Does going green pay off?

The effect of target ESG scores on the CARs of acquiring firms

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ABSTRACT

This study investigates the relationship between target ESG scores and acquiror returns upon M&A announcement. The sample consists of 303 deals for which cumulative abnormal returns (CARs) & buy-and-hold abnormal returns (BHARs) were calculated and regressed using the OLS method. Only the CARs with an 11-day event window were found to be significant. Target ESG score had a significant positive coefficient for acquiring firms active in the resources industry. Other coefficients and long-run abnormal returns were statistically insignificant. The findings in this paper are consistent with the stakeholder maximization view.

Keywords: Mergers and Acquisitions, ESG, CSR, event study, CAR

JEL Classification: C31, G14, G34

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1 Introduction

1.1 Research question

In 2015 the General Assembly of the United Nations accepted resolution 70/1, better known as the 2030 Agenda for Sustainable Development. With this agreement, the member states committed to reach 17 Sustainable Development Goals (SDGs) by 2030. This enormous task cannot be achieved without a strong commitment from the private sector and therefore sparked the public debate on the position of firms in society. For long, the accepted view in corporate finance was that of Berle and Means (1932) who argued that companies should aim to maximize shareholder value. However, things are changing rapidly and corporate social responsibility (CSR) has never been so relevant. In 2018 global CSR oriented investing reached $30 trillion, which is ten times the amount in 2004 (Global Sustainable Investment Alliance, 2018). Research by McKinsey & Company (2019) suggests that approximately one-third of corporate profits are at risk of government intervention due to regulatory changes in environmental, social and governance (ESG) factors. However, CSR should not just be seen as a threat but rather as an opportunity for firms to gain a competitive advantage. Henisz, Dorobantu and Nartey (2014) found that companies which invest in their relations with all stakeholders have higher financial valuations.

Under pressure from external stakeholders and with the possibility of financial gains from investing in CSR, firms are looking for ways to accelerate their efforts in this field. One traditional method through which companies create value for shareholders is mergers and acquisitions (M&A). There are many motives for firms to engage in takeovers. Mergers and acquisitions can for example generate value from economies of scale and scope or operating efficiency gains (Seth, 1990). In the anticipation of better operational performance, shareholders can profit through the announcement effect. Overall, research has found significant positive returns for target firm shareholders whereas acquirors mostly achieve slightly negative or flat returns (Datta et al., 1992). However, academic literature stays divided on the determinants of a successful M&A deal and the effects on shareholder wealth. In practice, the Harvard Business Review (2011) observes that approximately 70-90% of M&A deals fail to create value. Should we therefore disregard M&A as a tool to solve the CSR puzzle? Well not yet, as this thesis aims to answer exactly that question:

Can targets with strong CSR performance create value for shareholders of the acquiring firm?

1.2 Scientific relevance

Although academic research on the wealth effects of CSR is developing rapidly, there are only a couple known papers studying this topic in relation to the M&A announcement effect. The first dates from 2011 and has a relatively small sample size. The authors base their learning theory on a mere 61 deals and

this makes it difficult to draw conclusions. Given that the sustainable development goals have been revised in 2015, it is desirable to include more recent deals in this study. By adding deals until 2020 and expanding the sample size, this thesis will improve upon the two main limitations in this research (Aktas et al., 2011). The second paper by Deng et al. (2013) is more elaborate but studies the effect of acquiror's CSR ratings on the announcement returns for mergers. Both studies use the KLD database for retrieving ESG scores, whereas this paper will employ the ASSET4 database. Also, there will be more attention for the dynamics of cross-border deals and different industries. By including a dummy variable for the Paris Agreement in the regression models, the effect of government legislation will be isolated from target ESG scores. Finally, this study will add to literature by determining the long-term effects of CSR through buy-and-hold returns instead of accounting ratios.

1.3 Social relevance

As mentioned earlier, society is demanding more from companies than ever before. This new view on the role of firms is called stakeholder capitalism. Freeman et al. (2007) argue that the traditional forms of capitalism contain faulty assumptions. Instead of acting solely out of self-interest, companies should engage all their stakeholders to create value. This will help to create trust, sustainable business and accelerate progress. McKinsey (2020) has done research on stakeholder capitalism and found that 92% of consumers expect companies to speak out on social issues. They also found that companies employing a long-term view outperformed their peers in earnings, credit rating and productivity.

