

Does Corporate Social Responsibility Create Value for Shareholders? Evidence from Swedish Mergers & Acquisitions

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Abstract:

The question whether Corporate Social Responsibility (CSR) is value enhancing or value destroying has been debated for decades among researchers with no conclusive evidence for either notion. This paper aims to investigate the impact of a company's level of CSR on cumulative abnormal stock returns in connection with Merger and Acquisition (M&A) announcements. Using a sample of M&A transactions (2002 to 2013) announced by companies listed on the Stockholm Stock Exchange (SSE), we construct three statistical models to test our hypotheses. First, we use an instrumental variable approach but find no evidence of a relationship between the level of CSR and positive abnormal stock returns. Second, when decomposing the CSR Index we find a negative statistically significant relationship between abnormal returns and the social and environmental components of CSR Index. However, the relationship is close to zero and thus not economically significant. Third, we also investigate if there is an optimal level of CSR in relation to positive abnormal returns and find no evidence supporting this notion.

Keywords: Corporate Social Responsibility, Financial Performance, Mergers and Acquisitions, Cumulative Abnormal Returns

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Table of Contents

1. Introduction.....	5
2. Literature review	8
2.1 Relationship between CSR and financial performance	8
2.2 Motivation for our study	12
3. Hypotheses	15
3.1 Overall CSR performance	15
3.2 Decomposed CSR performance	16
3.3 Inversely U-shaped relationship.....	17
4. Data sources, Descriptive statistics & Methodology.....	18
4.1 Data sources	18
4.2 Descriptive statistics.....	20
4.3 Methodology	21
4.4 Robustness test	29
5. Results and Analysis	30
5.1 Overall CSR performance results	31
5.2 Decomposed CSR performance results.....	35
5.3 Inversely U-shaped relationship results	37
5.5 Limitation of the study	40
6. Conclusion.....	42
6.1 Suggestions for further research	43
References	45
Appendix.....	49

List of tables

TABLE I. NUMBER OF ANNUAL M&A ANNOUNCEMENTS.....	20
TABLE II. DESCRIPTIVE STATISTICS	20
TABLE III. PAIRWISE CORRELATIONS BETWEEN INDEPENDENT VARIABLES ...	30
TABLE IV. OVERALL CSR PERFORMANCE RESULTS.....	31
TABLE V. DECOMPOSED CSR PERFORMANCE RESULTS	35
TABLE VI. INVERSELY U-SHAPED RELATIONSHIP RESULTS	37
TABLE VII. ADJUSTED R-SQUARED FROM DIFFERENT SPECIFICATIONS	39
TABLE VIII. LIST OF VARIABLES	50
TABLE IX. HIGH CSR ACQUIRERES VERSUS LOW CSR ACQUIRERES	51
TABLE X. OVERALL CSR PERFORMANCE RESULTS, CAR(-10;10).....	52
TABLE XI. DECOMPOSED CSR PERFORMANCE RESULTS, CAR(-10;10)	53
TABLE XII. INVERSELY U-SHAPED RELATIONSHIP RESULTS, CAR(-10;10).....	54

List of figures

FIGURE I. SUMMARY OF CSR VIEWS FOUND IN PREVIOUS LITERATURE.....	12
FIGURE II. OVERVIEW OF THE THOMSON REUTERS ASSET4 ESG INDEX	49
FIGURE III. AR AND CAR AROUND THE M&A ANNOUNCEMENT EVENT	49

1. Introduction

Corporate Social Responsibility (CSR) has become an important topic and of strategic concern for corporations during the past decade. In addition, an increased demand from customers, suppliers, employees, governmental institutions and other stakeholder make these CSR investments essential for companies. The question whether CSR is value enhancing or value destroying has been debated for decades among researchers with no conclusive evidence for either notion. The question remains; does CSR create value for companies and shareholders? In this study, we examine the effects of CSR investments from an acquiring firm's perspective in the event of a Merger or Acquisition announcement (hereafter referred to as M&A).

There has been considerable previous research about CSR and corporate financial performance, (e.g. Aupperle et al., 1985, Deng et al., 2013, McWilliams and Siegel, 2000, Orlitzky et al., 2003, among others). However, to our knowledge the academic research focusing on the relationship between CSR and abnormal stock returns at M&A announcements has not yet been well documented in Sweden. The announcement returns represent the firm's short-term financial stock performance arising from the M&A. Hence, the purpose of this study is to apply this methodology to Swedish data and to fill this gap in academic research. In our paper, we use a sample of 58 listed acquiring companies in Sweden, with M&A transactions completed between 2002 and 2013. Our dataset consists of 327 transactions completed during this time period. As a measure of CSR we use the Thomson Reuters ESG Index for companies included in our dataset (hereafter referred as CSR Index). In addition, the cumulative abnormal stock returns between the day before, the day during and the day after the M&A announcement is used as a measure of a firm's financial stock performance.

In a recent study from UN interviewing CEOs from around the world, 93 percent stated that CSR is "very important" or "important" (UN Global Compact-Accenture, 2010). In December 2014 the European Union Council accepted a new directive with the aim of strengthening the transparency and accountability of large corporations within the EU (2013/34/EU). The directive requires companies in the member states to regularly report on environmental, social, employee-related, human rights, anti-corruption and bribery matters. At the time of writing, about 300 companies in Sweden are publishing sustainability reports, but once the new directive is implemented around 2 000 of the largest companies in Sweden will be required to carry out

this form of reporting.¹ Hence, research of these obligations is valuable not only for the academic discipline but also for management all over the world.

McWilliams and Siegel (2001) define corporate social responsibility as actions that are beyond the company's interest but results in social good. Hill et al. (2007) defined corporate social responsibility as activities that affect stakeholders of moral, legal, economic and philanthropic characteristics. Previous literature suggests two different views on the effects of CSR investments; *shareholder expense view* and *stakeholder value maximisation view* (e.g. Deng et al., 2013). The two views argue different perspectives and effects of companies' devotion of resources to CSR. While the *shareholder expense view* suggests that CSR investments are made at the expense of shareholder wealth, the *stakeholder value maximisation view* advocates benefits and value creation for stakeholders, and consequently shareholders, when investing in CSR.

Ye and Zhang (2011) demonstrate a U-shaped relationship between debt financing costs and CSR investments implying that the cost of debt can be reduced to a certain point using CSR. In addition, Wang et al. (2008) show that there is an optimum level of corporate philanthropy. With respect to these findings, we investigate if there is an inversely U-shaped relationship between CSR and abnormal returns at M&A announcements when studying listed companies in Sweden.

The CSR Index is measured using Thomson Reuters ESG Asset4 Index, which ranks a company's total CSR contribution on a scale from 0 to 100. This index consists of four different components; *economic* performance, *environmental* performance, *social* performance and *corporate governance* performance. In this paper, we find a negative and statistically significant relationship between the level of CSR and announcement abnormal returns. However, when using an instrumental variable approach, we find no evidence supporting these results implying lack of robustness in the regression model. Further, when decomposing the CSR Index, we find that the environmental and social performances are statistically significant in relation to cumulative abnormal stock returns, whereas the economic and corporate governance performances are not. This indicates that only some components of the CSR Index contribute to cumulative abnormal returns and in turn financial performance. Yet, these estimates are close to zero, hence *not* indicating an economically significant relationship. Previous research finds mixed evidence regarding the relationship between CSR and financial performance and a number of studies do not find any relationship. Thus, our results are in line with previous research in this field, not finding any statistically or economically significant relationship.

¹ Ds 2014:45 *Företagens rapportering om hållbarhet och mångfaldspolicy*. Stockholm: Justitiedepartementet.

In what follows, section 2 discusses and summarises relevant literature from different perspectives followed by a development and outline of our three hypotheses in section 3. Thereafter, we present our data sources, descriptive statistics and methodology in section 4. In section 5 our results are presented and analysed. Finally, the conclusions and suggestions for further research within this area are presented in section 6.

2. Literature review

2.1 Relationship between CSR and financial performance

The relationship between CSR and financial performance has been studied to a great extent (e.g. Aupperle et al., 1985, McWilliams and Siegel, 2000, Orlitzky et al., 2003 among others). A similar study has been conducted within this field by Deng et al. (2013) where they investigate the effect of CSR on a sample of 1 556 U.S. mergers. The authors find that acquiring companies with a high CSR level realise higher merger announcement returns, mergers take less time to complete and are less likely to fail than acquirers with low CSR level, due to good relationships with stakeholders. In addition, Orlitzky et al. (2003) conduct a meta-analysis of 52 studies with a total sample size of 33 878 observations on the relationship between CSR and corporate financial performance finding a positive correlation. There have been two opposing views presented in the previous literature suggesting a negative and a positive CSR effect on corporate financial performance. Thus, research has been inconclusive and many studies have found no relationship between CSR and financial performance at all. For example, Aupperle et al. (1985) do not find any relationship between CSR and profitability when using a survey instrument. However, many of these studies may suffer from endogeneity problems, which will be discussed further in the methodology section and the variation in results may also arise from differences in sample data and research design (Ye and Zhang, 2011). An explanation of the inconsistent results is suggested by McGuire et al. (1988) arguing that social responsibility affects firm performance in many different ways and hence the selection of performance variables and research design could therefore have a substantial impact on the results. The authors find a positive relationship between CSR and financial performance using both accounting based measurements and stock market returns from 131 firms.

Why companies invest in CSR

An explanation as to why companies invest in CSR is because of an increased demand from different stakeholders. McWilliams and Siegel (2001) outline a supply and demand model for CSR and find that there is an optimal level of CSR investments. According to the authors, the demand for CSR is primarily derived from consumers and other stakeholders, e.g. employees, investors and society. CSR can signal that a company is concerned about social issues, which can be valuable for reaching certain customer segments that values CSR. Furthermore, the authors argue that there is strong evidence for many customers valuing CSR. Therefore, these

investments could not only be beneficial for the brand itself, but also be used as a differentiation strategy (McWilliams and Siegel, 2001).

Shareholder expense view

Milton Friedman (1970) started the modern debate of the relevance of CSR. He argues that CSR may reduce the shareholder value and claims that companies only have minimal ethical obligations apart from following the law and maximising profit. As a result, companies are not required to invest in ethical and responsible activities. According to Friedman (1970), managers use CSR as a private benefit for improving their own careers or for other hidden agendas at the expense of shareholder wealth and thus creating a conflict between them. This theory is in line with one of the two main opposing views, namely the *shareholder expense view*. This view suggests that companies invest in CSR at the expense of shareholder wealth and therefore is a costly investment on behalf of limited resources that could be invested in a more efficient way. Goss and Roberts (2011) explain this view as the *overinvestment view* suggesting that companies may overinvest in CSR as a result of managers desire to gain private benefits such as good reputation. Wright and Ferris (1997) investigate the relationship between firm value and responsible investments from divestment of South African companies. The authors find a negative and statistically significant relationship between stock excess returns and the divestments of business units, which they interpret as evidence for the agency problem and consequently the *shareholder expense view*. This study has been questioned by McWilliams et al. (1999) where they argue that this is *not* a general conclusion about the relationship between CSR and firm performance, but rather should be seen as an example where managers act in self-interest.

