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"Does Corporate Social Responsibility Affect Financial Performance of Listed Manufacturing Firms in Germany?

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Abstract

Despite lots of research studies on the effect of corporate social responsibility on financial performance, the results are still inconclusive. The manufacturing industry is involved with environmental, social and ethical debates due to the nature of its business activity. Using theoretical argument of instrumental stakeholder theory, this research empirically examines the effect of corporate social responsibility on financial performance for 87 listed German manufacturing firms over the period of 2010-2015. The results show that improved corporate social performance results in negative ROA in OLS regression, but the result is inconclusive because it varies relative to other proxies for dependent variable (ROE and Tobin's Q) and other estimation method (Firm Fixed Effect). Finally, the empirical findings support the hypothesis that the effect of CSP on CFP vary among five sectors in manufacturing industry.

Table of Contents

Chapter 1. Introduction

1.1 Background of Study

The view of incorporating corporate social responsibility (hereafter CSR) has been accepted in todays' business environment as stakeholders show the greatest attention in the latest decades. Although the economic growth increases the people's wealth; meantime, firms take risks of overexploitation natural resources and destroying environment. Thus, it is necessary to take actions to protect interests of common community and change our harmful behavior.

Form companies' perspective, growth competition and turmoil in business no longer allow them doing business for the sake of their own profits only but taking great care of the common community simultaneously. If companies are failing to take account of social, environmental, and the quality life of workforce in their business operations, then customers would switch to competitors' products or services, accordingly, companies cannot obtain sustainable competitive advantages. Recent corporate scandals highlight the great importance of CSR issue, for example, the BP Petroleum's oil leak in the Gulf of Mexico in April 2010. Due to the serious social and environment impacts, BP PLC paid $18.7 billion to settle U.S. federal and state claims, and the share price of BP PLC had dropped sharply from 59.5 US dollar per share to 28.9 US per share within three months (Flammer, 2012). Apart from BP PLC, a German car giant, Volkswagen used a special software to cheating on the car emission test. That behavior not only destroys consumers' trust and corporate image but also punished by a heavy fine of approximately 18 billion USD. From these incidents, companies that disregard for CSR have learnt lessons of addressing the social and environmental relevant concerns are particularly important. Even the leading firms are not in align with minimal requirements of law.

According to the research conducted by United Nations Global Compact-Accenture (2010), 73% of 766 CEOs have a consensus that making commitment to CSR-oriented activities is significant for their business to achieve success. 80% of CEOs from 103 countries agree companies' CSR practices has an impact on consumers' purchasing decision and 84% of CEOs agree that firms should have a vision of business accountability and delivering sustainable development goals (United Nations Global Compact-Accenture, 2010).

There are increasing pressure and expectations from internal and external stakeholders for companies to play an active role in CSR initiatives, such as making efforts to reduce the CO_2 and greenhouse gas emissions; to reduce pollution and waste; to make their operation practices positively impact the society and natural environment. It seems that the exercise of fulfilling social responsibility is a prerequisite for companies to gain sustainable competitive advantage. In other words, if a company's operating activities are taken into account of social and environmental impacts, it would be labelled as a responsible company and a good corporate citizen. Hence, it is necessary to satisfy the concerns of various stakeholders. In fact, many companies have responded the increased awareness of CSR by disclosing company-level of CSR activities on the annual report or separate sustainability report.

1.2 Problem Statement

In spite of the fact that the demand for CSR is rising, one important aspect needs to be taken into account by companies is if firms' "socially responsible" behavior is associated with improved corporate financial performance (CFP) because the primary objective of firms is to pursue financial returns. Companies invest a great deal of time, efforts and resources on CSR in order to satisfy the expectations of stakeholders, however, the results between CSP and CFP are inconclusive according to the literature (Ameer & Othman, 2012; Chen et al., 2015).

Empirical studies concerning the topic of CSR and CFP mostly focus on the Anglo-Saxon countries (e.g., the US and the UK) and current research on other EU countries is limited, such as Germany (Alniacik et al., 2011). Moreover, there are much pressure driven by regulatory bodies and legislative guidelines around the world to report firms' CSR contributions in great detail. For example, the European Commission issued a regulation on April 15, 2014, and this new regulation obligate EU public companies with more than 500 employees to report in detail on social, environment and employee-related issues. The member states of the European Union were subsequently given two years to transpose the mandatory sustainability report into their individual national law (European Commission, 2014). It is possible that this new regulation would bring more impact on Germany firms than other European firms as companies are not mandatory to report their CSR behavior in the Germany prior to the regulation.

On the other hand, Germany is perceived as a stakeholder-oriented country by consumers. As we know, Germany has traditionally emphasized on soft values and has a history of following high CSR standards in their business operations. CSR practices in Germany are seen as duty of companies in local culture, such as respecting female workers; treat workers equally; caring about the quality; creating fair labor relationship; taking care of the workforce; employing minority workers. Due to the changes in institutional setting, it may generate interesting research findings on public firms in Germany which has implemented a voluntary CSR report information in the past years and pay attention to the stakeholder values simultaneously.

Chen, Feldmann & Tang (2015) support that communication intensity between stakeholders and firms are various among industries according to the "stake" in the firms, which impact the way that companies report their CSP. Thus, it is advised to choose a particular and specialized industry (Chen et al., 2015). In this study, the selection of manufacturing industry has the following reasons:

Firstly, manufacturing industry plays a very important role in the economy of Germany. The German manufacturing firms contribute to 28% of turnover in the EU manufacturing industry and accounts for 22.2 % of GDP in Germany in 2014, compared with 13% for U.S. and 13% for Netherlands (Germany Trade & Invest, 2015). Moreover, 7.7 million people are employed by manufacturing firms (Statistisches Bundessamt, 2016). The value added of manufacturing industry level of Germany is 22.4% higher than the EU 28 manufacturing sectors as a whole (Eurostat,

2016). According to Eurostat (2016), the manufacturing sector includes a vast range of activities and production techniques, from using traditional production techniques by small companies to large conglomerations manufacturing high tech products such as aircrafts, auto motives, medicine. The German manufacturing industry dominate many high value-added product markets in the world, such as automobiles, metalworking machines.

Secondly, numerous controversial environmental problems, e.g. water pollution, soil pollution, have been focused on the manufacturing industry because their nature of business activity and the operating process used to transform raw materials into finished products. It is known that much smoke, ash, pollutants arising out of their manufacturing process in the manufacturing sectors. Because these negative environment impacts, stakeholders show prominent concerns to manufacturing industry than other industries, therefore, manufacturing industry firms are more motivated to fulfill the social and environmental responsibilities than other industries. Mwangi & Jerotich (2013) figured out consumers' concern about firms' CSR behavior include energy saving consumed by manufacturing firms in the process of production, reduce waste and recycling problems. For the firms within the manufacturing industry, they engage in CSR practices in order to conforming to the expectations of stakeholders (Sweeney & Coughlan, 2008), which contributes to direct impact on their reputation, brand image. Thirdly, 10% of European manufacturing companies are based on Germany (Germany Trade & Invest, 2015), thus, manufacturing industry is a highly competitive in Germany. Companies within the industry are expected to be attractive for consumers than their peers through engaging in various strategies, such as CSR.

1.3 Research Question

Take into account of the importance of CSR and manufacturing industry setting in Germany, the purpose of the thesis is formulated by the following research question:

Does corporate social responsibility affect financial performance of listed manufacturing firms in Germany?

1.4 Contribution of Study

Our sample is composed of a total of 522 firm-year observations (87 manufacturing firms in Germany) over the period of 2010-2015. OLS regression, time fixed effect, and firm fixed effect regression are performed to identify the effect of CSP on CFP. The results show that CSP is negative and significant impact ROA with OLS regression method, but the significant effect is no consistent for alternative financial measurements (ROE and Tobin's Q). Besides, fixed effects regression results show there is no significant effect of CSP on CFP. Additionally, we explored effect of CSP on CFP various in five manufacturing sectors by OLS regression.

This study will make the following contributions to the existing literature:

Most scholars who have investigated the effect of CSP on CFP focus on USA and UK (Loureiro, Sardinha & Reijnders, 2012), there are limited studies have been performed in the Germany. Germany does not have any official regulation obligating how firms should disclosure their CSR information before April 15, 2014. Thus, it can be interesting to investigate whether the effect of CSR on CFP applied in the Germany as different institutional background, laws, cultural among countries that might generate different research outcomes, which would provide some insight for investors, customers, managers to understand and implement CSR practices and to make investment decisions in the manufacturing industry. This study uses content analysis to test the effect of CSP on CFP between sub sectors in manufacturing industry, which would bring more insight for investors and other stakeholders to understand CSR.

1.5 Thesis Structure

The remainder of this thesis is structured as follows. Chapter 2 introduces the definition and importance of CSR, literature review regarding the CSR-CFP link. Subsequently, research hypotheses are shown. Chapter 3 describes the research methodology, regression model, dependent variable, independent variable, control variables, data collection. Also, the endogeneity problem and robustness tests are discussed. Next, the results of conducted empirical research and statistical analysis will be given. Chapter 5 reports conclusion, limitations of this research and recommendation for future research.

Chapter 2 Literature Review and Hypothesis Development

2.1 Defining Corporate Social Responsibility

The concept of CSR and Corporate social performance (hereafter CFP) have been frequently introduced to represent the responsibilities of companies that go above and go beyond the requirements of Law. Throughout the history, there are thousands definitions of CSR. The evolvement of CSR definition is based on social, economic, political and environmental dimensions. The most frequently discussed CSR issues include sustainability, sustainable development, environment, business ethics, philanthropy, welfare, human rights, corruption, economic, environment, legal.

A comprehensive concept of CSR refers to firms respond to social and environment concerns in business operations, and in interactions with the stakeholders (Pe´rez & del Bosque, 2013). The European Commission (2015) also define CSR as organizations' behavior that have social, environment and economic impact. CSR does not mean the charitable donations, it represents they (partly or entirely) benefit society and/or general interests, social welfare, and they are not obligated by law (Khan et al., 2012).

Carroll's CSR pyramid and Triple Bottom Line model (TBL) are probably the most well-known models for understanding CSR. Carroll (1991) outlines the CSR Pyramid. CSR is a construct that consists of economic, legal, ethical and philanthropic responsibilities, as shown in Figure 1. The pyramid of CSR should be seen as a whole and different responsibilities cannot be separated. According to Carroll (1991), the basic responsibility of firms is to generate return on investment for equity holders and stockholders; the second responsibility is legal responsibility, which indicates companies' behavior should comply with the regulations and laws; the third layer is corporate ethical responsibility, which means that firms are expected to act what society expects, to avoid questionable business practices; the ethical responsibility is not required but is expected by the society. The top layer of the pyramid is philanthropic responsibility, which expects a company to be a good citizen to giving and reward to the society (Carroll, 1991). Each level is supposed to represent a portion of the total social responsibility that society expect companies to behave.

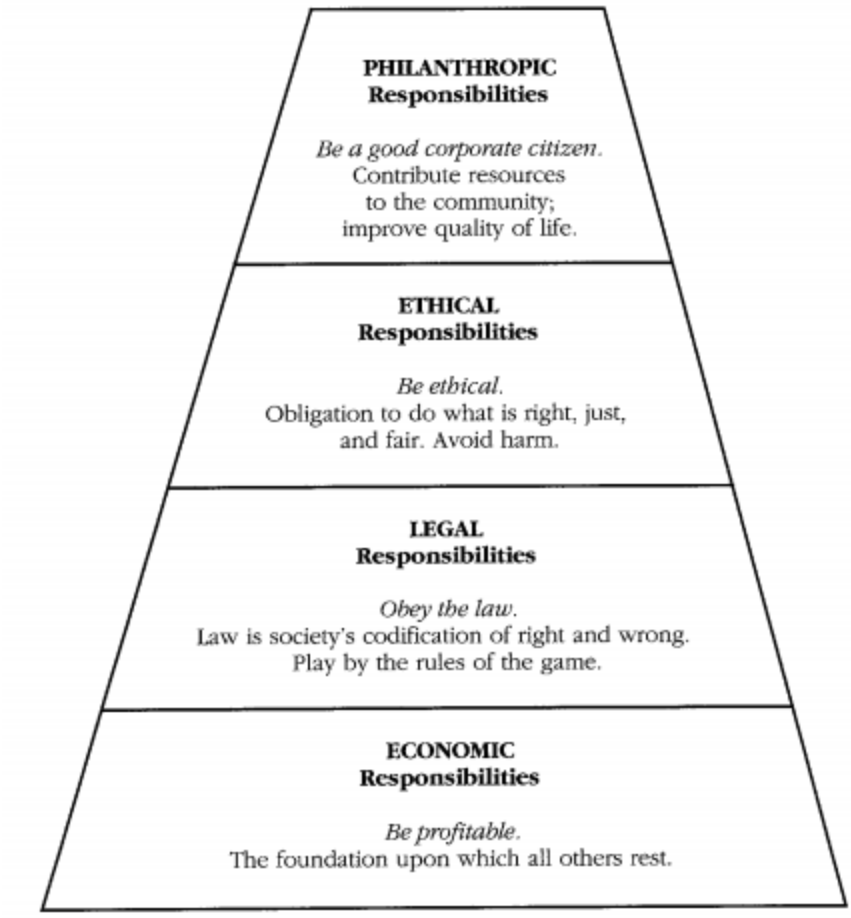

Figure 1. The Pyramid of Corporate Social Responsibility (Carroll, 1991, p.42)

Another well-known theory of CSR is the Elkington's TBL. The TBL relies on the assumption that companies are part of global community and should pay attention to environment protection (Elkington, 1994). In many cases, laws and regulations are considered as outdated and inadequate because they are lack of regulations for protecting natural environment. It implies that companies are not required by law and regulations to act in a responsible way but are required by international community to care for ecological environment. Elkington (1994) introduces TBL to measure the degree to which a firm is being sustainable or pursuing sustainable development objective.

The TBL framework goes beyond the conventional economic performance measures and involves social and environment dimensions as means of measurements of the success of the organization. The TBL framework demonstrates companies should help society achieve economic prosperity, environmental protection and social equity. According to the Elkington (1994), the first bottom line is corporate financial profits. The second bottom line aims to provide benefits to labor and community. Companies should not hire child labor, should pay the fair salaries to their labors, and to create a safety workplace to their employees. The third bottom line is social sustainability, which means companies should carefully manage their consumption of energy and non-renewable resources, do not harm and minimize the environmental impacts. The environment dimension is

also known as planet; the economic component is related with profits; the social dimension is connected with the people; therefore, the triple bottom line is called the three Ps in the literature: people, planet and profits.

In business, the most common CSR practices include developing products that benefits social and environment, adopting production procedure that reduces adverse environmental impacts, using the clean energy in the manufacturing process, eliminating waste, investing in infrastructure, improving workplace conditions, developing for local communities (McWilliams & Siegel, 2000; Wang & Bansal, 2012).

2.2 The Importance of Incorporating CSR

The influences of CSR are developing over time. Gray (2010) defines CSR as a system that include many dimensions but it is difficult to conceptualize. Moreover, CSR and corporate governance are believed as mutual related concepts in business context (Verma & Kumar, 2012) since governance policies show much attention to CSR investments, ethical and environmental concerns. Murphy & Schlegelmilch (2013) discuss CSR effects from consumer perspective, financial perspective, marketing perspective and environment perspective. Throughout the literature, incorporating CSR activities can be classified into Pro-CSR and Anti-CSR in the early stage (Windsor, 2013). With anti-CSR opinion, the group of supporters represent the neo-classical view, argue that it is regarded as the government activities, which is beyond the role of commercial firms (Scherer & Palazzo, 2008; Sundaram & Inkpen, 2004). Latterly, the minimum requirements for CSR and the maximum limits of CSR are commonly recognized in the society (Windsor, 2013). This can be seen from comparison between U.S. and European companies in terms of implementation CSR. U.S. companies tend to follow the bottom lines in business while European companies show greatest emphasize for employees, responsible citizenship, and commitment (Hartman, Rubin & Dhanda, 2007).

