

Radboud Univeristy

Master Thesis

The Influence of Firm Size and Sensitive Industry on
the Relationship between Corporate Social
Responsibility and Corporate Financial Performance

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Abstract

The paper is to examine whether there are significant differences in corporate financial performance between the firms implementing corporate social responsibility (hereafter: CSR) and those without CSR. Previous empirical evidence provides mixed results on the relationship between corporate social performance (hereafter: CSP) and corporate financial performance (hereafter: CFP) and shows that some factors influence this relationship. This paper is to gain insight of CSR and to discover how the factors influence the relationship between CSR and CFP. Moreover, this thesis focuses on the firm size and sensitive industry as moderators and tests whether firm size as a confounding variable that influences the CSP-CFP relationship. This research investigates 69 listed companies in Euronext Amsterdam from the period of 2005 to 2015 in the Netherlands since it intends to find a long-term effect of CSR on financial performance. Using a random effect approach, it is found that CSR negatively leads to changes in CFP. Size does not moderate the CSP-CFP relationship, but size as a confounder influences the CSP-CFP relationship. The sensitive industry does negatively moderate the CSP-CFP relationship. That is, there are more negative effects of CSR on CFP in the “more sensitive” industries than in the “less sensitive” industries. In addition, firm size and financial performance are positively related.

Keywords: corporate social responsibility (CSR), corporate social performance (CSP), corporate financial performance (CFP), sustainability, CSP-CFP relationship, sustainability report, CSR report, CSR index, firm size, industry, sensitive industry

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Chapter 1 Introduction

Tracing back to the early 1990s, the concept of sustainability has been increasingly considered into business ethics, which is so-called 'triple line reporting' (3BL). "This concept consists of three Ps: profit, planet, and people, assuming that sustainability is achieved at the point where all three dimensions are in balance" (Painter-Morland & Ten Bos, 2011,p.288). Businesses have become more eager to achieve socially responsible decisions, commonly known as corporate social responsibility (CSR). More and more investors value companies beyond their financial performance, and they look at social responsibilities of companies (Barnett & Salomon, 2006; van Beurden & Gössling, 2008). For instance, ABN AMRO appointed the head of renewable energy to engage in the sustainable energy investments (ABN AMRO, 2016). The corporate social performance seems to affect some investment decisions. Moreover, an increasing number of companies advocate to perform their business activities in a sustainable manner (Painter-Morland & Ten Bos, 2011) and use this to increase the stakeholder relationship and company's reputation. In fact, on the ING website, it says that "ING is the world's most sustainable bank according to *Sustainalytics*, a global leader in sustainability research" (ING, 2016). This in turn creates an excellent image to ING and enables it to maintain stakeholder relationship and then the financial benefit is expected to generate the business. Besides, the companies can improve their competitive advantage and create value in the long term through sustainable strategy (Adams & Zutshi, 2004; King, 2002; López, Garcia, & Rodriguez, 2007; Campbell, 2007; (Painter-Morland & Ten Bos, 2011). Indeed, the *2016 United Nations Global Compact-Accenture Strategy CEO Study* shows that "80% of CEOs say that demonstrating a purpose-driven commitment to sustainability is already a differentiator in their industry" (Accenture, 2016). It indicates that corporate social responsibility has already been used as a competitive business strategy in a firm and differentiates a firm from its competitors. In turn, corporate financial performance is affected by CSR.

On the other side, adopting the CSR principles involves costs. For instance, companies may need to purchase new environmentally friendly equipment, reallocate company's activity, implement stricter quality control, or even change the production process (Tsoutsoura, 2004). These costs can be short-term or long-term costs. In contrast, it may save financial costs by the energy reduction and material usage when

a company moves its activities in an eco-friendly way (Peloza & Shang, 2011). Therefore, these costs and benefits of CSR should be carefully considered. As is known, the companies cannot continue a policy that generates negative returns (Tsoutsoura, 2004). The shareholders expect to gain financial returns from their investments in a company. Therefore, companies should be able to achieve bottom-line benefits to continue performing socially responsible activities; furthermore, it draws my attention on discovering the motivations behind CSR and whether corporate social performance can bring financial profits to the business (Bragdon, J., & Marlin, 1972; Callan & Thomas, 2009).

This paper contributes to the literature in a few ways. First of all, although previous research has done quite comprehensive research on the topic of CSP-CFP relationship, additional analysis is warranted. The causal relationship between CSP and CFP relationship has been researched in previous empirical studies, but this linkage is still unclear, and different authors draw different conclusions about this relationship (Waddock & Graves, 1997) due to measurement differences in the definitions of CSR and financial performance and different methodologies in testing the CSP- CFP relationship (Cochran & Wood, 1984; Wood, 1991; Griffin & Mahon, 1997). Hence, the researchers are unable to generalize their study results; this is a major problem within the field (Van Beurden & Gössling, 2008). Then, this thesis tries to overcome the measurement problems and improve the approach to testing this relationship.

Secondly, some factors might influence the CSP-CFP relationship and this might explain why earlier research has found the inconsistent results. This thesis attempts to improve the past research by investigating the firm size and sensitive industry as moderating factors in the CSP-CFP relationship that has not been examined in the previous studies. It is worthy to mention that industry is divided into two categories in this thesis: “more sensitive” industries and “less sensitive” industries. In the other research, they see industry as a control variable or confounding variable. However, this research sees the sensitive industry as a moderator. No research has done that before so that this thesis can contribute to existing literature by adding whether sensitive industry moderates the CSP-CFP relationship or not.

Thirdly, the existing empirical research is dated, so it may not explain today's practice. This thesis uses current financial data (the period of 2005 to 2015) and social performance indicator to provide an updated assessment of CSP-CFP relationship.

Finally, the paper can fill in the empirical research gap on CSR and firm performance by adding to a growing area of research Dutch listed companies. Most empirical data are based on the large U.S firms in the previous literature on the topic of CSR. They mainly focus on Anglo-American countries (US and UK). Moreover, lots of research on CSR have been conducted in the common law English-speaking countries, the U.S, the UK, Australia, and Canada; thus, research on CSR in Continental Europe is still relatively rare (Reverte, 2009). Then evidence from other institutional settings is needed. Besides, country factors may explain the inconsistent results on the relationship between CSR and financial performance (Reddy & Gordon, 2010). To a great U.S corporations, a positive association between CSR and CFP is found in empirical research (Preston & O'bannon, 1997). However, Murray et al. (2006) find no relationship within the UK context. Therefore, the results for the U.S corporations may not apply to the other country context. Moreover, Anglo-American countries and continental European countries use different legal systems. The former uses Anglo-American Law and the latter uses Continental Law. The Dutch civil law also has its characteristics. Therefore, more research on one particular country is needed, considering that reporting practices may differ across countries and regions and cultural and social norms or governmental regulations are different among countries (Sotorrió & Sánchez, 2010; Golob & Bartlett, 2007; Hahn & Kühnen, 2013). This thesis, therefore, extends earlier research on American and UK studies by utilizing data on the publicly held Dutch firms.

The research questions are answered in this paper. Firstly, the research is to examine whether there are significant differences in corporate financial performance between the Dutch listed firms published CSR sustainability report and those without publishing CSR sustainability report in Euronext Amsterdam Indices in the period 2005 -2015. Secondly, this research focuses on the firm size and sensitive industry as moderators and tests whether firm size as a confounder in the CSP-CFP relationship. The research question is below:

Do firm size and sensitive industry influence the relationship between corporate social responsibility and corporate financial performance in the Dutch listed firms?

This research investigates 69 listed companies in Euronext Amsterdam from the period of 2005 to 2015 in the Netherlands since it intends to find a long term effect of CSR on financial performance. The data is drawn from nine industries: customer goods, industrials, basic materials, oil and gas, customer services, financials, technology, health care, and telecommunications. However, the first four industries are treated as “more sensitive” industries; the rests are “less sensitive” industries. This thesis aims to find out whether sensitive industry moderates the CSP-CFP relationship. Quantitative research is used for analyzing the CSP-CFP relationship. Using a random effect approach, it is found that CSR negatively leads to changes in corporate financial performance. Size does not moderate the relationship between CSR and financial performance, but size as a confounder causes the CSP-CFP relationship. The sensitive industry does negatively moderate the CSP-CFP relationship. That is, there are more adverse effects of CSR on financial performance in the “more sensitive” industry than in the “less sensitive” industry. However, this is not significant in all specifications. The caution of interpretation of the result is needed.