Stakeholder value maximisation view

The other opposing view on CSR is the *stakeholder value maximisation view* suggesting that CSR has a positive effect on shareholder wealth (e.g. Deng et al., 2013). The reasoning behind this is that when a firm takes other stakeholders' interest into account the stakeholders will be more likely to support the firm, which could increase the profit and subsequently increase shareholder wealth. Cheng et al. (2011) argue that stakeholder engagement could also improve revenue and profits through improved relationships with customers, employees and business partners. By minimising the conflict between the company and society, the company could reduce their cost of conflicts (Renneboog et al., 2008). Moreover, by improving the level of CSR, companies may be less sensitive to negative events and hence reduce business operation risk (Ye et al., 2011). Thus, managers can use CSR as a tool to reduce risk since reduced business risk can contribute to

lower stock price volatility, hence less premiums will be required from shareholders. In addition, Dhaliwal et al. (2011) argue that companies with good CSR are more transparent and accountable since they, to a greater extent, disclose their activities. As a result, the information asymmetry between the firm and investors reduces, which in turn reduces the perceived risk as well. Lee and Faff (2009) showed that companies with a high CSR level have lower idiosyncratic risk. In addition, investing in CSR may also reduce the risk in countries with government sanctions since CSR may help the company improve relationships with the government and society as a whole (Ye et al., 2011).

Another explanation why CSR has a positive effect on financial performance, and in line with the stakeholder value maximisation view, is the *contract theory* by Coase (1937). This theory suggests that stakeholders and shareholders are connected by contracts, where shareholders ensure critical resources to the company in exchange for claims that stakeholders have. Hill and Jones (1992) explain this theory, that a firm can be seen as a collection of contracts that are connected between different resource owners. These contracts are either *explicit* or *implicit* between principals and agents (in our case shareholders and stakeholders). Explicit contracts have strong legal standing such as wage contracts while implicit contracts do not. An implicit contract is a voluntary and self-enforcing agreement and is by its nature more abstract such as job security and product support (Azariadis, C. and Stiglitz, J. E., 1983). Therefore, reputation is crucial for these contracts since a company can default on their commitments without major sanctions from other stakeholders (Deng et al., 2013). Hence, CSR investment can strengthen a company's reputation of not breaking their *implicit* contracts, which may increase stakeholder's willingness to accept these contracts. In the long term this will positively affect the company's profitability.

Companies with better CSR exhibit cheaper financing

Even if CSR investments result in positive effects the question still remains if these are incorporated in companies' financial performances. Renneboog et al. (2008) conclude that the question whether the capital market prices CSR investments or not is still unanswered. However, using a large sample of 12 915 U.S. firm-year observations Ghoul et al. (2011) find that firms with a higher CSR score show a lower *ex ante* cost of equity financing. In addition, the authors show that some factors affect the cost of equity more than others such as CSR investments in environmental policies and employee relations due to lower business risk and higher valuation. However, they do not find any evidence for a lower cost of equity when investing in diversity and human rights related policies. Ghoul et al. (2011) explain their results arguing that CSR

reduces the perceived risk of the firm and thus lower cost of equity. In addition, companies with low CSR are associated with a higher risk and smaller investor base. The cheaper financing can also be a result of lower capital constraints. Using a large cross-section sample of firms Cheng et al. (2011) find that firms with better CSR strategies have better access to finance. In addition, the authors show that capital constraints will be lower when improving stakeholder engagement. In contrast to the previous mentioned studies, Sharfman and Fernando (2008) find a negative relationship when investigating the connection between cost of capital and environmental risk management.

Goss and Roberst (2011) investigate the effect of CSR on corporate debt financing and build their research on the hypothesis that the level of CSR should reduce business operation risk as a result of improved relationships to stakeholders. However, they do not find any economically significant evidence supporting cheaper private debt financing for firm with high CSR. Ye and Zhang (2011) find that although improved CSR leads to lower cost of debt, there is an optimal level that companies should aim to reach. After this level, additional investments in CSR will not benefit the company due to overinvestments, thus suggesting that the relationship is U-shaped. Brammer and Millington (2008) also find a non-linear relationship between corporate social performance and financial performance focusing their study on charitable giving, i.e. the intensity of gift giving. The authors show that only firms with significantly high or low level of corporate social performance have a higher financial performance. In addition, companies with very low corporate social performance are performing best in the short run and the opposite is true for companies with a high level of charitable giving, performing best in the long run.

Importance of CSR implementation

As has been discussed above, there are two sides arguing opposing effects of CSR investments. However, there may be other factors affecting the result of a CSR investment. Using longitudinal data from 130 companies, Tang et al. (2012) find that the positive effects of an investment are dependent on the *actual execution* of the CSR activity and highlight the importance of CSR engagement strategy. Further, they show that if an investment is gradual and focused, the returns from an investment can be enlarged.²

² There have been many studies evaluating the profitability of SRI funds (socially responsible investments) and most studies find that SRI funds do not outperform non-SRI funds. For the interested reader please see a literature review of SRI written by Renneboog et al. (2008)

FIGURE I. SUMMARY OF CSR VIEWS FOUND IN PREVIOUS LITERATURE



2.2 Motivation for our study

One of the reasons why we focus on Sweden in this study is that the awareness of CSR amongst the public is high according to the European Commission (2013), and subsequently companies' CSR efforts are also relatively high. Sweden as well as the other Nordic countries has progressed far in each of the areas associated with CSR, covering environmental, social and corporate governance related questions. A study conducted on the European Commissions behalf shows that the awareness of companies' CSR efforts in Sweden is amongst the top of the world and much higher than the world average. Hence, the question remains whether CSR still has an impact on financial performance in a country where the notion of CSR is already generally accepted and in some cases even expected. In addition, CSR is at the time of writing, a trending topic where current generations are growing up in an environment where companies incorporate CSR strategies into their core businesses in order to differentiate themselves from the competition. This group of people, referred to as baby boomers or "generation X" shoppers, will most likely have a significant impact on the development of CSR (McWilliams and Siegel, 2001).

M&A transactions, within the context of CSR, is also central since firms with higher level of CSR benefit from higher merger announcement returns and are less likely to fail (Deng et al., 2013). M&A transactions are considered one of the most important corporate investment decisions firms make, which can have significant impact on the firm's future financial performance. At the M&A announcement, the stock market reaction in the form of abnormal returns consists of future synergies, purchase price and probability of deal success (Betton et al.,

2008). We argue that the level of CSR also has an impact on M&A announcement returns, and in turn financial performance. A firm with a high level of CSR conducting an M&A process will most likely in the new combined entity transfer the level of CSR to a target without a focus on CSR investments. Hence, there may be economies of scale associated with CSR investments, where investments made by the acquiring company will also to some extent benefit the target company. Thus, at deal announcement the stock market reaction will not only incorporate the factors mentioned above but also acquirer level of CSR, either positively or negatively.

In addition, a company's level of CSR will have an impact on the likelihood of a deal being completed (Deng et al., 2013). An M&A transaction is a complex process with a large number of stakeholders involved affecting both the success of the investment decision and also the firm's future financial performance. We argue that firms engaged in CSR activities have better stakeholder relations, which in turn should easier facilitate the completion of mergers and increase the probability of deal success. Apart from stakeholder relations, the probability of success is also contingent on the associated deal risks. Firms with a greater CSR focus operate in a more transparent way and should hence be perceived as less risky. Both these factors are incorporated into the abnormal returns at M&A announcements where all benefits (and limitations) arising from a combined entity are discounted by the probability of success. Thus, companies with high level of CSR will benefit from larger abnormal returns due to the perceived higher probability of deal success.

From an econometrical point of view the advantage of examining M&A transactions is that in most cases it is an unanticipated event and will therefore help us mitigate some of the endogeneity issues between CSR performance and abnormal returns (Aktas et al., 2001 and Deng et al., 2009). By using abnormal stock returns, only the unanticipated component of the economic effects of the event is measured (Betton et al., 2008).

We have chosen to focus on acquiring firms' overall level of CSR since that will have a larger impact on the new combined entity after a merger or acquisition is completed. We choose not to focus on target firms during M&A events for two reasons. First, there have been previous studies conducted with a focus on target firms already (e.g. Aktas et al., 2011). Second, the database used in this study does not include target firms and therefore does not allow us to control for it. As a proxy for financial performance we use abnormal returns when studying M&A announcement events. This methodology is in line with Bacidore et al. (1997) showing a

connection between accounting performance and stock market performance. Moreover, Brown and Warner (1980) outline the event study methodology used in this paper.

In addition, we choose to extend this research area by not only focusing on companies overall level of CSR, but also to decompose the companies' efforts into the underlying components in the CSR Index. Our aim is to investigate whether one or several subcomponents of the CSR Index can explain the mixed evidence discovered in previous literature about CSR. Again, Sweden makes an interesting research population since they perform well in each of the individual ESG components; environmental, social and corporate governance. By decomposing the overall CSR Index we control for the underlying factors, which may explain the mixed evidence from previous research.

Finally, we aim to test if the level of CSR is non-linearly related to abnormal stock returns and hence financial performance. An explanation to the sprawling results in the previous literature may be due to the research design. As previously mentioned, Ye and Zhang (2011) show an U-shaped relationship between CSR and debt financing costs due to the lower perceived risks associated with a company engaging in CSR activities. Wang et al. (2008) also show evidence of an optimum level of corporate philanthropy where gifts before the optimum increases firm value, while after a given point additional philanthropy investments have almost no marginal benefits to financial value. With respect to previous research, we investigate if there is an inversely U-shaped relationship between CSR and cumulative abnormal returns at M&A announcements when focusing on Swedish listed companies.

3. Hypotheses

Our analysis is based on the hypothesis that, *ceteris paribus*, companies with a high level of CSR have higher positive abnormal stock returns at an M&A announcement than companies with low CSR levels. When a company decides to invest in CSR, shareholder wealth will benefit positively according to the *stakeholder value maximisation view* (e.g. Deng et al., 2013 and Renneboog et al., 2008). Investing in CSR can also be viewed as a signal to stakeholders that the company will keep their commitments (Jensen, 2001) or be used as a tool to mitigate risk (Goss and Roberts, 2011). Building our hypothesis on these findings that CSR reduces risk and generates value to shareholders, we suggest that CSR has a positive effect on abnormal stock returns at M&A announcements and in turn financial performance.

