statistically significant in their fixed effects.

Table 8. Fixed effects results for *ROE's* effect on CSR.

	CSR Aggregate	*CSR Community*	*CSR Environment*	*CSR Employees*	*CSR Governance*
	(1)	(2)	(3)	(4)	(5)
ROE (lagged)	-0,0007 (-0,20)	0,0049 (1,15)	-0,0023 (-0,41)	-0,0006 (-0,12)	-0,0012 (-0,29)
Total assets (lagged)	1,8162*** (4,55)	1,7263*** (3,68)	1,8661*** (3,00)	4,7597*** (8,56)	-0,9246** (-2,11)
Hausman Test	0,0047	0,0148	0,1177	<,0001	0,0182
F test for no fixed effects	<,0001	<,0001	<,0001	<,0001	<,0001
N, per year	345	345	345	345	345
R^2	76,2 %	72,8 %	61,2 %	73,4 %	76,1 %

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

In Table 8, *ROE*'s effect on CSR is displayed. There does not appear to be statistically significant results for the effect on CSR variables. The control variable *Total assets (lagged)*'s effect on CSR is statistically significant in all of the models. The effect is positive with *CSR Aggregate*, *CSR Community*, *CSR Environment* and *CSR Employees* variables, and negative with the *CSR Governance* variable. The Hausman test scores exceed the required 10 % significance level for this study in the model with the *CSR Environment* variable, it being 0,1177. The F test for no fixed effects is <,0001 in all of the models which means that the companies are statistically significant in their fixed effects.

Table 9 shows the random effects results for the Model 2 with the independent variable *ROE* and the dependent variable being CSR Environment. The random effects results agree with the fixed effects results as *ROE (lagged)* is still not statistically significant and the control variable *Total assets (lagged)* is positively significant. With the random effects model, *Total assets (lagged)* seems to have a bigger effect on *CSR Environment*, than with the fixed effects model.

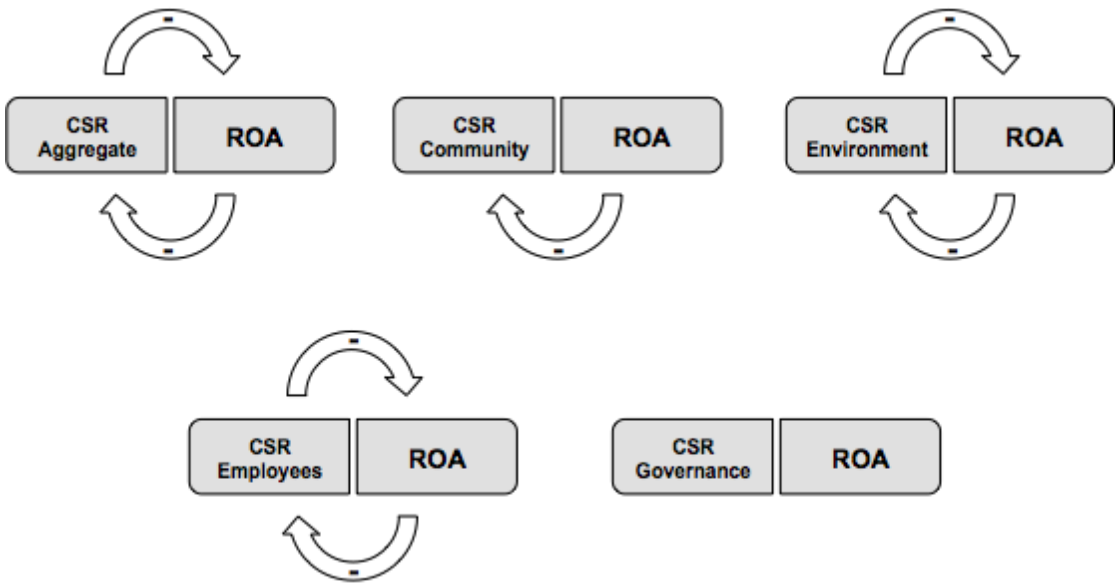
Table 9. Random effects results for *ROE's* effect on CSR.

	CSR Environment
ROE (lagged)	-0,0034 (-0,65)
Total assets (lagged)	0,6484*** (4,24)

*, **, *** statistically significant at 10 %, 5 % and 1 % level, respectively.
t Value in brackets.

To better illustrate the results of this study, Figure 4 shows the emerged CSR and *ROA* relationships visible from the results. For the relationship CSR and *ROE,* there were no statistically significant results, thus a graphical representation is not necessary.

Figure 4. The relationships between the CSR variables and ROA.



To summarize, the results show a statistically significant negative two-way relationship between *ROA* and *CSR Aggregate*, *CSR Environment* and *CSR Employees*. With *CSR Employees* the statistically significant relationship was

found only with the random effects model. The relationship with *ROA* and *CSR Community* was one-way with *ROA* negatively affecting *CSR Community*, and no relationship was found between *CSR Governance* and *ROA*.