This paper consists of seven chapters. The following chapter introduces literature review and builds the hypotheses. Chapter 3 contains research method and data analysis. The results are presented in chapter 4. Chapter 5 is the discussion. The chapter 6 is the conclusion. The final chapter presents the limitation of this research and suggests possible studies in the future.

Chapter 2 Literature review and hypotheses

2.1 Introduction

The literature review consists of six sections. The following parts discuss multiple theories such as shareholder, stakeholder, slack resource, and legitimacy theory in the CSP-CFP relationship. The empirical evidence of the CSP-CFP relationship is also presented. Size and sensitive industry as moderators and size as a confounder in the CSP-CFP relationship are also discussed. The hypotheses are built on the literature review. The final section concludes with a summary of this chapter.

2.2 Definition of CSR

Corporate social responsibility is a contestable topic. There is no precise definition of CSR. The definition of CSR is interpreted in many different ways by different researchers. The most often cited definition is Carroll's (1979) statement, "the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (p. 500; also see Montiel, 2008; Van Beurden & Gössling, 2008; Deegan & Blomquist, 2006; O'Donovan, 2002). "Sustainability reporting presents the organization's values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable economy" (GRI, 2016). CSP is fundamentally related to management performance, and stakeholder relations are the key elements in CSP (Waddock & Graves, 1997). This thesis sees CSR as a platform for companies or organizations to communicate their economic, social, and environmental performance with their stakeholders. As is seen, CSR has multiple dimensions that measure organizational behavior across different aspects. The academic research uses some common phrases to refer to sustainability and to discuss the topic related to social, ethical and environmental responsibility. These terms are the corporate social responsibility (CSR), corporate sustainability (CS), corporate social performance (CSP), corporate citizenship, business ethics, and sustainable entrepreneurship (Van Marrewijk, 2003; Reddy & Gordon, 2010). In many situations, these terms have been used interchangeably, because they share the same vision that intends to find a balance among economic, social, and environmental responsibilities (Van Marrewijk, 2003; Reddy & Gordon, 2010). Thus, this thesis uses CSR and CSP to represent corporate social responsibility.

2.3 A multi-theoretical framework for the CSP-CFP relationship

The research on whether business ethics can bring financial interest to the companies often refers to the views of Friedman (1970) and Freeman (1994) in the literature (Van Beurden & Gössling, 2008). A traditional view of looking at a company's goal is to use its resources and engage in activities to increase its profits without fraud or deception that is the only one social responsibility of the company (Friedman, 1970). The so-called shareholder theory is still widely accepted today (Carter et al., 2000; Chand, 2006; Frooman, 1997; Pava & Krausz, 1996; Van Beurden & Gössling, 2008). The concept implies that companies would adopt CSR practices if CSR can generate financial performance for them. If there were no benefit for companies to gain, the companies would not implement CSR because the primary goal of businesses is to pursue economic interests assumed in the shareholder theory. In reality, companies may not invest in CSR activity because they see CSR as a cost and it undermines the financial performance. Therefore, the CSP-CFP relationship is assumed to be negative according to Friedman's point of view. Some studies indeed have found a negative relationship between CSP and CFP (Ingram & Frazier, 1983; Freedman & Jaggi, 1982; Stanwick & Stanwick, 1998). López et al. (2007) examine whether business performance is affected by the adoption of corporate social responsibility practices between the firms listed in the Dow Jones Sustainability Index (DJSI) and the firms without listed in DJSI from 1998 to 2004. The result shows that the adoption of sustainability practices has a negative impact on performance indicators in the short term (López et al., 2007).

On the other hand, Freeman (1984) proposes a stakeholder theory. Firms should understand stakeholders' needs to enact corporate objectives for its long-term survival (Painter-Morland & Ten Bos, 2011). Companies should not focus on maximizing the profit for their shareholders but should consider other stakeholders' interest, such as employees, consumers, community, NGOs and so on. This theory leads the direction to social awareness and gives an emphasis on building a harmonious relationship between business and society (Painter-Morland & Ten Bos, 2011). Moreover, this theory suggests a positive correlation between CSR and financial performance in the long run (Clarkson, 1995; Cornell & Shapiro, 1987; Orlitzky, Schmidt, & Rynes, 2003; Waddock & Graves, 1997). In fact, the stakeholders are interested in firms behaved socially responsible and engaged in environmentally friendly initiatives and

investment. CSR practice focuses on maintaining stakeholder relationship. For instance, consumers may be more willing to buying products from the firms that perform in a socially responsible way. Hence, a positive link between CSR and financial performance seems to exist. Donaldson & Preston (1995) suggest that stakeholder theory has three dimensions: descriptive, instrumental, and normative. The descriptive dimension suggests that the firm interacts with potentially collaborative, competitive interests. In particular, the instrumental dimension indicates that the practice of stakeholder management can be beneficial to conventional performance, i.e. profitability, stability, and growth. It implies that good stakeholder relationship may positively influence corporate financial performance. The third one is the normative dimension. It seems that the firm needs to consider a wide range of interests beyond the shareholders or contractually engaged parties (Painter-Morland & Ten Bos, 2011). Based on stakeholder theory, a positive relationship between CSR and CFP is assumed in this thesis.

Slack resource theory and good management theory have been used in past research in explaining the CSP-CFP relationship (Waddock & Graves, 1997). Some researchers propose that “virtuous circle” is often referred to describe a situation about “doing good” socially leading to “doing well” financially (good management theory); and whether firms with high financial performance engage in more socially responsible activities (slack resource theory) (Nelling & Webb, 2009; McGuire, Sundgren, & Schneeweis, 1988; Ullman, 1985; Waddock & Graves, 1997). It shows that CSR leads to an increase of financial performance and vice versa (Waddock & Graves, 1997; Hillman and Keim, 2001; Nelling and Webb, 2008), indicating that the bidirectional causality between CSP and CFP is theoretically possible and empirically supported (Waddock & Graves, 1997; Orlitzky, 2001). Orlitzky et al. (2003) argue that the slack resource theory suggests that financial performance is a predictor of CSR and there is a positive relationship between them. Then firms with high financial performance have more resource available within the firms so that they have more possibility to invest in CSR practice (Ullmann, 1985; Waddock & Graves, 1997; Orlitzky et al., 2003; McGuire et al., 1988). “McGuire et al. (1988), following Ullmann (1985), prove that firms with high performance and low risks may have the affordability to act responsibly in the empirical study” (Pava & Krausz, 1996, p. 322). Stanwick & Stanwick (1998) empirically found that the profitability of firms allows

or encourages managers to increase the level of CSR practice. On the other hand, good management theory suggests that good management practice is highly related to CSP in that good management can improve stakeholder relationships and managers seek a better way to satisfy the stakeholders to improve competitive advantage through CSR practice (Fauzi & Idris, 2010). However, CFP influencing CSR is not tested in this thesis because the goal of this thesis is to test CSR predicting CFP. It assumes that firms with good ethics or a high level of CSR may attract more capital investments from investors, receive more purchases from customers, or encourage employees to be more motivated of working in the firms, then financial performance is increased (Nelling & Webb, 2009).

When it comes to previous empirical research, mixed results are found on the CSP-CFP relationship (Makni, Francoeur, & Bellavance, 2008; McWilliams & Siegel, 2000; Orlitzky et al., 2003; Waddock & Graves, 1997; Pava & Krausz, 1996; Anderson & Frankle, 1980; Ingram & Frazier, 1983; McGuire et al., 1988; Stanwick & Stanwick, 1998). A positive association has been found in previous studies (Anderson & Frankle, 1980; Belkaoui, 1976; Clarkson, 1995; Cornell & Shapiro, 1987; (Donaldson & Preston, 1995; Freeman, 1984). Bruyn (1987) believes a positive association between CSR and financial performance and “social and economic values can be maximized together, and this creative synergism is the practical direction taken by social investors today” (p. 12). Bragdon et al. (1972) state that corporate social responsiveness is related to some aspects that benefit the long-term financial performance, such as pollution abatement, product safety, advertising messages, the role of women and minorities in the firm (Pava & Krausz, 1996). Waddock & Graves, (1997) found that CSP is positively associated with previous financial performance (Slack resource theory) and with future financial performance (good management theory). It suggests that the time lag between CSR and financial performance should be considered in the empirical research. The time lag is also considered in this thesis.