3.1 Overall CSR performance

Fama (1970) developed the *Efficient Market Hypothesis*, arguing that markets are efficient and rational. This theory suggests three forms; strong, semi-strong and weak, all forms implying different effectiveness of the markets. Starting with the strong form, this hypothesis assumes that all public and private information available affects the prices. The semi-strong form assumes that only public information affects the prices and the weak form only past public information. Following the Efficient Market Hypothesis, prices will be adjusted for new information and the demand for a company's share will increase or decrease depending on the investor's view of the future outlook. If high CSR level is positively affecting financial performance, this is also beneficial for the new legal entity after a merger or acquisition. Hence, investors' view on the combined entity is positive and abnormal returns will be higher for firms with a higher level of CSR.

Hypothesis 1:

An acquiring company's level of CSR Index affects the cumulative abnormal stock returns positively when they announce an M&A transaction.

3.2 Decomposed CSR performance

As a second step we test whether a decomposed CSR Index results in more significant results or not. By separating the index into its four main components we hope to see if a single component is contributing more than the rest to the effect seen on the overall CSR level. We choose to examine if this relationship also holds when using M&A announcements as measurement for financial performance and if it holds for Sweden.

The first pillar of the CSR Index is the economic performance, evaluating the balance between CSR and financial performance. This index takes a company's margins, profitability, shareholders and clients loyalty into account. This is in contrast to the other conventional CSR indices used by researchers and by including this component the costs of CSR activities are weighted against the benefits of the investments.

The second pillar, environmental performance, is based on emission reduction and resource reduction. When companies reduce costs connected to carbon emissions and work towards increased productivity, higher profit can be generated and consequently yield higher returns to shareholders.

The third pillar, social performance, is built on employment quality and satisfaction, employee turnover, health and safety, injury rates, training and development, diversity, human rights, rate of monetary donations and product responsibility. Edmans (2012) investigate the link between job satisfaction and firm value, with implications for CSR, and shows that job satisfaction is beneficial for firm value and generate high long-run stock returns. His finding suggests that the level of job satisfaction is not fully valued by the market. Further, he suggests that the market is slow to fully value intangible assets and the mispricing is primarily a result of that.

Finally, the fourth pillar corporate governance performance, is divided into four smaller categories; board structure, board experience, compensation policy and shareholder rights. Board structure evaluates board members previous experience and compensation scheme. These factors have implications for securing shareholders' interest. Hence, a better performance should affect investors' returns positively. In addition, corporate governance should encourage companies to work ethically, fairly, transparently and with accountability and are at the same time expected to continue generate profit (Freeman, 1984). As a result, a company can avoid corporate scandals and failures, which reduces the business risk.

Hypothesis 2:

One or several components of an acquiring company's level of CSR Index affect the cumulative abnormal stock returns positively when they announce an M&A transaction.

3.3 Inversely U-shaped relationship

Finally, we investigate whether the relationship between the level of CSR and positive abnormal stock returns is inversely U-shaped. Ye and Zhang (2011) and Wang et al. (2008), show that there is an optimal level of CSR investments that companies should strive to reach. After this level the authors show that improved CSR reduces financial performance. Hence, using a linear assumption instead may give misleading or mixed results. Ye and Zhang (2011) suggests that research within this field should be more careful when designing the studies. Thus, our third hypothesis takes this finding into account.

Hypothesis 3:

An acquiring company's level of CSR Index affects the cumulative abnormal stock returns inversely U-shaped, implying an optimal level of CSR when they announce an M&A transaction.

4. Data sources, Descriptive statistics & Methodology

4.1 Data sources

As a measure of a company's level of CSR we use Thomson Reuters Asset4 ESG research data. This database is the longest standing source of environmental, social and corporate governance (ESG) research data available with global coverage, including Sweden. The primary index, the ESG weighed overall performance score is used as the CSR Index. This index is built upon four pillars consisting of *economic* performance, *environmental* performance, *social* performance and *corporate governance* performance. These are in turn built upon over 250 key performance indicators³ collected and compiled by Thomson Reuters. A graphical overview can be found in the Appendix (FIGURE II). All scores are normalised using z-scoring and are equally-weighted. The research data ranges from fiscal year 2002 until today and is updated on an annual basis (Thomson Reuters, 2012). In this paper we have chosen to use data starting from 2002 to 2013 since this is the most recent data available at the time of writing.

Within the Asset4 ESG dataset there are 58 Swedish companies listed on Stockholm Stock Exchange (SSE) represented with varying time periods. The companies span a range of industries and represent some of the biggest companies in Sweden. We have chosen to exclude a number of companies based on the following industry classifications with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services). These financial firms are regulated by capital requirements and cash policies making them less comparable to the rest of the companies in our population. These firms have considerably different capital structures with high amount of liquidity and low levels of leverage. The exclusion of financial firms is also in line with previous research (e.g. Deng et al., 2013).

Historical mergers and acquisitions activity is obtained from Bloomberg L.P. database, where all M&A transactions conducted within our time period 2002-2013 are included in the population. Only deals classified as completed are included and filtered on acquirers with a base of operations from Sweden. We focus on pure M&A transactions where the acquirer does not have a majority stake (less than 50% ownership of target shares) before the announcement event and acquires the entire target company after (100% ownership of target shares). Hence, asset sales and transactions resulting in less than 50% ownership of target shares are not included.

³ The four pillars are composed of key performance indicators such as CO₂ emissions, hazardous waste, human rights policies and diversity among managers.

This is due to two reasons. First, if the company owns more than 50% they already have control over the company and additional ownership will not affect how the company is operated. Second, if the companies continue operating as two separate legal entities the positive effects of CSR investments would be difficult to obtain. For example, according to the stakeholder maximisation view CSR investments would increase stakeholders' willingness to support the company and hold implicit contracts. But with two different legal entities these benefits would not be fully obtained and the implicit contracts would not be renegotiated and hence be strengthened. Thereby, including assets sales would make it difficult to draw casual conclusions.

In addition, Bloomberg is also used to download all supplementary data regarding the associated M&A deal characteristics, company financials and stock prices. All stock prices obtained are adjusted for spin-offs, stock splits and consolidations, stock dividend/bonus and rights offerings and entitlement. The adjustments reduce noise from unwanted corporate events in order to get better estimation of both firm stock returns around the announcement event and market betas used to determine expected returns. We also require all companies in the CSR Index to have been listed for at least 200 days before the M&A decision announcement in order to estimate expected returns and market betas.

To get observable market reactions from the M&A announcements we exclude M&A deals of smaller sizes since they will most likely not have a noticeable impact on the company's stock price. The stock market in Sweden is comparatively smaller and thus the M&A deals made are of smaller sizes, why it is important to take this into account. We set a limit of M&A announcements with a valuation of SEK20 million or higher. The limit is a balance between reducing data points only contributing with noise and at the same time keeping as many observations as possible.

In order to reduce the effect of extreme outliers we winsorized the variables Book-to-Market and Relative Deal Size at the 2% level, thus replacing extreme values with the corresponding 2nd percentile or 98th percentile. Hasings et al. (1947) have shown that winsorized estimators usually lead to more robust results to outliers than without the adjustment and since these variables includes a number of extreme outliers an adjustment was made.

4.2 Descriptive statistics

The tables in this section present various descriptive statistics of our dataset.

TABLE I. NUMBER OF ANNUAL M&A ANNOUNCEMENTS

2002	2003	2004	2005	2006	2007
16	20	18	32	68	42
2008	2009	2010	2011	2012	2013
28	10	30	36	21	12

The number of observations in our panel dataset varies from year to year and is therefore unbalanced. The variation depends on market conditions and the state of the economy, where the number of M&A announcements fluctuates with booms and recessions. The table below presents descriptive statistics of all variables used in this study. A complete list of variables with definitions can be found in the Appendix (TABLE VIII).

TABLE II. DESCRIPTIVE STATISTICS

This table summarises all the variables used in this study. The sample consist of M&A transactions conducted in Sweden 2002-2013 and uses the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations.

Variable Name	N	Mean	SD	Min	P10	P50	P90	Max	Unit
CAR(-1;1)	327	1.2	5.0	-28.8	-2.4	0.5	5.9	39.0	%
CSR Index	327	53.8	29.2	4.6	18.1	52.1	92.6	97.5	0-100
Economic Index	327	53.7	26.1	3.1	18.8	52.2	90.9	98.6	0-100
Environment Index	327	56.8	29.9	10.1	16.6	55.5	93.8	96.7	0-100
Social Index	327	53.3	28.4	5.8	10.6	53.0	91.0	96.6	0-100
Corp. Gov. Index	327	50.8	23.0	2.3	20.2	52.6	80.5	91.3	0-100
Intangible Ratio	249	0.3	0.3	0.0	0.0	0.3	0.8	1.0	Ratio
Lagged CSR Index	309	53.3	29.4	4.4	14.0	53.1	92.6	97.5	0-100
Industry Avg. CSR	327	60.5	12.5	0.0	49.5	63.2	73.2	73.2	0-100
Size	327	42.7	67.3	0.2	5.0	17.2	95.1	448.8	bnSEK
Book-to-Market	327	0.6	0.3	0.1	0.2	0.5	0.9	1.2	Ratio
Rel. Deal Size	327	0.2	0.3	0.0	0.0	0.0	0.4	1.8	Ratio
Cash Dummy	327	0.9	0.3	0.0	0.0	1.0	1.0	1.0	Dummy
Public Dummy	327	0.1	0.3	0.0	0.0	0.0	0.0	1.0	Dummy

4.3 Methodology

Our analysis consists of three parts starting with the evaluation of CSR's effect on abnormal stock returns. Thereafter, we analyse if there are any differences in the results when decomposing the CSR Index into its four pillars. Finally, we investigate if there is an optimal level of CSR and hence an inversely U-shaped relationship. Specifically, we test if increased CSR activity could lead to increased abnormal returns and hence improved financial performance until an optimal level. Thereafter, further investments have a negative effect on financial performance indicating that management are overinvesting.

In order to study the relationship between CSR and cumulative abnormal returns at M&A announcements we employ an event study methodology. The general idea is to isolate the abnormal return in connection to the event being studied from price fluctuation arising from the market as a whole. The event must generally be unanticipated and unexpected for the method to properly capture abnormal returns. In our study we use M&A announcement return and try to determine how much of the observed abnormal return is attributable to a firm's level of CSR. For firm i at time t the abnormal return is the difference between realised return and the expected return.

