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THE FINANCIAL CONSEQUENSES OF BEING RESPONSIBLE

AN EMPIRICAL STUDY OF THE RELATIONSHIP BETWEEN CORPORATE SOCIAL RESPONSIBILITY AND PROFITABILITY

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Abstract

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The aim of this thesis is to investigate if there is a relationship between CSR and profitability in American companies within the pharmaceutical industry, the bank industry and the oil and gas industry, and if this relationship is affected by industry belonging. During the last several decades, interest in CSR has increased and it is today a central part of the business environment. Although the demand for environmentally friendly and socially conscious products has increased, companies are having trouble seeing a link between CSR and profitability. Previous research investigating this relationship is inconclusive and by addressing shortcomings of the existing literature, the authors aspire to shed further light on the subject. To accomplish this, the authors used the Bloomberg ESG-Disclosure Score as a measure of CSR and accounting-based financial measurements to measure profitability. The relationship was analyzed with consideration to the endogeneity problem identified by the authors. The results of the empirical analysis support the notion of a positive short-term relationship and a potential long-term negative relationship. In addition, the analysis found that different levels of scrutiny between industries might be an important moderator of the relationship between CSR and profitability.

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1. Introduction

Corporate Social Responsibility (CSR) has been around in different forms for centuries, however, it is only during the last sixty years or so that the concept has been defined and researched in literature (Carroll 1999). According to Carroll (1999), Howard R. Bowen's book *Social Responsibilities of the Businessman* written in 1953 was the starting point of this literature and Bowen's early definition of CSR follows that:

> "*It refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society*". (Bowen 1953 cited in Carroll 1999, pp. 3)

Today, EU defines CSR as "*the responsibility of enterprises for their impacts on society*" (European Commission, 2011, pp. 6). They argue that in order for a company to take its social responsibility they have to integrate activities in their daily business that address environmental, social, ethical, human rights and consumer factors. So, why do companies then engage in CSR? According to Svenskt Näringsliv, there are four major factors that motivate companies to undertake CSR. The first factor is the market, as the demand for environmentally friendly and socially conscious goods is constantly increasing. The second motivational factor for companies to implement CSR is to avoid making environmental, social and ethical mistakes, mistakes that in some cases can be so devastating that the company is unable to continue doing business. When a company undertakes their business in an environmentally and socially conscious manner, the company's risk-exposure is decreased as fewer mistakes are made. The third factor provided is the possibility to please stakeholders and attract talented employees who value a responsible business model. The last factor that Svenskt Näringsliv emphasizes is moral. In the recent past, a large amount of the attention companies have received has been rooted in negative events and that has led to criticism against businesses' morals as a whole. By acting morally, companies increase their legitimacy and improve their relations with various stakeholders (Svenskt Näringsliv, 2008).

As Svenskt Näringsliv (2008) highlighted, the consumer demand for environmentally friendly and socially conscious goods is increasing. According to a study conducted by Cone Communications (2015a), 89% of Americans want to see more products that acknowledge environmental and social issues. This is evident when looking at how much companies spend on CSR. During the time period 2011-2013, companies in the Fortune Global 500 spent an average of 20 billion dollars per year on CSR activities (Unesco, 2015). However, a study undertaken by the UN Global Compact and Accenture in 2013, including a thousand chief executives found that 37% of the executives thought that the lack of a clear connection between CSR and business value was a critical factor in hindering them from enhancing their engagement in sustainability (Smith, 2014). This figure had roughly doubled since 2007 (ibid.), implying that the increasing role of CSR in society is making decision-makers more and more confounded. Indeed, Cochran states that:

> "*Corporate social responsibility (CSR) has grown from a narrow and often marginalized notion into a complex and multi-faceted concept, one which is increasingly central to much of today's corporate decision making.*" (Cochran, 2007, pp. 1)

Reflecting the increased interest in CSR, a variety of measurements and indexes of companies' levels of CSR-commitments has emerged. Because of these measurements and their increased availability, the possibility to compare companies from a sustainability perspective has been greatly enhanced. This has especially been noticed in the financing world, as financial analysts now include these CSR-ratings into their evaluations of companies and financial instruments. As a result of this, quantitative research on the subject of CSR and profitability has been simplified. Many scholars that have researched this subject argue that companies that choose to be responsible and undertake CSR-activities will benefit financially (van Beurden & Gössling, 2008). However, there is also an opposing group of scholars who argues that there is a negative relationship between the amount of CSR undertaken and profitability (ibid.).

1.1 Problem Discussion

As mentioned in the background, the last decades have produced a great amount of research on the relationship between CSR and profitability, however it has not been able to provide a univocal answer on whether there is a positive, negative or even a relationship at all between the two variables.

The possibility of aligning Friedman's shareholder theory with CSR-emphasizing theories such as the stakeholder theory is intriguing as it could possibly lead to a significant raise in the total amount of CSR undertaken in companies today. As CSR-investments often require financial engagement and the possible economic outcome is uncertain, it is likely that the decision-making process whether to invest in CSR or not becomes harder the fewer resources a company has. Brammer and Millington (2006) found that size and organizational visibility in fact are strong influencers on the level of philanthropic activities companies undertake. This could be explained by stakeholder theory, as a large and visible company is likely to have more stakeholders than a small company and therefore experience a greater pressure to comply with stakeholder demands. Russo and Perrini (2010) acknowledged this and argued that stakeholder theory is more suitable for explaining the CSR-approach amongst large companies than in small and medium size enterprises (SMEs).

The motivation for engaging in CSR then seems to fade the smaller the company, due to the diminishing amount of resources and visibility. This is supported by Williamson et al. (2006) who conclude that SMEs are not likely to increase their engagement in CSR after existing regulation requirements have been met. This is due to the fact that current CSR-policies rely on voluntary engagement while the company decision-making framework is strongly influenced by 'business performance'-thinking (Williamson et al. 2006). A different perspective is offered by Udayasankar (2008) who suggested that the relationship between company size and CSR-participation is U-shaped, implying that very large and very small companies are the most likely to undertake CSR-activities while the medium sized companies may need further motivation to increase their CSR-engagement. All in all, a problem of motivation for CSR is evident and a possible positive relationship between CSR and profitability would act as a motivator regardless of company size, and thereby ease the

decision making process within firms significantly. On the other hand, a possible negative relationship could help bring to governments' attentions that the often voluntary-based CSR-policies with relatively low regulation requirements are not strong enough as tools to substantially raise CSR-levels amongst companies in the current business environment. This was supported by Orlitzky et al. (2003) who argued that if the relationship between CSR and financial performance is negative, governmental intervention is necessary.

With the need of clarifying the relationship between CSR and profitability explained, the natural point of departure is to examine what previous literature on the field is lacking. One study that has examined the existing literature is Goyal et al. (2013) which focused on studies undertaken in the last two decades. The study found that past studies tend to apply a broad approach of studying the relationship, namely to include a multitude of industries and not focusing on a single or just a few industries. Of the 101 studies examined in the study, 54 were classed as 'multi-industry' while the remaining studies were evenly spread among different industries. In addition to this, only 11 studies focused on service industries (ibid.). The multi-industry approach found by Goyal et al. (2013) is in line with the results of the literature review made by Griffin and Mahon (1997) who found that 78% of the 51 studies examined in their study had samples consisting of multiple industries.

McWilliams and Siegel (2000) discussed that previous studies have been debating over the magnitude of industry effects but concluded that they do in fact matter. Applying a stakeholder approach, Sweeney and Coughlan (2008) addressed the issue that different industries answer to different sets of stakeholders and that the industry the company operates in therefore defines both the kind and the amount of CSR reported by the company. This issue was further supported by Chand (2006) who suggested that variations in stakeholder interests and activism between industries are so great that comparison of the relationship between corporate social performance (CSP) and financial performance without accounting for industry effects is out of the question. CSP is a sister-concept to CSR, emphasizing the ability to carry out CSR. Due to the close relatedness between the two terms CSR and CSP, the terms are used interchangeably throughout this report. Simpson and Kohers (2002) analyzed the relationship between CSR and financial performance within the bank industry, and they

claimed that the differences between industries were so great that they needed to be examined separately. They argued that focusing on individual industries emphasizes internal validity instead of external validity. Griffin and Mahon (1997) further suggested that the inclusion of multiple industries within one study could lead to results that mask individual differences between industries and Chand (2006) claimed that the accuracy of the results will increase when industries are analyzed separately.

Another issue of previous research the authors found was that several studies included companies from several different countries and regions (Ameer & Othman, 2012; Belu & Manescu, 2013; López et al. 2011). Peng and Yang (2013) argued that different regions have different cultures, business practices, environmental policies etc. and that it therefore is of great value to undertake studies focusing on certain regions in order to gain a broader variety of perspectives. Belu and Manescu (2013) acknowledged these regional differences and suggested that their inability to find neither a positive nor a negative relationship may have been caused by their multi-region approach. Furthermore, the authors discovered that many studies (e.g. Boyle et al., 1997; Russo & Fouts, 1997; Waddock & Graves, 1997; Brammer et al., 2006; Lin et al., 2009; Makni et al., 2009) have examined the relationship between CSR and profitability only including data from three years or less, which is a relatively short time period. Examining such a short time period has prevented these studies from finding a long term relationship and this short term focus may be a major drawback. Makni et al. (2009) did also point this out, as they suggested that further studies should aspire to investigate the long term relationship.

These shortcomings of previous research may to some degree explain their varied and inconclusive results and the researchers hope that by addressing these shortcomings, a contribution towards a better understanding of the relationship between CSR and profitability could be provided. The debate of CSR and profitability is still ongoing and until research has been able to provide a unanimous answer on the subject, further research within the field will be a highly relevant topic in the increasingly sustainability-oriented society we now live in.