CSR is seen as a sign of management style across the entire organization; therefore, financial performance is increased (Bowman & Haire, 1975; Pava & Krausz, 1996). It implies that CSR may have no direct influence on CFP, but it is as a way to improve the management of the company. Therefore, researchers may not find any significant evidence on the CSP-CFP relationship in the empirical research. In the previous

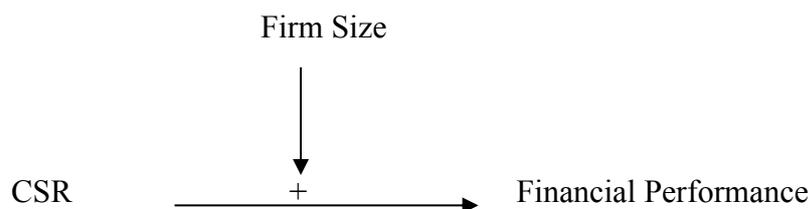
empirical studies, the researchers have not found any relation between CSR and financial performance (Seifert et al., 2003; Balabanis et al., 1998; Van Beurden & Gössling, 2008). Balabanis et al. (1998) found no significant relationship between CSR and financial performance within a UK context, but they did find that size has a significant effect on both CSP and CFP as a control variable. “Control variables are the variable controlled for study and are potential confounding variables. Confounding variables are defined as variables that influencing the CSR-CFP relationship. Moderator variables are potential confounding variables.” (Van Beurden & Gössling, 2008, p.412). Confounding variable as a third variable that influences both independent and dependent variable. The presence of confounding effect leads to a spurious association between CSR and CFP. Therefore, a direct relationship between CSR and CFP may not exist because some factors influence this relationship.

2.4 Size

The past research suggests that firm size and industry may affect the CSP-CFP relationship (Pava & Krausz, 1996). Arlow & Gannon (1982) suggest that CSR might associate with the factors, such as industry and organizational size (Pava & Krausz, 1996). Van Beurden & Gössling (2008) did a literature review using meta-analysis on the relation between corporate social and financial performance. The results indicate that most existing studies found a positive relationship between CSP and CFP. Moreover, size and industry are identified as a confounding variable in the CSP-CFP relationship. Orlizky (2001) has researched on size confounding the CSP-CFP relationship in meta-analysis, and the result is that firm size does not cause both high CSP and high CFP as a third variable, but when firm size is controlled, the CSP-CFP relationship is positive. Furthermore, it suggests the importance of discovering firm size as a moderator of the CSP-CFP relationship (Orlizky, 2001). The following parts discuss how firm size as a moderator or a confounder that affects the CSP-CFP relationship.

Good management theory suggests firms doing well by doing good supported by empirical research (McGuire *et al.*, 1988; Waddock & Graves, 1997; Fauzi and Idris, 2010). Thus, CSR could be a predictor of financial performance. Stakeholder relationship gets stronger in companies investing more in CSR (Freeman, 1984); as a result, overall performance is gained (Waddock & Graves, 1997). Additionally, high

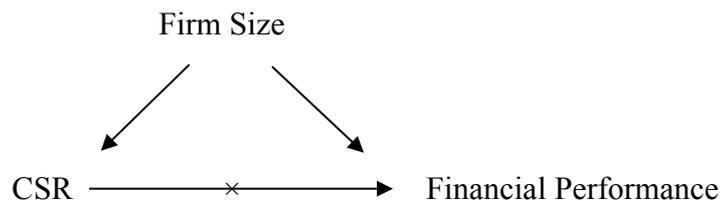
CSR reputation ratings facilitate corporate access to capital because bankers and investors might be more willing to investing in the firms performed in a more responsible way (Spicer, 1978; Orlitzky et al., 2003). Moreover, CSR can enable the companies to build their competitive advantage because CSR aims to build lasting and productive relationships with the stakeholders and improve business reputation, in this way, financial performance is increased (Lopez et al., 2007; Pohle & Hittner, 2008). Additionally, the good employee, government, community relations, and environmental awareness may lead to increasing sales and reducing stakeholder management costs. Since larger firms are more publically visible and more publically sensitive than smaller firms (Watts & Zimmerman, 1978; Mohd Ghazali, 2007), the benefit from good reputation has more influence in larger firms than that in small companies. Based on legitimacy theory, larger companies are more exposed to the public supervision and are under more pressure from the stakeholders' group such as government than smaller companies (Cowen et al., 1987; Brammer & Pavelin, 2008; Siregar & Bachtiar, 2010). Therefore, they are more motivated to invest money in CSR adoption and voluntarily disclose information on CSR report to meet stakeholders' satisfaction than small firms. Therefore, firm size seems to moderate the CSP-CFP relationship, which means that the CSP-CFP relationship is stronger for larger businesses and less stronger or no existence for smaller firms. Based on the arguments above, the conceptual model and hypotheses are shown below:



Hypothesis 1: the effect of CSR on corporate financial performance increases in larger firms.

However, another argument is that there is no relation between CSR and CFP; in fact firm size causes the association between CSR and CFP because firm size is associated with both CSP and CFP. Firm size is likely to relate to CSR and this might be the reason why the companies adopt CSR. “Fry & Hock (1976) discover that firm size can explain differences in external visibility and availability of slack resources” (Ullmann, 1985, p.554). Larger firms are more committed to preform CSR (Stanwick & Stanwick, 1998) because they have additional resources to invest in CSR programs

than smaller firms. However, small firms have little availability to engage in social activities since they have to firstly survive in the business world by keeping their financial performance growing (Orlitzky, 2001); therefore, economic demand is the basic demand beyond legal, ethical, and philanthropic responsibilities in the business (Carroll, 1979). Unless the economic demand is reached, companies will consider other responsibilities. It becomes more clearly that whether or not companies undertake costly program, such as CSR engagement, depends on the companies' financial capability, that is, financial performance, indicating that firms that are larger in size have the more financial ability to invest in CSR. Moreover, firm size to some extent determines corporate financial performance. The bigger firms, the higher financial performance is, because "firm size may lead to net economies of scale in manufacture of a firm (Thompson, 1967), greater control over external stakeholders and resources (Aldrich & Pfeffer, 1976; Salancik & Pfeffer, 1978), and increased promotional opportunities to attract and retain better employees (Mueller, 1969; Stanford, 1980; Williamson, 1975)" (Orlitzky, 2001, p.169). Based on the arguments above, it seems that size is related to both CSP and CFP. Firm size as a confounding variable causes the association between CSR and financial performance. In fact, there is no real causal relationship between CSP and CFP, yet CSP and CFP are related because of firm size. Thus, the conceptual model and hypotheses are formulated below:



The X means this is a false relationship.

Hypothesis 2: there is no relation between CSR and CFP when firm size is controlled.

2.5 Industry

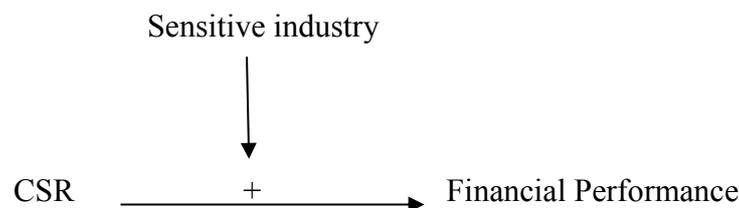
CSR activities vary across companies, industries, and time (Reverte, 2009). Previous research has used legitimacy theory in analyzing the association between CSR and financial performance. Legitimacy theory can explain the reasons why companies in the specific industries engage in CSR (Reverte, 2009; Searcy & Elkhawas, 2012). Legitimacy theory illustrates a link between the business and society. Creating the harmony between companies and society is stated in legitimacy theory because