In this research, the impact of CSR will be discussed from stakeholders' perspective, including customers, employees, tax authority, and financial perspective, including cost of capital and financial performance.

2.2.1 Importance of CSR for Customers

From customers' point of view, they are increasing pay attention to CSR and expect more CSR information from companies nowadays (Oberseder, Schlegelmilch & Gruber, 2011). Improving customer satisfaction is seen as an important determinant for the success of companies and is a part of companies' long-term strategy.

From the prior studies, the disclosure of CSR information by companies has an impact on consumers' behavior and purchasing decision (Oberseder et al., 2011). Consumers have developed a preference for selecting products with CSR attributes (Wang & Bansal, 2012). It means when consumers make the purchasing decision, how firms treat CSR is an important purchasing criterion. If a company show extra CSR efforts on the manufacturing process, customer would perceive a company as a stakeholder-centred company. Accordingly, consumers would reward those firms

that make CSR efforts, such as showing higher customer loyalty. In the study of Tian, Wang and Yang (2011), they found that Chinese consumers with high level of trust of CSR are prone to transfer the good CSR perception towards companies into their purchasing behavior and increase customer loyalty. If consumers are unsatisfied with companies CSR efforts, then, they have negative world of mouth, low retention and protest toward the corporation. According to consumers' opinion, CSR information is perceived by product and service quality, empathy with brand, thus, the behavior of participating and disclosure CSR information is beneficial to improve consumers' satisfaction (Loureiro, Sardinha & Reijnders, 2012). From the marketing perspective, communicating with stakeholders by CSR activities is a powerful tool to improve brand image or differentiate than their competitors (Morsing, 2006), for example, companies report their CSR activities and publicize their CSR strategies in mass social media, which is considered as a marketing way to attract consumers and establish a positive responsible brand image (Murphy & Schlegelmilch, 2013). By this way, CSR facilitates corporate morality, and cooperative behavior.

2.2.2 Importance of CSR for Employees

The Employees is seen as an important stakeholder group for companies and can be classified into prospective employees and current employees. From the prospective employees' point of view, the high-quality applicants often take the corporate image as a criterion to choose their favorable employer as they have incomplete information towards the firm (Turban & Greening, 1996). From the companies' point of view, engaging in CSR actions is a good platform for firms to establish a responsible image to gain a competitive advantage over their rivals. CSR practices provide a way to impact employees positively and help employees to perceive, understand, evaluate his/ her employing organizations. Lots of research has proved that firms' image and reputation influence talented human resources to choose their employment (Alniacik et al., 2011). In particular, companies in some specialized fields face the shortage of talented employees, e.g. mechanic, civil engineering field. A company with good social image have the capabilities to attract these high-quality applicants thereby improving firm's competitiveness and reducing the unnecessary of wage bill (Barnett & Salomon, 2012; Turban & Greening, 1996). Thus, we can say that firm's CSR practices are positively connected with organization's attractiveness for the prospective employees.

Literature also discussed the impacts of CSR practices on the behavior of current employees, which mainly focus on employees' turnover, job satisfaction, organizational commitment and work performance (Alniacik et al., 2011). Employees work for companies in the hope of making positive contribution to society and to people's lives, if they perceive their employer is a good citizen, the higher working enthusiasm would be converted into higher working productivity. Employees want to work in the environment where colleagues trust with each other and share knowledge. By this way, organizations' commitment is augmented as well (Turker, 2008). There are many evidences support that CSR improves the employees' perceptions toward the company, which lead to high satisfaction, high retention rate, lower absenteeism and great loyalty toward a company. Besides, a firm with good social performance is likely to be perceived by its existing employees, which can improve employees' morale and company culture as a whole. Similarly, CSR provide employees

self-esteem that stem from the positive social identity and a sense of belonging, which result in substantial morale and productivity. Moreover, Turker (2008) find that the more employees' feel the importance of CSR, the greater the correlation between CSR and organizational commitment.

2.2.3 Importance of CSR for Corporate Tax

Prior studies have discussed CSR activities of a firm with its level of tax aggressiveness, tax avoidance (Avi-Yonah, 2008; Lanis & Richardson, 2012) since companies' tax decisions directly influenced their stakeholders, including employees, shareholders, consumers and community.

Corporate tax behavior has an impact on firms' investment decisions and companies still act to minimize the tax burden via the tax aggressiveness activities across the world (Hardeck & Hertl, 2014). For example, multinational corporations (MNCs) register at the outside of their home country to take advantage of disparate tax regimes in jurisdictions. Such strategy is known as tax avoidance, tax aggressiveness (Vonwil & Wreschniok, 2009). Corporate tax avoidance and tax aggressiveness are social irresponsible behavior via paying less tax than the required by a country's law or payment of a tax on profits declared in other country, which is negatively influenced the society and community (Schön, 2008).

Companies' tax aggressiveness is not for free. Paying the corporate taxes to the society is considered as civic duty, which helps firms to be a responsible citizenship because these taxes go to common community' welfare and to ensure the development of infrastructure. From this perspective, if firms take tax aggressive actions, which would be regarded as "unfair" for other companies and negatively influenced a company's image. Even though, a study result reflects that large number of corporations, like ExxonMobil, Lufthansa, have tried to launder profits to tax havens in order to avoid paying higher tax in their jurisdictions where they base or market their markets (Christensen, Richrd, & Murphy, 2004). Besides, corporate tax aggressiveness would lead to irrevocable loss to society as a whole (Schön, 2008). Companies voluntarily engage in CSR to be responsible for the society, accordingly, society expect that CSR engaging firms can pay their fair corporate tax rather than tax aggressive.

These literature discuss the CSR and tax avoidance link from two perspectives: shareholders and stakeholders (Preuss, 2012). They are concerned about whether the tax avoidance is the function of tax alleviation or the way to transfer the tax burden from the company to society. The former view declare that corporate tax is viewed as one of the corporate operating costs, a company would aim to reduce its cost as much as possible from economic point of view (Preuss, 2012). Thus, it leads to the issue to tax avoidance among companies. On the other hand, the payment of corporate tax is the obligation required by laws where profits are generated and the collected tax will be used to supporting the community and social development programs, such as education, medical, and public transport (Avi-Yonah, 2008). Without the tax income, government cannot create the welfare for the people. Thus, companies have the obligation to pay the taxes in order to benefit the external stakeholders.

Lanis & Richardson (2011) argue that the if companies are social-oriented, which would influence its tax aggressiveness policy by board of directors. The board of directors are prone to response to stakeholders' expectations, thus, they exert pressure to the board of directors to away from aggressive tax policies (Lanis & Richardson, 2011). Also, Avi-Yonah (2008) support that companies' tax avoidance is influenced by its attitudes towards CSR, legal requirements and basic ethical problems. Lately, Lanis & Richardson (2012) found that there is negative correlation between CSR disclosure and tax aggressiveness based on 408 publicly listed Australian companies. In other words, the better performance of firms in CSR disclosure, the lower possibility of doing corporate tax aggressiveness. Hoi et al. (2013) support the idea that firms with irresponsible CSR activities are more likely to engage in tax-sheltering activities. Besides, corporate tax aggressiveness is regarded as social irresponsible behavior, when a company is considered as tax aggressive firm, consumers will think that company is not paying the fair tax to the government to fulfill its necessary social responsibility, therefore, consumers would switch to their competitor's products when consumers make their purchasing and investment decisions (Freise et al., 2008). Furthermore, corporate tax avoidance activities not only reduce the government's funds available for societal purposes but it transfers tax burden to other tax payers (Sikka, 2010).

2.2.4 Importance of CSR for Cost of Capital

From the literature, CSR impacts the cost of capital and firm value in the capital markets (Dhaliwal et al., 2014; Ghoul et al., 2011). The cost of capital is the weighted average of cost of equity and cost of debt.

The majority of studies provide evidences that CSR reporting (disclosure) serves as a means to improve transparency and firms with superior CSR performance improves relationship with stakeholders, to reduce firms' risk, as a consequence, it translates into the reduction of the cost of equity and cost of debt (Dhaliwal et al., 2014; Goss & Robers, 2011).

The cost of equity is the required rate of return by investors on company. The cost of capital reflects the market perceptions on firms' risk. In general, investors expect higher returns when they make evaluation for the "risky" investments compared with "less risky" investments. So, the risk and return must achieve the equilibrium. Dhaliwal et al., (2014) state that firms operating in "sin" or controversial industries are perceived as risky than social responsible industries, which can impact the equity financing cost, firm value, and the opinion is consistent with Ghoul et al. (2011).

If companies are willing to reduce the information asymmetry between managers and investors, then, investors reward companies more confidence, a greater willingness to trade, which leads to higher liquidity and cash flow for firms. Moreover, this finding is more apparent in countries that are more stakeholder-oriented, for example, Germany (Dhaliwal et al., 2014). Likewise, this finding is stronger in countries that have high level of financial opacity, which might be reflected in the financial statements (Dhaliwal et al., 2014).

Literature also discussed the effect of CSR on capital constraint. Capital constraint refers to capital cannot get the desired capital from the finance market, e.g., banks (Cheng et al., 2014). If firms

cannot finance from the market, they cannot make investment for their planned projects that they would undertake it otherwise, which would influence companies cash flow and stock market performance subsequently. In the study of Cheng et al. (2014), they found that firms with good CSP lowers the capital constraint from two mechanisms; firstly, Superior CSR contribution of firms is supposed to improve the relationship with stakeholders by transparently reporting CSR information. By this way, it reduces the information asymmetry, agency costs and transaction costs; secondly, firms with superior CSP enjoy good credibility by reporting CSR as these firms are believed as more transparent over firms that do not disclosure their social responsibility.

The cost of debt refers to the ratio of financial interest paid on all of debts. A close look at the CSR studies concerning cost of debt, firms with good social responsible behavior are either negatively associated with cost of debt or positively. One group of people supports that improved CSP results in increased cost of debt because they consider CSR as a waste of firm resources, which enables firms to financing more difficult. This argument is the view of "neoclassical environment economics" (Wanger & Schaltegger, 2003, cited by Ameer & Othman, 2012). In the study of Izzo & Magnanelli (2012), they did not found that the improved CSP leads to reduce cost of debt applied by banks and financial institutions and CSR influence the performance of firms negatives when they performed a test on a sample of 332 firms. On the other hand, the majority of researchers agree that CSR serves as a means of value creation as CSR has an important impact of the risk reduction and the risk premium results in less cost of debt financing for firms (Goss & Roberts, 2011). In other words, the lower risky of firms, the lower of cost of debts. In the study of Goss & Roberts (2011), they supported that firm with good social responsible behavior enjoy less than 7 and 8 basis points in terms of loan spreads and longer loan maturities than firms that are average in social responsible efforts.

2.2.5 Importance of CSR for Risk Management

Conducting CSR activities contribute to improvement of risk management in terms of corporate governance, environment and social aspects (Jo & Na, 2012). From the corporate governance perspective, companies can lower the possibilities of punishments, such as lawsuits and fines, by taking CSR practices actively. Besides, social responsible firm conduct business at higher standard in most cases, which beyond legal requirements and this may reduce the additional expenditure to comply with the law (Wang & Bansal, 2013). Additionally, social responsible companies are often transparent in conducting business, and they are less likely involved bribery and corruption scandal. Taking the Volkswagen as an example, they installed a cheating software on the automotive to deceive consumers. If Volkswagen did not take the social irresponsible behavior, the expensive fines and lawsuits can be avoided. In the case of negative financial, social crisis, the unexpected risks can influence companies' cash flow and financial profits (Sharfman & Fernando 2008; Gamerschlag et al., 2011). Therefore, the social responsible firms are less risky than the irresponsible firms.

According to Nishitani & Kokubu (2012), poor environmental performance is a kind of environmental liabilities for firms, then, it is possible than firms have to pay such liabilities and

penalties in the future. Jo & Na (2012) argue that some moral managers consider CSR as a way to improve transparency, to reduce information asymmetry between managers and shareholders, thereby reducing firm risk, which is also supported by Cheng et al. (2014).

From the social perspective, as already discussed in section 2.5.2 and 2.5.3, CSR is supposed to be an instrument to increase firm reputation, to improve the relationship with customers, to increase the employees' loyalty, thereby creating a competitive advantage. The opposite effect is there is public boycott, company scandal caused by the irresponsible corporate social behavior.

2.3 Motivations for Conducting CSR

This section introduces why companies incorporate CSR activities. Although obtaining financial returns is the primary objective for firms to engage in CSR, it is not the sole objective. Examples of various motives include: better access to valuable resources, creating financial returns, corporate citizenship, to increase trust and reputation, strategic philanthropy, to satisfy stakeholder expectations, potential to charge a premium price for products as well as the enhanced attractiveness to recruit and to retain high-quality employees (Cheng, Ioannou & Serafeim, 2014; Gamerschlag, 2011; Sen & Cowley, 2013; Wu & Shen, 2013).

In the literature, strategic, instrumental, ethical and moral are frequently explained as the motives for companies to pursue CSR (Graafland & van de Ven, 2006). From the strategic view on CSR, CSR is supposed to have philanthropic priority. Strategic intentions of CSR have a long term focus and social responsibilities are concentrated on ethical practices, employees, customers and environment (Ameer & Othman, 2012), which is the obvious difference than the intentions of instrumental aspect of CSR. This strategic philanthropic philosophy may enhance firms' image and reputation, which then translates into improved financial performance (Rangan, Chase, & Karim, 2012). According to the literature, strategic CSR contains two meaning. The first one is connected CSR with the core business activities of firms, and the core activities should benefit the society in the long (Ramachandran, 2010; Mario and Maximiano, 2007). Another meaning of strategic CSR emphasize the aim of profit maximization for firms. If the two meanings are combined together, a strategy must be found at the firm where companies and stakeholders are cooperated to improve the profit of firm and welfare of outside stakeholders. From the strategic motive, employees are centrally important in deploying CSR strategies. The ethical CSR more focus on the welfare of society and environment instead of the economic profits.

From the instrumental perspective, companies have to act in a responsible way, accordingly, instruments are designed to improve the way of communication between companies and outside stakeholders, such instruments contain code of conduct, annual report. Kurucz, Colbert, & Wheeler (2008) state that companies can get large returns from social or environment investments than the costs of engaging in CSR initiatives in the long run. Also, consumers would perceive the products of responsible firms will be high quality (Lin, Yang & Liou, 2009). Accordingly, consumers reward CSR behavior of firms with high customer satisfaction, customers return, building corporate brands and less price elastic demand (Lin et al., 2009). Besides, CSR results in many intangible benefits by establishing good relationship with stakeholders, and such intangible benefit

is a source of a companies' competitive advantage, which in turn help them to differentiate themselves from its competitors that do not engage in CSR. And help firms to achieve continuous success. Similarly, Matten (2006) claim that stakeholders have shown growing concerns about CSR issues, companies with responsible image is attractive for investors. Companies engage in CSR activities might help to improve companies' reputation with government, banks, and other stakeholders, which would be translated to economic benefits thereafter. Similarly, Jo & Na (2012) argue that some controversial firms incorporate CSR for the aim of satisfying their target customers and appealing to its customers instead of satisfying the real need of society.

From the moral perspective, CSR is believed as obligation of firms, moral managers make decisions to operate business in a manner that improves philanthropy, transparent of firms beyond the profits maximization (Cai, Jo & Pan, 2012). In terms of CSR behavior, companies and management focus on human rights, environment and common community. For example, in the moral working atmosphere, employees who are satisfied with a firm's commitment to society, trust the company culture, therefore, they contribute to higher productivity, lower absenteeism and turnover rates. Brown & Forster (2013) argue that firms should prioritize moral motive than the strategic motive for companies to continue their CSR activities, in particular, in the period of economic hardship. With high moral identity, a company's CSR reputation may be improved by both potential employees and current employees (Turban & Greening, 1996).