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

The aggregated abnormal return is determined by cumulating the returns over the event window.⁴ In order to capture the stock market reaction of the M&A decision announcement we choose to look at an event window stretching one trading day before the announcement to one trading day after. We include the day before due to the occurrence of information leakage and rumours where the stock market starts incorporating the possibility of an event before the actual event (Betton et al., 2008). In the case that the M&A announcement could be announced late during the trading day or after the stock market close, the day after is also included to capture the entire reaction. If the announcement occurs during a non-trading day the trading day immediately following is used as the event day. The cumulative abnormal return (CAR) is

⁴ An alternative method of aggregating abnormal returns is to use the buy-and-hold method (BHAR), where the aggregate is calculated as the difference between the realised return from a buy-and-hold portfolio and the expected return of the same buy-and-hold portfolio. $BHAR_{it} = \prod_{t=t_0}^{t_1} [1 + R_{it}] - \prod_{t=t_0}^{t_1} [1 + E(R_{it})]$. The CAR method uses an arithmetic sum while BHAR uses a geometric sum. Barber and Lyons (1997) have shown that for short horizons CAR and BHAR are very similar, while for long horizons CAR is a biased predictor of BHAR, thus BHAR is more appropriate. For our study where the event window spans three days CAR is adequate and conceptually more intuitive.

computed by summarising the three trading days of abnormal return in our event window i.e. the day before $R_i(-1)$, the event day $R_i(0)$ and the day after $R_i(1)$. Later in our analysis we extend the event window in order to verify the robustness of our results.

$$CAR_j(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \quad (2)$$

The next step in an event study to determine what the expected return or “normal” return would be in the absence of an event. The method used to calculate expected return will have an impact on all subsequent results, thus the selection of methodology is important. There are several options from a basic market model to the factor models or by using matching of stocks.⁵ To estimate the expected return we have chosen to use Carhart (1997) four factor model which builds upon Fama and French (1992) three factor model and Markowitz (1952) modern portfolio theorem and CAPM. The four-factor model rests on the assumption that the market is efficient and incorporates new information and expectations regarding firms’ future outlook. Mitchell and Netter (1989) present evidence for a rational market reaction to an unanticipated tax proposal in the United States which led to a market crash. New information is incorporated in the stock price almost instantaneously, suggesting an efficient market. In extension to the market risk premium of CAPM, the four factor model try to explain stock returns by also taking account that small capitalisation stocks tend to outperform large capitalisation stocks (SMB) and that value stocks tend to outperform growth stocks based on price-to-book ratio (HML). Carhart includes an additional factor based on the stocks previous performance called momentum, arguing that rising stock prices tend to continue rising and declining stock prices tend to continue declining (MOM). The model in its entirety is specified as below:

$$(R_{it} - r_{ft}) = \alpha_{it} + \beta_{iM}(R_{mt} - r_{ft}) + \beta_{iSMB}SMB_t + \beta_{iHML}HML_t + \beta_{iMOM}MOM_t + \varepsilon_{it} \quad (3)$$

In expectation the regression residual coefficient should be equal to zero, $E(\varepsilon_{it}) = 0$. The expected return is determined for each event by estimating the model coefficients using historical stock prices immediately before the defined event window. In line with previous studies such as

⁵ Ahern (2009) outline the major categories of prediction models that can be used to determine expected returns. (i) *Mean Adjusted Return*: where the expected asset return is constant over time, but differs between companies. (ii) *Market Adjusted Return*: the market portfolio return is subtracted from realised returns. (iii) *Market model*: using CAPM. (iv) *Fama French three factor model*. (v) *Carhart four factor model*. (vi) *Characteristic Based Benchmark Model*: also known as matching, where an expected return is determined by the performance of a comparable firm. We choose to use CAPM and the three/four factor models are some of the most generally accepted asset pricing models used by numerous academics and practitioners. We choose not to use a matching method due the fact that our dataset is of adequate size and because of the lack of really comparable companies.

Deng et al (2013) and McWilliams et al (1999) the β_i for each event was estimated using an estimation window of 200 trading days.⁶ The estimation window was set using an 11 day gap before the M&A decision announcement in order to avoid the rumour period leading up to the event in our estimations. This phenomenon has been captured by Betton et al. (2008) where the days leading up to the event day on average for the entire dataset has positive abnormal returns, suggesting rumours and information leakage.

On a few occasions there are overlapping event windows in our dataset. With overlapping event windows abnormal returns on individual securities are not uncorrelated. Abnormal returns from one event will propagate into a second event thus artificially increasing the observed market reaction. We drop these observations from our dataset in order for them to not infer with the end results.⁷

During the estimation window the historical stock prices are used in order to estimate each firm's sensitivity to respective factors in the four-factor model at each announcement event. The market return used is the value-weighted index OMXS30⁸, which consist of the 30 most traded stocks on the Stockholm Stock Exchange. For the risk-free rate the STIBOR Tomorrow Next⁹ rate is used, which is the overnight interbank rate used by the banks active on the Swedish money market.

This study focuses on M&A deals conducted with a Swedish acquirer and thus only Swedish data is used to the extent it is possible. For the model factors SMB, HML and UMD, Kenneth R. French Data Library provides up to date factors in a wide range of different portfolios and geographical regions. Unfortunately no factors are provided for the Swedish stock market and the European equivalent is only quoted on a monthly basis, where this analysis is based on daily stock returns.¹⁰ Therefore, we chose to construct our own Fama French and Carhart factors

⁶ There is a trade-off between having a longer or shorter estimation window. Using a long estimation window enable more historical stock prices to be used in the estimation, while the effect from other unwanted events will also be included in the estimation. The convention among previous published event studies have used are around 200 days.

⁷ There are different ways to adjust for overlapping event windows. We do not to implement these methods due to the small amount of overlapping mergers for the same acquirer in our dataset. If this was a recurring problem in our dataset then one of the adjustment above would be appropriate.

⁸ As a proxy for market portfolio return an equally-weighted portfolio can also be used. We use a value-weighted portfolio in our estimations of market betas since that is the portfolio closes mimicking the market portfolio.

⁹ The Stockholm Interbank Offered Rate (STIBOR) is the average rate the largest banks in Sweden use to lend to each other without collateral at different maturities. Rates obtained from the Swedish National Bank's webpage.

¹⁰ With this in mind we see three alternatives that can be used; (i) Use monthly stock returns and European monthly factors in the estimation window. (ii) Use daily stock returns, but European monthly factors. (iii) Construct our own daily factors on Swedish market. Previous literature has shown that the geography of the factors in three-factor model has an impact on the predictability of the model.

using Swedish stock returns. The population of the Swedish Stock Market was defined as Large Cap and Mid Cap companies¹¹ listed on the Stockholm Stock Exchange. When determining the model factors for we follow the methodology used by Fama and French (1992, 1993) and Carhart (1997). For the Fama French factors SMB and HML the stock market population is divided into six portfolios formed on market capitalisation and book-to-market. The *Small Minus Big* (SMB) factor is based on the median market capitalisation, where small firms are defined as firms with a market capitalisation below market median and the big firms all other firms. *High Minus Low* (HML) is based on book-to-market ratio where listed companies with the 30% highest book-to-market are subtracted from the companies with the 30% lowest book-to-market. The *Momentum* (MOM) factor subtracts 50% of the past months' best-performing firms from the 50% worst performing firms.

4.3.1 Overall CSR performance

To test our first hypothesis and evaluate the effect of a company's level of CSR on abnormal returns arising at M&A announcements, following the methodology used by Deng et al. (2013). We calculate the cumulative abnormal returns at each event and then regress it on CSR to determine the relationship.

As analysis tool we use the classic linear regression model with ordinary least square (OLS) to estimate the unknown parameters in our research design. The efficiency of the OLS estimators is determined by a number of assumptions and failure to meet these can lead to biased estimates and especially biased standard errors (Wooldridge, 2008). The assumptions include no heteroskedasticity implying constant variance for the error terms, no serial correlation where the error terms are independent and correlated and error terms are normally distributed.¹² Each of these assumptions are tested in the analysis below in order to control for the efficiency of the OLS estimates and the risk of Type I (incorrect rejection of a true null hypothesis) or Type II (failure to reject a false null hypothesis) errors.

¹¹ Small Caps stocks were not included in the stock market population due to the lower trading volumes exhibited. This can result in mispricing due to large spreads between quoted buy and sell prices and with old last paid prices.

¹² Daily stock returns for individual securities are generally not considered normally distributed. Brown and Warner (1985) argue that this is not a problem due to the Central Limit Theorem which suggests that the distribution of stock returns converges to normality as the number of securities increase. However, this rests upon the assumption that the abnormal returns are independent and identically distributed across firms, which McWilliams et al. (1999) find.

Basic multi-variable regression

First we choose to test our first hypothesis and to check if there is a direct relationship between cumulative abnormal returns and CSR Index. The model used is specified as below:

$$CAR_j = \beta_0 + \beta_1 CSR Index_{it} + \beta_k z_i + Year + Industry + \varepsilon_{it} \quad (4)$$

Apart from the dependent and independent variables our model includes a vector of control variables, z_i . The controls comprises of deal specific and firm specific characteristics such as *Acquirer Firm Size* (measured at market capitalisation), *Relative Deal Size* (announcement price divided by target equity book value), *Book-to-Market* (acquirer total assets divided by market capitalisation) and dummy variables for a *Pure Cash Deal* and if the target is *Publicly Listed*. These independent variables are in line with commonly used controls when conducting event studies on M&A announcement events (Betton et al., 2008). In addition, the model incorporates fixed effect for both event *Year* and acquirer *Industry*.¹³ The year fixed effects control for shocks and time-variant trends affecting the entire dataset, while the industry fixed effects take into account differences between industries that remain constant over time. By using fixed effects estimations we remove possible bias from omission of year or industry related variables. Harford (2005) show that the frequency of mergers is driven by technological, economic and regulatory shocks, another reason to use fixed effects. Since we are following companies over time it is reasonable to assume that previous financial performance influence a company's current and future performance. This can result in autocorrelation between the standard errors within firms. In order to adjust for this phenomenon we cluster each regression on acquiring companies.

Instrumental variable approach

A challenge for many of the studies touched upon in previous literature is the risk of endogeneity problems since the level of CSR is not always exogenous. Companies with good financial performance may invest more in CSR due to higher capacity or better management. Therefore, the challenge remains whether having a good overall CSR performance results in higher abnormal returns at M&A announcements and subsequently financial performance. Or vice versa, if high financial performance is required before firms choose to invest in CSR. In order to avoid finding a reversed casual relationship we use instrumental variables to mitigate the bias that

¹³ In order to determine if we should use fixed effects or random effects we conducted a Hausman test. Fixed effects is appropriate in most cases resulting in consistent result, but in some cases random effects may give more efficient estimates and should thus be used instead. The Hausman test suggests that random effects is not appropriate and thus we use fixed effects.

might occur in previous regressions. Estimated coefficient from IV-regressions are more consistent, however this approach is less efficient due to larger standard errors (Wooldridge, 2002). A valid instrument should be correlated with a company's level of CSR, while at the same time not directly correlated with abnormal returns at the M&A announcement event or the regression residual. We test three different instruments in order to mitigate the reversed causality problem: (I) *Intangible Ratio* (intangible assets divided by total assets), (II) *Lagged CSR Index* (one previous year) and (III) *Industry Average CSR*.

$$CAR_j = \beta_0 + \beta_1 Instrument_{it} + \beta_k z_i + Year + Industry + \varepsilon_{it} \quad (5)$$

$$Cov(CSR Index_{it}; Instrument_{it}) \neq 0 \quad Cov(Instrument_{it}; \varepsilon_{it}) = 0$$

Instrument I: Intangible Ratio

The challenge of measuring a firm's CSR activity is to quantify it in numbers. When a company makes CSR investments, in most cases they are accounted for as intangible assets on a firm's balance sheet. Intangible assets are the assets that are not physical in nature and include assets such as goodwill, franchise licenses, patents, copyrights, trademarks and trade names. We construct an intangible ratio as the ratio between a firm's booked intangible assets and their total assets.¹⁴ The ratio will be correlated with a company's level of CSR, while at the same time not be directly correlated with abnormal stock returns and in turn financial performance. In addition, companies with high intangible ratio find CSR more important as it is used to support and enhance the brand image and to ensure favourable reputation. The ratio is used as an instrument for CSR Index and should solve some of the endogeneity issues from previous regressions.