1.2 Purpose

The purpose of this study is to increase the understanding of the relationship between CSR and profitability, which could aid companies in decision-making on whether to invest in CSR or not. Additionally, the study could indicate to stakeholders to what degree they have to intervene in the business environment to achieve desired levels of sustainability in society.

1.3 Research Questions

Based on the problem discussion and purpose, two research questions have been formulated that the authors intend to answer through an empirical analysis. The research questions are:

1. Is there a relationship, positive or negative, between companies' levels of CSR-commitment and their financial profitability, and if so, how could this relationship be explained?

2. Does the eventual relationship between CSR and profitability differ between industries, and if so, how could this difference be explained?

1.4 Scope and Delimitations

The authors have chosen to exclusively include U.S. companies listed on the American stock exchanges NASDAQ, NYSE and AMEX in the study. The authors have further limited the study to investigate three industries. Data collection has been limited to the time period between 2008 and 2014 due to an insufficient amount of data available before and after this period. Selection of variables has been limited to variables available through the Bloomberg Terminal and Reuters as individual judgements of variables such as companies' CSR-levels would have been too time-consuming.

1.5 Disposition of Thesis

The thesis is divided into eight chapters. The introductory chapter ends here and following is a review of previous studies within the field. Thereafter is the theoretical framework presented and the method is described. The fifth chapter accounts for the empirical results. The thesis' sixth and seventh chapters discuss the results of the empirical analysis and draw a conclusion based on the two research questions presented in this chapter. In the eighth and final chapter, suggestions for further research are put forward. Throughout the text, the authors of this thesis will refer to themselves as 'the authors'.

2. Previous Studies

As mentioned before, the body of literature on the relationship between CSR and profitability is greatly divided. The results are varied with some studies indicating a positive relationship, others indicating a negative relationship, while some were unable to find a relationship at all. To provide a comprehensible, although non-exhaustive, overview of these studies, the authors will first review studies that have found a positive relationship between CSR and profitability, and then studies that have found a negative relationship. Lastly, the authors will account for the studies that have failed at finding a relationship at all.

In 1984, Cochran and Wood conducted a study on the relationship between CSR and financial performance by using the 'combined Moskowitz list' as a measurement of social responsibility. The study did first control for asset age, which Cochran and Wood claimed had an effect on CSR-levels since older assets were not produced under the same strict regulations as new assets, and therefore managers needed to invest more in CSR-activities just to upgrade their assets to modern standards. After controlling for asset age, Cochran and Wood found a weak positive relationship between CSR and financial performance (Cochran & Wood, 1984). Waddock and Graves investigated the relationship between CSP and financial performance in a sample constituted by the majority of the S&P500 companies. The study concluded that financial performance positively affected the level of CSP but also that the

level of CSP had a positive effect on the financial performance. They called this phenomenon a 'virtuous circle', meaning that good financial performance will lead to higher CSP which in turn leads to even better financial performance (Waddock & Graves, 1997). Orlitzky et al. undertook a meta-study of 52 studies and concluded that CSP had a positive correlation with financial performance and that the relationship was bidirectional. However, they also found that the relationship was more strongly correlated when accounting-based measurements of financial performance and reputation-based measurements of CSR was used (Orlitzky et al., 2003). By including company research and development (R&D) in their model, Lin et al. found a strong long-term positive relationship between CSR and financial performance. However, they were unable to prove that CSR had any significant positive short-term effect on financial performance (Lin et al., 2009). Othman and Ameer (2012) concluded that firms with a higher focus on sustainability perform better financially compared to other companies. In line with Orlitzky et al. (2003), Othman and Ameer (2012) also found that the relationship was bidirectional.

Moving on to studies reporting a negative relationship, Boyle et al. aspired to shed light on investors' perceptions of the effects that CSR-information has on company value. The study looked at companies within the defense industry that either joined or did not join an initiative to commit their companies to high ethical standards. They were surprised to find that the stocks of the companies joining the initiative generated significantly lower returns (Boyle et al., 1997). A study undertaken by Brammer et al. that focused on a wider range of industries resulted in a conclusion that companies with high CSP-levels generated low returns while the low-scoring companies in terms of CSP outperformed the market. The study did as well rule out the possibility that the low returns of the high scoring companies could be caused by industry effects (Brammer et al., 2006). One study that has used a sustainability index when investigating the relationship between CSR and financial performance is Lopez et al. (2007). They discovered that sustainability practices had a negative effect on financial performance the years following implementation. The study stressed that a long-term view is necessary and that managers may have to oversee these short-term negative effects to lead the company forward. Lopez et al. acknowledged that the negative effects diminish over time but that the initial expenses may discourage companies from engaging in CSR (ibid.). Makni et al.

focused on Canadian companies in their study of CSP and financial performance and found that there was a significant negative relationship between CSP and short-term financial performance. They suggested that government subsidies might be necessary to counterbalance the negative effects, which are especially significant for small companies. They did point out that even though there are short term negative effects, CSR investments may lead to increased revenue in the long term, although no evidence of this was provided in their study (Makni et al., 2009).

Although most studies have found a relationship, positive or negative, between CSR and profitability (van Beurden & Gössling, 2008), there are some that suggest that the two variables are uncorrelated. Aupperle et al. (1985) were unable to establish a relationship at all between social responsibility and profitability and stressed that earlier studies that have found a relationship tend to have used a biased or limited methodology. McWilliams and Siegel argued that the divided results of previous studies are due to flawed models. One major reason to why past models have not been able to provide consistent results is because most of them did not take levels of R&D investment into consideration. McWilliams and Siegel claimed that CSP and R&D are highly correlated and as a result of this, studying the relationship between CSP and profitability without consideration of R&D will produce misleading results. After adjusting for R&D and CSP correlation, they found that CSP did neither have a positive nor a negative effect on financial performance (McWilliams & Siegel, 2000).

As clarified by this brief literature review, the results and approaches applied by researchers are scattered and inconclusive. In van Beurden and Gössling's (2008) non-exhaustive literature review of previous research they discovered that 68% of the studies examined had found a positive relationship between CSP and financial performance, 26% a non-significant relationship while only 6% found a negative relationship. These findings are supported by Cai et al. (2012) who stated that although there is an inconclusive body of literature on the subject due to an array of different measurements, sample coverage and research design, the existing literature is still tilting towards the fact that the relationship between CSR and profitability is of a positive nature.

3. Theoretical Framework

To be able to understand an eventual relationship between CSR and profitability, a theoretical framework has been developed constituted of theoretical concepts that could ease the interpretation of a possible positive or negative relationship. Two commonly used theoretical concepts in previous studies to explain the nature of the relationship are Freeman's stakeholder theory and Friedman's shareholder theory (van Beurden & Gössling, 2008). The authors have chosen to also include the legitimacy theory, as they believe it can further ease the interpretation of an eventual relationship. Furthermore, the authors begin the chapter with defining the concept of CSR.

3.1 Defining CSR

Defining CSR has been the focus of many scholars' agendas during the last decades and several views have been presented. In 1991, one of the most prominent CSR-scholars Archie Carroll (1991) presented a model on CSR in the form of a pyramid (Figure 3.1). The pyramid's bottom level consists of a company's economic responsibility. Carroll suggested that economic profit is the foundation upon which all other responsibilities rest. This foundation is supported by Friedman's view that the only social responsibility of a company is to generate profit (Friedman, 1970). The second level that Carroll presented is legal responsibilities, meaning that a company, when pursuing its economic objectives, must obey the laws as they are the society's codification of norms on what is right and wrong. The third level of the pyramid is the company's ethical responsibilities. These responsibilities refer to the obligation to make decisions that are right, fair and just in the eyes of stakeholders. The final level of the pyramid is the philanthropic responsibilities of the company. This level concerns how the company should improve the quality of life and be a good corporate citizen. This is achieved by not just doing what is expected by society and stakeholders, but instead to take initiative and voluntarily make further contributions to the common good (Carroll, 1991).

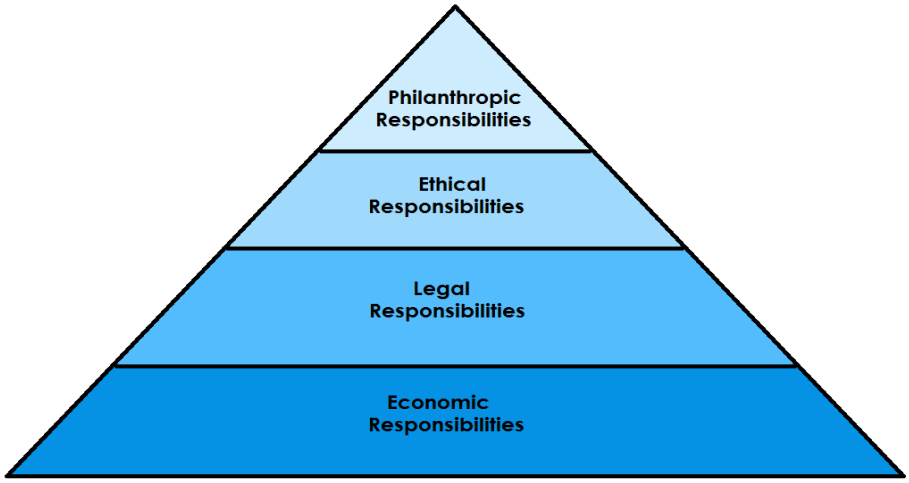

Figure 1 ***Carroll's Pyramid of Corporate Social Responsibility, Source. Carroll (1991). Authors' illustration***

CSR is often used as an umbrella term for sustainability-related issues, and terms such as CSR, sustainable development and corporate sustainability are often used interchangeably (Baumgartner & Ebner, 2006). Whitehouse (2006) suggested that sustainable development is a part of the evolution of CSR and Baumgartner and Ebner (2010) further claimed that when incorporated into the organization, sustainable development is called CSR. One of the most famous scholars who have chosen to define the concept of CSR with the term sustainable development is John Elkington. Elkinton emphasized that actions of the current generation should not limit the economic, social and environmental options of future generations and he claimed that companies have the financial resources, the technology and the management skills to carry out the sustainability transition that is needed. Elkington introduced the notion of a 'triple bottom line', which consists of an economical, a social, and an environmental bottom line, meaning that economic prosperity, environmental quality and social justice is to be achieved simultaneously. These three bottom lines are crucial for creating a sustainable global economy and Elkington further stressed the importance of being able to measure and account for these bottom lines (Elkington, 1997). Due to its accountability focus, the triple bottom line is today a common basis for companies to measure CSR-performance.