5 CONCLUSIONS AND FUTURE RESEARCH

To conclude this study up until this point, the study examined the possible relationship between CSR and CFP (corporate financial performance). The relationship has been studied intensively since the 1970s and the majority of studies seem to find a positive relationship. CSR is a growing trend in the business world and companies have suffered in the markets for neglecting their corporate social responsibility by participating in irresponsible activities. Because of this, the topic and the discussion of the relationship is still current and active.

This study was conducted with a time period of 2009 to 2015. The study was done with a sample of 500 top European public companies and with a method of fixed and random effects models. The study used CSR categories retrieved from CSRHub (2017): Community, Employees, Environment, and Governance as well as an aggregate measure of CSR. ROA and ROE were used as measures for CFP. In the empirical analysis firm size as total assets of a company was used as a control variable, and the independent variables of the models were lagged. The relationship between CSP and CFP was hypothesized to be positive with all of the CSR categories and the aggregate measure.

5.1 Main findings and contributions of the study

According to the results of this study, CSR and CFP seem to have a mainly vicious circle type of relationship. More profitable companies invest less in socially responsible activities, and still when they do, they weaken their profitability. This relationship is consistent with the negative synergy hypothesis introduced by Preston and O'Bannon (1997). The bidirectional relationship was visible with the aggregate score of CSR and the CSR categories: Environment and Employees. The relationship was one-way with the community aspect of CSR, investing in community actions of a company seems to have a negative effect on CFP. The

study did not find a relationship between the CSR category corporate governance and financial performance of a company. The main research question was based on what kind of a relationship exists between CSR (categories) and CFP and its sub-research question was whether the relationship changes when different categories of CSR are taken into consideration.

As an answer to the research questions: some CSR/CFP bidirectional and one-way relationships were found and the ones found were negative. This goes against the hypotheses of the study, which predicted positive relationships. However, other than with the aggregate measure of CSR, the relationships with the categories were supposed from the beginning to possibly be negative or even insignificant. According to this study, companies investing in socially responsible activities might see a decrease in corporate financial performance. The finding of the CSP/CFP relationship being bidirectional agrees to past literature: the meta-study by Orlitzky et al. (2003), Waddock and Graves (1997) and also partially by Pätäri et al. (2016).

Where this study rises against the majority of the literature is with the findings of the general CSP having a *negative* bidirectional relationship with CFP. The great majority of past research since the 1970s has found the relationship between CSR and CFP to be positive. Still, researchers like Surroca et al. (2010) continue to find evidence of there not being a relationship at all, and Cardebat and Sirven (2010) find a negative relationship. Also, some newer studies have focused in their study on different categories of CSR, which also was the focus of this study, and found a negative relationship between some of the categories and corporate financial performance (Hillman and Keim, 2001; Makni et al. 2009; Schreck, 2011). Thus, even though there can be seen as being a consensus of a positive CSR/CFP relationship, it is not undisputed in literature and it seems to be a bit dated when considering the change in literature to include CSR's different categories.

With the employee and governance aspect of CSR, this study disagrees with the

findings of Hillman and Keim (2001) who combined the categories as value-adding for the companies and found the relationship to be positive. The study's finding of a relationship with the environmental aspect of CSR is in line with the studies by Mahoney and Roberts (2007) and Pätäri et al. (2016). In this study, the relationship was found to be negative, which agrees with the findings by Hillman and Keim (2001) (as part of social issue participation) and Makni et al. (2009). However, the results disagree with Schreck (2011), who found the relationship to be positive in Canadian companies.

Some of the newer studies use Granger causality in their assessment of the CSR/CFP relationship (among others Mahoney and Roberts, 2007; Pätäri et al., 2016), which only states if there is a statistically significant relationship or not. It does not make assumptions on the positive or negative nature of the relationship. When taking this into consideration, possibly the consensus of the CSR/CFP relationship should be that there is a relationship between CSR and CFP, but the studies are mixed on the nature of it. Because of this, more studies are needed to better understand that relationship and how categories affect it.

The contributions of this study include using a different CSR data set than previous studies, more specifically, a data set with ratio variables instead of dichotomous or ordinal variables. The CSR data used in most previous studies had to be modified to construct the CSR scores by subtracting the negative effects from the positive. This study used CSR data, which had available CSR scores that do not need to be constructed or modified by researchers. This enhances this study's value in comparison to the existing literature base on this topic as this study can be more adequately reproduced by future researchers. Thus, this study's results can be more easily compared to future studies that use the data from the same source, CSRHub. This is important because, in the literature of the CSR and CFP relationship, comparison of the existing studies has been found difficult due to issues in using different CSR measures and constructs among others. These issues have existed even when the studies have used CSR data

from the same source.