CSR is also a way to reduce costs for firms. In the study of Sprinkle & Maines (2010), they introduced the example of Wal-Mart; Wal-Mart launched a program in 2006 with the goal of reducing overall product packaging by five percent in order to conserve natural resources. As a result, Wal-Mart reduced "3,425 tons of corrugated materials; 1,358 barrel of oil; 1,190 trees; 727 shipping containers and 3.5 million dollars in transportation costs in one year (Wal-Mart, 2006). Additionally, Brown & Forster (2013) argue that there is theoretical logic and empirical evidence support that engaging in CSR activities help firms reduce costs. For example, companies might disclosure CSR information aim to reduce the potential political costs (Gamerschlag et al., 2011). The potential political costs refer to the costs used for interaction between the firm and natural and social environment (Gamerschlag et al., 2011). By this interaction with powerful stakeholders or less powerful stakeholders, companies incurred the different political cost and social costs. Additionally, Jo & Na (2012) argue that a firm engaging in CSR aims to diverse intention of stakeholders, to reduce the negative impacts, or "window dressing". Simply, the real motive of these firms is not shoulder their social responsibility, but they attempt to legitimate the controversial business, such as gambling, tobacco. Consistent with Jo & Na (2012), Cai, Jo & Pan (2012) make supplement that when consumers and investors realize the real intention of companies, then they will punish those firms in stock market.

2.4 Costs of Conducting CSR

After introducing the motivations of incorporating CSR into business, it is now to discuss the costs of implementing CSR. The costs of incorporating CSR is high for companies, in particular, for SMEs. Stakeholders are demanding companies operate in a social responsible way, meantime,

managers must keep in mind the costs associated with CSR practices. Managers hope that engaging in CSR can benefit firms as well as society. These costs will influence managers' decision on CSR and the extent of firms pursue CSR.

The costs of taking CSR are divided into identifiable costs and estimating (intangible) costs (Sprinkle & Maines, 2010). As introduced by Balkrishnan, Sivaramakrishnan & Sprinkle (2009), the identifiable costs associated with CSR is the activity-based costing, which could be purchasing environment-friendly equipment in factory, purchasing recycled raw material product from specialized suppliers, providing employees extra services to improve labor relations, providing a safety workplace, supporting human resources needed by CSR practices. For example, to reduce environment hazards, companies adopt clean energy to run their business, which could improve their production efficiency and simultaneously improve their environment performance. This example reveals a win-win situation between CSR and financial performance of firms.

Additionally, Weshah et al. (2012) claim that companies that involve social responsible acts incur the explicit cost and implicit cost in the short term and long term. The explicit cost refers to "corporate policies that assume and articulate responsibility for some societal interests" (Matten & Moon, 2008, p. 409); whereas the implicit cost refers to "corporations' role within the wider formal and informal institutions for society's interests and concerns" (Matten & Moon, 2008, p. 409). From the definition, it is known that payment to bondholders is an explicit cost, and costs used to improve customer satisfaction and environment protection is implicit costs in the CSR context. Companies spend the implicit costs on social issues, what they gain is to build a positive image among stakeholders (Orlitzky et al., 2003). According to Sprinkle & Maines (2010), large companies spend a great deal of money to report their sustainability efforts in order to receive positive feedback from society, thus, this costs is likely a investments for future economic returns.

On the other hand, companies must consider the intangible costs associated with engaging in CSR activities, and it is difficult to quantify, for example, the opportunity costs that a company foregoes because of taking CSR practices (Sprinkle & Maines, 2010). For example, if a company donates computer to a less-developed country, this may reduce the sales of computer and cash inflow in local market because inhabitants who may otherwise have to buy a similar computer in their country. Besides, companies have to choose dedicated employees to deal with CSR issues, the wages paid to employees is a part of costs. Also, it takes employees' time to work on social issues, otherwise employees can spend this part of time on company business to increase company economic profits. Even employees volunteer their time on CSR, which could reduce their productivity in the workplace (Sprinkle & Maines, 2010).

2.5 Theories Explaining Corporate Social Responsibility

This section would discuss the theories related to CSR and reasons behind incorporating CSR practices. As mentioned in the literature of Barnett et al. (2012); Weshah et al. (2012), the following represent the main theories used to understand what reasons drive companies to conduct CSR.

2.5.1 Agency Theory

The agency theory describes owners (principal) delegate authority to manager (the agent) to run the firm on his or her behalf and the welfare of owners depends on the manager accordingly (Jensen & Meckling, 1976).

The agency problem focuses on the potential conflict of interests between owners and managers because the interests of managers may opportunistically utilize firm resources to satisfy their personal interests (Brammer & Millington, 2008). Simply, firms aim to maximize the wealth of shareholders, and it might be different with personal interest of managers. The agent (managers) might have more relevant information compared with shareholders, the information asymmetry occurs, and this would rise the possibilities that agent can behave in ways to pursue their own interests (Jo & Harjoto, 2011). When the agent act in their own benefits instead of maximizing shareholders' wealth, the agency problem arises.

Agency problem is not for free for shareholders. The agency cost arises because owners can only imperfectly monitor the manager's behavior (Brammer & Millington, 2008). Shareholders and various investors try to monitor corporate management and misbehavior of managers, the corresponding costs such as auditing cost are called as monitoring costs.

Organizations are profit seeking, the ways of addressing agency problem include information public, communication with shareholders, stakeholders. Thus, companies report CSR information can be regarded as a tool for companies to improve transparency, to reduce information asymmetry, reduce their agency costs. However, there is a conflict view about the managers' decision regarding CSR. Friedman (1970) criticize the CSR practice, and claim that managers as agents have responsibility to maximize firm's economic profits rather than invest money on social issues. If companies are experiencing poor financial returns, it is possible that managers support the CSR for the purpose of offsetting the disappointing financial results (Maket al., 2008). Moreover, another argument claim that managers use CSR practices to improve their own social reputation at the expenses of corporate financial resources as companies devote to CSR practices is costly (Brammer & Millington, 2008).

2.5.2 Legitimacy Theory

Legitimacy theory is a conceptual framework to explain firms' incentives to engaging CSR relevant activities (Chan, Waston & Woodliff, 2014). Legitimacy theory consider the organization and society as a whole; organizations do not operate separately. In accordance with the legitimacy theory, organizations (companies) seek to ensure that they operate within the bounds of laws and regulations, to establish congruence with social norms, to avoid sanctions from society.

Organizations achieves legitimacy by volunteering reporting their activities if those activities are expected by their community or society (Deegan, 2002). Organizations would like to report their positive behavior, e.g., CSR, instead of the negative issues (Gray et al., 2010). One assumption of legitimacy theory is the "social contract" exist between the company and the society (Deegan,

2000). The social contract is used to represent the expectations of society for organizations' operating behavior (Deegan 2000). If companies operating practices are regarded as appropriate, companies can use the community resources; conversely, if the society perceive a company's behavior destroys the agreement between members of society, then society will react by threating the company's operation (Chan et al., 2014). Because the social contract is not permanent and social values change overtime, companies have necessities to response to the macro environment consistently in which they operate.

CSR is one of the ways through which companies gain legitimacy form as companies can communicate with internal and external stakeholders with the visible CSR practices, by this way, firms would build reputation and develop consumer trust (Panwar et al., 2015). From this view, legitimacy theory provides an insight to understand the companies incorporating CSR for the purpose of fulfilling their social contract, enjoying social resources and ensuring the company to survive in this competitive environment. If companies face the legitimacy problems, it means the risk is coming. A well-known example is global boycott campaign of Nike because they offer low wages, poor working conditions for workers and Nike factory was exploiting child labor in Indonesia. The misbehavior of Nike hurts the relationships with its stakeholders as well as its economic performance.

2.5.3 Stakeholder Theory

Stakeholder theory is one of the most frequently used theory in CSR studies (Hörisch, Freeman & Schaltegger, 2014). The stakeholder theory is concerned with the relationship between the business organization and its behavior within its external environment in the process of achieving organizational objectives (Hamidu et al., 2015). Nowadays, stakeholders exert much pressures on companies to improve their CSP. The most commonly mentioned stakeholders of an organization in the order of higher to lower salience include owners, employees, consumers, suppliers, investors, government, family of owners, political groups, trade associations, community (Sen & Cowley, 2013).

In accordance with stakeholder perspective, organizations should not only satisfy expectations of shareholders but also other interest groups (Asif et al., 2013). Central to stakeholder theory is that managers should balance those who have interests with the actions of organizations.

Taking account of different stakeholders concerns, Donaldson & Preston (1995) classified stakeholder theory into three aspects: normative, instrumental and descriptive. The normative stakeholder theory helps to figure out what actions of companies are right or wrong. The interests of stakeholders are intrinsic value of companies because it indirectly linked to the company interests (Donaldson & Preston, 1995). Any decisions made by companies should be ethic and companies should incorporate the interests of stakeholders because they have strategic interests for companies. Descriptive stakeholder theory can explain the operations of companies. A firm as a nexus of stakeholder management under instrumental stakeholder theory (Jensen & Mecking,

1976) and the achievement of traditional corporate objectives by minimizing the costs. In other words, organizations must take into account of stakeholder interests simply because they are linked to organizations' economic profits. Also, with the instrument stakeholder theory, companies can minimize the costs through engaging social responsible practices to enhance trust with stakeholder (Barnett & Salomon, 2012). McGurie et al (1988) support this argument, and declare that the explicit costs of CSR are minimal and firms may benefit from CSR activities. It is often assumed that CSR influence the reputation of companies from the instrumental stakeholder perspective, which is seen as an intangible asset of firms. Simply, companies comply with the interests of stakeholders, such as employees, government, customers, then, stakeholders tend to respond positively to companies that make significant efforts in CSR over companies who do not incorporate CSR. These favorable response lead to better reputation and image for firms, which is then converted to improved financial reward (Surroca, Tribo & Waddock, 2010). The positive company image improves companies' ability to attract resources, to negotiate with suppliers, to charge premium prices for the commodities and services and to increase more market opportunities, which further lowers the company's cost of capital and improved the financial profits (McWilliams & Siegel, 2000). The dominant stakeholders who have economic stake in the business, have a greater influence on CSR decisions than discretional stakeholders (Sen & Cowley, 2013). The stakeholder theory provides a theoretical framework for investing the relationship between various firm characteristics and CSR disclosure (Chan et al., 2014).

2.5.4 Institutional Theory

The institutional theory has an important link with the way companies engage in social oriented activities (Hamidu et al., 2015). It concerns how organizations respond to social and environment pressure that are influenced by institutional setting. Organizations must follow the rules and norms established by institutions, after that, organizations are able to gain support from institutions and be perceived as legitimate. According to John et al. (2001), institutions contain agencies that set up industry regulations, suppliers, customers, competitors, professional organizations, industry certifications. Su et al., (2014) claim that the institutional conditions is weak in emerging countries. In emerging countries, the common institutional problems are insufficient capital availability, opaque capital market information, undeveloped infrastructure and corruption (Rodrigo, Duran & Arenas, 2016). The faced institutional problems in emerging countries prevent firms to invest a lot on CSR. But, due to information asymmetry, customers in local markets have difficulties to assess companies, and if firms in emerging countries adopting CSR, then, customers would perceive firms with superior abilities (Su et al., 2014).

In an institutional environment, three motivating factors lead to isomorphism, namely, coercive, normative and mimic pressure (Hamidu et al., 2015). Coercive pressure often comes from other organizations in which companies depend upon, such as legal mandates. In addition, normative forces come from the professionalism i.e. professional groups, associations, education institutions. Mimetic pressures refer to copy / imitation successful examples when they face high uncertainty

surrounding. The institutional theory has been used extensively in exploring environmental management issues among organizations (Glover et al., 2013).

The institutional theory helps to understand why companies incorporate CSR actions, even without an obvious economic return as firms seek to adopt legitimate practices or legitimize their practices in the view of other stakeholders (Glover et al., 2013). Based on the different institutions' needs, such as customers, environment protection organizations, companies in different industries should engage in corporate sustainable work to ensure their legitimate. In the study of Martinez- Ferrero & Frias-Aceituno (2015), they use the institutional theory to clarify the relationship between the companies' sustainable practices and financial performance among multinational companies because difference among countries include law, enforcement, corporate governance, which could influence companies' performance.

2.5.5 Slack Resources Theory

According to the slack resource theory, firm involvement in CSR practices depends on their availability of resources. It means companies that have better financial situation, with abundant resources are better able to invest in CSR initiatives. As a result, these firms achieve high level of CSR standard. These resources may take different forms, for example, surplus employees, financial, and under-utilized capacity. With slack resources theory, it is clear that financial successfully companies increase involvement in discretionary activities, such as caring employees, society, environment (Perez-Batres et al., 2012).

Bansal, Jiang & Jung (2015) state that in constrained economic period (economic recession), firms' social responsible activities is more flexible, which means companies can withdraw, maintain, or even expand their social efforts to meet stakeholders' expectations. Bansal et al. (2015) conclude that firms with greater slack resources are more likely to continue their strategic CSR practices during times of economic constraint.

Waddock & Graves (1997) argue that better financial performance is a predictor of good CSR performance and CSR is a consequence of good financial performance. Good financial performance firms have sufficient resources, and these firms can afford to invest in CSR issues (Surroca et al., 2010). Therefore, from this perspective, the CFP is independent variable and CSP is dependent variable. If combine the slack resources theory and the good management theory, then, the CSR and corporate financial performance is bi-directional. Good management theory exhibit that attention to CSR improves relationship with stakeholders, which in turn result in improved financial performance (Surroca et al., 2010; Waddock & Gravees, 1997). In the study of Karagiorgos (2010), the result reveals a positive relationship between stock return and CSR and the slack resources theory is supported (Karagiorgos, 2010).

From all of the theories discussed above (agency theory, legitimacy theory, institutional theory, stakeholder theory, and slack resources theory), they indicate that a good corporate social performance results in improved relationship with stakeholders and thereby positively impacting upon the financial performance.

2.6 The Link between CSP and CFP

This section reviews the prior research regarding the effect of CSP on CFP. During the past decades, many scholars have sought to know if there is effect of CSP on CFP, but the result is inconclusive. The study results present the effect can be positive, indicating that companies can improve FP by incorporating CSR, e.g., Cai et al., 2012; Cheng et al., (2014); can be negative, suggesting that CSR is costly for firms e.g., Chen et al., (2015); Fu, Wang & Jia, (2013); or neutral results where the link cannot be proved, e.g., Aras et al., (2010); Barnett & Salomon, (2012); Teng et al. (2014). These views will be elaborated in the following sections.

2.6.1 Positive Impact of CSP on CFP

As stated before, companies consider the profit maximization as their prominent objectives of running business. If the better CSR practices result in improved CFP, then companies would be more motivated to adopt CSR activities and CSR practices could run more sustainable. By this way, CSR practices will create a win-win situation for shareholders and stakeholders. With the stakeholder theory and legitimacy theory, engagement in CSR practices helps companies to keep a good relationship with powerful stakeholders and society, which is positively converted into CFP (Barnett, 2007; Wang & Qian, 2011). A high level of CSR is already known as a one way to differentiate a firm from its rivals as companies can get better brand image among consumers and other stakeholders, which help companies to get a positive financial returns (Surroca et al., 2010). Additionally, the signaling theory helps to explain the influence of CSR on CFP (Mishra & Suar, 2010). The 'signaling theory' suggests that firms with more CSR actions have superior resources and capabilities than firms with less CSR practices when there is information asymmetry between buyers and sellers (Su et al., 2014). These CSR actions, e.g. product warranties, risk-free raw material can act as signals to indicate the product of a company with good CSR performances is superior than competitors performing poorly in CSR (Su et al., 2014). Therefore, adopting the social responsible practices benefit firms' financial performance accordingly because such signaling provides reliable evaluation for firms' products and increase customer loyalty, which can translate into increased sales revenue.