Although scholars have not yet been able to agree on a uniform definition of CSR, several foundation pillars have developed from the literature, pillars that the majority of the existing definitions have in common. Carroll (1999) stated that it is not likely that further research and

development of definitions is going to be able to develop apart from the theoretical groundwork laid out during the last several decades. To achieve an overview of this groundwork, Dahlsrud reviewed the existing literature on CSR and concluded that there are five dimensions of CSR. These five dimensions are the stakeholder dimension, the social dimension, the economic dimension, the voluntariness dimension and the environmental dimension. Dahlsrud concluded that there is a 50% chance that any of these dimensions would be included in a random definition of CSR and that there is a 97% chance that three of these dimensions would be included together in a random definition (Dahlsrud, 2008).

3.2 Legitimacy Theory

According to legitimacy theory, companies and the community act in a business relationship together, and in order to keep this relationship going, the company needs to act in line with the community's social norms. If they do not, the community may choose to terminate the relationship, which in turn would damage the company (Mousa & Hassan, 2014). According to Suchman, stakeholders are more likely to invest in companies that appear *"desirable, proper, or appropriate"* (Suchman 1995, pp. 574). Depending on the goals of a company, the level of legitimacy that it requires may differ. If a company is content with being left alone by certain social groups, the level of legitimacy it needs to achieve is rather low. However, if it wants to gain active support from society, the legitimacy demands will likely be high (Suchman, 1995).

The key to legitimacy is being able to strategically communicate the company's actions and values to different stakeholders, not only through the usual corporate disclosure, but also through more explicit and nonverbal communication. There are three main challenges regarding legitimacy; gaining, maintaining and repairing it. According to Suchman, in order for a company to gain legitimacy it is important that it is able to adapt to pre-existing stakeholders and identify new ones to support the company. Companies can also gain legitimacy by manipulating the environment they operate in and change the norms and values. Once legitimacy has been gained, it usually requires less effort to maintain but companies still need to think about being proactive in order to handle future changes in the environment, and they need to actively defend their previous actions and accomplishments. Lastly, repairing legitimacy might seem, and indeed is, similar to gaining legitimacy. It may however require

the company to react to important issues by denying, excusing or explaining their behavior in order to repair their legitimacy (Suchman, 1995).

3.3 Shareholder Theory

In 1970, Milton Friedman wrote the famous article *The Social Responsibility of Business is to Increase its Profits* where he stated that:

> "*There is one and only one social responsibility of business - to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception and fraud*" (Friedman, 1970, pp. 6).

In other words, the foundation of shareholder theory is that a company should maximize shareholder value, and Friedman argued that capital used for purposes that are not connected to the core business is just eating up profits. Friedman's definition of a shareholder is an individual who is at least partly owner of a business. According to Friedman, a business is improving society when profits are high due to the taxes that are paid to the government. The government has the social responsibility to address social problems and when tax revenues are high, social welfare increases. Additionally, by raising its profits, a business could improve the quality of its products and hire more people (Friedman, 1970).

The Friedman doctrine implies that CSR is a redundant activity for businesses that do not operate in the field directly concerned with sustainability and that it should only be undertaken in the circumstance that it is creating value to the business. Shareholder theory is often misinterpreted for being an argument for companies to do whatever it takes to generate profits (Smith, 2003), which is however not in line with Friedman's words "*without deception and fraud*" (Friedman, 1970 pp. 6). Smith also stated that shareholder theory is often criticized for focusing on short-term profits. However, if interpreted more thoughtfully, shareholder theory is oriented towards long-term profitability as the long-term survival and profitability of the company then is of utmost concern of the shareholder (Smith, 2003).

3.4 Stakeholder Theory

Stakeholder theory emphasizes that meeting stakeholders' demands is the main priority of a company, and the success of a company is dependent on its ability to satisfy its stakeholders (Lopez et al., 2007). A stakeholder is every entity that can affect or be affected by a business according to Murray and Vogel (1997). Stakeholders can be defined as primary and secondary stakeholders. Primary stakeholders are stakeholders who are essential for the survival of the business, such as customers, owners, investors, employees and suppliers, but also infrastructure and market providing stakeholders such as the government and the community. The secondary stakeholders do not have the same influence on the business as the primary stakeholders have, and they do not engage in transactions with the company. However, their legitimizing influence is noteworthy as they could cause significant damage to the company by mobilizing public opinion against the company. Examples of secondary stakeholders are the media and special interest groups (Clarkson, 1995). The demands imposed by stakeholders vary due to differences in interests but today two of the most important concerns are environmental and social issues (Russo & Perrini, 2010). Freeman (2010) further stated that a company is acting rational when it is trying to meet all stakeholders' demands.

Jones stated that the policies and decisions of a company have a direct effect on its reputation and that firm morality is difficult to fake, entailing that reputation has to be earned by avoiding behavior that decreases the trust from stakeholders. He further argued that the reputation affects the financial performance of a company, as a tarnished reputation will damage the company economically (Jones, 1995). Murray and Vogel (1997) argued that the way the company is perceived by its stakeholders underpins all subsequent actions. Ruf et al. (2001) pointed out that the reputation of a company could ease the negotiation process with stakeholders, and Jones (1995) further claimed that the reputation is strengthened when the company undertakes socially responsible actions. By undertaking CSR, a business could thereby increase its profitability due to the improved perception of the company that follows. Ruf et al. also pointed out that companies that are not willing or able to meet stakeholders' demands, which are sometimes of a societal legitimacy nature, might be subject to boycotts,

lawsuits or other negative actions. These stakeholder actions are likely to affect shareholder value negatively (Ruf et al., 2001).

4. Method

4.1 Methodological Approach

With the purpose of the study expressed as exploring the relationship between CSR and profitability, the authors believe that a quantitative approach is appropriate due to its ability to promote objectivity and limit bias of the researchers. As the existing research on the subject is inconclusive, keeping an objective perspective is of great importance in order to be able to make a meaningful contribution to the discourse. Since the authors aspired to draw conclusions about the causal relationship between CSR and profitability, the quantitative approach was further urged. In order to stress reliability and replicability, standard statistical methods were chosen to analyze the quantitative data. The casual nature of the research questions called for a regression analysis to clearly describe the relationship. Moreover, a deductive approach was used to analyze the results from the empirical analysis to be able to prove or disprove previous research and theories, and thereby further shed light on the problem at hand.

4.2 Choice of Statistical Method

As previous research have indicated that the relationship between CSR and profitability is bidirectional, using a standard OLS-regression is not a sufficient approach as an OLS-regression only indicates the strength of the relationship, not the direction. To be able to use a standard OLS-regression, one would have to make the assumption that the explanatory variable (CSR) is exogenous, meaning that there is no possibility that the dependent variable (profitability) could affect the explanatory variable (CSR). When there is a possibility that the dependent variable (profitability) affects the explanatory variable (CSR) as well, the

explanatory variable is endogenous. To transform a bidirectional relationship into a one-way relationship and address the so-called endogeneity problem of the CSR-variable, an instrumental variable (IV) regression model could be used. Using an IV-regression is a recognized method as it has been used on several occasions within the field (Al-Tuwaijri et al. 2004, Harjoto & Jo 2011, Belu & Manescu 2013) and should therefore be a reliable tool in the context and increase the internal validity of the study. However, in order for the IV-regression to be successful, only relevant instruments with a strong correlation to the CSR-variable and a weak correlation to the profitability variable should be included. Stock and Watson (2003) emphasized the importance of choosing relevant instruments and compared it with the statistical importance of having a large sample size. In addition to investigating the relationship between CSR and profitability with CSR as an endogen variable, the authors decided to investigate the same relationship allowing the CSR-variable to be exogenous in order to approve or disapprove the assumption that the CSR-variable is in fact endogenous.

4.3 Data Selection

4.3.1 Selection of Region

As previous research have pointed out the importance of focusing studies on specific regions (Belu & Manescu, 2013; Peng & Yang, 2013) the authors chose to focus on a single region, namely the U.S and the choice of this region is twofold. Firstly, the large quantity of American companies eases the data collection process as well as it increases the chances of a high quality sample, which will hopefully result in a more reliable outcome.

Secondly, American companies are interestingly relatively poor performers in terms of CSR. Bloomberg's ESG-disclosure rating system shows clearly that the U.S. is one of the lowest performing regions in the world when it comes to CSR-disclosure (Bloomberg Finance L.P., 1981-2016). In an article in MIT Sloan Management Review, Jeff Smith argued that the American financial community is strongly influenced by the shareholder theory thinking. Smith also mentioned a study in which 15 000 managers from across the world were asked if they thought that *"the majority of their fellow citizen felt that a company's only goal was profit, or if they thought that companies were also responsible for the well-being of various*

stakeholder" (Smith, 2003). As 40% of the American managers chose the first alternative, the US had the highest percentage rate, in contrast with Japanese managers who only scored 8% (ibid.). With these low levels of CSR-engagement, the authors believed that a greater difference exists between the American companies that actually perform well in terms of CSR and those who do not, which would hopefully entail a more detectable relationship between CSR and profitability.