This study used fixed and random effects models, which give a positive or a negative relationship between independent and dependent variables compared to Granger causality models, which only show the possible existence of a relationship. As such, this study expands the existing literature base by confirming that the CSR/CFP relationship exists with different data and that a consensus still cannot yet be reached regarding the direction of the relationship and whether or not that relationship is positive or negative. This study also gave insight on the relationships between different categories of CSR, which is a rather new trend in CSR research. Also, the more current time period of this study enhances the knowledge of how the relationship appears now.

One possible reason why the study did not find any statistically significant results by using ROE could be that its standard deviation was clearly the highest of the other variables (at least three times higher), and the fixed effects model does not manage well small differences between the independent and the dependent variable. Still, a statistically significant relationship was found with the firm size control variable, and the CSP/CFP relationship with ROE was also found to be statistically significant in previous studies (Hillman and Keim, 2001; Mahoney and Roberts, 2007; Makni et al., 2009). Because of this, the problem would appear to be with the variable's properties and not with ROE as a CFP measure. Statistically significant results were not found even in the correlation analysis of ROE, even though the data analysis results were statistically significant for the rest of this study's variables. There is also the possibility that ROA and ROE, even though both measures for financial performance, have different relationships with CSR. This could be possible due to ROA basically holding ROE in its measure, as it measures the return on the whole assets, and it could be that CSR does not have a relationship with the equity part of ROA's assets.

However, because this study did find its statistically significant results with its

second CFP variable, it agrees with Pätäri et al. (2016) in suggesting that different CFP measures be used in the analyses of the CSR/CFP relationship. This study also did not find a statistically significant connection between corporate governance and the accounting-based measures of financial performance. However, the findings do not disagree with past literature, which has found the connection to be positive, but only with market-based measures of financial performance (Bauer et al., 2004; Black et al., 2006; Drobetz et al., 2004). The reason for this study's non-existent statistically significant relationship might be that there in actuality is no relationship between corporate financial performance (at least with accounting-based measures) and the Governance aspect of CSR. This can be argued as relationships were found with all of the other categories of CSR.

This study used firm size as a control variable to study the CSP/CFP relationship and while not specifically setting out to study firm size's effect on CSP or CFP, it got such findings. These findings are now presented even though they are not part of research questions' answers. Firm size was found positively and statistically significantly to affect CSR overall and the CSR categories community, environment and employees. This is consistent with the studies, which state that bigger companies invest more in socially responsible actions (Makni et al., 2009; Roberts, 1992). However, firm size had a statistically significant negative impact on corporate governance aspect of CSR. Firm size had a large statistically significant negative relationship with ROA and ROE. According to this study, firm size has a negative impact on company financial performance and a mostly positive effect on CSR.

5.2 Limitations and future research

One limitation of this study is the use of only accounting-based measures of CFP and not including market-based measures. Accounting-based measures such as

ROA and ROE have been criticized by Hillmand and Keim (2001) as being inadequate measures for this study context ultimately because it does not capture shareholder value creation, which includes among others the value of customer service and reputation. This transforms the premise for this study – focus on only financial performance – as limited, and maybe the focus should be on the overall value creation for stakeholders. In future research market-based measures such as MVA or Tobin's Q could be used to account for CFP or for shareholder value creation of the companies as done in studies by Hillman and Keim (2001), Makni et al. (2009), and Schreck (2011).

This study studied only the companies in Europe. In future research controlling for countries could be warranted as there is a possibility of company-specific differences in CSR and CFP, as it is now accepted in literature in different industries. Likewise, this study also did not consider the industry-related differences, for example, use it as a control variable. For future research, including the industry aspect could be considered. Also, company risk was not taken into this study's consideration, even though it is included as a control variable in various studies due to it being a known determinant of CFP (Fama and French, 1992, 1993; Makni et al., 2009). For future research, its effect could also be included.

This study studied a time frame of 2009 to 2015, which for all variables meant only 7 marks. This was due to financial data being mostly available on an annual basis in the database. However, quarterly data is available for most public companies, so it would be theoretically possible to gain quarterly financial data for future research. This would enhance the validity and robustness of the research. One interesting idea for future research would be to divide a time series data into two parts, the first part being before the financial crisis and the second part being after the financial crisis, like in this study. CSR can be seen as altruism, so it would be interesting to study whether the financial crisis has affected the relationship.

It would be interesting to see a study done by examining the CSR/CFP relationship with the subcategories available also from CSRHub. This could have provided valuable information on the individual affecting factors of the relationship and could better motivate companies to invest in socially responsible actions. For the motives of this study, the data collecting would have been too time-consuming, so only the broad categories were used.

As stated before, more studies are needed of the CSR/CFP relationship due to there being mixed results still, after decades of studies, and especially when considering the incomparability of the studies and the rising trend in allowing for the measure of CSR to be divided into categories. Also, the presence of new more complex CSR data (for example CSRHub used in this study) allows for more complex results to appear if continuing to study the CSR/CFP relationship. This is enhanced by CSR reporting becoming more prominent so CSR data should become more readily available from different sources and for different objectives.

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