Prior empirical findings correspond to the positive impact of CSR on CFP. The first researcher who empirically examined the relationship between manage CSP and CFP and found a positive link is Bragdon & Marlin in 1972 (cited by Wang et al., 2014). Since then, considerable researchers attempt to justify the effects of CSP that has been measured in different ways on CFP that has been measured either in accounting-based or market-based measures in different setting and time period, both theoretically and empirically (Aras et al., 2010; Inour & Lee; 2011). Empirical studies about the impact of CSR on CFP are classified into short term and long term impact (McWilliams & Siegel, 2000). Accounting-based measures, e.g. ROA, ROE represent the short-term profitability (Inoue & Lee, 2011). The different effects of CSP on CFP also depends on the dimensions of CFP. In other words, the effects on CSP on short-term financial performance measured by accounting based measures is stronger than long-term financial performance measured by market-based measures (Griffin & Mahon, 1997; also cited by Inoue & Lee, 2011). Conversely, Margolis &

Walsh (2003) remind that we should keep in mind the existing problems that influence the research results such as measurement problems, statistical method.

Ahamed, Almsafir & Al-Smadi (2014) investigated the impact of CSR on FP using accounting based measures in Malaysia with control variables (Firm size and revenue), they conclude that CSR is positively associated with ROA and ROE. In the study of Inoue & Lee (2011), they tested the effects of five dimensions of CSR based on corporate voluntary activities and CFP and how CSR would differ in specific dimensions in tourism related industries. The result concludes that each dimensions of CSR have a different impact on short-run and long-run financial impacts but the overall CSR activities would improve firms' profitability. For example, ROA was positive and significant correlated with community and diversity dimension whereas Tobin's Q was negatively correlated with employee dimension of CSR (Inoue & Lee, 2011). The empirical result of Wu & Shen (2013) was CSR positively related with accounting based financial measures (ROA, ROE, Net interest income) in the banking industry. The empirical result of Wu & Shen (2013) was CSR positively related with accounting based financial measures (ROA, ROE, Net interest income) in the banking industry. In the study of Su et al (2014), the relationship between CSP and CFP (measured by Tobin's Q) is positive based on sample firms from ten Asian emerging countries with less developed capital markets. Su et al. (2014) claim that CFP with market -based measures can capture the potential value of firm.

Moreover, under the institution setting of Korea, Choi et al (2010) found a positive correlation between stockholder-weighted CSR index and Tobin's Q by utilizing a sample of 1,222 firm-year observations during 2002 to 2008. Similarly, Nishitani & Kokubu (2012) suppose that firms facing strong market discipline imposed by stockholders or investors are more likely to reduce the greenhouse emissions, as a consequence, firms' market value will be improved. Wang, Li & Gao (2014) investigated the impact of greenhouse gas emissions on financial impacts. It is known that greenhouse emission has serious influence on business environment and business operations. Following the similar methodology, the research finding of Wang et al (2014) is comply with the group of positive argument between CSR and market-based financial impact. Karagiorgos (2010) investigated the relationship between CSR and CFP of Greek firms listed on the Athens stock exchange with both measures They supported the positive relationship between CSR actions and stock returns.

One study examined CSR-CFP link in European companies from 18 European countries, the results reveal a positive correlation between firms' environmental performance and ROA (Moneva & Ortas, 2010). Besides, a study performed by Ameer & Othman (2012), they examined the top 100 sustainable global companies over the period of 2006-2010 and conclude that firms with superior sustainability practices generated superior financial performance than those that do not emphasize on sustainability practices. Also, in the research of CSR voluntary disclosure on ROA and ROE of big French firms, the result supports CSR leads to better ROA and ROE in short time (Najah & Jarboui, 2013). Moreover, Ashamed et al. (2014) discover that there is positive

relationship between CSR and financial impacts measured by ROA and ROE in Malaysia firms. The same result also reflects in the study of Ameer & Othman (2012), CSR is positively associated with ROA, profit before Tax, and operating cash flow in top 100 sustainable companies. Ahamed et al. (2014) concludes that there is positive linkage between CSP and CFP among firms listed in Bursa Malaysia together with firm size and revenue as control variables. Hull & Rothenberg (2008) examined the moderate variable of differentiation to test the CSR-CFP relationship measured by ROA. They showed that innovation capability and the level of differentiation in the industry strong influence the corporate financial performance (Hull & Rothenberg, 2008). It means if a firm differentiate itself from competitors and with high innovation, then the CSR and CFP relationship is positive (Hull & Rothenberg, 2008). Cai et al (2012) argue that firm in the "sinful" sectors engage in CSR for the purpose of "window dressing" and to deceive stakeholders instead of address negative CSR impacts. This sectors are characterized by moral debates, for example, gambling, tobacco, alcohol (Cai et al., 2012). After using the intensive U.S. sample firms over the years of 1995 to 2009, the result is consistent with the positive effect of CSR on CFP. According to Weshah et al (2012), the relationship between CSP and CFP measured by ROA is positive in the Jordanian banking companies. It suggests that stockholders should support the managers to take CSR due to its huge influences on surround society. One research performed by Mwangi & Jerotich (2013), under the background of institutional theory, they explore the relationship between CSR and CFP of firms in manufacturing, construction, and allied sector of the Nairobi securities exchange. The result supported the positive CSR and CFP relationship and suggested that firms to report all of their CSR activities in order to increase their reputation and financial performance thereafter.

Not only the empirical study, Orlitzky et al (2003) conducted a meta-analysis examined 52 CSR studies with a 33,878 year observations with more than 30 years. They result of the meta-analysis reflect that the relationship between CSR and CFP is positive. At the same time, they found CSP was more highly correlated with CFP using accounting-based measures than the market-based measures. Orlitzky et al (2003) suggested that managers may create a short term financial benefits if they meet the expectations of stakeholders by performing CSR practices and vice versa. In another meta-analysis conducted by Margolis et al. (2007), they examined 192 effects on 167 studies over the past 35 years. The overall effect is positive but small. More deeply, they divided CSP into 9 dimensions, and check how each dimensions of CSR impact future profitability. They found that the relationship was stronger when some CSP dimension is measured broadly by observer perceptions and self-reported social performance, whereas the relationship would be weaker if CSP dimension is measured by third-party audits and screen mutual funds (Margolis et al., 2007).

2.6.2 Negative Impacts of CSP on CFP

One group of people criticize the social responsible activities as a burden to companies' profits as it does not correspond with the economic role of firms (Jensen, 2001; Sundaram & Inkpen, 2004). The most influential critic for CSR is Friedman, who state that the best interest of firm is to

maximize the profits instead of social well-being, and social activity just affect CFP negatively (Friedman, 1970; Jensen, 2001). The opinion is also called "neoclassical environmental economics" (Friedman, 1970; Wanger & Schaltegger, 2003, cited by Ameer & Othman, 2012;). According to this reasoning, companies spend a great deal to time, efforts and resources to improve CSR performance by donations, improving production process and other investments, as a result, the operating costs and corresponding product price are increased and this lead to a decrease in companies' profits (Chen et al., 2015). These kind of CSR practices may put the firms in an adverse position of competition and firms obtain a few economic benefits from social responsible efforts (Chen et al., 2015). Furthermore, for firms in an industry with serious environment impacts, these firms tend to encounter the competitive inferior situation because a large amount of cost, e.g. purchasing environmental-friendly equipment and green raw material, have to be spend on improving environment (Lee et al., 2013). Otherwise, these large amount of resources can be avoided or to invest in other programs. The negative relationship implies that managers can reduce investments in CSR actions in order to create better short term financial performance.

Although the majority of the studies present the positive effect of CSP on CFP, there are very little evidence present a negative effect on it. One of the earliest study was conducted by Vance (1975), the researcher provide evidence that there seems to be a negative relationship between CSR and FP measured by stock market returns in U.S., however, one problem of the study of Vance (1975) is that the selection of sample firms relies upon two reputational survey conducted by Business and Society Review, which means the selection of samples based on its outstanding social contributions, by this way, the selection of sample is limited. However, this study did not conduct any statistic test, thus, the reliability is questionable. Moore (2001) present a result representing a negative effect of CSR on CSP in single industry (supermarket) in UK.

One study conducted by Brammer, Brooks & Pavelin (2006), the overall result reveals a negative correlation between CSR and stock returns in UK listed firms. When evaluating each CSP indicators, good employee performance indicator and community indicator negatively influenced financial rewards (Brammer et al., 2006). Lopez, Garcia, & Rodriguez (2007) examined if business performance is affected by the adoption of CSR practices. They selected two groups of 55 European firms, of which one group have adopted sustainability practices while others that have not. Lopez et al. (2007) found CSR has a negative impact on business performance in the short term. It means the investments in CSR bring competitive disadvantage for firms compared with firms that do not engage in CSR. But, this negative effect on performance seems to reduce over time (Lopez et al., 2007). Similarly, Oberndorfer et al. (2013) examined if inclusion German firms in the Dow Jones STOXX Sustainability Index (DJSI) and Dow Jones Sustainability World Index (DJSI world). They made a conclusion that CSR do not impact stock market performance using DJSI whereas the impact change into negative using DJSI world, which reflects if CSR is more visible in the worldwide market, the negative impact is stronger.

In the study of Martinez-Ferrero & Frias-Aceituno (2015), the effect of CSP on CFP are various in the different institutional setting. In the Germanic context, Martinez-Ferrero & Frias-Aceituno

(2015) found a CSR negatively impact corporate performance, the result is different from the Anglo-Saxon context. Even the effects could be positive and significant, so, the effects depend on the location of countries and institution factors. Following the similar method, the evidence in Brazil also support the negative effect of CSR on firm value (Crisostomo, Freire & de Vasconcellos, 2011). The same result is agreed by Rodrigo et al. (2016), CSR is negatively impact the CFP in Latin America. These negative results indicate that CSR destroy the firm value in under developed markets. Fu et al. (2013) conclude that there is negative correlation between CSP and FP in the listed firms in China based on stakeholders have impact on the market value of Chinese listed firms. Fu et al. (2013) also pointed out the limitations of the study which might lead to the negative relationship, such proxy variables to measure CSR, lack of continuous years' data, and employed control variable, which lead to the negative result between CSR and CFP. According to Rahmawati & Dianita (2011), managers invest in CSR actions to meet the needs of stakeholders, and in the same time, CSR leads to the negative result on FP of firms listed in Indonesia stock exchange. Another study performed by Achim & Borlea (2014), the result presented a negative effect on environmental performance on FP represented by ROA for Romanian firms listed in the Bucharest Stock Exchange, but the result is positive when FP measured by Tobin's Q.

2.6.3 Neutral Impact between CSP and CFP

Some studies result in the conclusion that the relationship between CSR and CFP does not exist, which is attributed to many mediating variables that impact the linkage (e.g., Ulman, 1985; McWilliams & Siegel, 2001).

According to Inour & Lee (2011), accounting-based measures such as ROA (Return on Asset), ROE (Return on Equity) represent the short term profitability. Even with the same accounting-based measures, researchers get diverse findings in the research. One group find there CSR does not impact on CFP when researcher use accounting-based measurements to measure financial performance. For instance, in the study of Aupperle et al. (1995), they developed a forced choice survey instrument based on Carroll's pyramid (1979) to measure social responsibility construct, then, they found that CSR did not impact ROA. The study indicates that it is neither beneficial nor harmful for a firm to fulfill their social responsible behavior from economic perspective (Aupperle et al., 1995). Aupperle et al. (1985) indicate that social activities need investments by firms, which may reduce the efficiency of a firms' resources and put a firm in a disadvantage position compared with firm that do not participate CSR activities. However, this result did not resolve the endogeneity problem of CSR. Aras et al. (2010) demonstrate there is not any relationship between CSP and CFP in firms listed in Istanbul Stock Exchange. McWilliams & Siegel (2001) argue that the CSP-CFP relationship is influenced by size, risk, industry, industry adversity intensity, however, when incorporating these variables into the regression model, the result is neutral.

Brammer & Millington (2008) conducted an investigation into the CSP-CFP link under the text of corporate charitable donations and found that the relationship is curvilinear. Companies with both high or low CSP may have a higher CFP, but firms with unusually poor CSP only obtain short-term financial returns, while firms with unusually high CSP perform best in long-term (Brammer

& Millington, 2008). Surroca et al (2010) claim that there is no direct relationship between CSR and CFP but firm's intangible resources mediate the relationship between CSP-CFP if CFP measured by Tobin's q.

Barnett & Salomon (2012) found the CSP and CFP relationship is U-shaped. They state that firms engage in social responsible activities would generate stakeholder influence capacity. Firms with higher CSP would receive the highest CFP because the highest social influence improves the stakeholder relationship. On the other hand, firms with the low CSR have the positive CFP due to the saving expenditure on CSR activities while companies with moderate CSP is simply use CSR as a way to 'greenwashing". Likewise, in the study of Teng et al. (2014), they conclude that firms' environment practices and economic performance is U-shaped relationship by utilizing a sample of 975 public traded manufacturing firms in Taiwan across the period of 1996-2008. Moreover, Wanger & Schaltegger (2004) find that the corporate social performance and financial performance is inversely U-shaped relationship. The inversely U-shaped relationship is often seen as the "win-win" situation between economic and environmental performance. According to this view, companies' ability to innovate new technologies has more impact on long term success of firms. Companies are motivated to research new technologies and production approaches to reduce the negative impacts. However, if a firm's environment protection beyond the firm's optimal level of investment, then a firm's environment performance will lead to adverse effect on corporate financial performance. Nelling & Webb (2009) explore how CSP influences the CFP. When they use the traditional statistical techniques, the results reflect a positive relationship between the two variables, but, after using the fixed effects over time, they conclude that there is no relationship between CSP and CFP using both accounting-based and market-based measures for financial performance.

2.6.4 The Impact of CSR on CFP Different Among Industry (Sectors)

The effect of CSR on CFP has been discussed in detail in specific industries in recent years due to the adverse consequnces on society caused by some particular industry. In general, the industries cover manufacturing industry, financial industry, petroleum-gas industry and so on. According to the stakeholder theory and institutional theory, stakeholders show the different extent of concern for CSR efforts of firms across industries or sectors of an industry, in particular, the "sinful" industry. Accordingly, those industries face the diverse pressure and expectations. For example, automotve industry face much pressure from internal and external stakeholders concerning road safety, accordingly, companies with more pressure spend more efforts on CSR activities. Thus, companies conducting business in some controversial industries (based on the nature of the operating activity) are more willing to meet the stakeholders' expectations through disclosure CSR information as these stakeholders have a "stake" with the firms (Chen et al., 2015; Sweeney & Coughlan, 2008. Podnar & Jancic (2006) support that organizations do not communicate and meet stakeholders' needs with the same intensity.

Many researchers have examined the CSR performance in the various sectors, including tourisam related, food, beverage, banking, manufacturing. The studies present different result, either support the CSP leads to different results on CFP over different sectors or the effects are identical among

all of sectors in one industry. In the case of banking, banking is supposed to provide more communication with community than others through attracting deposits and lending to others (Wu & Shen, 2013). Banks decide to incorporate CSR activities is not random, but a delibrate balancing decision, which might create selection-bias problem (Wu &Shen, 2013). In order to eliminate the selection bias, they classified CSR into four categories to examine the relationship and conclude the results CSR positively effects on CFP. However, not every study agree the positive effect of CSR in every industry. One study performed by Lee & Park (2009) with the method of DWH test and 2SLS, they test the impacts of CSR on CFP in hotels and Casinos with financial measures of ROA and firm value. The result concludes that CSR has no statistically significant influence on profitability among the selected casino companies, while the similar findings is not present in hotel companies, CSR investments can improve the both the short-term profitability and long-term financial performance (Firm value) for hotel companies (Lee & Park, 2009). The variations concerning the effect of CSR on CFP is due to the relationship with stakehodlers (Lee & Park, 2009).