4.3.2 Selection of Years

In order to achieve a relevant result, it is important to analyze as current data as possible, and as there was a shortage of relevant data after the year 2014, the authors chose to not include the year 2015 in the study. To answer the question of whether there exists a long-term relationship between CSR and profitability, a sufficiently long enough time period needed to be examined. A viable option was to measure a sample large enough to cover an economic cycle, as it may reduce the external effects of economic fluctuations on the company's profitability (Hamilton & Lin, 1996). According to The National Bureau of Economic Research, the average business cycle length today is approximately 70 months (National Bureau of Economic Research, 2010). In addition to this, there was a limited amount of CSR-measurement data before 2008. With these factors in mind, the time frame 2008-2014 was selected for this study.

4.3.3 Selection of Industries

This study focuses on three different industries, namely the bank industry, the oil and gas industry and the pharmaceutical industry. The financial services industry, and the banking industry in the U.S. in particular, have been subject to a raised level of scrutiny since the financial crisis (BBC, 2013), which could possibly have made the importance of CSR more pronounced. Soana (2011) supported this argument and pointed out that many banks were quick to implement CSR-programs to protect their reputation in the wake of the financial crisis. In addition to this, Goyal et al. (2013) found that there was a shortage of studies focusing on service industries, which made the bank industry a relevant industry to examine.

Cai et al. (2012) discussed the use of CSR in so called 'controversial industries', which the oil and gas industry is part of, and highlighted the importance of sustainability within these industries due to their otherwise morally questionable core business. The oil and gas industry has experienced several environmental catastrophes in recent times, such as the oil spill in the Mexican Gulf in 2010 (BP, 2010), and Cai et al. (2012) writes that CSR could act as a crucial tool to improve their reputation.

The pharmaceutical industry is also an industry given a lot of attention in the CSR context. O'Riordan and Fairbrass (2008) argued that the pharmaceutical industry receives a large amount of attention from media, non-governmental organizations and from governments. They suggested that pharmaceutical companies often have to face informed and critical stakeholders and therefore are under greater pressure to undertake CSR-activities.

Sweeney and Coughlan argued that different industries answer to different stakeholders regarding CSR. Their study showed that large differences in stakeholder focus existed between the financial services industry, the pharmaceutical industry and the oil and gas industry (Sweeney & Coughlan, 2008). The authors believe that this variation in stakeholder focus could possibly influence the effect that CSR has on profitability. Given the varied context of CSR-pressures and diverse array of core businesses, it is expected that there are significant differences in the effect that CSR has on profitability between the bank industry, the oil and gas industry and the pharmaceutical industry.

In order to define the industries, the authors used the Global Industry Classification Standard developed by MSCI and Standard & Poor (MSCI, 2014) and made a decision to use the three industry groups, Banks (4010), Energy (1010) and lastly Pharmaceuticals, Biotechnology & Life Sciences (3520). The decision to use industry groups instead of industries was made in order to increase the sample size within each industry and thus achieve a more reliable outcome. The energy industry will be referred to as the oil and gas industry as it is a better representation of the companies within the industry group.

4.3.4 Selection of Companies

With the region specified as the U.S, the most obvious starting point for selecting companies to include in the study was the American stock exchanges. The stock exchanges provide an accessible overview of listed American companies and have clearly defined industry categories. The researchers chose to focus on three stock exchanges, the New York Stock Exchange (NYSE), the NASDAQ Stock Market (NASDAQ) and the American Stock Exchange (AMEX) due to their quantity of listed companies. Another criterion that had to be fulfilled by the companies to be included in the study was that they had a Bloomberg ESG-disclosure score for each year in the time period between 2008 and 2014. Companies that were not able to meet this requirement were dismissed. Lastly, a final reduction of companies consisted of a process to filter out companies that lacked financial information from parts of the specified time period.

4.3.5 Measuring CSR

As the concept of CSR is difficult to define and scholars offer a plentitude of perspectives, measuring it is not an easy task. However, a range of different CSR-ratings and indexes do exists and the authors chose to base their CSR-measurement on the Bloomberg Environmental, Social and Governmental (ESG) Disclosure Score. The Bloomberg ESG-Disclosure Score ranges from 0-100 and is a measure of the total amount of disclosure of the three ESG-factors that a company provides. The score is based on 219 raw data points that Bloomberg collects through sustainability reports, annual reports, company websites and also through a Bloomberg survey. The data points are then weighted to emphasize the most frequently disclosed ones, and Bloomberg also include industry-specific effects on disclosure when calculating the final ESG-disclosure score. The ESG-disclosure data is measured and calculated during a time period that coincides with the fiscal year of the company so that comparison with financial indicators is possible (Bloomberg Finance L.P., 1981-2016).

The first factor that is measured is the environmental disclosure and measures disclosure of factors such as greenhouse gas emissions, energy consumption, hazardous waste, investments in operational sustainability and amount of environmental policies (e.g. waste reduction, water, energy efficiency and biodiversity). The second factor that is measured is the social

disclosure and measures the disclosure of factors such as gender distribution, fatality rates, community spending, social supply chain management and amount of social policies (e.g. health & safety, anti-bribery ethics, human rights). The third and last factor that is measured is the governmental disclosure score which measures the disclosure of factors that concerns the governance of the company such as board structure, board constitution, executive compensation, information on different committees, shareholder rights and global reporting initiative (GRI) compliance.

The Bloomberg ESG-Disclosure Score measures CSR-disclosure on bases that are largely in line with the triple bottom line perspective offered by Elkington (1997), but do also fulfill the five dimensions found by Dahlsrud (2008). As the majority of the CSR-literature stress environmental and social perspectives, the inclusion of them in the ESG-Disclosure Score is self-evident and resembles the environmental and social dimensions proposed by Dahlsrud as well as the environmental and social bottom line proposed by Elkington (Dahlsrud, 2008; Elkington, 1997). The governance factor indicates how well the company is being governed and does thereby imply the amount of economical sustainability achieved by the company, reflecting Dahlsrud's economic dimension and Elkingtons economic bottom line (Dahlsrud, 2008; Elkington, 1997). The disclosing nature of the ESG-disclosure score should presumably reflect Dahlsrud's voluntary dimension and also the stakeholder dimension as the disclosure of mentioned factors are directed to a diverse set of stakeholders (Dahlsrud, 2008).

The chosen CSR-measurement relies on the assumption that companies' levels of CSR-disclosure are proportional to their actual amount of CSR-commitment and this might not be entirely true. However, the approach is comparable to content analysis, which has been used to produce measurements of CSR in earlier studies (Soana, 2011; Ameer & Othman, 2012). Moreover, several studies have pointed towards a positive relationship between actual CSR-levels and the amount of CSR-disclosure produced by the company (Gelb & Strawser, 2001; Al-Tuwaijri et al., 2004; Clarkson et al., 2008).

4.3.6 Data Screening

To establish an overview of the data characteristics and to ensure that the gathered data is reliable, screening of the data was necessary. The first stage of the screening consisted of creating a scatter-plot for each section of data to find eventual outliers, which were examined individually and dismissed if they were caused by collection error or deemed unrealistic. Thereafter, descriptive statistics of each section of data was produced.

4.3.7 Measuring Profitability

Defining profitability is not always an easy task as there is a range of different measurements available to choose from. As previous research (McWilliams & Siegel, 2000; Lin et al. 2009) has found that R&D could be an important factor to include when investigating the long-term relationship between CSR and profitability as CSR has a high correlation with R&D, and R&D in turn has an significant impact on long term profitability, the R&D factor could be included to measure long term profitability. However, as the data selection was limited to data that was possible to systematically collect through the databases used by the researchers, there was an exclusion of the R&D factor. The researchers found data on R&D for several companies, however not a sufficiently large quantity to avoid compromising sample sizes within each industry.

Accounting-based profitability-measurements have commonly been used in previous studies and Orlitzky et al. (2003) conclude that they seem to have a higher correlation to CSP than other measurements. As all profitability-measurements differ slightly from each other in terms of what they are measuring, the authors chose to include three different measurements in the study to account for these differences.

4.3.7.1 Return on Equity

Return on equity (ROE) is the first profitability-measurement chosen due to its common use as a measurement of profitability. ROE is calculated:

$$ROE = \frac{Net\ Income}{Shareholder\ Equity}$$

4.3.7.2 Return on Assets

Return on assets (ROA) is the second profitability-measurement chosen, and although it does not measure the profitability that shareholders are most concerned with to the same extent as ROE does, it is not as easy to manipulate as ROE and is therefore included. ROA is calculated:

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

4.3.7.3 Net Income Margin

Net income margin (NIM) is the third and final profitability-measurement chosen, as it is a good measurement for comparing homogenous samples of companies due to its ability to reflect the company's ability to convert sales into actual profit. NIM is calculated:

$$NIM = \frac{Net\ Income}{Sales}$$

4.4 Statistical Models

Investigating the relationship between CSR and profitability by both allowing the CSR variable to be exogenous and endogenous requires two different statistical models. The statistical model allowing the CSR-variable to be exogenous will first be explained, followed by an explanation of the statistical model where the CSR-variable is considered endogenous.

4.4.1 Exogenous Model

When allowing the CSR-variable to be exogenous, a standard OLS-regression can be used. Acknowledging the omitted variable bias, i.e. that other factors than CSR could affect profitability, control variables were included in the OLS-regression to control for these effects and thereby provide a more just image of the relationship between CSR and profitability. A second adjustment made to the OLS was clustering of standard errors. Clustering of standard errors is a preferred method when it is suspected that the error terms in a sample are related.

As there was reason to believe that the errors terms within each industry were related, a risk of unreliable standard errors existed.

The exogenous model ***'Equation 1'*** follows:

$$Y_{it} = \beta_0 + \beta_1 Var1_{it} + \beta_2 Var2_{it} + \beta_3 Var3_{it} + \varepsilon_{it} \quad (1)$$

Where Y_{it} is the dependent profit variable, β_0 is the model intercept, β_n is the coefficient of $Var(n)_{it}$, $Var1_{it}$ is the CSR measurement, $Var2_{it}$ is the first control variable, risk, $Var3_{it}$ is the second control variable, Company Age, and ε_{it} is the error term.