Instrument II: Lagged CSR Index

Another common instrumental variable used by researchers to overcome endogeneity problems is to use lagged data. Lagged data removes the direct correlation between the dependent variable and the independent variable thus mitigating reversed causality. In our case managers may choose to invest heavily in CSR immediately before an M&A announcement in order to increase market awareness and to boost market reactions in a positive direction. This form of window dressing is not uncommon practice for companies who carefully select the announcement time and date of each press release. Therefore, the level of CSR will be measured one year before the M&A decision. In addition some researchers argue that the effect of CSR investments will only

¹⁴ Intangible assets has been used in previous literature as a predictor of CSR, such as Comincioli et al. (2012).

be realised some time after the investments has been made, which should be captured by using lagged CSR data.

Instrument III: Industry Average CSR

Cheng et al. (2011) argue that the level of CSR could be industry specific since emphasis on CSR activities varies across industries and CSR performance of one company influence other companies within the same industry. As a result, high performing CSR companies tend to be found in the same industries. Using industry average CSR performance as an instrument, we mitigate the effect of reversed causality between cumulative abnormal returns and CSR level since a single company is unable to influence the CSR average of its industry. At the same time, industry average CSR has a correlation with a company's CSR level and through that affects cumulative abnormal return which in turn affects financial performance. Hence, the industry average CSR is a viable instrument for the CSR Index.

Two-Stage Least Squares (2SLS) Regression

As a last step, we try to combine all three instrumental variables discussed above in a two-stage least squares regression to investigate if this generates results with higher explanatory power. We conduct a Sargan (1958) over-identification test in order to examine the exogeneity of the instrumental variables i.e. testing if there is no significant correlations between the instrumental variables and the error terms in the merger performance regressions.

4.3.2 Decomposed CSR performance

Our first part of this study focuses on the relationship between CSR and M&A announcement abnormal returns. However, since the CSR Index is built upon four underlying categories it is of interest to evaluate whether some of these have a larger effect than others. For example, the level of corporate governance could have an impact on financial performance due to decreased risk associated with the principal agent problem. By improving corporate governance, the supervision and control of a firm's management is increased resulting in alignment between both investors' and managements' interests. This is in line with both the *stakeholder value maximisation view* and *contract theory*. Therefore, it is of great interest to investigate if one or certain parts of the CSR Index affect financial performance to a greater extent than another factors. To test our second hypothesis we therefore decompose the overall CSR Index into its four underlying factors: *economic* performance, *environmental* performance, *social* performance and *corporate governance*

performance. The regression is specified as below, each CSR factor is examined individually and then viewed together.

$$CAR_j = \beta_0 + \beta_1 CSR Factor_{it} + \beta_k z_i + Year + Industry + \varepsilon_{it} \quad (6)$$

4.3.3 Inversely U-shaped relationship

In the third part of our study, we investigate if the relationship between CSR and financial performance is non-linear, in line with our third hypothesis. As has been discussed in the section Previous Research, a handful of studies have found a non-linear relationship between CSR and corporate financial performance, hence suggesting the existence of an optimal level of CSR investments. This can be seen as an analogy of a combination of the *stakeholder maximisation view* and the *shareholder expense view*. Hence, a CSR investment is positively correlated with financial performance until a certain point and create value for all stakeholders, including shareholders, supporting the *stakeholder maximisation view*. However, further investments in excess of the optimum has a negative relationship with financial performance suggesting that management are overinvesting in socially responsible activities at the expense of the shareholder wealth, thus supporting the *shareholder expense view*.

In order to test for an inversely U-shaped relationship between CSR and cumulative abnormal returns at M&A announcements we include a nonlinear term in our regression model, with the general specification:

$$y_j = \beta_0 + \beta_1 x_i + \beta_2 f(x_i) + \beta_k z_i + Year + Industry + \varepsilon_i, \quad i = 1, \dots, n \quad (7)$$

Here x represents the CSR Index, whereas y_j is the cumulative abnormal return. The function $f(x_i)$ gives the regression model a curvature and the parameters β_1 and β_2 will decide if the equation is inversely U-shaped or not within our dataset. In addition, as the previous analyses we have a vector of control variables, z_i , and ε represents the regression residual which in expectation is equal to zero, $E(\varepsilon) = 0$. For the curvature $f(x_i)$ the simplest specification is used as below:

$$f(x_i) = x_i^2 \quad (8)$$

In order to prove the existence of an inversely U-shaped relationship, two conditions must be satisfied: (i) the second derivative of the equation must have the correct sign and (ii) test for the

presence of extreme point within the data range $[x_{low}, x_{high}]$. In practical terms, if the coefficient β_2 is significant and the estimated extremum point is within the data range, that is an indication of an inversely U-shaped relationship. However, this methodology does not take into account the possibility of a convex relationship that is monotone for $[x_{low}, x_{high}]$. Lind and Mehlum (2010) argue that the above methodology is too weak and in order to properly evaluate the presence of an inversely U-shape, we need to test whether the relationship is increasing at low values and decreasing at high values within our data range.¹⁵

4.4 Robustness test

To test the robustness of our results one can relax or change some of the assumptions made in our research design and control if the existence of a relationship still remains. One such robustness test would be to increase the event window over a longer time period than used in the previous analysis with CAR(-1;1). A longer event window may capture a larger part of the abnormal returns from the M&A announcement. However, extending the event window could also add more noise with the risk of including other unwanted corporate or market events. The advantage of increasing the event window is that it takes into account the entire market reaction from an M&A announcement event. Hence, if there still is a relationship between a company's CSR level and abnormal returns, the results could be considered robust and not dependent on how the event window is defined.

¹⁵ For a more through explanation of the testing methodology for U-shapes, please see Lind and Mehlum (2010).

5. Results and Analysis

In this section, we present and analyse our results from the different regressions, starting with the overall CSR performance. We begin with outlining the market reaction when a company with a high CSR Index on an M&A announcement event by measuring the cumulative abnormal returns. Thereafter, we will present the result when decomposing the CSR Index into its four components. Finally, we present the results from testing for an inversely U-shaped relationship.

TABLE III. PAIRWISE CORRELATIONS BETWEEN INDEPENDENT VARIABLES

	CSR Index	Size	Book-to-Market	Relative Deal Size	Cash Dummy	Public Dummy
CSR Index	1.00					
Size	0.49	1.00				
Book-to-Market	-0.10	-0.25	1.00			
Rel. Deal Size	-0.15	-0.11	-0.10	1.00		
Cash Dummy	0.13	-0.07	0.05	-0.16	1.00	
Public Dummy	0.15	0.15	-0.26	0.30	-0.03	1.00

In the table above we can see the pairwise correlations between the independent variables testing for multicollinearity. Looking at the results we can conclude that our independent variables do not suffer from multicollinearity.¹⁶

This paper focuses on abnormal returns and cumulative abnormal returns arising from M&A announcement events measured in percent. Using the methodology described above an illustration of the average abnormal stock returns for the entire dataset is presented in Appendix (FIGURE III). The graphs plot cumulative abnormal returns and abnormal returns for each trading day leading up to the event and the trading days following. As can be seen the abnormal stock returns fluctuate around zero percent, with a clear spike at the announcement day 0. This effect is also visible when cumulating the abnormal returns over time.

Before starting with the regressions we divide our dataset into two categories; acquiring companies with high level of CSR and acquiring companies with low level of CSR, using the median CSR level as a separating point. Initial mean difference tests are presented in the Appendix (TABLE IX). The results suggest that acquiring companies that rank high on the CSR Index on average have lower cumulative abnormal returns at M&A announcements. This difference is true for all variations of event windows tested with a p-value of 5-10% statistical significance. However, using an event window only stretching the event day, CAR(0), is not

¹⁶ When conducting a VIF (variance inflation factor) test we find no indication of multicollinearity.

statistically significant. In addition, for firms with high CSR acquiring company's size¹⁷ on average is notably larger, they pay on average a lower premium for their target companies while the other measures such as book-to-market, relative deal size and cash considerations are comparable between the two groups. To conclude, the group with high level of CSR exhibit on average lower cumulative abnormal returns at M&A announcements, but there are slight differences between the two groups, which will be controlled for when conducting further regression analyses.

5.1 Overall CSR performance results

TABLE IV. OVERALL CSR PERFORMANCE RESULTS

This table reports regression results on the relation between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from one day before to one day after announcement, CAR(-1;1), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent variables	(1) OLS Basic Model	(2) IV Intangible Ratio	(3) IV Lagged CSR Index	(4) IV Industry Average CSR	(5) IV 2SLS
CSR Index	-0.03** (-2.15)	0.003 (0.07)	-0.004 (-0.21)	0.013 (0.42)	-0.007 (-0.39)
Size	-0.006 (-0.69)	-0.013 (-0.91)	-0.017 (-1.33)	-0.008 (-1.40)	-0.006 (-1.62)
Book-to-Market	2.311 -1.67	1.923 (1.11)	1.348 (0.83)	-0.404 (-0.36)	0.340 (0.27)
Relative Deal Size	6.754*** (3.15)	7.015*** (3.25)	7.727*** (4.01)	6.809*** (4.01)	7.661*** (3.93)
Cash Dummy	1.879* (1.80)	2.074 (1.63)	1.600 (1.44)	0.954 (0.97)	1.037 (0.87)
Public Dummy	-2.577* (-1.87)	-3.051** (-2.24)	-2.177* (-1.79)	-3.232** (-2.14)	-2.933** (-2.16)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	No	No
Observations	319	235	296	323	219
Adj. R ²	0.23	0.24	0.32	0.20	0.28

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Basic multi-variable regression

In the table above our initial regression results are presented. The variable *CSR Index* is of primary interest and all subsequent variables is a vector of control variables used to capture deal specific and company specific variations. All regressions made in this study are adjusted for

¹⁷ Size measured as market value of equity, i.e. market capitalisation.

robust standard errors controlling for heteroskedasticity¹⁸ and for both year and industry fixed effects. The first regression indicates a statistically significant negative relationship between CSR Index and cumulative abnormal returns with a coefficient of -0.03 percentage points, significant on a 5% level. This implies that a one index point increase in the CSR Index for a company will decrease abnormal returns by 0.03 percentage points, three days around the M&A announcement event. Bearing in mind the average cumulative abnormal return for the entire dataset is 1.19%, a decrease of 0.03 percentage points is not considered economically significant. This is in contrast to our first hypothesis showing both a negative and close to zero relationship between a company's level of CSR and abnormal returns. Hence, from the basic multi-variable regressions the abnormal returns when announcing an M&A cannot be explained by a company's level of CSR.