companies will lose their licenses to operate in society if they break the social norms and expectations (Faisal et al., 2012). The approval by society will assure companies' survival in the long term (Campbell et al., 2003; Deegan, 2013; Deegan & Gordon, 1996; Deephouse, 1996; Guthrie & Parker, 1989; Patten, 2002). Industry can influence the CSP-CFP relationship. Other potential moderators, such as industry-level effect (amount of industry regulation) should be explored empirically (Orlizky, 2001). Indeed, some industries, such as forest or chemical industry, have certain regulations and rules to follow to operate business activities. In doing so, the companies choose to disclose information in their annual reports voluntarily and use CSR as a strategy to manage their legitimacy (Campbell, 2000; Deegan & Rankin, 1996; Nasi et al., 1997; Reverte, 2009). Moreover, CSR is used as a way to improve companies' public image and reputation (Hooghiemstra, 2000; Mohd Ghazali, 2007; Fombrun & Shanley, 1990). Indeed, Fry and Hock (1976) discover that companies in industries with the worst public image have an emphasis on disclosing CSR information as a response to the public. Companies with adverse impact on environment report more information in the disclosure than the others (Reverte, 2009). The empirical research finds that companies in high profile industry disclose more information in CSR reports than low profile industry (Faisal et al., 2012) because high profile industries have stronger effects on their communities and they have a bigger group of stakeholders to satisfy (Adams et al. 1998; Hackston & Milne, 1996; Haniffa & Cooke, 2005; Reverte 2009; Faisal et al., 2012). Thus, stakeholder management can affect corporate financial performance (Donaldson and Preston, 1995). On the other hand, the activities have the perceptions of higher risk in the "more sensitive" industries, so the danger of being criticized in corporate social responsibility matters is higher (Reverte, 2009; Faisal et al., 2012). In this way, if CSR causes negative reputation to the company, their financial performance might also be affected. Then, the influence of CSR on financial performance in high profile industries is likely to be stronger than that in low profile industry. Moreover, Bragdon et al. (1972) argued about the link between pollution control and financial performance. Pollution control is one of the aspects of CSR. Whether high levels of pollution control cause high profits is in the discussion, because they believe that good management might lead to high profits and at the same time they pay more attention to the environment. Indeed, they found that in the steel industry, companies changed to the new technology are outperformed than those that do not alter. It

confirmed that lower costs are associated with better pollution control (Pave and Krausz, 1996). In this case, sensitive industry's financial performance benefit from CSR. The sensitive industry seems to change the effect of CSR on financial performance. This paper therefore tests whether the sensitive industry is moderator factor that has not been examined in the literature. On the other hand, Russo & Fouts (1997) investigated the relation between environmental performance and economic performance. This link strengthens in higher-growth industries. Hence, industry growth is seen as a moderator in this relationship (Van Beurden & Gössling, 2008). The arguments above show that industry is a crucial factor to be considered in the research of the CSP-CFP relationship.

Different authors have different ways to categorize industries. The industries are divided into two groups. "The first group is "more sensitive" including mining, oil and gas, chemicals, forestry and paper, steel and other metals, electricity, gas distribution and water industry; the second group is "less sensitive" including all the other industries" (Reverte, 2009, p.358). It is found that the more environmental sensitive industries have higher degree of disclosure activism. Mani & Wheeler (1998) define these five sectors as dirty industries in their analysis: "iron and steel, nonferrous metals, industrial chemicals, pulp and paper, and nonmetallic mineral products" (p.220); "five cleanest sectors: textiles, nonelectrical machinery, electrical machinery, transport equipment, and instruments, by using the pollution-intensity rankings" (p. 221). In addition, Branco and Rodrigues (2008) distinguished industries in other two groups, one is "consumer proximity" industry; the other is "environmental sensitivity" industry, which is different from Reverte (2009) (Giannarakis, 2014). In general, more sensitive industries and sectors are mining, oil, and chemical industries, energy sector, and consumer goods sector because they use the huge amount of resources, such as metals, power generation, water, paper and pulp. Thus they have a high impact on environment and face health and safety issues (Bowen, 2000; Hoffman, 1999; Morris, 1997; Reverte, 2009). Therefore, the voluntarily disclosing information can be seen more in these areas (Clarke & Gibson-Sweet, 1999; Jenkins & Yakovleva, 2006; Line et al., 2002; Ness & Mirza, 1991; Reverte, 2009). This thesis assumes that the "more sensitive" industries engage in more CSR; therefore, the influence of CSR on their financial performance is bigger for them than for non-sensitive industries. The category of industries by Reverte

(2009) is used in this paper because it is clearly shown which industries have the higher risk of environmental impact that is part of the CSR aspects. Moreover, “consumer goods industry” is included in the “most sensitive industry” category because this sector uses the huge amount of resources and is strongly affected by the customers and the other stakeholders. Hence, the conceptual model and hypotheses are formulated below:



Hypothesis 3: the effect of CSP on financial performance increases in the “more sensitive” industries (mining, oil, and chemical industries, energy sector, and consumer goods sector).

2.6 Summary

Based on the shareholder, stakeholder, slack resource, and legitimacy theory, the relationship between CSR and firm financial performance can be positive, negative, or neutral. Most of earlier empirical research find a positive relationship. The size of an organization and the sensitive industry seem to moderate this relationship. Moreover, firm size can be a confounding variable in this relationship. Therefore, firm size is identified as a confounding or moderating factor, and sensitive industry is identified as a moderating factor that affects the CSR-CFP relationship in this paper.

Chapter 3 Research method and data analysis

3.1 Introduction

This section presents the sample data (selection criteria), various measurement used for the dependent and independent variables in the previous literature. Moreover, the empirical models, methods, and descriptive data are presented.

3.2 Sample

The Netherlands as a sample country is the best choice for this research because my research can fill in the empirical research gap on CSR and firm performance by adding to a growing area of research in Dutch listed firms. The reasons have been discussed in detail in chapter 1. The year of 2005-2015 data was gathered because this paper intends to find a long term effect of CSR on financial performance and provides the most updated assessment of the moderator effects of firm size and sensitive industry on CSP- CFP relationship by selecting this period.

The following criteria is used for selecting a sample of firms in the period 2005 – 2015:

1. The firm was listed in Euronext Amsterdam Indices (AEX index (25 firms), AMX index (25 firms), and AScX index (25 firms)), the market is in the Netherlands, the currency is Euro; and
2. The historical financial information was available for the firm in *Datastream*.

These criteria resulted in the selection of AEX index (24 firms), the AMX index (24 firms), and the AScX index (22 firms). In total, 69 firms were selected.

3.3 Variables and measurement

There are various approaches to measuring a dependent variable of corporate financial performance, independent variables of CSR, firm size, sensitive industry, and a control variable of leverage. Different measures are discussed below.

Financial performance

There are two ways to measure financial performance. One is market-based measure (investor returns), such as price per share or share price appreciation (Orlitzky et al., 2003). The other is accounting-based measure, such as return on assets (ROA), return on equity (ROE), or earnings per share (EPS) (Cochran & Wood, 1984). Accounting

returns reflect more internal decision making, policy choices, and allocations of funds in companies rather than external market responses to the companies (Orlitzky et al., 2003). Although market-based measures represent shareholders' wealth it could be influenced by microeconomic factors, such as speculation (Lopez et al, 2007) or stock market performance (either bear or bull market) (Cochran & Wood, 1984), unexpected changes in information (McGuire et al., 1988). It has some troubles with the adjustment for risk of the returns of the firms. With or without adjustment for risk causes different results. Moskowitz (1972) and Vance (1975) gathered the positive and negative relationship respectively based on the same sample firms because they did not adjust for risk. Alexander & Buchholz (1978) used the firms suggested by Moskowitz and did adjust for risk, yet they found little relationship between CSR and market performance (Cochran and Wood, 1984; McGuire et al., 1988). As is seen, different results are gathered if different measures are used. Besides, market-based measures focus on the market reaction on a short-term basis, a maximum period of 24 months' performance (Ullmann, 1985). However, accounting measures focus on medium to long-term economic performance (Ullmann, 1985). Studies using accounting-based measures have a stronger relationship between CSR and financial performance than market-based measures (Orlitzky et al., 2003); Wu, 2006). Moreover, it is often found a positive result (McGuire et al, 1988). Overall, accounting measures proved to be a better indicator for testing this relationship than market measures (Van Beurden & Gössling, 2008; McGuire et al., 1988). Indeed, when the accounting measure is used, the difference in risk should be controlled (McGuire et al., 1988). In this thesis, the risk is controlled and measured as debt ratio.

This paper is to discover the effect of CSR on long-term financial performance, so accounting measures are more appropriate in this research. It also shows what is actual happening in the firm (Lopez et al, 2007) and internal efficiency influenced by CSR (Van Beurden & Gössling, 2008). The corporate performance can be measured by the growth, return, profitability and cash flows of the companies (Lopez et al., 2007; Ameer & Othman, 2011). These variables are sales (revenue), growth (SG), return on assets (ROA), profit before tax (PBT), and cash flows from operating activities (CFO). Except for sales growth, the other variables are included in this thesis in that sales growth does not relate to CSR. Implementing CSR cannot increase the sales immediately.