4.5.1.1 Control Variables

Risk

Company risk is a common control variable to include in statistical models where profitability is being investigated (e.g. McWilliams & Siegel, 2000; Belu & Manescu, 2013) as it is known to have an effect on company profitability. In this study, risk is measured by a company's debt to equity ratio, a definition of risk that has been used before in similar studies (McWilliams & Siegel, 2000; Belu & Manescu, 2013). Debt to equity is calculated:

$$Debt\ to\ Equity = \frac{Total\ Debt}{Total\ Equity}$$

Company Age

There is reason to believe that company age has an influence on company profitability. Indeed, Stinchcombe argued that there is a 'liability of newness', meaning that the likelihood of failure is larger for a young company than for an old one. This is due to the fact that generation of firm specific skills and knowledge, development of social routines, building of legitimacy and reputation, and strengthening of ties of trust with important stakeholders is time consuming (Stinchcombe, 1965). Additionally, in industries such as the pharmaceutical industry, research and development of drugs could take a great amount of time (DiMasi et al., 2002), entailing that profitability might not be as common amongst new pharmaceutical

companies as in older ones. Based on these arguments, the authors chose to include company age as a control variable for profitability.

4.4.2 Endogenous Model

As previously mentioned, addressing the bidirectional causality between CSR and profitability, namely the endogeneity problem, requires the use of an IV-regression. IV-regression uses instrumental variables to create a new CSR-measurement that is not affected by profitability. This new CSR-measurement is called instrumented CSR. Furthermore, as different companies find themselves at different levels of CSR because of a number of reasons not possible to account for, such as history, sophistication, core values etc., adjusting the IV-regression for fixed effects is useful as it accounts for these company-specific effects. As in the exogenous model, standard errors were clustered in this model as well. Furthermore, the use of instrumental variables reduces the omitted variable bias (Angrist & Krueger, 2001), entailing that the use of control variables is not necessary in this model.

The endogenous model ***'Equation 2'*** follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \theta_t + \varepsilon_{it} \quad (2)$$

Where X_{it} is explained by ***'Equation 2.1'*** which follows:

$$X_{it} = \beta_0 + \beta_1 Var1_{it} + \beta_2 Var2_{it} + \beta_3 Var3_{it} + \pi_{it} + \varepsilon_{it} \quad (2.1)$$

In (2), Y_{it} is the dependent profit variable, β_0 is the model intercept, β_1 is the coefficient of X_{it}, X_{it} is the instrumented CSR-variable, θ_t is the effects accounted for by the fixed effects adjustment and ε_{it} is the error term.

In (2.1), X_{it} is the instrumented CSR-variable, β_0 is the model intercept, β_n is the coefficient of $Var(n)_{it}$, $Var1_{it}$ is the first instrumental variable, CSR lagged one year, $Var2_{it}$ is the second instrumental variable, total assets lagged one year, $Var3_{it}$ is the third instrumental

variable, CEO Age, π_{it} is the effects accounted for by the fixed effects adjustment and ε_{it} is the error term.

4.4.2.1 Instrumental Variables

In order to find instrumental variables that have a high correlation to CSR while simultaneously having a low correlation to profitability, literature on CSR-influencing factors was reviewed. The most credible CSR-predictors were prioritized and three different instrumental variables were finally selected.

Several studies have pointed out size as an important factor affecting the level of CSR undertaken in companies (Brammer & Millington, 2006; Udayasankar, 2008; Li & Zhang, 2010; Muller & Kolk, 2010, among others). Size does also seem to be strongly correlated with visibility (Brammer & Millington, 2006; Li & Zhang, 2010). However, no previous studies have been able to investigate the relationship between size and CSR while controlling for visibility at the same time. Having this said, size is a relevant instrument to include in the model, and a common size measure that has a proven correlation with CSR is a company's total assets (Li & Zhang, 2010; Brammer & Millington, 2010). Since the authors were unable to find any convincing studies showing that company size would have a significant effect on profitability, a decision to include company size as an instrumental variable was made. In order to achieve high significance, different variations of the size-measurement was tested and the version that provided the highest significance when predicting CSR was when the total assets was lagged one year.

CEO Age

As CSR has received more and more attention during the last decades, it is natural to believe that the younger generations who were raised in a more sustainability-oriented society will also be more concerned about the subject. In a study of American millennials, namely people born between the mid-eighties and the late nineties, it was found that the millennials were generally more concerned with CSR issues than the American average (Cone Communications, 2015b). This implies that a younger CEO would engage more in CSR than an older one. The authors therefore believed that there was sufficient reason to include CEO

age as an instrument, as they were unable to find any literature proving that CEO age would have any correlation with profitability.

Lagged CSR

Due to a scarcity of variables found explaining CSR while simultaneously having no correlation with profitability, a choice of including lagged CSR-levels as instruments was made as they are likely to have a high correlation with subsequent CSR-levels. Angrist & Krueger (2001) argued that lagged endogenous variables have poor quality as instruments; however they are commonly used throughout the literature. When running an initial correlation test between the chosen instruments and CSR, size and CEO age were not deemed as sufficient for explaining CSR on their own as their correlations were relatively low. They were however decided to be kept in the model as there was support from literature suggesting that they do affect CSR.

The researchers found research suggesting that the gender of the CEO would possibly affect the amount of CSR (Nath et al., 2013; Huang, 2013) while presumably not affecting profitability. The gathered data did however only include two female CEOs and was therefore deemed an inappropriate instrument. Other factors found supposedly affecting CSR, e.g. CEO education and CEO tenure (Huang, 2013), were either not possible to collect in a systematic and efficient way or they had an obvious correlation with profitability and were therefore dismissed. Based on the common use of lagged endogenous variables as instruments (Angrist & Krueger, 2001), the shortage of alternatives and the lack of sufficient explanatory factor of the other instruments, the researchers were willing to oversee the poor quality of the lagged CSR as instrument and include it in the model.

4.5 Data Analysis

When data collection and formulation of the statistical models were completed, the data was analyzed in the computer software STATA 14. In order to investigate the effect of CSR on profitability over time, the researchers ran the regression models several times, lagging the explanatory variables from zero to five years in the exogenous model and zero to four years in the endogenous model. As the endogenous model used instruments that were lagged one year,

the maximum lag possible in the endogenous model was therefore limited to four years. When lagging explanatory variables, the sample size decreases for each increase in time lag as the data is limited to a seven-year period. To avoid compromising the reliability of the results, the time lag was limited to a maximum of five years instead of a possible time lag of six years as it would have generated too few observations. The models were run three times for each time lag, one for each profitability measurement (ROE, ROA and NIM).

4.6 Reliability & Validity

As the study uses the American stock exchanges and includes all companies within the chosen industries that had available data for the time period 2008-2014, reliability is enhanced. The American stock exchanges are publicly available, and therefore would a replication of the data collection process be possible. The use of IV-regressions is a proven method of analyzing relationships between variables where endogeneity is suspected and the statistical method is further well specified. The study should thereby achieve a high reliability and be free from bias of the researchers. As stressed by Griffin and Mahon (1997), the focus on a few number of industries increases the internal validity of the study. Focusing on a single region as well as addressing the endogeneity problem of the relationship between CSR and profitability does further improve the internal validity of the study. The data used was collected from reputable sources, Bloomberg and Reuters, that employs set methods for collecting company information, and Bloomberg does also take industry differences into consideration when estimating the ESG-Disclosure Score used in this study to measure CSR. However, a validity concern of the study is the difficulty of determining the level of CSR performed by a company and the assumption that an ESG disclosure-score is reflecting a company's actual level of CSR may not be completely accurate. Furthermore, the relatively low relevance of the instruments used to instrument CSR might decrease validity. However, the overall validity of the study is considered relatively high.

5. Empirical Results

5.1 Data Characteristics

An initial look at the data provides information about the sample that may be needed for understanding and interpreting the results of the statistical tests. In this section, the authors will provide descriptive statistics of the data and also account for their examination of outliers.

5.1.1 Descriptive Statistics

In Table 1, Table 2 and Table 3, descriptive data of each industry sample is presented in order to give the reader a basic overview of the characteristics of the data.

Table 1. Descriptive statistics of the bank industry sample.

	CSR (ESG Disclosure Score)	ROE	ROA	NIM	CEO Age (Years)	Total Assets (Millions of USD)	Company Age (Years)	Debt To Equity
Mean	21,88	5,64	0,65	12,42	63,00	239551,03	36,70	137,84
Std. Err.	0,85	0,60	0,05	1,66	0,35	31349,05	0,98	5,58
Median	14,91	7,80	0,85	18,12	62,00	25413,95	33,00	108,52
Std. Dev.	14,87	10,57	0,90	29,11	6,23	550173,52	17,12	97,84
Min.	10,53	-74,70	-5,84	-366,64	50,00	1341,20	9,00	4,14
Max.	72,81	26,54	2,78	37,56	82,00	2572274	87,00	656,62

Table 2. Descriptive statistics of the pharmaceutical industry sample.

	CSR (ESG Disclosure Score)	ROE	ROA	NIM	CEO Age (Years)	Total Assets (Millions of USD)	Company Age (Years)	Debt To Equity
Mean	23,60	0,20	1,35	-111,58	62,43	18766,78	38,50	67,93
Std. Err.	1,06	3,74	1,55	54,51	0,40	2289,17	1,96	16,61
Median	14,05	13,88	6,71	12,08	62	1740,55	27,50	35,56
Std. Dev.	16,40	57,68	23,92	840,97	6,12	35315,55	30,24	256,28
Min	8,68	-467,80	-133,65	-10120,39	51,00	21,80	3,00	0,00
Max	71,07	109,63	56,27	127,52	79,00	212949	129,00	3841,24

Table 3. Descriptive statistics of the oil and gas industry sample.