The requirements for OLS regressions are that the dependent variable, CAR, does not cause the independent variable, CSR Index, and the error term is independent from both the dependent and independent variables. Consequently, the basic multi-variable regression specification most likely suffers from omitted variables and reversed causality. For example, there may be factors resulting in both high CSR levels *and* cumulative abnormal returns and vice versa, introducing biased estimates of the CSR level's treatment effect. Hence, with endogeneity issues it would be difficult to argue the relationship's causality. In addition, conducting tests for omitted variables show that our regression specification does lack explanatory power.¹⁹ Consequently, in order to mitigate some of the bias, time and industry fixed effects are included in the regressions. The fixed effects remove possible biases from the omission of time variant variables as well as industry related variations. However, our results could still suffer from omitted variable bias and most likely does. The next section sets out to address this issue.

Instrumental variable approach

From previous regressions it is difficult to argue that the abnormal return and hence financial performance is only influenced by the degree of CSR activity and not vice versa. Indeed, high levels of CSR could be the result of superior financial performance, allowing companies to not

¹⁸ A test was conducted in order to ensure that the variance of our regression residuals are constant over the entire dataset using Breusch-Pagan test for homoskedasticity. The test suggest that our dataset suffer from heteroskedasticity why adjustments are made for robust standard errors, Wooldridge (2002).

¹⁹ Testing for omitted variable bias using OVTEST we can reject the null hypothesis suggesting we have omitted variables. This is not surprising, we could imagine that different corporate structures affect the level of CSR which constrain some companies from investing in CSR.

only focus on fundamental growth and survival, but also to spend time on sustainability related concerns. In order to mitigate this problem, we implement an instrumental variable approach.

Looking at the table above we can conclude that the CSR Index is not statistically significant for any of our instrumental variables; *Intangible Ratio*, *Lagged CSR Index* and *Industry Average CSR*. The estimates are small ranging from -0.004 to +0.130, with altering signs indicating both positive and negative effects of CSR. The altering signs imply that there is no clear relationship between CSR level and cumulative abnormal returns since it is dependent on the selection of instrumental variable. In addition, we conduct a 2SLS regression using all three variables as instruments for the CSR Index,²⁰ however, there is still no statistical or economic significance. The results also confirm the issue of endogeneity discussed in the previous section, since the level of CSR is no longer significant and fluctuates both in term of magnitude and direction using the instrumental regressions. However, the interpretation of the coefficient signs should be made with care, since the coefficient magnitudes are close to zero, minor changes in the underlying dataset or any of the underlying assumptions may change the direction of the sign.

The power of each instrument was verified using Cragg-Donald's (1993) weak instrument test. The test indicates that there are no weak instruments problem with F-statistics exceeding 10 for each of the three instrumental variables²¹ (Staiger and Stock, 1997). However, the issue of correlation between the instrument and the regression residual still remains something that we cannot test for. Despite being functional instruments the new regression approach still does not provide an economically or statistically significant relationship between CSR level and abnormal returns.

As discussed in the methodology section, none of our instrumental variables are optimal, but in theory they should mitigate some of the endogeneity issues observed in the first model design. One of the most challenging aspects of using an instrumental variable approach is to find an appropriate instrument for the explanatory variable. Some researchers argue that there is no perfect instrument that meets the definition of valid instruments. Most variables that have an effect on the independent variables may also have an effect on the dependent variable, making it less consistent.

²⁰ Conducting a Sargan test indicate no issues with overidentification (Sargan, 1958).

²¹ Cragg-Donald F-statistic. (i) *Intangible Ratio* = 32.3, (ii) *Lagged CSR Index* = 165.7, (iii) *Industry Average CSR* = 37.4.

In order to use *Intangible Ratio* as an efficient instrument, it is important to control for other factors also included in a firm's intangible assets. Our model rests upon the assumption that the full level of CSR investments is incorporated in the intangible ratio. However, there are several additional components of intangible assets affecting abnormal returns. One such being *brand strength*, which for some companies accounts for a substantial part of intangible assets and brand equity is a key aspect when companies create competitive advantages (Hsu et al., 2013). However, due to the absence of data covering the companies used in our dataset we are not able to control for such factors and hence the intangible assets ratio may be somewhat biased. In the case of lagged CSR Index, it will not completely eliminate the problem with reversed causality since well performing companies could still invest more in CSR. Hence, we will not be able to catch the true effect. Despite these challenges, lagged data is still used in previous literature such as McGuire et al. (1988). The authors use current CSR to infer about subsequent financial performance measured in a variety of different ways, indirectly using lagged CSR data to find a relationship. For industry average CSR, the effectiveness of the instrument will depend on the homogeneousness of each industry, since companies with a CSR Index far from the industry average will generate skewed estimation results. In addition, by clustering industries together, large part of the variation within the dataset is also lost. Another drawback of using industry average CSR is that the number of companies within each industry is not balanced and this might in some cases lead to slightly biased results.

To conclude, none of our instrumental variables are significant and are all in contrast to our first hypothesis. Hence, we are unable to reject the hypothesis that there is a positive effect on market reaction when the acquirer has a high level of CSR. In addition, we cannot say if the abnormal returns can be derived from a company's level of CSR. Previous literature has shown positive, negative and neutral results of CSR's effect on corporations. These results appear to depend on the used research design and which time-period was in focus. As in our case, we do not find a relationship between CSR and cumulative abnormal returns in connection with M&A announcement events.

5.2 Decomposed CSR performance results

TABLE V. DECOMPOSED CSR PERFORMANCE RESULTS

This table reports regression results on the relation between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from one day before to one day after announcement, CAR(-1;1), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent variable	(1) Economic	(2) Environmental	(3) Social	(4) Corporate Governance	(5) ESG (all)
Economic	-0.005 (-0.42)	-	-	-	0.003 (0.26)
Environmental	-	-0.020* (-1.98)	-	-	-0.010 (-0.78)
Social	-	-	-0.025* (-1.83)	-	-0.013 (-0.78)
Corporate Gov.	-	-	-	-0.029 (-1.40)	-0.021 (-0.97)
Size	-0.011 (-1.16)	-0.007 (-0.74)	-0.008 (-0.83)	-0.008 (-0.93)	-0.005 (-0.59)
Book-to-Market	1.640 (1.08)	2.187 (1.54)	2.436 (1.50)	1.870 (1.36)	2.470 (1.55)
Relative Deal Size	7.022*** (3.24)	6.978*** (3.19)	6.806*** (3.05)	6.945*** (3.30)	6.829*** (3.15)
Cash Dummy	1.801 (1.60)	1.770 (1.64)	1.717 (1.66)	1.764* (1.70)	1.723 (1.61)
Public Dummy	-2.808* (-1.95)	-2.745* (-1.93)	-2.436 (-1.68)	-2.737* (-1.95)	-2.534* (-1.75)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
Observation	319	319	319	319	319
Adj. R ²	0.21	0.22	0.22	0.22	0.22

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

The next step is to investigate whether a decomposed CSR Index gives improved results. In the table above we find the results from the regressions with a decomposed CSR Index. We estimate five different models; one for each of the four pillars and thereafter we consider the effect of all four pillars simultaneously. Starting with the social and environment pillars, we see that the coefficient for the social pillar is -0.025 and the coefficient for environmental -0.020 both with p-value less than 10%. Hence, the two pillars show a negative and weak statically significant relationship between CSR and abnormal returns. However, the relationship is also very close to zero, one index point increase in social or environment performance results in a decrease of 0.025 and 0.020 percentage points in abnormal stock return respectively at M&A announcements.

In contrast, the economic and corporate governance pillars are not statistically significant. Starting with corporate governance, the coefficient is -0.029 and insignificant. These results are in line with Ghoul et al. (2011) who also studied a decomposed CSR Index. An explanation is that corporate governance most likely varies among countries and not within. When Ghoul et al. (2011) do not control for country variations in their dataset this pillar is found significant. However, since our study consists of only one country, Sweden, we are unable to capture this variation. Hence, we will not find any variation within Sweden and this pillar is therefore insignificant. The economic pillar has a coefficient of -0.005 implying a negative relationship between economic performance and abnormal returns, yet not statistically significant.

When looking at all four pillars simultaneously, none of the factors are economically or statistically significant, unlike previous regressions where the environmental and social factors were significant. One explanation to this is that some of the pillars are overlapping with each other, where for example increased social welfare also in some cases has a spillover effect on the environmental score. Because of the overlap, when controlling for all factors some of the variance is removed which can explain why the results no longer are statistically significant. The measures used in the CSR Index are also of more abstract nature, making them hard to quantify both reliably and fairly. As a result, the indices might be highly dependent on the underlying measuring methodology used and the results obtained from these might be highly volatile. Several of the key performance measures collected by Thomson Reuters are binary and depending on which KPIs are included the results might yield statistically significant results or not.

To conclude, none of the coefficients are statistically or economically significant in connection with abnormal returns after announcing an M&A decision. Hence, none of the components in the CSR Index can explain the abnormal returns after a merger or acquisition, which is in contrast to our second hypothesis.

5.3 Inversely U-shaped relationship results

TABLE VI. INVERSELY U-SHAPED RELATIONSHIP RESULTS

This table reports regression results on the relation between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from one day before to one day after announcement, CAR(-1;1), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent Variable	(1) Inversely U-shape	(2) Inversely U-shape w/ controls
CSR Index	-0.123 (-1.26)	-0.139** (-2.26)
CSR Index ² (squared)	0.001 (0.85)	0.001** (2.03)
Size		-0.011 (-1.17)
Book-to-Market		2.693** (2.15)
Relative Deal Size		6.610** (3.48)
Cash Dummy		1.888* (1.82)
Public Dummy		-2.476* (-2.00)
Year effects	Yes	Yes
Industry effects	Yes	Yes
Observations	322	319
Adj. R ²	0.06	0.24

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

The table above presents the results from our regressions testing for an inversely U-shaped relationship between CSR and cumulative abnormal returns. We define the curvature as the square of the CSR Index, because it is the simplest and most universal inverse specification there is. The variable of interest in this case is *CSR Index² (squared)*. In order to find evidence supporting an inversely U-shape the coefficient needs to be negative and of both economical and statistical significance. As can be observed from the regression table the coefficient is virtually zero and although statistically significant when including control variables. Due to the small coefficient, our results find no evidence of an inversely U-shaped relationship with an optimal level of CSR. Hence, these results are in contrast to our third and last hypothesis and we cannot say if there is an optimal level of CSR investments, when measuring cumulative abnormal returns during M&A events.