CSR

There are some approaches to testing CSR. Firstly, the firm's corporate reputation can be used for measuring CSR. Studies proved the *Fortune* Corporate Reputation Index's validity that is used as a proxy measurement of CSR (McGuire et al., 1988; Fombrun and Shanley, 1990; Thomas & Simerly, 1994; Stanwick & Stanwick, 1998; Cochran & Wood 1984). Secondly, content analysis is to measure the extent of CSR reporting and activities in various firm publications especially in the firm's annual report (Bowman & Haire, 1975; Abbott & Monsen, 1979; Preston, 1978; Cochran and Wood, 1984; Anderson & Frankel, 1986; McGuire et al., 1988). For example, it can check whether a particular item (e.g. pollution control) is discussed either qualitatively or quantitatively (Cochran and Wood, 1984). However, this method is often used in the research of determinants of CSR disclosure. The above two measures are used in this thesis in that they are not relevant to the research question of this thesis. Thirdly, the sustainability index is a benchmark to determine the credibility of investments in firms that employ corporate sustainability criteria and this index can be a good indicator of the companies' CSR performance (Searcy & Elkhawas, 2012). Whether the firm is listed in certain sustainability index can be used as a proxy (e.g. Dow Jones Sustainability Index (DJSI), the FTSE4Good, and the MSCI ESG (Environmental, Social, and Governance) Index (formerly known as the KLD and Domini 400 Social Index) (McWilliams & Siegel, 2000; Tsoutsoura, 2004; Lopez et al, 2007). Another is to see whether a company publishes a CSR report (a separate sustainability report or a section of its annual report on sustainability). These two measures are selected in this thesis because it fits the purpose of thesis – to discover whether there are significant in corporate financial performance between the firms published CSR sustainability reports or listed in a particular sustainability index and those without it. The CSR sustainability report and CSR sustainability index are therefore used as dummy variables in this thesis (the value of 1 if a firm published a CSR report/ listed in CSR index; otherwise the value is 0). It allows me to compare the difference in financial performance between the company with CSR and without it.

Firm size

Orlitzky (2001) summarizes different researchers who investigate firm size in the relationship of CSR and financial performance. In general, the number of employees, annual sales, and total assets are frequently adopted in the literature to measure firm size (see table 1, p. 170, 171). Reverte (2009) uses market capitalization to measure firm size. This measure is also used in this thesis. Firm size is used as a moderating factor and is measured as the natural logarithm of market capitalization and total assets. Market capitalization is more market oriented and forward looking (Dang and Li, 2015) and indicates the total value of the company or how much cost to purchase the whole company in an open market. Total assets show the total resources of the company (Dang and Li, 2015). These two measures fit the thesis interest. Moreover, the natural logarithm is chosen because this produces accurate parameter estimates and enables researchers to see the changes in percentage terms.

Sensitive industry

In this paper, the sensitive industry is used as a moderating factor. In this thesis, the category of industry defined by Reverte (2009) and Branco and Rodrigues (2008) is used. Thus, the “more sensitive” industries are mining, oil, and chemical industries, energy sector, and consumer goods sector in this paper. The other industries are “less sensitive” industries. The Industry Classification Benchmark (ISB) industry and sector code is used to categorize industry type.

Leverage

Debt ratio calculates the proportion of a company’s assets financed by debt, so it indicates financial risk of a company. As is known, debt ratio varies widely across industries. For example, capital-intensive businesses (e.g. utilities and pipelines) have much higher debt ratios than other industries like technology. Leverage as a control variable is used in the analysis of the relationship between CSR and financial performance (Tsoutsoura, 2004; Lopez et al., 2007; Waddock and Graves, 1997). Therefore, this is also used in this paper.

All data are downloaded from *Datastream* and Table 1 outlines the measurement of the dependent, independent, and control variables.

Table 1 Variables and measurement

Variables	Measurement
Dependent variable	
Corporate financial performance (CFP)	Return on assets (ROA)
	Natural logarithm of pretax income (PI)
	Natural logarithm of net cash flow from operating activities (NCFOA)
Independent variable	
Corporate social responsibility (CSR)	CSR report (1= a firm published a CSR report and 0= a firm without published a CSR report)
	CSR index (1 = a firm listed in CSR index and 0 = a firm has not listed in CSR index)
Confounding and moderator variable	
Firm size (SIZE)	Natural logarithm of market capitalization
	Natural logarithm of total assets
Moderator variable	
Sensitive Industry (SI)	1= more sensitive industries and 0= sensitive industries
Control variable	
Leverage (LEV)	Debt ratio: Total debt divided by total assets

3.4 Empirical method and model

The past literature has used meta-analysis as its methodology to discover the CSP and CFP relationship. Researchers use this by aggregating individual results, that is, dividing these results into significantly positive, negative, or statistically non-significant results. Meta-analysis has shown mixed results in the CSP-CFP relationship and factors that influence this relationship. However, this paper aims to clarify their mixed findings and to investigate what factors influence this relationship. Hence, quantitative method is chosen rather than meta-analysis. It notices that the bidirectional causation between CSR and financial performance may affect the final

results. Based on slack resource theory, the influence of CFP on CSP might exist. However, this direction is not tested because this is not the focus of this research.

Panel data is chosen for the empirical research. Panel data describes the individual behaviors both across time and across individuals. There are three types of models: the pooled, fixed effects, and random effects model, but this thesis does not use all of them and chooses between them for the hypothesis testing. As is known, fixed effect model does not include time –invariant variables, such as dummy variable of sensitive industry, but this variable is the variable of interest. Therefore, fixed effect model is not suitable for this thesis. Hausman test is used for further checking which model is better, fixed effect or random effect model, and then Breusch-Pagan LM Test is used for selecting more appropriate model over random effects and pooled regression model. Based on the tests above, random effect model is chosen for this thesis (details presented in Chapter 4).

The regression models are defined in the following equations:

$$\text{Equation 1: } CFP_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 SIZE_{it} + \beta_3 SI_i + \beta_4(CSR * SIZE)_{it} + \beta_5(CSR * SI)_{it} + \beta_6 LEV_{it} + \varepsilon_{it}.$$

$$\text{Equation 2: } CFP_{it} = \beta_0 + \beta_1 CSR_{it-1} + \beta_2 SIZE_{it} + \beta_3 SI_i + \beta_4(CSR * SIZE)_{it-1} + \beta_5(CSR * SI)_{it-1} + \beta_6 LEV_{it} + \varepsilon_{it-1}.$$

$$\text{Equation 3: } CFP_{it} = \beta_0 + \beta_1 CSR_{it-1} + \beta_2 SIZE_{it-1} + \beta_3 SI_i + \beta_4(CSR * SIZE)_{it-1} + \beta_5(CSR * SI)_{it-1} + \beta_6 LEV_{it-1} + \varepsilon_{it-1}.$$

Where, CFP: corporate financial performance; CSR: corporate social responsibility report; SIZE: size; SI: sensitive industry; LEV: leverage; ε : stochastic error term.

Equation 1 tests whether firm size and sensitive industry moderate the relationship between CSP and CFP. Besides, firm size as a confounder in the relationship between CSR and CFP is tested in Equation 1. Equation 2 and 3 tests whether there is the time lag in the relationship between CSP and CFP. The difference between Equation 2 and 3 is that Equation 2 only adjusts 1-year lag for CSR while Equation 3 adjusts 1-year lag for CSR, firm size, and leverage because prior year's market capitalization and debt ratio may influence this year's financial performance. Although Orlitzky et al. (2003) state that the relationship between CSP and CFP tend to be simultaneous, Callan & Thomas (2009) mention that many papers did not consider lags between

financial performance and corporate social performance. Importantly, the time lag might influence the result. Thus, this gap of empirical research is filled in this thesis. In addition, McGuire et al. (1988) find that past year's CSR influences current corporate financial performance, and prior year's financial performance also influences current year's CSR. Waddock and Graves (1997) test 1-year lag between CSP and CFP and the result shows that CFP depends on CSP. Therefore, the 1-year lag of CSR is also chosen in this thesis.