	CSR (ESG Disclosure Score)	ROE	ROA	NIM	CEO Age (Years)	Total Assets (Millions of USD)	Company Age (Years)	Debt To Equity
Mean	21,24	9,15	4,73	9,00	61,47	23023,95	30,85	54,50
Std. Err.	0,64	0,90	0,41	1,27	0,28	2536,90	1,20	1,89
Median	15,77	11,24	5,14	9,51	61,00	6138,30	27,00	46,59
Std. Dev.	13,03	18,30	8,26	25,87	5,63	51555,90	24,45	38,48
Min	1,65	-124,85	-51,51	-289,82	47,00	228,20	3,00	0,00
Max	63,49	126,79	68,15	220,52	81,00	349493	134,00	265,48

5.1.2 Outliers

By creating a scatter-plot, a few outliers were identified. Some of these outliers were found by the authors to be caused by incorrect information from Bloomberg and Reuters, and as consistency regarding data source was prioritized, the concerned companies were dismissed from the study instead of being gathered from another source. The final sample sizes were a total of 45 companies within the bank industry, 34 companies within the pharmaceutical industry and 59 companies within the oil and gas industry.

5.2 Results Exogenous Model

Result Table Exogenous Model																
Profitability Measurement	*Coefficients & t-values CSR*			*Coefficients & t-values D/E*			*Coefficients & t-values C.A.*			*R. Std.Err. of CSR-Var.*			*Number of Observations*		
	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL
Return on Equity	0,735 (2,37)	0,068 (1,26)	0,021 (0,36)	-0,113 (-11,83)	-0,021 (-1,84)	-0,120 (-3,51)	0,090 (1,01)	0,054 (1,06)	0,076 (2,30)	0,311	0,054	0,058	237	308	398
Return on Assets	0,338 (2,44)	0,008 (1,76)	-0,004 (-0,13)	-0,032 (-12,84)	-0,003 (-3,22)	-0,065 (-4,23)	0,030 (0,85)	0,005 (1,09)	0,041 (2,61)	0,139	0,004	0,030	237	308	398
Net Income Margin	5,532 (1,24)	0,204 (1,74)	0,004 (0,05)	5,532 (0,06)	-0,066 (-2,88)	-1,45 (-3,38)	0,316 (0,46)	0,124 (1,33)	-0,031 (-0,68)	4,448	0,117	0,085	237	308	398
Independent Variables Lagged 1 Year															
Return on Equity	0,605 (2,12)	0,417 (1,01)	0,131 (2,02)	-0,030 (-8,47)	-0,012 (-1,71)	-0,011 (-0,30)	0,139 (1,69)	0,039 (0,83)	0,088 (2,66)	0,286	0,415	0,065	203	264	354
Return on Assets	0,290 (2,22)	0,005 (1,50)	0,047 (1,44)	-0,015 (-8,92)	-0,002 (-3,66)	-0,021 (-1,32)	0,042 (1,19)	0,004 (0,88)	0,046 (2,95)	0,130	0,003	0,033	203	264	354
Net Income Margin	5,912 (1,18)	0,153 (1,58)	0,100 (1,28)	0,049 (0,42)	-0,049 (-2,98)	-0,076 (-2,74)	0,477 (0,60)	0,106 (1,14)	-0,007 (-0,15)	5,000	0,972	0,078	203	264	354
Independent Variables Lagged 2 Years															
Return on Equity	0,494 (1,81)	0,015 (0,46)	0,097 (1,43)	-0,020 (-2,79)	-0,005 (-0,99)	0,018 (0,65)	0,120 (1,55)	0,689 (1,99)	0,100 (2,82)	0,273	0,327	0,068	169	220	284
Return on Assets	0,237 (1,82)	0,002 (0,77)	0,029 (0,86)	-0,009 (-2,37)	-0,001 (-3,13)	-0,011 (-0,90)	0,039 (1,01)	0,006 (2,03)	0,052 (3,12)	0,130	0,003	0,033	169	220	284
Net Income Margin	6,260 (1,14)	0,014 (0,26)	0,068 (0,79)	0,075 (0,73)	-0,027 (-2,51)	-0,056 (-1,78)	0,640 (0,67)	0,086 (1,49)	-0,004 (-0,08)	5,510	0,556	0,086	169	220	284
Independent Variables Lagged 3 Years															
Return on Equity	0,466 (1,84)	-0,003 (-0,09)	0,116 (1,50)	-0,011 (-0,86)	-0,004 (-0,80)	0,052 (1,15)	0,098 (1,24)	0,081 (2,59)	0,123 (2,92)	0,253	0,030	0,078	135	176	227
Return on Assets	0,247 (1,92)	1,66e-04 (0,07)	0,038 (1,01)	-0,005 (-0,85)	-0,001 (-2,67)	0,003 (0,20)	0,028 (0,68)	0,007 (2,60)	0,063 (3,04)	0,129	0,002	0,038	135	176	227
Net Income Margin	6,619 (1,11)	-0,018 (-0,32)	0,046 (0,51)	0,080 (0,90)	-0,234 (-2,21)	-0,054 (-1,54)	0,847 (0,73)	0,112 (1,99)	0,024 (0,42)	5,964	0,057	0,090	135	176	227
Independent Variables Lagged 4 Years															
Return on Equity	0,428 (1,57)	-0,007 (-0,20)	0,120 (1,48)	-0,011 (-1,55)	-0,004 (-0,81)	0,047 (0,77)	0,119 (1,37)	0,081 (2,51)	0,138 (3,06)	0,273	0,321	0,081	101	132	170
Return on Assets	0,234 (1,63)	-9,70e-04 (-0,14)	0,034 (0,87)	-0,006 (-1,68)	-0,001 (-2,66)	-3,74e-04 (-0,02)	0,043 (0,87)	0,008 (2,43)	0,071 (3,14)	0,144	0,003	0,040	101	132	170
Net Income Margin	6,500 (1,11)	-0,014 (-0,21)	-0,032 (-0,26)	0,061 (0,75)	-0,023 (-2,19)	-0,061 (-1,95)	0,801 (0,72)	0,117 (1,81)	0,082 (1,16)	5,389	0,069	0,122	101	132	170
Independent Variables Lagged 5 Years															
Return on Equity	0,378 (1,61)	-0,031 (-1,04)	0,140 (1,63)	-0,009 (-2,25)	0,002 (0,45)	0,016 (0,23)	0,112 (1,21)	0,084 (2,54)	0,135 (2,32)	0,234	0,298	0,086	67	88	113
Return on Assets	0,238 (1,71)	-0,003 (-1,10)	0,055 (1,39)	-0,006 (-2,33)	-3,68e-04 (-0,87)	-0,009 (-0,45)	0,035 (0,65)	0,008 (2,37)	0,068 (2,63)	0,139	0,003	0,039	67	88	113
Net Income Margin	3,432 (1,20)	-0,067 (-1,01)	0,037 (0,29)	0,006 (0,14)	-0,009 (-0,90)	-0,050 (-1,40)	0,551 (0,83)	0,136 (1,81)	0,117 (1,28)	2,854	0,066	0,125	67	88	113

Table 4. Result Table Exogenous Model.

Table 4, 'Result Table Exogenous Model', shows the results of the exogenous model. Each industry name has been abbreviated, the pharmaceutical industry to PHA, the bank industry to BAN and the oil and gas industry to OIL. The coefficients determine to what degree each explanatory variable (CSR, Debt to Equity (D/E) and Company Age (C.A.)) affects the dependent variable (ROE, ROA and NIM). t-values are provided in parenthesis below each coefficient value, and determine the levels of significance of the results. The robust standard errors of the overall model are shown in the column 'R. Std. Err. of CSR-Var.'. The total numbers of observations for each time lag of independent variables are shown in the column 'Number of Observations'. Significant results of the CSR-variable have been color-coded by confidence intervals. The color blue represents the 98% confidence interval, the color yellow represents the 95% confidence interval and the color pink represents the 90% confidence interval.

In the pharmaceutical industry, the model produced significant results for all time lags of independent variables except for the four-year lag. The profitability measurements ROE and ROA generated all of the significant results. The result within the highest confidence interval, 98%, was found when independent variables were not lagged. Two results within a 95% confidence interval were found when a one-year lag was used, and four results within a 90% confidence interval when a two year and three year lag was used. One significant result was observed when ROA was measured at an even larger time lag, five years, within the 90% confidence interval. Two significant results were observed in the bank industry within the 90% confidence interval, when ROA and NIM was measured without any lag of independent variables. One significant result was produced in the oil and gas industry at a 95% confidence level, when ROE was measured and independent variables was lagged one year.