One could argue that the specification of the curvature should be of a different character. But currently the most basic specification does not yield an observable result, a more involved specification most likely will not either. The theory behind the presence of an optimal level of CSR supporting both the *stakeholder maximisation view* and the *shareholder expense view* is sound. However, the empirical data does not support this combined view. We propose that there might not be a causal relationship between CSR level and corporate financial performance. The factors affecting sustainability related concerns are very hard to quantify and the effects most likely being absorbed by companies in a multitude of ways, thus making it very hard to isolate the effects empirically.

Previous literature such as, Ye and Zhang (2011) and Wang et al. (2008), find an optimal level of CSR investments that companies should strive to reach. However, Wang et al. (2008) investigate the relationship between corporate philanthropy and corporate financial performance and find diminishing marginal returns after a certain point. However, since charitable donations are only a small component of the CSR definition used in this study, their findings are not directly applicable to our study. This study focuses on the larger picture and therefore we cannot expect to achieve the same results. Ye and Zhang (2011) investigate the relationship between CSR and debt financing costs. Debt and equity are structurally different and therefore the results may differ as well. For example, debt is more concerned about a company's downside risk and therefore most likely takes into account CSR activities to a higher extent. Corporations engaged in CSR investments most likely do not operate in the grey zone of morality, thus not exposing them to potential downsides and fat-tail risks. A concrete example is a high level of corporate governance monitoring, making sure that management's interests and actions are aligned with all other stakeholders of the company. However, we argue that the cost of debt will in turn affect a company's financial performance, thus in theory there should be a link between CSR and firm profits.

Another factor to look at when analysing our results is the adjusted R-squared of our regressions of cumulative abnormal returns on the level of CSR. In the table below, all adjusted R-squared are presented. We test different specifications of our model starting with a basic OLS regression, followed by an instrumental variable and a decomposed CSR Index approach. Finally, the R-squared when testing for an inversely U-shaped relationship is presented. The implication of the presented R-squared is that the differences in the CSR Index has relatively low explanatory power when it comes to abnormal returns. As can be seen below, our instruments; *Lagged CSR*

Index and *Industry average CSR Index* have the most explanatory power, though still not high. This is an indication that our instruments remove some of the biases and actually have the ability to increase the explanatory power. To conclude, looking at the adjusted R-squared for our different regressions, only some of the variance in the cumulative abnormal stock returns can be explained by the level of CSR.

TABLE VII. ADJUSTED R-SQUARED FROM DIFFERENT SPECIFICATIONS

	OLS Basic Model	IV Intangible Ratio	IV Lagged CSR Index	IV Industry Average CSR	IV 2SLS
Adj. R-squared	0.23	0.24	0.32	0.20	0.28
	Economic	Environmental	Social	Corporate Governance	ESG (all)
Adj. R-squared	0.21	0.22	0.22	0.22	0.22
	Inversely U-shaped	Inversely U-shaped w/ controls			
Adj. R-squared	0.06	0.24			

In addition, we also conducted a robustness test to control whether an extended event window at the M&A announcement has an impact on the results. The extended window stretches from ten days before the event to ten days after and the results are attached in the Appendix (TABLE X-TABLE XII). The difference in event window indicates no significant changes to the results. We still find no evidence supporting the relationship between CSR and cumulative abnormal returns using an instrumental variable approach. The decomposed environmental and social pillars are still statistically, but not economically, significant and the test for an optimal level of CSR indicates no such evidence. These findings suggest that our results are robust.

To conclude, CSR is a broad subject and sensitive to different measuring methods. It takes into account a wide range of factors, all not proven causal with financial performance or abnormal returns. Thus, using overall CSR Index as a measure of firm's contribution to society might be misleading. This could also explain why researchers find mixed evidence within this field. This paper does not find a causal relationship between the level of CSR and cumulative abnormal returns using a three-day event window at M&A announcement events.

5.5 Limitation of the study

Data issues

One of our most important assumptions made in this paper is that the *Efficient Market Hypothesis*, developed by Fama (1970) holds arguing that the market is efficient and investors behave in a rational way. However, both academics and practitioners have argued that the market is not efficient. Hence, a potential pitfall of our estimations is that new information such as the effect of CSR after an M&A announcement is not fully incorporated into the stock price. In addition, it has been debated whether the market to a full extent value intangible assets or not, Edmans (2012). This could be reflected within our results and with perfect data we would be able to control for all intangible assets, such as a company's brand strength.

Conducting this study, we also need to rely on a rating agency supplying up to date and reliable CSR information about companies. In this study, we have chosen to use Thomson Reuters Asset4 ESG dataset as our CSR Index, which has the largest and longest standing coverage of European firms. The dataset has full coverage of the MSCI Europe Index, which is made up of large and mid cap common stocks located in 16 European countries, including Sweden. It also covers approximately 85% of the free float market capitalisation across the European developed equity markets (MSCI, 2015). However, this also implies that the companies included in this paper are not purely randomly selected and in accordance with Heckman (1979) incorrect sample selection might result in biased estimates. However, we conclude that the largest listed companies on the Stockholm Stock Exchange are covered by the sample used in this paper.

Going further to the methodology section, two main problems occur when measuring the market reaction after a merger or acquisition. First, due to lack of data we only calculate cumulative abnormal returns for acquiring companies listed on the Stockholm Stock Exchange. However, parts of the effect will affect the target's shareholders which will not be captured in our model but most of the target companies are private and data is not available. Hence, only partial effect of the CSR on M&A announcement abnormal returns will be obtained. Second, we only measure the CSR level for the acquiring company but the targets CSR level is also important. Again, most of the targets are private and due to lack of available data of these private companies we are unable to control for this effect. If the true effect is positive and both the acquiring and the target company has a high CSR level the positive effect will be enlarged.

However, if the acquiring company has a high level of CSR but the target a low level, the total effect will diminish and thus we would see a value destroying effect for the combined legal entity. Hence, with perfect data we would be able to control for both the acquirer and target CSR level before the merger.

6. Conclusion

In this paper, we investigate the effect of CSR investments on abnormal stock returns at M&A announcements. Using an event study methodology, we study 58 Swedish firms listed on the Stockholm Stock Exchange. The research data covers 327 merger or acquisition events conducted between 2002 and 2013.

Our paper aims to contribute to the CSR research area with three key findings. First, we set out to investigate the direct relationship between CSR activity and cumulative abnormal returns at M&A announcements, which in turn affects a company's financial performance. We find no economically or statistically significant indications supporting this relationship using an instrumental variable approach. Second, we decompose the CSR Index in order to investigate if all or only a subset of the underlying factors contributes to abnormal returns. Our results suggest that the *environmental performance* and *social performance* are statistically significant and have a negative impact on financial performance at M&A announcements, although not economically significant. Third, we try to align two opposing views presented in previous literature, the *stakeholder value maximisation* and *shareholder expense* view. Using a combined view hypothesis we suggest an inversely U-shaped relationship between CSR activity and abnormal return, with initial CSR investments being beneficial, but further investments beyond a certain optimum having a negative marginal effect. Using our data we find no support for this relationship and cannot prove or disprove the existence of an optimal level of CSR at M&A announcements.

We find no support for the level of CSR explaining abnormal returns at M&A announcements and no evidence for CSR investments affecting financial performance with estimates being statistically or economically insignificant. One explanation of the inconsistency of the results is in line with previous literature and explained by McGuire and al. (1988). The author argues that social responsibility affects firm performance in many different ways and hence the selection of performance variables and research design could therefore have a substantial impact on the results. A similar study conducted in the United States by Deng et al. (2013) shows a positive effect of CSR investments on mergers. We argue that there might be fundamental differences between the U.S. and Sweden when investigating CSR. Sweden is a comparatively much smaller country and might be too homogenous, exhibiting less variation between firms and CSR to capture the same effects as the U.S. Studies conducted on U.S. data also base their results on a

larger datasets, due to the higher M&A activity in the country. This might also skew the results to some degree.

Further, the CSR Index comprises a wide range of different measures, including everything from child labour to board member experience. Many of these key performance indicators are difficult to quantify and to compare between different companies. This might be a source of divergence in opinions found in the previous literature. In addition, the benefits of CSR activities are absorbed by companies in a multitude of ways, thus making it very difficult for researchers to capture the true effect.

To conclude, CSR is a broad subject and sensitive to different measuring methods. This study was not able to find a relationship between the level of CSR and cumulative abnormal returns using a three-day event window at M&A announcement events. However, not finding a relationship still has implications on management's investments decisions. Since we cannot prove that CSR investments *reduce* shareholder wealth, this could legitimise CSR investments.

6.1 Suggestions for further research

There are still remaining challenges when evaluating the relationship between financial performance and CSR investments. As suggestions for further research, another geographical focus can be used such as the Nordic countries or Europe as a whole in order to increase variance. Another dataset can be used to check the robustness of the results presented in this paper. In addition, we wish to present three suggestions for further research.

First, a fruitful approach may be to study the CSR commitments for the target companies in relation to the acquirers. As previously discussed, the effect of an M&A event will be incorporated partially by the target *and* the acquiring company. Hence, identifying the CSR level for *both* companies could improve our results. Due to the absence of data, we only use CSR data for the acquiring company in this study. However, we hope that the database for CSR will be extended in the future and hence enable a study controlling for both the target and acquirer.

Second, we have focused on companies' abnormal stock market reactions in connection with M&A announcements. This will give an indication of how investors initially value the announcement information and how they view the combined entities' future outlook. Our model only captures the market reaction on the *short-term*, effecting the firm's financial performance and its relation to CSR. Therefore, it could be interesting to study the combined entities development

over a *longer* time period where more information regarding the two companies' compatibility is released. Further, with a longer time horizon more information about synergies is available and hence will be incorporated into the stock prices over time, which could be captured by extending the event window.

Third, our last suggestion is to conduct a case study and compare companies with different CSR strategies and financial performances. One suggestion is to compare the two Swedish companies, Sandvik and Atlas Copco that are operationally similar and competitors but with different CSR strategies and financial performances. Combining a quantitative and qualitative study, preferable with in-depth interviews with executives from both companies could give a deeper understanding for the impact of CSR. Hence, comparing the two companies and controlling for CSR investments among other factors could prove our hypothesis that CSR creates value for shareholders. In addition, CSR at a given point in time may not explain much of the variance in abnormal return. As been previously noted, CSR should be continuous and sustained over time in order to have an effect on financial performance, Tang et al. (2012). Thus, conducting a case study of two companies and investigating the CSR investments over an extended time horizon (3-5 years) could provide valuable insight.