Different analyses are selected to check bias in the models: serial correlation, linear relationship between dependent and independent variables, multicollinearity among independent variables, heteroskedasticity, outliers, normality of residuals. To check serial correlation in panel data models, Wooldridge test is used (Drukker, 2009; Wooldridge, 2010). Regarding test for multicollinearity I use VIF to detect this. The VIF is used to test if there is multicollinearity in the pooled regression model with main effects. If VIF is above 5, then severe multicollinearity has existed. In addition, Modified Wald test is used for groupwise heteroskedasticity in fixed effect regression model (Greene, 2000). If there is heteroskedasticity in fixed effect or random effect model, then I use command "vce(robust)" for dealing with suspected heteroskedasticity within the panel data. Since the estimates of the standard errors need to be robust, which means error term is not identically distributed, this command allows the collected data to be independent but not identically distributed (Stata, 2016).

3.5 Descriptive analysis

A total of 69 companies were in the sample and the number of observations was various in the regression analysis. The 11 periods of the data from the year 2005 to 2015 was provided. Data set was strongly balanced. Table 2 shows the descriptive statistics of the variables. The mean of CSR report and CSR index is 76% and 62%, which indicates 76% of Dutch companies publish CSR reports and 62% of them are listed in CSR index. The mean of the sensitive industry is 49%, indicating that almost half Dutch firms are in the "more sensitive" industries. The mean of debt ratio is 24%, but the highest is 84%. The measurement of firm performance indicators, pretax income and net cash flow from operating activities is quite similar to the mean of 11. However, return on assets is measured in relative number, so it cannot compare with

the other two firm performance indicators. The mean of return on assets is 3%, yet the gap between the highest and lowest (77% versus 67%) is 10%, which means the difference of financial performance among firms is not small. In addition, the measurement in firm size, market capitalization and total assets is also quite similar since they both have mean of 14. However, the gap between the highest and lowest (7 or 6 versus 19 or 20) is large, which means there is a big difference in the size of the firm.

Table 2 Descriptive statistics

Variables	Mean	Std. Dev.	Min	Max	N
Return on assets	0.036	0.090	-0.773	0.679	686
Pretax income	11.713	2.150	4.812	17.500	565
Net cash flow from operating activities	11.911	2.139	4.718	17.365	621
Market capitalization	14.125	2.042	7.059	19.000	636
Total assets	14.688	2.308	6.562	20.999	686
CSR report	0.765	0.425	0	1	277
CSR index	0.621	0.486	0	1	277
Sensitive industry	0.494	0.500	0	1	759
Debt ratio	0.241	0.166	0.000	0.847	686

Table 3 provides the correlation matrices for the key variables. From the correlation matrix, it is seen that financial performance is negatively correlated with CSR in that ROA has a weak downhill linear relationship with CSR. However, pretax income and net cash flow from operating activities have weak and moderate positive correlations with CSR report and CSR index respectively. These show that the exact direction of CSP-CFP relationship is not clear and the empirical research might occur two-way direction. Moreover, the net cash flow from operating activities and pretax income are strongly positively correlated with market capitalization and total assets. This means financial performance and firm size are highly positively associated. Moreover, this is consistent with the assumption in theory: the larger the firm, the higher financial performance is. In addition, market capitalization is highly correlated with total assets. Thus, these two measurements cannot be included in one model. Moreover, firm size is slightly and moderately positively correlated with CSR since market capitalization and total assets have slight and moderate uphill linear relationships with CSR report and CSR index respectively. This is also expected in theory: the larger the firms, the more CSR implementation. Since these two variables are correlated, the problem of multicollinearity exists when the interaction term between CSR and firm size is created. However, the sensitive industry has a slight negative correlation with ROA but has a slight positive correlation with pretax income and net cash flow from operating activities. These show that the exact direction of CSP-CFP relationship is not clear if the sensitive industry as a moderator is added to this relationship. The debt ratio is slightly negatively related to financial performance, but it is positively related to CSR. The current value of CSR is highly correlated with the 1-year lag of CSR. The problem of multicollinearity may exist. Additionally, this issue applies to the other time-lag variables. The correlation results of the current value of CSR, firm size and leverage apply to the 1-year time lag of CSR, firm size, and leverage.

Table 3 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Return on assets	1.000													
2. Pretax income	0.285	1.000												
3. Net cash flow from operating activities	0.025	0.844	1.000											
4. Market capitalization	0.089	0.880	0.894	1.000										
5. 1-year lag market capitalization	0.084	0.883	0.888	0.965	1.000									
6. Total assets	-0.173	0.783	0.825	0.823	0.834	1.000								
7. 1-year lag total assets	-0.194	0.762	0.810	0.811	0.827	0.993	1.000							
8. CSR report	-0.094	0.126	0.180	0.209	0.222	0.208	0.228	1.000						
9. 1-year lag CSR report	-0.143	0.075	0.109	0.142	0.153	0.160	0.161	0.739	1.000					
10. CSR index	-0.095	0.408	0.504	0.542	0.561	0.506	0.517	0.320	0.256	1.000				
11. 1-year lag CSR index	-0.131	0.336	0.445	0.465	0.494	0.454	0.466	0.280	0.319	0.865	1.000			
12. Sensitive industry	-0.080	0.097	0.100	0.120	0.126	0.023	0.020	0.139	0.170	-0.023	-0.041	1.000		
13. Debt ratio	-0.153	-0.074	-0.010	-0.108	-0.074	-0.117	-0.107	0.092	0.112	0.087	0.115	-0.069	1.000	
14. 1-year lag debt ratio	-0.135	-0.109	-0.048	-0.132	-0.140	-0.150	-0.128	0.041	0.085	0.055	0.085	-0.095	0.925	1.000

Chapter 4 Results

4.1 Panel data analysis

This chapter presents empirical results based on the panel data analysis. Before starting conducting panel data analysis, data should be checked. The scatter plot between dependent variable and independent variables is drawn. It shows that there is a linear relationship between the dependent variable and independent variables. The residuals are centered on zero throughout the range of fitted values, so random errors are normally distributed. There are a few outliers in the data set based on the scatter plot, but these are not excluded because it does not affect the major results in this case. Hence, the data is appropriate for analyzing the equations. Since the dependent and independent variables can be measured in different ways, separate regressions for each financial, CSR, and firm size variable are performed. In total, the 12 specifications are tested for each hypothesis.

During hypotheses testing, several tests are conducted to select the most appropriate model among pooled regression, fixed or random effect model. Hausman test is chosen to choose whether fixed effect or random effect model is better (Torres-Reyna, 2007). The null hypothesis assumes that random model is more appropriate. However, the Hausman test suggests that fixed effect model is more suitable because probability value is equal to 0.00, which is highly significant at 5% level. Thus, the null hypothesis is rejected, and the fixed effect model should be accepted. However, as is known, fixed effect model does not include time –invariant variables, such as dummy variable of sensitive industry, but this variable is the variable of interest. Therefore, fixed effect model cannot be selected although Hausman test suggests using it. Then, Breusch-Pagan LM test is conducted for selecting random effects or pooled regression model (Torres-Reyna, 2007). The null hypothesis assumes that the pooled regression model is more appropriate. The probability value is 0.00, which is highly significant at 5% level, so we can reject the null hypothesis, which means that random effect model is better than pooled regression model. Finally, random effect model is chosen in the thesis.

Detecting violations of the assumptions of models, multicollinearity is checked in the model. The VIF is used to test if there is multicollinearity in the pooled regression model with main effects. No multicollinearity is found because VIF is around 1. Then, add interaction terms (CSR with size and CSR with sensitive industry) into the model. The result shows that there is severe multicollinearity among dummy variable of CSR report, the interaction term between CSR report and size, sensitive industry dummy, and the interaction term between CSR report and sensitive industry, since the VIF is 136.40 and 128.34, 5.67, and 4.20 respectively (if $VIF(\beta_a) > 5$, multicollinearity is severe). The variables with high VIF are indicator (dummy) variables. The problem of multicollinearity can be solved by centering continuous independent variable, but it will not change what the model means or what it predicts. Whether centered or not, the significance of interaction term will stay the same (Williams, 2015). Therefore, this thesis will not center the continuous independent variable, firm size. In this case, multicollinearity can be safely ignored. Secondly, Wooldridge test (Drukker, 2003; Wooldridge, 2010) is used for testing serial correlation in the models with main effects and interaction effects. The null hypothesis assumes that serial correlation exists. Since the probability value is not statistically significant at 5% level in the random effect model, so we cannot reject null hypothesis. Therefore, there is no serial correlation in the panel data. Thirdly, the robust standard error is used for eliminating the problem of heteroscedasticity and it applies to all the combination of models because all the models have the issue of heteroskedasticity.