5.3 Results Endogenous Model

Result Table Endogenous Model																				
		Coefficients and t-values of CSR-Predicting Instrumental Variables																		
Profitability Measurement	CSR Coefficients & z-values			Robust Standard Error			CEO Age			CSR_{t-1}			Total Assets$_{t-1}$			Number of Observations		
	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL	PHA	BAN	OIL
Return on Equity	0,576 (0,99)	0,628 (2,52)	0,390 (1,45)	0,569	0,250	0,268	-0,172 (-1,16)	-0,078 (-1,69)	-0,062 (-1,43)	0,369 (1,65)	0,426 (5,76)	0,573 (7,89)	-2,53e-06 (-0,04)	1,94e-06 (0,10)	4,86e-06 (0,39)	204	264	354
Return on Assets	-0,059 (-0,26)	0,051 (2,16)	0,180 (1,77)	0,248	0,023	0,102	-0,172 (-1,16)	-0,078 (-1,69)	-0,062 (-1,43)	0,369 (1,65)	0,426 (5,76)	0,573 (7,89)	-2,53e-06 (-0,04)	1,94e-06 (0,10)	4,86e-06 (0,39)	204	264	354
Net Income Margin	3,064 (0,88)	1,232 (2,15)	0,830 (1,95)	3,440	0,574	0,426	-0,172 (-1,16)	-0,078 (-1,69)	-0,062 (-1,43)	0,369 (1,65)	0,426 (5,76)	0,573 (7,89)	-2,53e-06 (-0,04)	1,94e-06 (0,10)	4,86e-06 (0,39)	204	264	354
Endogenous Variable Lagged 1 Year																		
Return on Equity	0,049 (0,11)	0,164 (2,04)	-0,191 (-0,85)	0,395	0,080	0,225	-0,220 (-1,30)	-0,161 (-1,81)	-0,091 (-1,44)	0,341 (1,35)	0,387 (5,64)	0,647 (7,63)	-1,67e-05 (-0,61)	1,86e-05 (1,22)	7,63e-06 (0,43)	170	220	295
Return on Assets	-0,322 (-0,99)	0,014 (1,50)	-0,111 (-1,03)	0,329	0,010	0,108	-0,220 (-1,30)	-0,161 (-1,81)	-0,091 (-1,44)	0,341 (1,35)	0,387 (5,64)	0,647 (7,63)	-1,67e-05 (-0,61)	1,86e-05 (1,22)	7,63e-06 (0,43)	170	220	295
Net Income Margin	0,336 (0,60)	0,637 (2,81)	-0,010 (-0,03)	0,560	0,226	0,383	-0,220 (-1,30)	-0,161 (-1,81)	-0,091 (-1,44)	0,341 (1,35)	0,387 (5,64)	0,647 (7,63)	-1,67e-05 (-0,61)	1,86e-05 (1,22)	7,63e-06 (0,43)	170	220	295
Endogenous Variable Lagged 2 Years																		
Return on Equity	-0,245 (-0,36)	0,139 (1,15)	-0,285 (-0,98)	0,713	0,120	0,290	-0,339 (-1,19)	-0,219 (-1,67)	-0,046 (-0,53)	0,265 (0,88)	0,359 (4,77)	0,595 (4,28)	9,95e-06 (0,22)	1,90e-05 (1,13)	1,61e-05 (0,60)	136	176	236
Return on Assets	-0,168 (-0,66)	0,016 (1,06)	-0,188 (-1,27)	0,263	0,015	0,149	-0,339 (-1,19)	-0,219 (-1,67)	-0,046 (-0,53)	0,265 (0,88)	0,359 (4,77)	0,595 (4,28)	9,95e-06 (0,22)	1,90e-05 (1,13)	1,61e-05 (0,60)	136	176	236
Net Income Margin	-0,249 (-0,31)	0,519 (1,69)	-0,220 (-0,43)	0,833	0,307	0,506	-0,339 (-1,19)	-0,219 (-1,67)	-0,046 (-0,53)	0,265 (0,88)	0,359 (4,77)	0,595 (4,28)	9,95e-06 (0,22)	1,90e-05 (1,13)	1,61e-05 (0,60)	136	176	236
Endogenous Variable Lagged 3 Years																		
Return on Equity	1,100 (0,98)	-0,205 (-0,83)	-0,950 (-1,38)	1,126	0,245	0,688	-0,195 (-0,51)	-0,337 (-1,51)	0,019 (0,12)	0,089 (0,23)	0,346 (3,63)	0,461 (2,41)	7,40e-05 (0,86)	2,54e-05 (1,54)	4,04e-05 (0,81)	102	132	177
Return on Assets	0,761 (0,82)	-0,025 (-0,85)	-0,548 (-1,59)	0,932	0,030	0,346	-0,195 (-0,51)	-0,337 (-1,51)	0,019 (0,12)	0,089 (0,23)	0,346 (3,63)	0,461 (2,41)	7,40e-05 (0,86)	2,54e-05 (1,54)	4,04e-05 (0,81)	102	132	177
Net Income Margin	2,725 (0,96)	-0,434 (-0,74)	-2,316 (-1,55)	2,841	0,590	1,499	-0,195 (-0,51)	-0,337 (-1,51)	0,019 (0,12)	0,089 (0,23)	0,346 (3,63)	0,461 (2,41)	7,40e-05 (0,86)	2,54e-05 (1,54)	4,04e-05 (0,81)	102	132	177
Endogenous Variable Lagged 4 Years																		
Return on Equity	1,898 (0,48)	-0,078 (-1,76)	-1,061 (-1,44)	3,977	0,044	0,735	0,524 (0,58)	-0,102 (-1,14)	0,017 (0,14)	-0,248 (-0,32)	0,540 (3,88)	0,468 (1,60)	6,52e-05 (0,70)	6,13e-05 (8,47)	4,37e-05 (1,36)	68	88	118
Return on Assets	0,864 (0,43)	-0,009 (-2,04)	-0,542 (-1,48)	1,988	0,004	0,366	0,524 (0,58)	-0,102 (-1,14)	0,017 (0,14)	-0,248 (-0,32)	0,540 (3,88)	0,468 (1,60)	6,52e-05 (0,70)	6,13e-05 (8,47)	4,37e-05 (1,36)	68	88	118
Net Income Margin	0,846 (0,42)	-0,196 (-1,90)	-1,703 (-0,92)	2,026	0,103	1,841	0,524 (0,58)	-0,102 (-1,14)	0,017 (0,14)	-0,248 (-0,32)	0,540 (3,88)	0,468 (1,60)	6,52e-05 (0,70)	6,13e-05 (8,47)	4,37e-05 (1,36)	68	88	118

Table 5. Result Table Endogenous Model.

Table 5, 'Result Table Endogenous Model', shows the results of the endogenous model. Each industry name has been abbreviated, the pharmaceutical industry to PHA, the bank industry to BAN and the oil and gas industry to OIL. The CSR coefficients show the effect of instrumented CSR on profitability and in parenthesis below are the z-values provided, determining the level of significance of the result. The robust standard errors of the overall model are shown in the column 'R. Std. Err. of CSR-Var.'. The red area marks the instrumental variables (CEO age, lagged CSR and lagged total assets) used in the model. The coefficients of the instrumental variables show their respective correlation with the CSR-variable and t-values are provided in parenthesis below each coefficient, determining the level of significance of the result. The total numbers of observations for each time lag of independent variables are shown in the column 'Number of Observations'. Significant results have been color-coded by confidence intervals. The color green represents the 99% confidence interval, the color blue represents the 98% confidence interval, the color yellow represents the 95% confidence interval and the color pink represents the 90% confidence interval.

The model did not indicate any significant relationship between CSR and profitability within the pharmaceutical industry. The t-values of the instruments were generally low and only one instrumental variable, lagged CSR, was significant for all three profitability measurements within a 90% confidence interval when instrumented CSR was not lagged.

The model produced several significant results within the bank industry. Three highly significant results were found when no time lag of instrumented CSR was used. ROE was then significant within a 98% confidence interval, followed by NIM and ROA within a 95% confidence interval. The most significant result was observed when instrumented CSR was lagged one year, as NIM then showed a correlation within a 99% confidence interval. ROE was also significant within a 90% confidence interval with the same time lag of instrumented CSR used. A result within a 90% confidence interval was generated when instrumented CSR was lagged two years and NIM was measured. With a four-year lag of instrumented CSR, all of the profitability measurements produced significant results; ROA within a 95% confidence

interval and ROE and NIM within a 90% confidence interval. The strength of the instrument CEO Age was significant within a 90% confidence interval when no lag, a one-year lag and two-year lag of instrumented CSR was used. The strength of the lagged CSR-instrument was significant within a 99% confidence interval for all time lags of instrumented CSR. The strength of the instrument lagged Total Assets was significant within a 99% confidence interval when a four-year lag of instrumented CSR was used.

In the oil and gas industry, the model produced two significant results when no lag of instrumented CSR was used and ROA and NIM were measured. Both results were significant within a 90% confidence interval. The strength of the lagged CSR-instrument was significant within a 99% confidence interval when no lag, a one-year lag and two-year lag of instrumented CSR was used. The strength of the lagged CSR-instrument was also significant within a 98% confidence interval when a three-year time lag of instrumented CSR was used.

6. Discussion

The results of the exogenous and endogenous approach do not provide a unanimous answer regarding the relationship between CSR and profitability as they generate largely different results. Both approaches do however imply that there is an industry-specific effect on the relationship between CSR and profitability.

The endogenous model indicated that CSR might in fact have a significant effect on the profitability in the bank industry as well as in the oil & gas industry. The significance of this positive relationship tends to fade with time, as the most significant results are generated when instrumented CSR is linked to profitability measurements close in time. Thereafter, no significant results were found when instrumented CSR was lagged two and three years. The significance of the relationship then regained strength, this time indicating a significant negative relationship between the two variables (see Diagram 1). As the majority of previous studies indicate a positive relationship between CSR and profitability, and many of these

studies have analyzed a relatively short time period, it is no surprise that this study found a positive short-term relationship.