Another CSR study performed in the manufacturing industry in India by Mishra & Suar (2010). They divided the sample into listed firms and non-listed firms, and the result reflects listed firms can obtain better financial returns than non-listed firms (Mishra & Suar, 2010). Thus, it indicates CSR disclosure and its transparency influence the relationship with outside stakeholders, accordingly, it positive impacts the listed firms' financial status thereafter. One similar study performed by Andersen & Olsen (2011), the findings is that there exists a strong correlation but this association various in different industries from collected 1,273 year-observations over economic sectors. One characteristic of this study is utilizing canonical correlation analysis that examines the simultaneous relationship between two variables. In addition, in the context of tourism field (Airline, Casino, hotel and restaurant), Inoue & Lee (2010) find that KLS index (CSR measurement) has a differently effects on both short term and long term profitability and such financial impacts varies across four tourism-related industries. Besides, the same result is also consistent in the automotive industry (Loureiro et al., 2012).

We have seen many companies disclosure theis CSR information on websites. Wanderley et al. (2008) performed a study to exmaine if the CSR disclosure on website is impacted by differnet countries and industries. The result that both country of origin and industry sector influence CSR disclosure significantly. In the study of Turcsanyi & Sisaye (2013), they extend the importance of CSR and sustainability in pharmceutical sector with case study method. The society expects the pharmceutical company can take more social responsibility to develop effective medicine at the affordable price. This study support that sustainability and CSR make firms more transparant, which promotes a positive financial returns in the long run. These findings are helpful for management to make their strategic decisions, whether to increase firm value and profitability by implementing CSR in pharmceutical sector.

One recent study conducted by Chen et al. (2015), companies in the manufacturing industry with high CSR indicators perform well for their financial profitability. However, the result does not

reflect there are exist difference among sectors of manufacturing industry Chen et al. (2015). It means the CSR has the same fincial effect on automotive, chemical, metals and parper sectoors. This conclusion supports the slack resources theory, it reflects the profit firms have resources to engage in CSR and disclosure their CSR information. Contrary to the findings of Chen et al. (2015), Kang, Lee and Huh (2010) examined the CSR activity on accounting profitability and firm value among four industries in hospitality field and the results reveal different financial impacts. Specifically, in the hotel and restaurant industry, CSR activity does not influence firms' market value measured by Tobin's Q but it has positive impacts on PE ratio (Kang et al., 2010). Moreover, CSR behavior has negative impacts on profitability measured by PE ratio and market value measured by Tobin's Q in the airline industry (Kang et al., 2010). Furthermore, in the casino industry, CSR activity does not influence casino's profitability and market value (Kang et al., 2010). The possible explanations could be employees who are not really willing to work continually at the casino and the consumers do not show much interest in casino. Similarly, the restaurant industry is subject to consumer discretionary expenditure, which is also contingent on the economic status and consumers' disposable income. Lee, Singal & Kang (2013) found that CSR do not impact firms' financial performance in the restaurant industry.

The Appendix 1 lists the prior empirical findings used in this study.

2.7 Hypothesis Development

As introduced in section 2.6.1, the majority of prior studies have shown that the effect of CSP on CFP is positive (Fu et al., 2013; Iahak & Che-Adam, 2014; Inoue & Lee, 2011; Orlitzky, 2003). These positive findings are encouraging for firms to fulfill their social responsibility in order to be a responsible citizen as well as financial beneficially. Therefore, the first hypothesis is to test the sign of the of effect, which is formulated as follows:

H_1: Corporate social performance has a positive impact on financial performance.

The first hypothesis implies the higher level of corporate social performance results in an improved financial performance. This hypothesis supports the stakeholder theory, legitimacy theory. When companies operate in the legitimate environment and stakeholders are happy, then stakeholders will reword firms.

The researchers show that CSR impacts financial performance of firms varies in industry sectors due to the industry nature and relationship with their stakeholders (Chen et al., 2015; Loureiro et al., 2012; Mishra & Suar, 2010; Podnar & Jancic, 2006; Sweeney & Coughlan, 2008;). Controlling for industries or sectors would eliminate the environmental differences that organizations in different industries encounter (Chand, 2006). Taking an example of Shell company, Shell may voluntarily disclose more on environment dimensions of CSR than printing industry because particular internal and external stakeholders show notice for Shell, such as Greenpeace organization. It seems pointless to compare the CSR practices of firms within different industrie due to faced pressure from institution and stakeholders. Therefore, it is interesting to compare firms' CSR performance among different industry sectors in manufacturing industry, for example,

machinery and equipment sector are supposed to influence the environment deeply it needs to transform the raw material into the finished products throughout the complext productiopn process (Torugsa, O'Donohue & Hecker, 2012). Thus, the second hypothesis is formulated as:

H_2: The impact of CSR on CFP varies among sectors in the manufacturing industry.

Chapter 3 Research Design

Based on the literature review and hypotheses discussed in the last chapter, this chapter presents the research design. It starts with the introduction of research method, after that, the measurements of independent variable (CSR) and dependent variable (CFP) and control variables composed of the regression model are shown. Subsequently, the sample size, sample period, data collection, and statistical tests will be described. Next, the endogeneity problem is elaborated. Furthermore, the robustness will be undertaken to ensure the correctness of the results.

3.1 Research Philosophy

Qualitative and quantitative are the two main research types. The obvious distinction between the two research methods is the focus on numeric data or non-numeric data (Saunders, Lewis, & Thornhill, 2009). In this context, both quantitative and qualitative research method will be used. Specifically, qualitative method will be carried out because the researcher need to classify the CSR key words from published annual report of companies whereas quantitative will be carried out using multiple linear regression to determine the relationship between CSP and CFP among populations. The multiple linear regression allows more than one independent variable in the regression equation. Besides, this research approach is deductive because my starting point is theoretical framework from literature that enable me to formulate hypotheses and then to test the CSP-CFP relationship.

3.2 Measures of Variables

3.2.1 Corporate Social Performance

In many studies, the measure of CSR is called the corporate social performance (CSP). The CSP is used as the independent variables to test the effect of CSP on CFP because other studies use the CSP to "describe the proposed relationship between CSR and CFP" (Dennis, 2008, p. 26, cited by Karagiorgos, 2010). But, how to measure CSP correctly has been a topic of debate for long time and there still no clear conclusion. Many researchers claim that it should be cautious to the deficiencies in their research methods, including inappropriate measures of CSP (Margolis & Walsh, 2003; Martinz-Ferrero & Frias-Aceituno; 2015; Saeidi et al., 2015).

Since the regression model is econometric, it is crucial to correctly quantify the CSP. Throughout the history, some earliest studies take the questionable reputation index, use self reported questionnaire to measure firm's commitment to stakeholders or use the charity donations as a socail disclore measure (Garcia-Castro et al., 2010). Besides, Aras et al. (2010) point out that one dimension of CSR only reprsent one facet and cannot applied in all of industries. Thus, it is important to have multiple-indictors of CSR in order to generate reliable findings. Mishar & Suar (2010) argue that multi dimensions measure of CSR has been replace the past one dimension of CSR because it involves the various stakeholder issues. But, aggregation the dimension of CSR may enable firms' CSR policies satisfy a few stakeholder due to the stakes with them (Mishar & Suar, 2010). Thus, with the aggregation dimesnion of CSR, it may not indicate the true relation between CSR and FP (Mishar & Suar, 2010). In sum, all of earliest measures of CSP have been

criticized for their flaws. The KLD index is widely adopted as a measure in the CSR research in the recent decades, however, the KLD database is not available for public.

Content analysis measures "the amount of social responsibility as declared in published documents" (Soana, 2011, p. 135). It assumes the frequency of appearance can indicate the importance of CSR for firms (Gamerschlag & Moller, 2011). The principle underlying this approach is to search for specific corporate social activity information, to divided it into different categories and then reduce it into mutually exclusive dimensions (Ameer & Othman, 2012). The content analysis is the most commonly used method to measure CSR by researchers and the most suited method in the CSR field (Cascio & Aguinis, 2008; Mwangi & Jerotich, 2013; Soana, 2011). Content analysis is performed by counting number of lines, words or sentences appeared in the annual report of company (Ahamed et al., 2014). In the study of Ameer et al. (2014), they use scoring to portray questions about community, environment, diversity and ethical standards. However, this technique has some limitations. First of all, choosing the variables to measure is a subjective process. Secondly, the information published in the annual report may be different from the actual corporate actions (McGuire et al., 1988). Content analysis looks at what a company say what there are doing. Companies may mislead the potential readers even if they perform poorly on environmental front by showing favorable image, presenting positive figures. Therefore, the reliability of corporate environmental disclosures is questionable. The variable measured in content analysis can be divided into quantity items (e.g. word counting number of pages, words, tables) and quality item (scoring for a particular item for strength and weakness) (Bachoo et al., 2013).

In this study, using content analysis method to quantify CSR will be adopted. I use CSR information transmitted from companies' annual report so as to align with the method of Ahamed et al. (2014); Wang & Basal (2012). Although some companies also disclosure their CSR information by a separate sustainability report, but they all included in the annual report. For the public, the annual report is considered as credible and available. Apart from that, the annual report is assessed by the specialized auditors. CSR performance will be calculated through word count method of content analysis, which is consistent with the prior studies of Ahamed et al. (2014); Gamerschlag et al. (2011). For example, in the study of Rodrigo et al. (2016), they selected 35 GRI indicators to represent the CSR disclosure of companies. Another example was performed by Wang & Bansal (2012), they identified 57 CSR keywords appeared on those companies' website to measure CSR disclosure. I would follow the method of Wang & Bansal (2012) in this study. Specifically, I classify the CSR activities into six dimensions, including 'community', 'employee relations', 'energy', 'environment', 'product & productions', and 'other stakeholders', and the classification of CSR keywords similar to the CSR dimensions reported by KLD (Wang & Bansal, 2012). I choose 59 key words concerning CSR in order to get good understanding about what the companies are doing in CSR. The keywords are counted manually, which is shown in the Appendix 2. In this research, CSR keywords are pre-defined, e.g. recycle, carbon, nature. But the different word tense will not be counted separately. Also, I will not distinguish different forms of words,

such as sustain, sustainable, sustainability; secure & security. Similarly, it will not distinguish the same meaning of words, e.g. reduce and reduction; partner and partnership.

After that, the researcher will follow the method of Gamerschlag et al. (2011) and Wang & Bansal (2012) to calculate the CSR disclosure,

CSR disclosure = $\sum_{i=1}^{N} Ti/K$

Where N is the number of CSR keywords appeared in the annual report of the companies; Ti is the frequency of the keywords appeared in the annual report of companies; K is the total number of CSR keywords appeared in the annual report (Rodrigo et al., 2016; Wang & Bansal, 2012). To ensure the reliability of content analysis, after manually check the CSR keywords, I also use the word count function to check whether the appearance of CSR keywords is consistency.

3.2.2 Corporate Financial Performance

The CFP is used as the dependent variables to test the effect of CSP on CFP. Accounting-based measures and market-based measures are two common ways for proxy for CFP.

On the one hand, accounting-based measures are taking accounting profitability as companies' financial objective. ROA and ROE are typically most used accounting-based measurements by the researcher (Ahamed et al, 2014). In the study of Barnett & Salomon (2012), ROA was used to measure the dependent variable (CFP). ROE is a measure of a company's profitability, which can be calculated as the percentage of net profit that a company earns as a percentage of shareholders' equity. ROE indicates how efficient the manager of a company is managing the capital that shareholders have invested, which is used in the study of Inoue & Lee, 2011. In general, ROA (ROE) reflects the short-term financial performance of a firm by measuring how efficiency a firm use its assets or equity to generate profits. However, this measurement exists drawbacks. One disadvantage of accounting-based measures is only look at the historical performance of a firm. It is a kind of backward looking. Another drawback of accounting-based measure is the rate of profit can be manipulated by management accounting results through selective choice of accounting methods. ROA is calculated in two ways. In the first approach, ROA is the ratio of earnings before interest, tax, depreciation, amortization (EBITDA) divided by total assets. In the second approach, ROA is the ratio of net income divided by total assets.

On the other hand, market-based measures are taking the market performance of firms as companies' financial objective, which represents investors' perceptions by measuring a firm's ability of firms to generate future economic benefits (McGuire et al., 1998). The market based measures are more forward looking, which represents "investors' evaluation of a firm's ability to generate future economic earnings rather than past performance" (McGuire et al., 1988, p.859). Examples of market-based measures include Market-to-book value ratio, Tobin's Q, Earnings per share.

Tobins' Q was first introduced by James Tobin in 1969 and is regarded as the predominant market-based measure of financial performance in CSR research (Inour & Lee, 2011; Wang et al., 2014), which is defined as the ratio of market value to replacement value of a firm's asset. In other words,

how investors assess a firm's value according to their expectations of future performance. If the value of Tobin's Q is equal to 1, it indicates that the firm's market value is equal to the replacement cost of its asset. If the value of Tobin's Q is lower than 1, it means that the cost to replace a firm's assets is greater than the value of its stock, which implies the stock of a firm is under-valued. In such a case, the firm would face the risk of acquisition by its peers because the cost of acquired a firm is smaller than set up a similar new firm. Conversely, if the value of Tobin's Q is greater than one, it means the market value exceeds the replacement costs of the firm's production facility, which implies the stock of a firm is overvalued and that firms is worthy to be invested. Companies with high Tobin's Q are easier to obtain investment and earn market return in the market.

Naturally, the market value of firms is the market value of common stock, preferred stock and long-term bonds, while the replacement costs represent the amount of money for a company's asset at the current prices. In reality, it is difficult to estimate the accurate replacement of assets due to prices changes with modern technologies.

Several researchers have adopted Tobin's Q when test the effect of CSP on CFP. For example, Nishitani and Kobuku (2012) examined whether the reduction of greenhouse gas would result in better firm value. In this study, I will use evaluate ROA and Tobin's Q as proxy for corporate financial performance, and these two measures can directly be collected from the Orbis database. From Orbis database, the Tobin's Q is calculated as the market capitalization (the number of outstanding shares* share price) divided by the total asset of a company, which is a simple estimator.

3.2.3 Control Variable

One possible reason of diverse finding concerning the effect of CSR is researchers may not incorporate the important control variables, which is supported by Garcia-Castro et al., 2010; McWilliams & Siegel, 2000. Control variables are factors that can systematically impact the independent variable and dependent variable (Barnett & Salomon, 2012), thus, we will include variables that might influence the CSP and CFP identified by previously researchers. The usage of different control variables has generated mixed result in the prior research. From the previous literature, size, leverage, R&D, year, and sectors are most used control variables that influence both CSR and CFP (Barnett & Salomon, 2012; Gamerschlag et al., 2011; Inour & Lee, 2011; Lin et al., 2009; McWillams & Siegel, 2000; Surroca et al., 2010;). In this study, I will incorporate size, leverage, year, R&D, and sectors as control variables in the OLS regression analysis and consider time fixed effects and firm fixed effects in the regression analysis separately.

Size

Substantial studies have found that size of the firm has a significant influence on CFP (Barnett & Salomon, 2012; Garcia-Castro, Arino & Canela, 2010). From the literature review, large companies have abundant of resources to invest in society, environment (Inour & Lee, 2011; Yang et al., 2010). Furthermore, large companies are more visible to public than SMEs and they face more pressure from outside interested groups, in align with legitimacy theory, large companies show more efforts to CSR (Gamerschlag et al., 2011; Orlitzky et al., 2003). The prior research has confirmed that small sized companies did less CSR related actions than large sized companies and

the association between company size and the degree of CSR disclosure. The size of the company will be measured by the natural logarithm of firms' total assets (Karagiorgos, 2010).

Leverage

Leverage refers to the ratio of a firm's total liability to the total value of asset. The study chose leverage as control variable because leverage influence the behavior of managers and firms' CSR policies (Barnett & Salomon, 2012). High leverage ratio impose discipline on managers, and "incentives them to make decisions that are in best interest of firms" (Barnett & Salomon, 2012, p.1310). Additionally, high leverage ratio constrains the managers to make investment decisions to explore new opportunity, thereby negatively influence profits of firms (Inour & Lee, 2011). A firm with high leverage implies that firm is more likely to default or go bankruptcy, therefore, it poses greater risk for stakeholders. In general, firms with lower debt are more likely to engage in CSR activities than firms with high level of debt. In this study, the leverage of firms will be measured the ratio of long-term debt to the total value of asset.