Many firms are taking their responsibility and adopting CSR policies throughout their organization, but the vast majority is still struggling to balance the new societal expectations with those of their shareholders. This thesis will help managers to identify the financial gains of CSR to shareholders. With this research, M&A advisors can determine which targets to select and achieve more accurate valuations for their clients. It will also help legislators to get a better understanding of the effect of CSR on M&A and provide information on the implementation of ESG disclosure standards. Lastly, society as a whole will benefit if companies get more financial and regulatory incentives to engage in CSR.

1.4 Main findings

The final sample consists of 303 deals for which cumulative abnormal returns were obtained and for 216 deals the buy-and-hold abnormal returns were also computed. The ESG scores were retrieved from the ASSET4 database. Several regressions were performed in order to answer four hypotheses. Each of the regressions included control variables for a number of company and deal characteristics. The main variable of interest was target ESG score, but cross-border and industry effects were also studied. Eventually, different tests were performed to evaluate the significance and robustness of the results.

It is found that target ESG scores can have a positive effect on abnormal returns of the acquiring firm upon M&A announcement. This result is certainly true for firms in the resources industry for which a significant positive return of 0.17% was observed if the target ESG score increased by 1%. M&A with

targets performing well on CSR measures on average create direct shareholder value for these companies. Unfortunately, the other hypotheses needed to be rejected due to statistical insignificance of the majority of the coefficients. The positive sign of the target ESG coefficient does provide an indication of the positive effect on returns. For the long-run buy-and-hold abnormal returns no significant results were obtained. Overall, these findings provide further evidence for the stakeholder maximization view.

1.5 Structure

In order to answer the research question, this thesis will first build upon a theoretical framework. Both the academic theories and empirical evidence on CSR and M&A will be discussed, whereafter several hypotheses will be constructed. Subsequently, the data selection process and methodology will be explained. In the next section, the results will be presented and several robustness tests will be conducted. Finally, the hypotheses will be accepted or rejected to come to an answer for the central research question. The limitations and suggestions for further research will also be discussed in the final chapter.

2 Literature Review

2.1 Corporate Social Responsibility

There has been a lot of discussion in academic literature about the definition of corporate social responsibility. One of the first works on this matter was written by Bowen (1953) who sees the social responsibility of businessmen to take decisions based on the objectives of society as a whole. This definition was later extended by Davis (1973) who argued that businesses were obliged to benefit society by more than merely fulfilling their economic and legal obligations. The first comprehensive view of CSR was established in 1979 as "the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (Carroll, 1979, p.500). Her work was the basis for many further works on this topic, but until today there is no clear consensus. Although there is no set definition, Van Marrewijk (2003) argues that there is no such thing as a clear set of features of CSR. Instead of adhering to a fixed framework, addressing CSR within the context of different organisations will lead to reaching more ambitious goals. In a literature review of 37 definitions, roughly five dimensions of CSR were identified: the environmental, social, stakeholder, voluntariness and economic dimension. Although the definitions are all different, they refer to one or more of these dimensions. Therefore, it is not problematic that there is no formal definition of CSR and instead we can collect information about one of these aspects to measure the performance of companies (Dahlsrud, 2008). In the data section, the variables used to study the five dimensions of CSR will be explained further.

2.1.1 Shareholder expense and stakeholder maximization views

When talking about corporate social responsibility in firms, there are two dominant theories: the shareholder expense and stakeholder value maximization view. The first theory suggests that managers overinvest in CSR related activities and doing so reduce shareholders' wealth. Many of our classical economic models are based on the hypothesis that firms should be profit-maximizing rational agents creating maximal value for shareholders. Milton Friedman (1970) wrote a famous article in the New York Times stating that businesses should solely focus on maximizing their profits in line with this view. However, this raises the question why so many companies have been increasing CSR expenditures. The advocates of the shareholder expense theory blame this on agency problems within the firm.