4.2 Regression results

Equation 1 tests the hypothesis 2. It tests whether firm size is a confounder for the association between CSP and CFP by estimating the measure of association before and after adjusting for a potential confounder or not. Return on assets, CSR report, and the natural logarithm of market capitalization are used as a proxy for financial performance, CSR, and size respectively. Model 1 tests the association between CSR and financial performance controlled for sensitive industry and risk, while the Model 2 tests the association after adjustment for size, controlled by sensitive industry and risk. P-value will not tell confounding effect. Importantly, if a change in the coefficient is 10% or more, a confounder presents between exposure and outcome (Wu, 2010). After testing 12 specifications, not all the coefficient of CSR show the

significant results in Model 1 and 2. Table 4 demonstrates that the association between CSP and CFP is smaller (-0.015 versus -0.016) after adjustment for firm size. However, the change of coefficient of CSR report decreases by 6%, indicating that firm size is not a confounder. However, except for the results showed in Table 4, all other specifications show that firm size is a confounder in the CSP-CFP relationship because the change in the coefficient of CSR is more than 10%. It means that firm size explains part of the association between CSP and financial performance. Because of inconsistent results obtained, the caution of interpretation of the result is needed.

Table 4: Random effect results of corporate social responsibility and financial performance---firm size as a confounder

Dependent variable: Return on assets	Model 1	Model 2
CSR report	-0.0150* (0.07)	-0.0160* (0.058)
Sensitive industry	-0.00731 (0.728)	-0.00569 (0.781)
Debt ratio	-0.256** (0.016)	-0.213** (0.033)
Market capitalization		0.0167** (0.046)
_cons	0.123*** (0.000)	-0.146 (0.258)
N	277	276

NOTES:

Standard errors are given in parentheses

P-values in parentheses

Significant level: * p<0.1, ** p<0.05, *** p<0.01

The hypothesis 1 and 3 are tested in Equation 1. After testing 12 specifications, the results show that the interaction term between CSR and size is negatively insignificant in all specifications. It means that size does not moderate the CSP-CFP relationship. Size positively influences financial performance in all specifications.

The control variable, debt ratio, is negatively significant at 5% level in all specifications. Table 5 shows that the interaction term of CSR and sensitive industry is negatively significant at 1% level in the Model 3 and 4. This result is found in four specifications when ROA is used as a proxy for financial performance. It means that sensitive industry is a moderator in the CSP-CFP relationship when ROA is used as proxy for financial performance. In the “more sensitive” industries, there are more negative effects of CSR on financial performance than that in the “less sensitive” industries. In Model 1, CSR negatively influences financial performance at 10% level. In the main effect models, five specifications find that CSR negatively influences financial performance when return on assets, pretax income, and net cash flow from operating income are used as a proxy for financial performance. However, not all the specifications show the significant results.

Table 5 Random effect results of corporate social responsibility and financial performance ---firm size and sensitive industry as moderators

Dependent variable: Return on assets	Model 1	Model 2	Model 3	Model 4
CSR report	-0.0160*	0.00606	0.00491	0.0161
	(0.058)	(0.968)	(0.557)	(0.911)
Market capitalization	0.0167**	0.0177	0.0164**	0.017
	(0.046)	(0.17)	(0.036)	(0.163)
Sensitive industry	-0.00569	-0.00581	0.0249	0.0246
	(0.781)	(0.778)	(0.251)	(0.273)
Debt ratio	-0.213**	-0.213**	-0.195**	-0.197**
	(0.033)	(0.03)	(0.049)	(0.045)
Interaction term of CSR and firm size		-0.00139		-0.00072
		(0.881)		(0.937)
Interaction term of CSR and sensitive industry			-0.0407***	-0.0404***
			(0.003)	(0.005)
_cons	-0.146	-0.162	-0.16	-0.169
	(0.258)	(0.398)	(0.181)	(0.342)
N	276	276	276	276

NOTES: Standard errors are given in parentheses; P-values in parentheses;

Significant level: * p<0.1, ** p<0.05, *** p<0.01

The time lag of CSR is also tested in this thesis. A distributed lag model is used, which means the regression is to predict current value of financial performance based on both the current value of CSR and lagged value of CSR. OLS regression is chosen. This is because including lagged dependent variables in mixed models, such as random effect models can lead to severe bias (Allison, 2015). ROA, market capitalization, CSR reports are used as proxies for financial performance, firm size and CSR respectively. Table 6 shows the results of hypothesis 1 and 3 tested in Equation 2. The 1-year lag of CSR is statistically significant at 1% level in Model 1, which indicates that the prior year of CSR influences current year of financial performance. In Model 3 and 4, the interaction term between 1-year lag of CSR and sensitive industry is negatively significant at 5% and 10% level respectively, indicating that there is a negative association between prior CSR and current CFP and this relationship is stronger in the “more sensitive” industries than in “less sensitive” industries. Moreover, the interaction term between 1-year lag of CSR and firm size is not statistically significant in Model 2 and 4. Therefore, firm size does not moderate the CSP-CFP relationship. Prior year of market capitalization and debt ratio could influence current year of financial performance. The hypothesis 1 and 3 are tested in Equation 3, and the results are presented in Table 7 in line with the results in Table 6.

Table 6 OLS regression results from 1-year lagged CSR and current value of financial performance ---firm size and sensitive industry as moderators

Dependent variable: Return on				
assets	Model 1	Model 2	Model 3	Model 4
CSR report	0.010 (0.530)	0.143 (0.444)	0.021 (0.422)	0.119 (0.492)
Lagged CSR report	-0.0308*** (0.004)	0.026 (0.814)	-0.007 (0.700)	0.034 (0.758)
Market capitalization	0.0112*** (0.009)	0.0209* (0.064)	0.0100** (0.017)	0.0173* (0.090)
Sensitive industry	-0.004 (0.715)	-0.005 (0.624)	0.0521** (0.030)	0.0477** (0.032)
Debt ratio	-0.046 (0.346)	-0.045 (0.349)	-0.046 (0.336)	-0.045 (0.339)
Interaction term of CSR and size		-0.009 (0.454)		-0.007 (0.550)
Lagged interaction term of CSR and size		-0.004 (0.599)		-0.003 (0.712)
Interaction term of CSR and sensitive industry			-0.030 (0.298)	-0.025 (0.392)
Lagged interaction term of CSR and sensitive industry			-0.0424** (0.049)	-0.0435* (0.063)
_cons	-0.101 (0.197)	-0.248 (0.162)	-0.107 (0.164)	-0.215 (0.187)
N	243	243	243	243

NOTES:

Standard errors are given in parentheses

P-values in parentheses

Significant level: * p<0.1, ** p<0.05, *** p<0.01

Table 7 OLS regression results from current value of financial performance and 1-year lag CSR and other financial variables---firm size and sensitive industry as moderators

Dependent variable: Return on assets	Model 1	Model 2	Model 3	Model 4
CSR report	0.0142 (0.349)	0.183 (0.335)	0.0241 (0.309)	0.162 (0.344)
1-year lag CSR report	-0.0337*** (0.002)	-0.122 (0.346)	-0.01 (0.606)	-0.117 (0.325)
Market capitalization	0.0289* (0.059)	0.0371* (0.07)	0.0260* (0.081)	0.0329* (0.085)
1-year lag market capitalization	-0.0189 (0.158)	-0.0222 (0.177)	-0.0171 (0.19)	-0.0215 (0.168)
Sensitive industry	-0.00267 (0.79)	-0.00333 (0.746)	0.0516** (0.017)	0.0491** (0.018)
Debt ratio	-0.256** (0.047)	-0.249** (0.045)	-0.263** (0.033)	-0.258** (0.032)
1-year lag debt ratio	0.248** (0.034)	0.240** (0.031)	0.255** (0.021)	0.248** (0.019)
Interaction term of CSR and size		-0.0108 (0.361)		-0.00899 (0.407)
Lagged interaction term of CSR and size		0.00557 (0.492)		0.00689 (0.358)
Interaction term of CSR and sensitive industry			-0.0271 (0.317)	-0.0206 (0.453)
Lagged interaction term of CSR and sensitive industry			-0.0434* (0.053)	-0.0478** (0.044)
_cons	-0.0931 (0.19)	-0.166 (0.188)	-0.1 (0.151)	-0.136 (0.234)
N	242	242	242	242

NOTES:

Standard errors are given in parentheses

P-values in parentheses

Significant level: * p<0.1, ** p<0.05, *** p<0.01

After testing 12 specifications, it is found that CSR report and CSR index predict the similar results for the relationship between CSP and CFP. These two indicators are interchangeable. ROA, pretax income, and net cash flow from operating activities are appropriate to measure financial performance. Moreover, market capitalization and total assets are good indicators for the size of the firm because all the models show the significant results.