R&D

The prior research state that excluding R&D investment from control variable is problematic because firms' technological capabilities is an important determinant of firm long term economic performance (Lin et al., 2009). R&D investments would positive influence knowledge improvement, which lead to process and product innovation and subsequently the positive financial status (Lin et al., 2009). In the study of McWilliams & Siegel (2000), they have shown that firm specific variable such as R&D impact the test result. McWilliams & Siegel (2000) state that R&D intensity was obmitted by researchers in the econometric model, which leads to the inconsistent results in the empirical studies. In fact, Invesment in research and development have been proved as an important determinant of firms' profitability (Lin et al., 2009). Similarly, Lioui & Sharma (2012) found that the influence of CSR on CFP is different when researchers add the R&D into control variable. According to Lioui & Sharma (2012), the direct impact of environment CSR on CFP is negative whereas it reveals a positive relationship when involving R&D as a control variable. Thus, this research will incorporate R&D as one control variable. Following the prior studies (Lin et al., 2009; McWilliams & Siegel, 2000), R&D is defined as the ratio of R&D expenses divided by total sales.

Year

There are somewhat differences on the impacts of CSR on CFP overtime (Brammer & Millington, 2008). In particular, when the economic situation is favorable, companies may invest more in CSR. Thus, I include the year dummy in the regression model to control for a specific effect, which is consistent with Inoue & Lee; 2011; Lee & Park, 2009. The dummy is binary variable, which means that the number 1 denote the presence of the observation year while the number 0 will denote the other years. In this study, the year dummy represents 5 dummy variables that would be controlled for year-specific effect in the period from 2010-2015.

Sector

Most of the CSR literature control for the industry-level factors as dummy since firms operating in different industries have different extent of pressure to taking CSR (Hull & Rothenberg, 2008; Wang & Bansal, 2012). The controversial industries are more likely to conduct CSR in oreder to improve the relationship with stakeholders e.g. gamble, alcohol but also industies have an impact on the CFP (McWillams & Siegel, 2000; Wang et al., 2014). This research focuses on the manufacturing industry, which includes 5 sectors based on the NACE Rev.2 core code on the Orbis database. Thus, the sector dummy will be used to control for variation among sectors in the effect of CSP on CFP among sectors. The dummy variable is binary variables. In other words, the number 1 denotes the presence of the observation sector while the number 0 denote the other sectors. In this study, the sector dummy represents 4 dummy variables that would be controlled among 5 manufacturing sectors (manufacture of basic pharmceutical; manufacture of computer, electronic, and optical products; manufacture of motor vehicles, trailers and semi-trailers; manufacture of chemical and chemical products; manufacture of machinery and equipment). The Table 1 provides the variable definitions.

Table 1. Variable Definitions

Variables	Definitions
Measures of CSR	
CSPi,t	$(\sum_{i=1}^{N} Ti/\,K)i,t$ Where N is the number of CSR keywords appeared in the annual report of the companies; Ti is the frequency of the keywords appeared in the annual report of companies; K is the total number of general words appeared in the annual report (Wang & Bansal, 2012).
Measures of CFP	
ROA	EBITDA divided by book value of total assets (Chang, Kim & Li, 2014)
ROE	EBITDA divided by book value of total equity (Chang, Kim & Li, 2014)
Tobin's Q	The ratio of market value of assets over book value of assets (Cai et al., 2012; Fu et al., 2013)
Control Variables	
Size	Book value of total assets (Karagiorgos, 2010)
Leverage	The ratio of long-term debt to total assets (Makni et al., 2008； Nelling & Webb, 2009)
R&D	The ratio of R&D expenses to total sales (Liou & Sharma, 2012; Teng et al., 2014)
Year	Year will be the dummy variable (Brammer & Millington, 2008; Lee & Park, 2009; Inoue & Lee, 2011)
Sector (Industry)	Sector will be dummy variable (McWilliams & Siegel, 2000; Wang et al., 2014).

3.3 Methodology

This section presents methods that I am going to conduct the research. To test the first hypothesis as stated in section 2.7, I start with the OLS regression to investigate the effect of CSP on CFP, which aligns with Barnett & Salomon (2012); Garcia-Castro et al., (2010); Rodrigo et al., (2016). After that, the effect of CSP on CFP by firm fixed effect will be performed.

3.3.1 OLS Regression

I make one-year lagged of independent variable to run the OLS regression with control variables (Size, Leverage, R&D, Year dummy and Sector dummy).

To test the effect of CSP on CSP, the regression model is shown as follows:

$$CFP_{i,t} = \alpha_0 + \alpha_1 CSP_{i,t-1} + \alpha_2 Size_{i,t} + \alpha_3 Leverage_{i,t} + \alpha_4 R\&D_{i,t} + \alpha_5 Year_{i,t} + \alpha_6 Sector_{i,t} + \varepsilon_{it} \quad (1)$$

3.3.2 Time and Firm Fixed Effect

It is possible that the effect of CSP on CFP is impacted by unobservable firm characteristics (Cai,et al., 2012). According to Barnett & Salomon (2012), fixed effects model can help to control for unobservable variables that may affect the dependent variables (CFP) without specify all of the heterogeneity variables. With this method, the time-invariant effect can be excluded from panel data. To test the effect of CSP on CFP, the fixed effect regression model is shown as follows:

$$CFP_{i,t} = \sum_i^t \alpha_0 + \alpha_1 CSP_{i,t-1} + \alpha_2 Year_t + \alpha_3 Firm_i + \alpha_4 Size_{i,t} + \alpha_5 Leverage_{i,t} + \alpha_6 R\&D_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where, $Year_t$ is the time fixed effects, which represents year dummy variables in this study; and $Firm_i$ is the individual firm-specific disturbance, which represents the firm dummy variablles in this study (Barnett & Salomon, 2012).

3.4 Endogeneity Problem

The empirical studies present diverse outcomes regarding to the effect of CSP on CFP, and one of reasons could be endogeneity problem bias coefficient estimates in the regression equation (Garcia-Castro et al., 2010). The endogeneity problem occurs when there is omitted variables or unobservable variables, e.g. firm specific characteristics that is correlated with independent variable and independent variable is correlated with error terms.

Endogeneity problem is first identified by Tobin (1958), which represents a potential bias in regression analysis, in particular, for the topic of CSR. The statistical analysis does not take into account unobserved variable (if they are not control variables in the model specification), thus, the result is biased (Garcia-Castro et al., 2010). Besides, the Ordinary least square (OLS) technique assume that the covariate is uncorrelated with the error, then, it would filter the unobserved variables that influence the independent variable and dependent variable, that is typically an endogeneity problem (Garcia-Castro et al., 2010).

One solution to address endogeneity problem is two-stage least square (2SLS), which is used by Choi et al., (2010); Garcia-Castro et al., (2009); Lee & Park (2009). With this method, it is necessary to find an instrument variable that correlates with CSP but uncorrelated with the residual. Following the study of Harjoto & Jo (2011), Firm Age is treated as instrumental variables, that influences CSP but is uncorrelated with the CFP. The correlation between CSP and residual is not zero. Firm age is measured by the number of years since a firm was founded (Wang & Bansal, 2012).

The method of OLS will be performed to get the estimate of CSP. Once the CSP is estimated by the instrument variable (Firm age), the generated coefficient (α_1) and P-value of CSP will enable researcher to give interpretation of CSP on CFP.

3.5 Samples and Data Resource

This research focuses on the Germany for two reasons. Firstly, there are institutional environment differences among countries, it will be more easily to compare the different CSR efforts of companies in unique institutional environment. secondly, German companies has been voluntary reporting their CSR information and have followed the stakeholder-oriented cultural values.

The public listed firms in Germany are selected as my data source because the financial and CSR information of public listed firms is available to public and they are more willing to report their social responsible behavior.

Considering companies spend different CSR efforts and resources on diverse industries, I will focus on the same industry from the same country, which is supported by Lee et al. (2013). The manufacturing industry plays a vital role in the economy of Germany, for instance, it contributes to approximate 22% of GDP in Germany as well as 7.7 million of works (Germany Trade & Invest, 2015). In addition, it is known that manufacturing industry has led to multiple social and environmental issues than other industries. Therefore, the population of this study is defined as the listed manufacturing firms in Germany. By this way, I can collect the homogenous dataset.

Time Period

In this research, the CSP and CFP measures of the sample firms will be collected for the period from 2010 to 2015 since the majority of the CSR research often used five years or more as time period, e.g., Yusoff & Adamu (2016); Mwangi & Jerotich (2013). Moreover, I choose the relatively recent time period in order to generate the meaningful results.

Sample Selection Criteria

Firstly, I set up the following conditions to choose the sample companies in this research:

- The company should be public listed German firms in Boerse Frankfurt stock exchange and Boerse Stuttgart stock exchange, which are the two biggest stock exchange in Germany;
- The company should belong to manufacturing industry;
- The companies should publish the annual report in English;

- The companies are classified under the NACE REV core code (4 digits)

Basically, I use the Orbis database and published annual report of companies from official website of companies to check for information of CSR and CFP. Orbis is Bureau van Dijk's flagship database, which provides private and listed company information on over 200 million companies worldwide. The financial data will be collected based on the NACE Rev. 2 industry classification by Orbis database. NACE Rev .2 is the revised statistical classification of economic activities in the European Union (EU).

The number of sample is crucial in the empirical study, if the sample is not enough and inappropriate, the whole result will be impacted. Since the purpose of this research is to compare the CSR performance in manufacturing industry and the manufacturing industry is composed of by different sectors. This study will adopt the classification of manufacturing industry provided by Orbis database. The Orbis databases divide the manufacturing industry into 23 major sectors. I use the Orbis database to check the company list located in Germany.

Based on the four-digit NACE Rev .2, 223 companies meet the above mentioned selection criteria. The number of companies in 15 sectors of total 23 manufacturing sectors are less than 10, and I suppose the sample cannot reflect the practical significance and give a representative of the whole industry sector in the study (Mahlotra, 2007), I decide to exclude the manufacture sector in which the number of companies is less than 10. After that, the companies in five sectors will compose my sample in this research. By carefully checking data, some companies' annual report is not available for consistent years, one company was bankruptcy, some companies went public in 2015 and it cannot include enough information to calculate CSP and CFP, I delete these companies from my sample.

Thus, the sample that will be used in this research is unbalanced panel of 87 firms and it will generate a total of 522 firm-year observations over the period of 2010-2015. The samples are summarized in Table 2, which clearly indicates the sample numbers and firm-year observations in each manufacturing sectors.

Table 2. Summary of Sample

Sub-sector	Number of Firms	Firm-year Observations
Manufacture of Computer, Electronic and Optical Products	26	156
Manufacture of Machinery and Equipment	25	150
Manufacture of Basic Pharmaceutical Products and Pharmceutical Preparation	14	84
Manufacture of Chemicals and Chemical Products	12	72
Manufacture of Motor Vehicles, Trailers and Semi-trailers	10	60

3.6 Sensitivity Test

In the first robustness test, I use the alternative financial measurements (ROE and Tobin's Q) to test the effect of CSP on CFP and whether the effect is differently among five sectors in manufacturing industry. ROE is measured by ratio of EBITDA to total equity (Chang et al., 2010); Tobin's Q is measured by ratio of market value of assets to book value of assets (Cai et al., 2012; Fu et al., 2013).

In the second robustness test, I measure ROA, ROE in different ways. ROA is measured by net income divided by book value of total assets; ROE is calculated as net income divided by equity (Ameer & Othman, 2012; Aras et al., 2014; Barnett & Salomon, 2012).

In the third robustness test, I redefine the control variables. Researchers define firm size, R&D, and leverage in different ways. Ahamed et al. (2014) and Inoue & Lee (2011) suggest that size of firm can be measured by total firm sales. Besides, Wang & Bansal (2012) suggest that size of firm can be measured by logarithm of the number of employees. As a robustness check, I redefine the firm size as logarithm of total sales. Also, R&D can be defined as the logarithm of firm's R&D expenses, which is suggested by McWilliams & Siegel (2000); Lin et al., (2009). From the literature, Leverage can also be defined as the ratio of total debts of firm to total assets (McWilliams & Siegel, 2000). As a robustness check in this study, I will redefine leverage as the ratio of total debts of firm to total assets. I will re-run the OLS regression analysis and time fixed effects and sector fixed effects to check if the results are consistent.

Chapter 4 Results

This chapter presents the result of regression analysis. The section 4.1 and 4.2 introduces the results of descriptive statistics and correlation analysis. The section 4.3 shows the result of regression analysis. Section 4.4 shows the results of robustness analysis in this study.

4.1 Descriptive Statistics

Before conducting the descriptive statistics, I winsorize all of the continuous variable at the 1 percent and 98 percent percentiles throughout the study to reduce the outliers impact. It is known that if the variables violate the normal distribution assumption, it means outliers exist in the dataset that would affect the estimated regression coefficient. In statistics, Ghosh & Vogt (2012) claim that outliers can either trimming from the dataset or using winsorization of data. The extreme values are not containing any measurement error and wrong observation, therefore, winsorized method will be used to deal with outliers, which is suggested by Muller & Kraussl (2011), Dhaliwal (2014).

The Table 3 shows the descriptive statistics for all of the non-dummy variables employed in this study. The panel data is comprised of 87 firms over the period of 2010 to 2016 for manufacturing firms listed in Germany. It gives an overview of the number of observations, mean, median, standard deviation, minimum and maximum.

Table 3. Descriptive Statistics

Variables	N	Mean	Median	Std Dev	Minimum	Maximum
CSP	521	0.016	0.014	0.005	0.008	0.034
ROA	521	0.068	0.108	0.170	-0.815	0.287
ROE	521	0.228	0.249	0.272	-0.949	1.061
Tobin's Q	513	0.999	0.710	0.976	0.080	4.840
Asset(mil)	521	6.969	6.843	2.361	2.478	12.164
R&D	515	0.165	0.036	0.486	0.000	2.620
Leverage	521	0.520	0.531	0.191	0.061	0.978

Notes: All variables are defined in Table 1.

As can be seen from the table 2, the mean value of independent variable (CSP) is 0.016, which means select manufacturing firms published 16 CSR keywords per 1000 words in the annual report. The mean value of CSP is similar to the empirical result performed by Nishitani & Kokubu (2012). Also, the positive mean value indicates the sample companies in this research are actively incorporating CSR practices. Regarding to the dependent variable, the mean value of Tobin's Q is 0.999, implying the market value of firms' stock almost reflects the real value of firms. The result of mean value of Tobin's Q resembles the values of research conducted by Nishitani &

Kokubu (2012) and Choi et al. (2010). The average ROA for the sample firms is 0.068, which explains most companies have a ROA of 6.8% and similar to the study of Choi et al. (2010). The average value of ROE is 0.228, which explains most firms have a ROE of 2.28%.

Regarding to the control variable, the mean value of firm size measured by logarithm of book value of assets is 6.969 million Euros, which indicates most of firm size have assets amounted to 6.969 million euros. The mean value of leverage is 0.52, indicating 52% of firms' assets are financed by long-term debt. The average value of R&D intensity is 0.165.

4.2 Correlation Analysis

Table 4 presents the correlation matrix of all non-dummy variables in the regression model for the sample firms in this study. Particularly, I care about the correlation between CSP and CFP (ROA, ROE, Tobin's Q). The correlation level in this table are significant at the 0.01 level and 0.05 level. When variables are highly correlated in the regression model, it is difficult to identify the contribution of each independent variable in explaining the dependnet variable.

From the Table 4, CSP is positive and significantly correlated with accounting-based measures ROA and ROE at the significance level of 1 percent, While CSP is negatively correlated with Tobin's Q at the significance level of 5 percent. Besides, there is a positive and significant correlation between CSP and control variables (size, R&D, leverage) at the significance leverl of 5% and 1%. Thus, it implies the importance of control variables suggested by Inoue & Lee, 2011; Wang & Bansal, 2012.