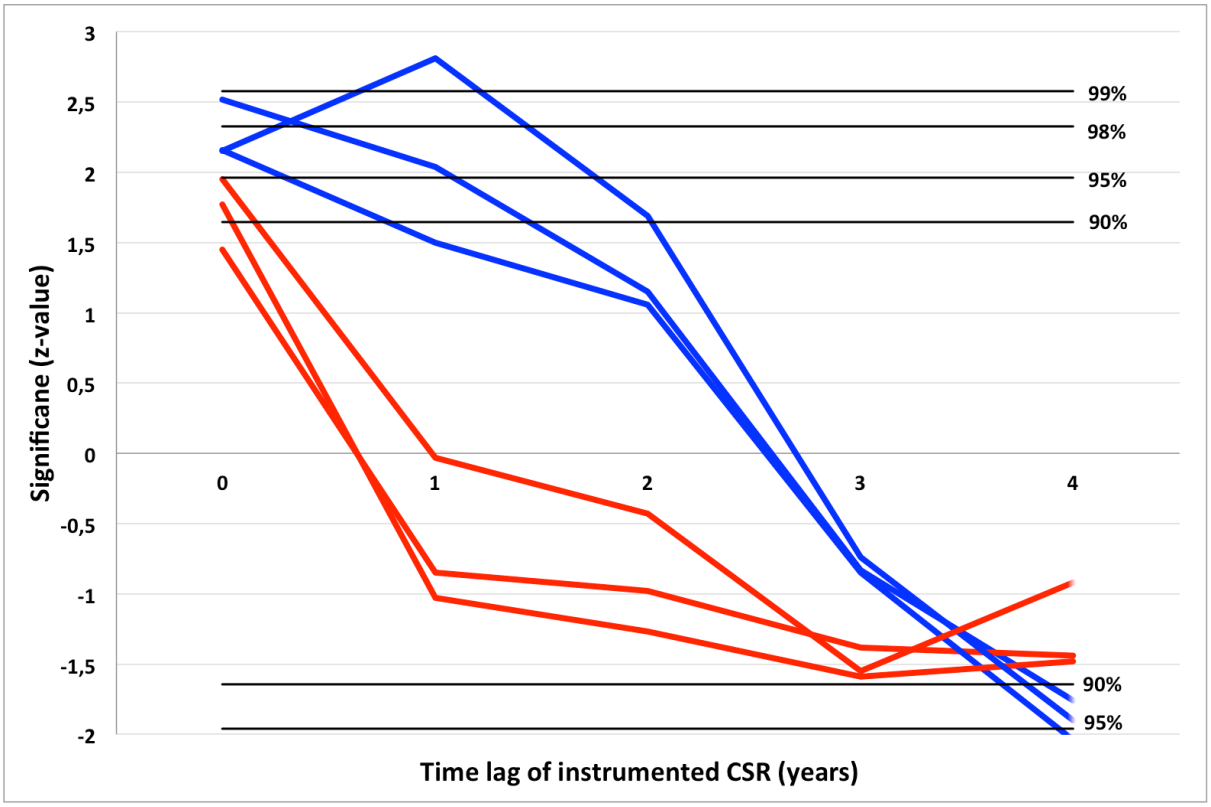

Diagram 1. Significant Results Trend. *The diagram shows the z-value of the results of the relationship between each of the profitability measurements and CSR. The x-axis shows the time lag used between instrumented CSR and the dependent variable, and the y-axis shows the z-value of each result. The blue lines represent the bank industry (one for each profitability-measurement) and the red lines represent the oil & gas industry (one for each profitability-measurement). Black horizontal lines mark the confidence intervals 99%, 98%, 95% and 90%.*

The conversion from a significant positive relationship to a significant negative relationship within the bank industry might be explained by legitimacy and stakeholder theory. An increased amount of CSR-activities could strengthen the legitimacy of the company and also its reputation amongst stakeholders. As an increased positive perception of a company's CSR-awareness could lead to increased sales as well as lower stakeholder management costs (Waddock & Graves, 1997; Ruf et al., 2001), it is implied that the profitability of the company would increase. Indeed, profits derived from good reputation have been observed in companies (Russo & Fouts, 1997). However as time goes by, the memory of an increase in

CSR likely fades, and with it the legitimacy and good reputation. Assuming that the underlying relationship between CSR and profitability is negative when the legitimacy and reputation-boosting effect is absent, one would expect a conversion from a short-term positive relationship to a long-term negative relationship. This is unless the company is able to sustain the level of legitimacy and good reputation that CSR generates. As legitimacy theory states that companies need to actively defend previous accomplishments and continue to work proactively to maintain legitimacy, the preservation of legitimacy is not to be taken for granted. This is something that might be overseen in many companies, hence the fading of legitimacy gained from CSR. The eventual long-term negative relationship found in this study between CSR and profitability strengthens the arguments of shareholder theory and the notion that CSR is a redundant activity.

The differences between industries in the endogenous model might also be explained by the legitimacy and stakeholder perspective. As the American bank industry has been under a heightened level of scrutiny since the start of the financial crisis in 2008 (BBC, 2013), there is a possibility that the legitimacy and reputation-boosting effect of CSR has been exaggerated within the industry during the time period of the data sample (2008-2014). This might be explained by the possibility that more visible, and therefore more scrutinized companies are subject to increased stakeholder regulations (Brammer & Millington, 2006). As an increased level of scrutiny would likely incur that good behavior is rewarded more generously, and bad behavior is punished harsher by stakeholders, a change in CSR commitment would have a greater impact on the profitability of the company.

When scrutiny then serves as a moderator of CSR's impact on profitability, the differences between the industries are not surprising. The tendency of the oil and gas industry to show a similar shift from a short term positive to a long term negative relationship might be due to the also relatively high level of scrutiny the fossil fuel industry has experienced due to extracting companies' questionable activities in poor resource-rich countries (Wilkin, 2009) and the level of media attention global warming has received in recent times. One might argue that the oil and gas industry has experienced the same high levels of media attention as the bank industry in recent years, however, the American banks violated a more foundational

responsibility (economic responsibility) of Carroll's CSR-pyramid (Carroll, 1991) and it is therefore possible that the subsequent actions of the banks were more scrutinized than matters regarding ethical and philanthropic responsibilities as in the oil and gas industry.

The exogenous model however, presents a significantly different result as it found the majority of the significant results in the pharmaceutical industry, and only three significant results in the bank and oil & gas industries. The results indicated that CSR had a positive short-term effect of strong significance on profitability in the pharmaceutical industry, but the significance of this positive relationship appeared to slowly diminish over time. Despite this significant relationship, the result of the exogenous model by itself is not that interesting as the relationship between CSR and profitability is suspected to be bidirectional. However, when comparing the results of the exogenous and the endogenous model, the result of the exogenous model strengthens the authors' assumption that the relationship between CSR and profitability is in fact bidirectional. If the two models had generated the same results, the assumption that the relationship is bidirectional would have had to be rejected.

6.1 Limitations

One major limitation of the study is the measuring of CSR as the amount of CSR-disclosure a company undertakes may not be an entirely accurate reflection of the actual amount of CSR undertaken. The CSR-measurement is further limited to the amount of information Bloomberg is able to collect, and also to the quality of the instrumental variables used to instrument CSR in the endogenous model. Finding strong instruments is indeed not an easy task and this study is no exception as the significance levels of the CEO age instrument and size instrument used in the endogenous model were generally low. The fact that the lagged CSR instrument might not be entirely uncorrelated with the profitability measurements is a further limitation. Lastly, the exclusion of the R&D-factor could possibly also have a major implication on the result of the study. Contrary to the results of this study, studies including R&D in their statistical models have found a long-term positive relationship between CSR and profitability (McWilliams & Siegel, 2000; Lin et al., 2009).

7. Conclusion

The findings of a short-term positive relationship in the bank industry and the oil and gas industry support the dominating body of literature that suggest that there is a positive relationship between CSR and profitability (van Beurden & Gössling, 2008), and disproves studies indicating a short term negative relationship (e.g. Lopez et al., 2007; Makni et al., 2009). However, indicating a long-term negative relationship within the same industries, the study also supports Friedman's shareholder theory and studies indicating a negative relationship such as Brammer et al. (2006), and contradicts the notion of a long-term positive relationship (Lin et al., 2009). By not considering R&D, which has been noted as an important influencer of CSR and financial performance (McWilliams & Siegel, 2000; Lin et al. 2009) in the model, the authors do however recognize the possibility of a long-term positive relationship. Additionally, the study does not contradict the 'virtuous circle' suggested by Waddock and Graves (1997) as the results strengthens the notion that the relationship could be bidirectional. The authors recognize the possibility that profitability might very well have an effect on the level of CSR as well.

The authors further suggest that the relationship between CSR and profitability is industry specific due to differences in the levels of scrutiny between industries. This is in line with the arguments of studies (Russo & Fouts, 1997; McWilliams & Siegel, 2000; Simpson & Kohers, 2002) claiming that there are significant industry effects influencing the relationship between profitability and CSR. Applying a legitimacy and stakeholder theory perspective, the level of scrutiny of the industry, and thereby the requirements for legitimacy and good reputation, seems to serve as a moderator of the relationship.

To conclude, by approaching the highly debated question whether CSR is profitable or not with a region specific analysis of a few number of industries during a relatively long time period, the study contributes to a deeper understanding of the relationship between CSR and profitability by addressing shortcomings in the previous literature. If companies accomplish to maintain legitimacy and good reputation by successfully communicating their CSR-commitments to stakeholders, CSR might just be the recipe for success.

8. Suggestions for Further Research

As the results of this study suggest that the legitimacy and reputation of a company affect its profitability, and that this relationship is moderated by the level of scrutiny within the industry, further research should address the possibility of including factors such as company legitimacy and reputation together with the amount of scrutiny, e.g. the level of media attention the industry is given as in Brammer and Millington (2006), and compare results between industries. Measuring legitimacy or reputation could be problematic; however a combined qualitative and quantitative study may be able to accomplish this.

The fact that R&D was not included as a factor in the model used in this study, although it has been recognized as a factor with a correlation to CSR and an effect on long-term profitability (McWilliams & Siegel, 2000), leaves this be for further research. Analyzing an even longer time period combined with the R&D-factor included could help further explain the long-term relationship between CSR and profitability. Additionally, focusing on other industries and regions will further make a meaningful contribution to the literature.

Lastly, research would also benefit from using well defined and accessible CSR-indexes and ratings, such as the Bloomberg ESG-Disclosure Score, to increase replicability and comparability of studies. However, the researchers acknowledge that there is a need of developing a more accurate CSR-index or rating, and research on how to do this is therefore urged.

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