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Appendix

FIGURE II. OVERVIEW OF THE THOMSON REUTERS ASSET4 ESG INDEX

As a measure of a company's level of CSR we use Thomson Reuters Asset4 ESG weighed overall performance score. This index is built upon four pillars consisting of *economic* performance, *environmental* performance, *social* performance and *corporate governance* performance. These are in turn built upon over 250 key performance indicators collected and compiled by Thomson Reuters. All scores are normalized using z-scoring and are equally-weighted.



FIGURE III. AR AND CAR AROUND THE M&A ANNOUNCEMENT EVENT

LEFT: The graph shows the average abnormal stock returns for all M&A announcements used in this paper. The x-axis represents trading days before and after the M&A announcement where day 0 represents the day of the announcement event. **RIGHT:** The graph shows the average cumulative abnormal stock returns for all M&A announcements used in this paper. The graph is normalised 40 trading days before the M&A announcement and all subsequent abnormal stock returns are cumulated.

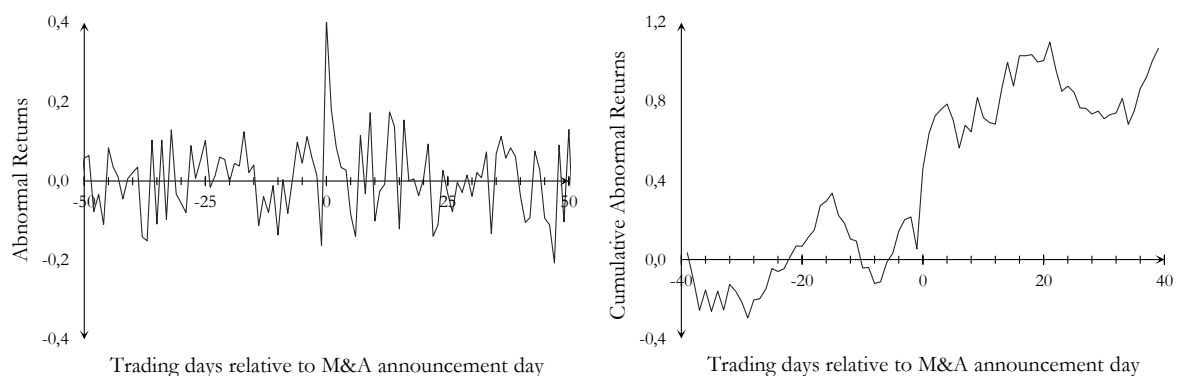


TABLE VIII. LIST OF VARIABLES

CSR Index	Measure of a company's level of CSR using Thomson Reuter's Asset4 ESG Index ranging from 0-100.
Economic Index	One out of four components of the CSR Index. 0-100.
Environment Index	One out of four components of the CSR Index. 0-100.
Social Index	One out of four components of the CSR Index. 0-100.
Corporate Governance Index	One out of four components of the CSR Index. 0-100.
Intangible Ratio	Instrumental variable used for CSR Index. Acquirer firm book intangible assets divided by book total assets.
Lagged CSR Index	Instrumental variable used for CSR Index. Acquirer CSR Index lagged by one year. 0-100.
Industry Average CSR	Instrumental variable used for CSR Index. Acquirer industry average CSR Index. 0-100.
CAR	Cumulative abnormal returns from a merger or acquisition announcement.
Size	Acquirer size measured as market capitalisation, billion SEK.
Book-to-Market	Acquirer book value of equity divided by market value of equity.
Relative Deal Size	Reported M&A transaction valuation at announcement divided by target book value of equity.
Cash Dummy	Dummy variable for payment type used in the M&A transaction. 1 = Pure cash consideration, 0 = Other types of pure or mixed consideration methods.
Public Dummy	Dummy variable if the target company was listed on a stock exchange at the M&A announcement date. 1 = Public company, 0 = Private company.
Year	Year specific effects, based on the year of the merger or acquisition announcement.
Industry	Industry specific effects, based on industry classification made by ICB (Industry Classification Benchmark).

TABLE IX. HIGH CSR ACQUIRERS VERSUS LOW CSR ACQUIRERS

Panel A: Comparing different event windows for sample average cumulative abnormal returns (CAR) at the M&A announcements. Acquirers with High CSR (A), defined as companies with a CSR Index above sample median and Acquirers with Low CSR (B), companies with a CSR Index below or equal to sample median. CAR measured as %.

List of variables	Full Sample (N=327)	Acquirers with High CSR (A) (N=162)	Acquirers with Low CSR (B) (N=165)	Test of Difference (A-B)	
				Difference	t-value
CAR(0)	0.674	0.502	0.840	-0.338	(-0.91)
CAR(-1;1)	1.191	0.677	1.696	-1.020*	(-1.86)
CAR(-2;2)	1.391	0.603	2.165	-1.563**	(-2.30)
CAR(-5;1)	1.288	0.671	1.894	-1.223*	(-1.69)
CAR(-10;1)	1.553	0.693	2.398	-1.704*	(-1.66)
CAR(-10;10)	2.460	0.935	3.958	-3.023**	(-2.41)

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Panel B: List of variables used in this study.

List of variables	Full Sample (N=327)	Acquirers with High CSR (A) (N=162)	Acquirers with Low CSR (B) (N=165)	Test of Difference (A-B)	
				Difference	t-value
CAR(-1;1)	1.191	0.677	1.696	-1.020*	(-1.86)
CSR Index	53.756	80.327	28.278	52.050***	(35.87)
Economic	53.724	71.437	36.740	34.696***	(16.19)
Environment	56.814	78.866	35.670	43.197***	(19.11)
Social	53.307	74.804	32.696	42.108***	(20.09)
Corporate Gov.	50.794	65.348	36.839	28.509***	(14.35)
Intangible Ratio	0.318	0.280	0.372	-0.092***	(-2.73)
Lagged CSR Index	53.294	72.138	33.060	39.078***	(15.59)
Industry Average CSR	60.485	63.545	57.551	5.994***	(4.52)
Size	42.729	66.993	19.615	47.378***	(6.82)
Book-to-Market	0.551	0.520	0.581	-0.061**	(-2.08)
Relative Deal Size	0.151	0.104	0.196	-0.092**	(-2.44)
Cash Dummy	0.895	0.939	0.853	0.086**	(2.57)
Public Dummy	0.069	0.092	0.047	0.045	(1.62)

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

TABLE X. OVERALL CSR PERFORMANCE RESULTS, CAR(-10;10)

This table reports regression results on the relationship between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements, with an extended event window. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from ten days before to ten days after announcement, CAR(-10;10), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent variables	(1) OLS Basic Model	(2) IV Intangible Ratio	(3) IV Lagged CSR Index	(4) IV Industry Average CSR	(5) IV 2SLS
CSR Index	-0.088** (-2.31)	-0.120 (-0.59)	-0.020 (-0.43)	0.025 (0.25)	-0.028 (-0.69)
Size	0.007 (0.40)	0.012 (0.25)	-0.024 (-1.27)	-0.008 (-0.35)	-0.007 (-0.70)
Book-to-Market	12.160*** (3.33)	13.474** (2.18)	7.570** (2.00)	6.090** (2.51)	6.599** (2.42)
Relative Deal Size	8.991*** (3.89)	8.222*** (3.02)	10.103*** (5.68)	7.761*** (3.05)	9.765*** (4.34)
Cash Dummy	2.088 (0.74)	1.056 (0.42)	3.858 (1.28)	1.393 (0.51)	-0.146 (-0.07)
Public Dummy	-4.551* (-1.69)	-1.963 (-0.81)	-3.096 (-1.27)	-5.911* (-1.93)	-2.465 (-1.10)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	No	No
Observations	319	235	296	323	219
Adj. R ²	0.13	0.15	0.21	0.07	0.17

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

TABLE XI. DECOMPOSED CSR PERFORMANCE RESULTS, CAR(-10;10)

This table reports regression results on the relation between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements, with an extended event window. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from ten days before to ten days after announcement, CAR(-10;10), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent variable	(1) Economic	(2) Environmental	(3) Social	(4) Corporate Governance	(5) ESG (all)
Economic	0.003 (0.08)	-	-	-	0.029 (0.75)
Environmental	-	-0.061** (-2.43)	-	-	-0.016 (-0.50)
Social	-	-	-0.122*** (-3.33)	-	-0.117*** (-2.82)
Corporate Gov.	-	-	-	-0.047 (-0.95)	-0.005 (-0.09)
Size	-0.010 (-0.61)	0.005 (0.28)	0.009 (0.55)	-0.004 (-0.22)	0.009 (0.59)
Book-to-Market	10.365** (2.59)	11.899*** (3.39)	14.013*** (3.84)	10.632** (2.64)	14.572*** (4.40)
Relative Deal Size	9.984*** (4.14)	9.629*** (4.24)	8.602*** (3.47)	9.726*** (4.46)	8.902*** (3.39)
Cash Dummy	1.667 (0.55)	1.773 (0.62)	1.552 (0.55)	1.729 (0.61)	1.260 (0.43)
Public Dummy	-5.316* (-1.90)	-5.025* (-1.87)	-3.353 (-1.29)	-5.143* (-1.88)	-3.496 (-1.31)
Year effects	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes
Observation	319	319	319	319	319
Adj. R ²	0.11	0.13	0.15	0.12	0.14

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

TABLE XII. INVERSELY U-SHAPED RELATIONSHIP RESULTS, CAR(-10;10)

This table reports regression results on the relation between a company's level of Corporate Social Responsibility (CSR) and cumulative abnormal returns (CAR) arising from M&A announcements, with an extended event window. As a measure of a company's level of CSR, Thomson Reuters ESG Index is used and the dependent variable in all regressions is the CAR measured as percentage points at each M&A announcement. The event window stretches from ten days before to ten days after announcement, CAR(-10;10), and consists of M&A transactions conducted in Sweden 2002-2013. The sample is based on the following selection criteria: small M&A transactions with a reported valuation below SEK20 million are not included, financial acquirers with ICB codes 8300 (banks), 8500 (insurance companies) and 8700 (financial services) are excluded and only M&A transactions where the acquirer owns less than 50% before the announcement and 100% after the announcement are included. In addition, we require the acquiring companies to have been traded for at least 200 days before the M&A event for beta estimations. Year effects is based on the year of each M&A announcement and Industry effects is based on the industry classification used by ICB. Finally, all regressions include clustering based on company, to avoid autocorrelation within the standard errors.

Independent Variable	(1) Inversely U-shaped	(2) Inversely U-shaped w/ controls
CSR Index	0.108 (0.84)	0.082 (0.57)
CSR Index ²	-0.002 (-1.59)	-0.002 (-1.33)
Size		0.014 (0.77)
Book-to-Market		11.560*** (3.17)
Relative Deal Size		9.216*** (3.50)
Cash Dummy		2.074 (0.72)
Public Dummy		-4.710* (-1.72)
Year effects	Yes	Yes
Industry effects	Yes	Yes
Observations	322	319
Adj. R ²	0.06	0.24

t-statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.01.