Chapter 5 Discussion

Different measurement is used, so inconsistent results are gathered in this research. Brown (1998) purposes that the inconsistency in the measurement of CSP that generates problems for analyzing CSP-CFP relationship. Van Beurden & Gössling (2008) further argue that using various measurement in CFP shows the differences in its prediction. Some mixed results are found due to different research methodologies and measures of financial performance (McGuire et al., 1988, Ullmann, 1985). Nelling and Webb (2008) find that ROA as the dependent variable the coefficient on lagged CSR is positive and significant by using an OLS regression model. However, the OLS regression did not control for unobserved characteristics, the differences among firms in panel data, so this may cause the results unreliable. However, the fixed effect model is controlled for the effects of unobserved variables. In this thesis, this also cannot be used because fixed effect model does not include time –invariant variables, such as dummy variable of sensitive industry, but this variable is the variable of interest. Therefore, random effect model is chosen.

In this research, ROA is finally used as a measurement of financial performance; market capitalization and CSR report are used for measuring firm size and CSR respectively. This is because these three measures are more proper to explain CSP-CFP relationship than other measures. Table 5 shows a negative relationship between CSR and financial performance at 10% significant level in the main effect model, but this result is only confirmed in five specifications. Seven specifications have not shown the direct relationship between CSR and financial performance. Nelling and Webb (2008) found that the relation between CSR and financial performance is much weaker than expected in the previous research. Table 6 finds a negative relationship between 1-year lag of CSR and financial performance at 1% significant level in the main effect model, suggesting that there is the time lag between CSR and CFP. However, not all the specifications find significant results. In addition, this study finds the negative CSP-CFP relationship by using Dutch data set. Most of the existing studies based on the U.S and U.K context find a positive CSP-CFP relationship. The country factors may explain the inconsistent results on the relationship between CSR and financial performance (Reddy and Gordon, 2010). Thus, it is possible that the negative correlation between CSR and financial performance only applies to the

Dutch context. Due to the high costs on environmental responsibility or reallocation of resources, the profitability of corporations is reduced (Lopez et al, 2007). Firm size as a confounding variable causes the influence of CSR on financial performance. This could explain the reasons why no direct relationship is found between CSR and CFP in some specifications. Orlitzky (2001) fails to find that firm size confounds the relationship between financial performance and CSR. However, this thesis does find that firm size confounds the relationship between financial performance and CSR except for one specification. The findings of this thesis are inconsistent concerning significance levels and signs for CSR when the different measurement is used for firm size and financial performance. Therefore, caution is needed when interpreting the results of this study. Debt ratio negatively influences financial performance. This is consistent with the earlier research.

Wu (2006) did not find the effect of firm size on CSP or on CFP. However, this paper finds a strong positive relation between firm size and CFP and this result confirmed the findings by Goll & Rasheed (2004) and Seifert et al. (2004). The larger the firm, the better financial performance is. The result in Table 5 indicates sensitive industry does negatively moderate the relationship between financial performance and CSR, which indicates that the effect of CSR on CFP depends on sensitive industry. The more sensitive industry is, the stronger negative impact of CSR on financial performance becomes. In the “less sensitive” industry, there are less negative effects of CSR on financial performance. This result is surprising in that the expectation was in the opposite direction. The explanation for this could be that the substantial costs for the equipment of environmental controls do decrease the profits in the high-polluting companies (Pave & Krausz, 1996). There is less cost of implementing CSR in the less polluting industry. Thus, its financial performance is less reduced than that in the high-polluting companies.

Chapter 6 Conclusion

This thesis explores firm size and sensitive industry as moderators that affect the CSP-CFP relationship. The research tests the hypotheses based on the data gathered in the Netherlands. Despite the limitation of sample size and missing values for this study, overall results can still provide insight on the relationship between CSR and firm financial performance. ROA is used as a measurement of financial performance; market capitalization and CSR report are used for measuring firm size and CSR respectively. The result is more properly presented. The results indicate a negative correlation between CSR and financial performance in main effect model but not in all the specifications. There is a time lag between CSP and CFP relationship.

Moreover, none of the models shows the significant results on the interaction term of firm size and CSR with and without time lag model, which means that firm size does not moderate the relationship between CSR and financial performance. Therefore, the hypothesis 1 is rejected. Moreover, firm size as a confounding variable causes the influence of CSR on financial performance. It means that there is no real causal relationship between CSP and CFP, yet CSP and CFP are associated because of firm size. This result might explain the reasons why no direct relationship between CSP and CFP is found in some specifications. Hence, hypothesis 1 is not rejected. When it comes to the hypothesis 3, the statistical result shows that sensitive industry (mining, oil, and chemical industries, energy sector, and consumer goods sector) negatively moderates the relationship between CSR and financial performance. That is, the more sensitive industry is, the more negative effect of CSR on financial performance becomes. In the “less sensitive” industry, there are less negative effects of CSR on financial performance. Hence, hypothesis 3 is still falsified and should be rejected.

Chapter 7 Limitations and suggestions for future research

The research has some limitations regarding neglect some control variables and missing values. First of all, this research adds a limited number of control variables so that omitted-variable bias may exist. As it known, CSR implementation is different across industries, products, and firms (McWilliams and Siegel, 2001). Controlling for all the firm characteristics is difficult; therefore, it makes the hypothesis testing difficult in the empirical research. More relevant control variables should be included as completely as possible in the future research because the control variables are potential moderating variables, therefore, it can have an impact on the analysis of the CSP-CFP relationship (Van Beurden & Gössling, 2008). Advertising expenditures and R&D investment should be included in the list of control variables (McWilliams and Siegel, 2000; Konar & Cohen, 2001; Callan & Thomas, 2009). Reputation seems to be a major mediator of the relationship (Orlitzky et al., 2003). Reputation effect may also be an important moderator in the explaining CSP-CFP relationship, and this may affect the direction of CSP-CFP relationship in the sensitive industry. Companies in the “more sensitive industry” may benefit from the good reputation of CSR. Due to the problems of the data collection, these variables are not included in this research, but these variables can be indeed relevant in analyzing the CSP-CFP relationship in further studies. Secondly, the sample of the data set is small due to lots of missing values in gathered empirical data. Some of the Dutch companies are listed in Euronext Amsterdam Indices in the period 2005 -2015 less than 11 periods, therefore missing values cannot be avoided. It is admitted that these missing values could cause the sample bias in the research, so this research chooses not to exclude the listed companies less than 11 years during 2005 -2015 in order to prevent the selection bias in the empirical data. In this way, the collecting sample is random. In general, larger samples are more meaningful than smaller samples in the empirical research (Waddock and Graves, 1997; Orlitzky, 2001). The future research should use larger samples within the time frame. Then research findings can be more accurate.

Another limitation of this research is that it only considered one direction of the causality between CSR and CFP, which is the influence of CSR on CFP suggested by good management theory. Slack resource theory suggests that CFP may affect CSR. However, this is not tested in this thesis because this research focuses on the influence

of CSR influence on CFP. Hence, the other direction should be further investigated in the same manner.

There are some ideas for suggestions for future research. Firstly, CSR may contribute to new market opportunity for firms or customers may be willing to pay more for “ethical” products. Research can be further discovering whether CSR can bring a new market opportunity to a firm (Peloza & Shang, 2010). Secondly, some factors that might influence CSR-CFP relationship have been found in the research. These are “buffering, bridging, adaptive capability, customer satisfaction, globality of fund, environmental dynamics, environmental munificence, prior’s year sale, quality of management, pollution emission, investment intensity, ownership concentration, and differentiation. It is still unclear that these factors influence CSR-CFP relationship as a whole or through CSP or CFP” (Van Beurden & Gössling, 2008, p.420). Thus, these factors can be further researched. Finally, this research investigates the for-profit organizations. Future research can investigate how non-for-profit organizations evaluate their sustainable practices in that there is a difference how they define their performance.

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