Table 4. Correlation between Social Responsibility and Financial Performance

	CSP	Tobin's Q	ROA	ROE	Assets	R&D	Leverage
CSP	1						
Tobin's Q	-.094*	1					
ROA	.116**	-.376**	1				
ROE	.172**	-.046	.427**	1			
Assets	.427**	-.341**	.370**	.284**	1		
R&D	-.150**	.483**	-.781**	-.448**	-.375**	1	
Leverage	.199**	-.239**	-.099*	.488**	.366**	-.152**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Notes: All variables are defined in Table 1.

4.3 Regression Results

Table 5 shows the results of performed linear regression using ROA as dependent variables. As in Table 5, Model 1 presents the OLS regression results; Model 2 incorporates the year dummy in the regression; Model 3 adds the sector dummy in the regression; Model 4 incorporates the year dummy and sector dummy; Model 5 incorporates time fixed effect, and firm fixed effects (Barnett & Salomon, 2012). Before performing fixed effects test, the Hausman test was performed. The statistical significance of Hausman test (P-value is 0.042) implies that it may exist systematic difference in the coefficient, thus, the fixed effect can be employed in this panel data.

From Table 5, the result of Model 1- 4 shows that CSP negative and significant impacts ROA with OLS regression analysis, which means improving firm's social performance can negatively lower the corporate financial performance. But, the result of CSP coefficient in fixed effect model in Model 5 is not robust, which shows CSP is negative and insignificant effect on ROA. The inconsistent result cannot support the first hypothesis in this study.

Table 5. Results with ROA as Dependent Variable

	Model 1 ROA	Model 2 ROA	Model 3 ROA	Model 4 ROA	Model 5 ROA
CSP (t-1)	-2.366* (-2.32)	-2.250** (-2.19)	-2.136* (-1.91)	-1.993* (-1.77)	-2.101 (-1.26)
Assets (mil)	0.018*** (7.46)	0.018*** (7.42)	0.017*** (6.35)	0.017*** (6.31)	0.044* (2.01)
Leverage	-0.269*** (-9.98)	-0.270*** (-9.97)	-0.280*** (-9.38)	-0.281*** (-9.38)	-0.360*** (-7.85)
R&D	-0.257*** (-24.95)	-0.257*** (-24.90)	-0.251*** (-20.26)	-0.251*** (-20.19)	-0.21*** (-11.03)
Constant	0.161*** (8.11)	0.1683*** (7.78)	0.167*** (8.00)	0.174*** (7.73)	0.221 (0.14)
Year effects	No	Yes	No	Yes	Yes
Sector effects	No	No	Yes	Yes	No
Firm Effects	No	No	No	No	Yes
No. of observations	429	429	429	429	429
No. of firms	87	87	87	87	87
Adjusted R-sq	0.684	0.684	0.684	0.684	0.616
F-value	232.79***	116.58***	116.81***	78***	43.01***

* p < .10; ** p < .05; *** p < .01. t-statistics are in parentheses.

Regarding the control variable, firm size measured by the book value of assets positively and significantly impacts ROA in Model 1-5 (all coefficients are positive); leverage has a negative and significant impact on ROA in Model 1-5 (all coefficients are negative); R&D has a negative and significant impact on ROA in Model 1-5 (all coefficients are negative); which implies the importance of size, leverage and R&D as control variables to test the effect of CSP on ROA.

The results conclude that the effect of CSP on CFP is inconclusive, this finding support prior empirical study of Aupperle et al., 1985; Ullmann, 1985; Lee & Park, 2009; or the regression model is miss-specified (McWillams & Siegel, 2000). Thus, the first hypothesis cannot be supported.

4.4 Comparison in Sectors

As introduced in section 2.6.5, companies in different industry face different pressures and expectations from stakeholders to invest in CSR because of the nature of their business activities (Chen et al., 2015). To test if there is difference regarding the effect of CSP on CFP among five sectors in manufacturing industry, I compare the values of coefficient of CSP and significance level by performing OLS regressions. The result with ROA as dependent variable is presented in Table 6.

Table 6. OLS Regression Results of Effect of CSP on ROA in Five Sectors

	Computer, Electronic, and Optical Products	Machinery and Equipment	Chemical	Pharmaceutical	Motor Vehicles
CSP(t-1)	1.830	-3.451	-0.429	-5.042*	-3.418
	(0.825)	(-1.556)	(-0.787)	(-1.693)	(-0.921)
Assets (mil)	0.008*	0.002	0.006***	0.042***	-0.007*
	(1.686)	(0.438)	(3.142)	(5.184)	(-1.887)
Leverage	-0.128**	-0.081**	-0.012	-0.620***	-0.093*
	(-2.350)	(-2.060)	(-0.440)	(-8.179)	(-1.740)
R&D	-0.762***	-0.354**	0.613***	-0.228***	1.623***
	(-7.050)	(-2.053)	(3.643)	(-9.539)	(3.551)
Constant	0.144***	0.179***	0.077***	0.212**	0.235***
	(4.767)	(4.259)	(4.109)	(2.427)	(6.773)
N	129	125	60	70	45
Adj-R sq	0.276	0.035	0.290	0.818	0.354
F-value	13.209***	2.114*	7.010***	78.786***	7.034***

* p < .10; ** p < .05; *** p < .01. t-statistics are in parentheses.

From Table 6, when financial performance measured by ROA, CSP has a negative and significant effect (β = -5.042, t = -1.693) on ROA in the sector of pharmaceutical, which implies firms in pharmaceutical sector will lower ROA with improved corporate social performance. Sector of machinery also has negative effect of CSP (β = -3.451, t = -1.556), followed by sector of motor vehicles (β = -3.418, t = -0.921), but the effects in these two sectors are non-significant. CSP has the highest effect for the sector of computer, electronic and optical products (β = 1.830, t = 0.825), but the effect is insignificant. The findings support that CSP has negative and significant impact for the sector of pharmaceutical, but the effect is not consistent for other four sectors in the manufacturing industry. The finding also suggests that firms in the four sectors (sector of machinery and equipment; sector of chemical; sector of pharmaceutical; sector of motor vehicles) should carefully consider their CSR policies.

The control variable, R&D has a positive and significant effect on ROA for the sector of chemical and the sector of motor vehicles, R&D coefficients are 1.623 and 0.613 individually; in the sector of computer, electronic, and optical products; sector of machinery and equipment; and sector of pharmaceutical, R&D has a negative association with ROA (R&D coefficients are -1.137; -1.223; -0.227 individually). Leverage has negative and significant effect on ROA in four manufacturing sectors; Size measured by firm assets has positive and significant effect on ROA in the sector of computer, electronic, and optical products, sector of chemical and sector of pharmaceutical; Size has negative and significant effect on ROA in the sector of motor vehicles (size coefficient is -0.007).

Therefore, I conclude that there are differences regarding corporate social performance on financial performance among five sectors in the manufacturing industry. The results support the hypothesis 3 that the effect of CSP on CFP varies among sub sectors in the manufacturing industry, which resembles to the research result of Gamerschlag et al., 2011.

4.5 Two-Stage Least Square Results (2SLS)

The Table 7 shows the results of 2SLS. The firm age is treated as an instrumental variable to address the issue of endogeneity, which is consistent with study of Harjoto & Jo, (2011).

Table 7. Results of Two-Stage Least Square Regression Model

Panel A: ROA First Stage Regression of CSP		Instrument Variable (2SLS) Regression	
	CSP (t-1)		ROA
Assets (mil)	0.001*** (8.90)	CSP (t-1)	-10.422 (-1.14)
Leverage	0.001 (1.03)	Assets (mil)	0.026*** (2.94)
R&D	0.000 (0.03)	Leverage	-0.263*** (-8.83)
Firm Age	-0.001** (-2.46)	R&D	-0.256*** (-23.00)
Constant	0.010*** (9.39)	Constant	0.230*** (2.86)
Observations	429	Observations	429
Adjusted R-sq	0.199	R-sq	0.641
F-value	27.65***	Hausman	0.890

After comparing the result of 2SLS (as shown in Table 7) with results of OLS (as shown in Table 5), the sign of ROA from 2SLS result (-10.422) is the same with the OLS regression result (-2.366); but, the statistically significant effect of CSP on ROA in OLS is changed into insignificant by performing 2SLS. Besides, the insignificant result of Hausman test (F= 0.890, p =0.346) supports the firm age is exogenous variable. Thus, the results conclude that CSP does not subject to endogeneity when firm age is treated as instrument variable.

4.6 Robustness Analysis

This section presents the robustness of research results when using alternative financial measurements (ROE and Tobin's Q), redefining financial measurements, and redefining control variables.

In the first robustness check, I use the ROE and Tobin's Q as dependent variable to test the effect of CSP on CFP. The result is presented in Appendix4. The results conclude that there is no significant effect of CSP on ROE and CSP on Tobin's Q, which supports our main finding that no significant effect of CSP on CFP. To test whether the effect of CSP on CFP vary among five sectors in manufacturing industry, results from Appendix 5 support that the effects of CSP on CFP are different among five sectors. When financial performance is measured by ROE, CSP has a

negative and significant effect on ROE for sector or machinery and equipment (coefficient is -11.577), but the CSP coefficient is not robust in other four manufacturing sectors. The control variable R&D is negative and significant effect on ROE and leverage is positive and significant effect on Tobin's Q in all five manufacturing sectors.

In the second robustness check, I re-define ROA, ROE to test the effect of CSP on CFP. The result is shown in Appendix 6 and Appendix 7. ROA is calculated as net income divided by total assets; ROE is calculated as net income divided by total equity (Barnett & Salomon, 2012). From Appendix 6, CSP negatively and significantly influences ROA in OLS regression and Fixed effects regression in Model 1-3 in Panel A and the corresponding CSP coefficients are -3.173, -2.675, and -2.693, which consistent with our main results. However, the effect of CSP coefficient is not robust for ROE because the CSP coefficient is not significant in Model 1-3 in Appendix 6.

In the third robustness check, I re-define the control variables. We measure firm size by logarithm of the number of employees; I measure R&D as the proxy of firm's R&D expenses; and leverage is measured by the ratio of total debts of firm to total assets (McWilliams & Siegel, 2000; Wang & Bansal, 2012). As in Appendix 7, Model 1-2 present the OLS regression results. In order to address the unobservable characteristics that impacts the effects of CSP on CFP, I introduce the firm fixed effects in Model 3. As shown in Appendix 7, the OLS regression result in Model 1-2 support the CSP negative and significant influences ROA, but effect is not robust for CSP on ROE. The fixed effect Model 3 shows no significant effect of CSP on ROA and ROE. The results are consistent with our main findings; CSP has a negative and significant impact on ROA in OLS regression, but the result is not consistent for ROE. Thus, the inclusive result confirms that CSP does not have significant effect on CFP.

Chapter 5 Conclusion, Limitation and Recommendation

This chapter describes the conclusion for this study, limitation and recommendation for future researchers.

5.1 Conclusion

Incorporating CSR into business practices has been a heated topic in recent decades and shareholder, customers and other stakeholders show greatest concern for this issue. From companies' perspective, they care about whether the improved social performance results in good financial performance. Lots of researchers have tested the effect of CSP on CFP, but researchers have given diverse outcomes, including positive, negative, neutral effect. This research tries identify the effect of CSP on FP for German listed manufacturing firms. This research is extended to investigate the effect of CSP on CFP among five sectors in manufacturing industry. To answer the research question, two hypotheses are formulated.

In this study, theories explaining why firms incorporate CSR including agency theory, legitimacy theory, stakeholder theory, institution theory and slack resources theory. The sample of this study is composed of a total of 522 firm-year observations (87 manufacturing firms in Germany) over the period of 2010-2015. From the prior scholars, the most frequently discussed concerns are endogeneity, the proper measurement of CSR and CFP, the selection of control variables, which are crucial for investigating the effect of CSP on CFP. The CSR performance is calculated by performing content analysis method to quantify the frequency of CSR keywords. The corporate financial performance is collected from Orbis database. Two common financial measurements, accounting-based and market-based financial measures are used in this study.

The analysis is classified into two parts, in the first part, the impact of CSP on CFP was examined. I initially performed OLS regression, the results of OLS regression analysis reflects that CSP negatively and significantly impacts ROA, but the significant effect of CSP on ROA is not consistent when using fixed effect model. In the robustness test, when I use the alternative financial measurements (ROE and Tobin's Q) as financial measurements, the results show there is no significant effect of CSP on ROE, CSP on Tobin's Q. Consistent with OLS result, the fixed effect regression also shows no effect of CSP on CFP. When I redefine the financial measurements and control variables, the results support that there is no significant effect of CSP on ROA. Thus, the inconclusive result from this research results suggest that there is no significant effect of CSP on CFP, and the first hypothesis cannot be supported. The findings comply with the study of Aupperle et al., 1985; Ullmann, 1985; Lee & Park, 2009; which suggest that no particular relationship exists between CSP and CFP. In the second part, the result of OLS support that effect of CSP on CFP is different among five sectors because the regression coefficient of independent variables (CSP) and significant value are different among five manufacturing sectors, which supports my second hypothesis that the effect of CSP on CFP vary among five sectors in the manufacturing industry, which is consistent with the findings of Lee & Park, (2009); Salzmann et al., (2005).

5.2 Limitation

The study is subject to some limitations. The primary limitations of this study is concerning the measurement of CSP. I measured CSP manually because I cannot access to the third-party database to measure the CSR performance of company. I use the method of content analysis to assess the corporate social performance, which is time consuming and subjective. Each annual report of firms exceeds 100 pages, it is difficult to collect CSR data from a large sample firms, which may influence the validity of statistical results.

Besides, because I only select sample companies that publish the annual report in English, sector of computer has 26 companies while sector of motor vehicles is only represented by 10 companies, thus, the classification of sector is not an optimal choice.

Another limitation is concerning the size of samples. I choose the German listed manufacturing firms that publish English annual report as one of important criteria, if I understand the German, then, my sample would be larger to represent the whole manufacturing firms.

5.3 Recommendations for Future Research

Three recommendations can be made concerning CSR topic for future research. One recommendation is I suggest the future researchers can collect a longer time period of analysis, which can provide more valid results. Another one is I suggest the future researchers to measure corporate social performance by using a third-party database, e.g., Kinder, Lydenberg, Domini (KLD) database. Another recommendation is to consider more CSR information disclosure channels, e.g. firm websites.

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Appendix 1: The Prior Empirical Findings about Relationship between CSP and CFP

Author(s) and Year	Sample	Data Source	Methodology	Effects (Sign)	Direction
McWilliams & Siegel (2000)	524 firms for the years 1991-1996	KLD and Compustat	OLS	Neutral	
Barnett & Salomon (2012)	1,214 firms from1998-2006	KLD	OLS, time and industry fixed effect	U-Shaped	
Nelling & Webb (2009)	Data on CSR and FP from 1993 to 2000	KLD	Granger causality	Weak relation between CSP and CFP and no causal relationship	
Brammer et al. (2006)	457 U.K. firms from 2002-2004	EIRIS	OLS	Negative	CSR → CFP
Lopez et al. (2007)	110 firms from 1998-2004	Doe Jones	OLS	Negative	CSR → CFP
Oberndorferwt al. (2013)	23 firms inclusion in the DJSI STOXX and 27 firms inclusion in the DJSI World in 1992-2002	Doe Jones	Event study based on three factor model	Negative	CSR → CFP
Rodrigo et al. (2016)	71 Latin American controversial firms in 2011	Economatica	Lagged regression, content analysis	Negative bi-direction	Bi-directional
Rodriguez-Fernandz (2016)	Spanish firms listed in Madrid stock exchange in 2009	GRI database, AMADEUS database	OLS	Positive	Bi-directional
Waddock & Graves (1997)	469 companies	KLD	OLS, one-year lag for the CFP	virtuous cycle	Bi-directional
Wu & Shen (2013)	banking data from 22 countries from 2003 to2009	ERIS database	Heckman two-step regression	CSR positively associates with ROA, ROE, net interest income, and non-interest income; while CSR negatively associates with nonperforming loans	CSR → CFP

Chen et al. (2015)	75 manufacturing companies introduced GRI reporting system	Datastream	structured content analysis	Positive	Positive
Wang, Li & Gao (2014)	69 of Australian public firms in 2010	Carbon Disclosure Project	OLS	Positive	CSR → CFP
Cai, Jo & Pan (2012)	475 US firms from 1995-2009	KLD	3SLS	Positive	CSR → CFP
Garcia-Castro et al (2010)	658 firms from 1991 to 2005	KLD and Datastream	OLS, fixed effects and random effects estimations	Positive when standard OLS is used; negative when fixed effect or instrument variable are used	CSR → CFP
Karigiorgos (2010)	39 Greek firms in 2007-2008	Athens Stock exchange, Hellastat	OLS, content analysis	Positive	CSR → CFP
Inoue & Lee (2011)	367 firms in tourism related industry from 1991-2007	KLD	OLS	Positive	CSR → CFP
Choi et al. (2010)	174 firms in Korea from 2002-2008	TS 2000 database	cross sectional regression; 2SLS	Positive	CSR → CFP
Hull & Rothenberg (2008)	69 firms from 1998 to 2001	KLD and Compustat	OLS	Positive	CSR → CFP

Appendix 2: CSR Keywords for the Content Analysis Derived from Annual Report

Community	Employee Relations	Energy	Environment	Product & Productions	Other Stakeholders
Charitable	Employees	Energy	Balance	Best practice	Stakeholders
Community	Health	Gas	Carbon	Bio	Communication
Donations	Labour	Water	Climate	Chemical	Customers
Education	Training		Ecological	Contributions	Government
Ethical			Elimination	Harmful	Leverage
Impact			Emissions	Organic	Power
Life			Environment	Prevention	Satisfaction
Nature			Green	Produce	
Partnership			Greenhouse	Protection	
Public			Pollution	Quality	
Responsibility			Sustainability	Recycle	
Transparancy				Reduce	
Society				Renewable	
				Resource	
				Reuse	
				Risk	
				Safe	
				Save	
				Security	
				Value-added	
				Waste	

Appendix 3: List of Sample Firms, Sectors and Industry Classification

Manufacture of Computer, Electronic and Optical Products (26)	NACE Rev.2 Code	Manufacture of Machinery and Equipment (25)	NACE Rev.2 Code
SIEMENS AG	2660	MAN SE	2829
FRESENIUS MEDICAL CARE AG & CO. KGAA	2660	DURR AG	2899
INFINEON TECHNOLOGIES AG	2611	KRONES AG	2899
WACKER CHEMIE AG	2611	KUKA AG	2899
DRAGERWERK AG & CO. KGAA	2651	HEIDELBERGER DRUCKMASCHINEN AG	2899
FIELMANN AG	2670	KSB AG	2813
SARTORIUS AG	2651	DMG MORI AG	2849
CARL ZEISS MEDITEC AG	2670	BAUER AKTIENGESELLSCHAFT	2892
SMA SOLAR TECHNOLOGY AG	2611	INDUS HOLDING AG	2892
JENOPTIK AG	2670	WACKER NEUSON SE	2892
KONTRON AG	2620	DEUTZ AG	2811
ADVA OPTICAL NETWORKING SE	2630	SCHULER AG	2841
MANZ AG	2611	KOENIG UND BAUER AG	2899
ELMOS SEMICONDUCTOR AG	2611	BAVARIA INDUSTRIES GROUP AG	2899
AIXTRON SE	2611	PFEIFFER VACUUM TECHNOLOGY AG	2813
DATA MODUL AG	2620	GESCO AG	2829
STRATEC BIOMEDICAL AG	2660	M.A.X. AUTOMATION AG	2829
SUSS MICROTEC AG	2611	WASHTEC AG	2899
FIRST SENSOR AG	2611	KHD HUMBOLDT WEDAG INTERNATIONAL AG	2892
SCHWEIZER ELECTRONIC AG	2612	TECHNOTRANS AG	2829
INIT INNOVATION IN TRAFFIC SYSTEMS AG	2651	ISRA VISION AG	2829
LPKF LASER & ELECTRONICS AG	2611	SINGULUS TECHNOLOGIES AG	2899
VISCOM AG	2660	PVA TEPLA AG	2899
VTION WIRELESS TECHNOLOGY AG	2630	KROMI LOGISTIK AG	2891
SFC ENERGY AG	2611	SCHUMAG AG	2841
GERATHERM MEDICAL AG	2660		

Manufacture of Chemicals and Chemical Products (12)	NACE Rev.2 Code	Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations (14)	NACE Rev.2 Code
BASF SE	2059	BAYER AG	2120
LINDE AG	2011	MERCK KGAA	2120
HENKEL AG & CO. KGAA	2041	STADA ARZNEIMITTEL AG	2120
EVONIK INDUSTRIES AG	2059	PAUL HARTMANN AG	2120
BRENNTAG AG	2059	VERBIO VEREINIGTE BIOENERGIE AG	2120
LANXESS AG	2016	BIOTEST AG	2120
BEIERSDORF AG	2042	EVOTEC AG	2120
SYMRISE AG	2059	VITA 34 AG	2120
H&R AG	2059	MEDIGENE AG	2120
SIMONA AKTIENGESELLSCHAFT	2223	BIOFRONTERA AG	2120
UZIN UTZ AG	2059	WILEX AG	2120
NABALTEC AG	2016	4SC AG	2120
		EPIGENOMICS AG	2120
		PAION AG	2120
Manufacture of Motor Vehicles, Trailers and Semi-Trailers (10)	**NACE Rev.2 Code**		
VOLKSWAGEN AG	2910		
DAIMLER AG	2910		
BAYERISCHE MOTOREN WERKE AG	2910		
AUDI AG	2910		
SCHAEFFLER AG	2932		
RHEINMETALL AG	2932		
ELRINGKLINGER AG	2932		
GRAMMER AG	2932		
HWA AG	2910		
PORSCHE AUTOMOBIL HOLDING SE	2910		

Appendix 4. Results with ROE and Tobin's Q as Dependent Variable

Panel A	Model 1 ROE	Model 2 ROE	Model 3 ROE	Model 4 ROE	Model 5 ROE
CSP (t-1)	0.810 (0.35)	1.363 (0.59)	-0.176 (-0.07)	0.480 (0.19)	-1.888 (-0.44)
Size	-0.004 (-0.72)	-0.004 (-0.79)	-0.010 (-1.63)	-0.010* (6.31)	-0.004 (-0.06)
Leverage	0.665*** (10.83)	0.665*** (10.87)	0.737*** (11.05)	0.737*** (11.08)	0.593*** (5.00)
R&D	-0.227*** (-9.69)	-0.227*** (-9.72)	-0.252*** (-9.12)	-0.251*** (-9.11)	-0.181*** (-3.66)
Constant	-0.066 (-1.45)	-0.026 (-0.54)	-0.015 (-0.32)	0.023 (0.46)	0.003 (0.01)
Year effects	No	Yes	No	Yes	Yes
Sector effects	No	No	Yes	Yes	No
Firm Effects	No	No	No	No	Yes
No. of obserations	429	429	429	429	429
No. of firms	87	87	87	87	87
Adjusted R-sq	0.390	0.396	0.412	0.417	0.392
F-value	69.53***	36.13***	38.42***	26.55***	12.18***

Panel B	Model 1 Tobin's Q	Model 2 Tobin's Q	Model 3 Tobin's Q	Model 4 Tobin's Q	Model 5 Tobin's Q
CSP (t-1)	14.248 (1.58)	12.086 (1.34)	7.385 (9.72)	5.233 (0.54)	13.207 (1.33)
Size	-0.061*** (-2.77)	-0.060*** (-2.74)	-0.070*** (-3.02)	-0.069*** (-2.98)	-0.039 (-0.30)
Leverage	-0.830*** (-3.45)	-0.829*** (-3.46)	-0.411*** (6.80)	-0.407*** (-1.56)	0.238 (0.86)
R&D	0.740*** (8.14)	0.734*** (8.14)	0.730*** (6.80)	0.723*** (6.76)	0.178*** (1.56)
Constant	1.498*** (8.46)	1.341*** (7.02)	1.640*** (9.01)	1.480*** (7.59)	0.905 (0.95)
Year effects	No	Yes	No	Yes	Yes
Sector effects	No	No	No	Yes	No
Firm Effects	No	No	No	No	Yes
No. of obserations	423	423	423	423	423
No. of firms	87	87	87	87	87
Adjusted R-sq	0.242	0.249	0.266	0.274	0.392
F-value	34.633***	18.44***	20.11***	14.25***	12.18***

Appendix 5: OLS Results of Effect of CSP on ROE and Tobin's Q in Five Sectors of Manufacturing Industry

Panel A: ROE	Computer, Electronic, and Optical Products	Machinery and Equipment	Chemical	Pharmaceutical	Motor Vehicles
CSP (t-1)	4.611	-11.577*	-1.263	-0.930	-7.451
	(1.232)	(-1.860)	(-0.816)	(-0.118)	(-0.417)
Assets (mil)	0.019**	-0.009	0.010*	-0.010	-0.045**
	(2.479)	(-0.774)	(1.923)	(-0.481)	(-2.618)
Leverage	0.084	0.545***	0.596***	1.167***	1.240***
	(0.921)	(4.927)	(7.530)	(5.800)	(4.795)
R&D	-1.137***	-1.223**	1.309***	-0.227***	5.867**
	(-6.333)	(-2.526)	(2.744)	(-3.584)	(2.667)
Constant	0.065	0.185	-0.124**	-0.230	-0.130
	(1.277)	(1.570)	(-2.317)	(-0.992)	(-0.779)
N	129	150	60	70	45
Adj-R sq	0.337	0.230	0.552	0.479	0.452
F-value	17.248***	10.242***	19.171***	16.856***	10.076***

Panel B: Tobin's Q	Computer, Electronic, and Optical Products	Machinery and Equipment	Chemical	Pharmaceutical	Motor Vehicles
CSP(t-1)	24.988	0.333	-21.985	5.741	21.140
	(0.962)	(0.028)	(-1.599)	(0.272)	(1.010)
Assets (mil)	0.081	0.013	0.122**	-0.152***	-0.034
	(1.518)	(0.509)	(2.587)	(-2.676)	(-1.537)
Leverage	-3.708***	-1.357***	-1.790**	2.752***	-3.157***
	(-5.837)	(-5.864)	(-2.520)	(5.122)	(-8.731)
R&D	-3.220**	-0.487	14.377***	0.763***	-7.719***
	(-2.586)	(-0.481)	(3.408)	(4.501)	(-2.977)
Constant	2.069***	1.282***	1.082**	0.370	2.962***
	(5.865)	(5.193)	(2.248)	(0.599)	(13.872)
N	129	125	58	70	41
Adj-R sq	0.220	0.222	0.299	0.538	0.869
F-value	10.041***	9.853***	7.075***	21.119***	67.429***

Appendix 6: Results with ROA, ROE as Dependent Variable When Redefining Financial Measurements

Panel A	Model 1 ROA	Model 2 ROA	Model 3 ROA	Panel B	Model 1 ROE	Model 2 ROE	Model 3 ROE
CSP (t-1)	-3.173*** (-3.56)	-2.675*** (-2.74)	-2.693** (-2.06)	CSP (t-1)	-0.573 (-0.24)	-0.589 (-0.23)	-4.516 (-1.08)
Size	0.021*** (10.06)	0.020*** (8.82)	0.072*** (4.22)	Size	0.004*** (0.67)	-0.002 (-0.39)	-0.003 (-0.06)
Leverage	-0.307*** (-13.04)	-0.339*** (-13.09)	-0.502*** (-13.91)	Leverage	0.234*** (3.77)	0.267*** (3.96)	0.220* (-1.90)
R&D	-0.262*** (-29.10)	-0.256*** (-23.80)	-0.219*** (-14.57)	R&D	-0.240*** (-10.13)	-0.265*** (-9.46)	-0.172*** (-3.58)
Constant	0.100*** (5.80)	0.107*** (5.50)	0.160 (-1.28)	Constant	-0.043 (-0.94)	0.051 (1.01)	0.064 (0.16)
Year effects	No	Yes	Yes	Year effects	No	Yes	Yes
Sector effects	No	Yes	No	Sector effects	No	Yes	No
Firm Effects	No	No	Yes	Firm Effects	No	No	Yes
No. of observations	429	429	429	No. of observations	429	429	429
No. of firms	87	87	87	No. of firms	87	87	87
Adjusted R-sq	0.756	0.759	0.604	Adjusted R-sq	0.268	0.291	0.251
F-value	332.90***	113.46***	100.56***	F-value	40.19***	15.62***	5.19***

* p < .10; ** p < .05; *** p < .01. t-statistics are in parentheses.

Appendix 7: Results with ROA, ROE as Dependent Variable When Redefining Control Variables

Panel A	Model 1 ROA	Model 2 ROA	Model 3 ROA	Panel B	Model 1 ROE	Model 2 ROE	Model 3 ROE
CSP (t-1)	-6.701***	-4.493***	-2.121	CSP (t-1)	-2.801	-1.587	-4.168
	(-5.97)	(-3.87)	(-1.59)		(-1.08)	(-0.54)	(-1.00)
Size	0.097***	0.090***	0.153***	Size	0.066***	0.064***	0.194***
	(25.68)	(19.69)	(14.71)		(7.55)	(6.12)	(5.98)
Leverage	-0.402***	-0.380***	-0.530***	Leverage	0.235***	0.305***	0.241**
	(-12.83)	(-11.26)	(-13.91)		(3.25)	(3.93)	(2.21)
R&D	-0.056***	-0.052***	-0.081***	R&D	-0.046***	-0.050***	-0.086**
	(-14.28)	(-11.80)	(-7.45)		(-5.05)	(-4.92)	(-2.54)
Constant	-0.141***	-0.124***	-0.436***	Constant	-0.305***	-0.233***	-1.014***
	(-6.74)	(-5.07)	(-5.54)		(-6.30)	(-4.14)	(-4.12)
Year effects	No	Yes	Yes	Year effects	No	Yes	Yes
Sector effects	No	Yes	No	Sector effects	No	Yes	No
Firm Effects	No	No	Yes	Firm Effects	No	No	Yes
No. of observations	388	388	388	No. of observations	429	429	388
No. of firms	87	87	87	No. of firms	87	87	87
Adjusted R-sq	0.664	0.671	0.626	Adjusted R-sq	0.268	0.223	0.190
F-value	192.15***	66.81***	108.08***	F-value	40.19***	10.23***	12.07***

* p < .10; ** p < .05; *** p < .01. t-statistics are in parentheses.

Appendix 8 Results of Two-Stage Least Square Regression Model

Panel A: ROE First Stage Regression of CSP		Instrument Variable (2SLS) Regression	
	CSP (t-1)		ROE
Assets (mil)	0.001*** (8.90)	CSP (t-1)	13.644 (0.68)
Leverage	0.001 (1.03)	Assets (mil)	-0.016 (-0.82)
R&D	0.000 (0.03)	Leverage	0.654*** (10.00)
Firm Age	-0.001** (-2.46)	R&D	-0.230*** (-9.40)
Constant	0.010*** (9.39)	Constant	-0.175 (-0.99)
Observations	429	Observations	429
Adjusted R-sq	0.199	R-sq	0.353
F-value	27.65***	Hausman	0.436

Panel B: Tobin' s Q First Stage Regression of CSP		Instrument Variable (2SLS) Regression	
	CSP (t-1)		Tobin's Q
Assets (mil)	0.001*** (8.68)	CSP (t-1)	92.033 (1.03)
Leverage	0.001 (1.09)	Assets (mil)	-0.132 (-1.55)
R&D	0.000 (0.06)	Leverage	-0.906*** (-3.31)
Firm Age	-0.001** (-2.23)	R&D	0.725*** (7.20)
Constant	0.010*** (9.09)	Constant	0.835 (1.07)
Observations	423	Observations	423
Adjusted R-sq	0.202	R-sq	0.115
F-value	26.45***	Hausman	0.888