The agency theory argues that the interests of shareholders and managers of a business are not always aligned even if they are assumed to be so (Jensen & Meckling, 1976). Managers might have underlying objectives that do not necessarily benefit the firm and its shareholders. Prior et al. (2008) illustrated that earnings management practices are positively related with CSR expenditures and that that combination was detrimental for financial performance. In a later study, the relationship between CSR and ownership structure was researched using a dataset of the 3000 largest US corporations. The conclusion was that insiders are more likely to invest in CSR to improve the firm's reputation if they

owned less shares (Barnea & Rubin, 2010). Besides organizational motives, CEOs might also have a personal interest in spending resources on CSR. Hubbard et al. (2017) found that it might be used to reduce the CEO turnover risk. Psychological characteristics, such as CEO narcissism, from the principal agents are also found to influence the level of CSR expenditures. (Petrenko et al., 2014).

The stakeholder maximization view argues that healthy relationships with all stakeholders will ultimately also benefit the shareholders or that firms should "do well by doing good" (Krüger, 2015). This argument is based on the contract theory first established by Coase (1937) who saw the origin of firms as a way to reduce transaction costs between consumers and suppliers. This was later extended to stakeholders with whom the company has several implicit and explicit agreements. As these implicit contracts are not material, the value lies in the expectations of the stakeholders involved (Cornell & Shapiro, 1987). Since firms with good CSR behaviour have a reputation of fulfilling their implicit obligations, their stakeholders will be more likely to trust them and do business. As Freeman et al. (2004) mention, these firms will be more profitable and benefit their shareholders in the long term.

2.1.2 Effect of CSR on firm performance

Besides the theoretical models about shareholder value creation through CSR, there has also been extensive empirical research into the effects of environmental, social and governance (ESG) factors on corporate performance. For a long time, research in this field showed ambiguous results. Waddock and Graves (1997) found in their study of 469 companies that there was a positive relationship between corporate social performance and future financial performance. In another paper studying the largest English corporations, a negative correlation was found between environmental protection policies and several future financial ratios (Balabanis et al., 1998). McWilliams and Siegel (2000) argued that earlier studies were flawed because they did not account for R&D investments, but they were also not able to establish a clear correlation between CSR and financial performance. However, in these early years CSR was not as important as it is now. Later studies indicate a positive effect of ESG factors on corporate performance. For example, Hull and Rothenberg (2008) found that CSR drives financial performance in firms with low innovation budgets and non-differentiated industries. In a sample of German listed firms, a significant positive correlation was observed between ESG key performance indicators and return on assets (Fischer & Sawczyn, 2013).

Since there is no clear evidence that CSR efforts yield financial rewards in general and companies are simultaneously forced to adhere to stricter ESG rules, it is important to examine this topic more closely. No firm will be able to improve their ESG rating in the long run unless there are some incentives to satisfy their shareholders. Weber (2008) identifies five areas in which CSR investments can benefit businesses. First, it can improve company reputation which in turn results in higher customer loyalty. This was backed by academic research which found that CSR has a direct positive effect on corporate reputation (Hur et al., 2014). Firms with a good corporate governance structure are also more likely to retain employees which reduces turnover costs significantly. Bauman and Skitka (2012) found that CSR

improves employee satisfaction with their employer as they feel more job security, pride, belonging and purpose. Later research observed that corporate wellness programs increase workers' productivity by 10% which implies that there are also tangible results for firms employing ESG policies (Gubler et al., 2018). Thirdly, ESG policies can also induce cost savings. Environmental policies can for example reduce packaging and storage costs or even lower the energy bill (Epstein & Roy, 2001). ESG activities can furthermore force companies to develop new sustainable products or open up to a new market of customers who are willing to pay a green premium. Finally, Jo and Na (2012) found that CSR can be employed as a means to reduce corporate risk and even more so for companies in controversial industries.

2.2 Mergers and Acquisitions

Research on mergers and acquisitions is one of the main topics in corporate finance. Sherman (2018) defines this phenomenon as a transaction where two companies end up becoming one company. Mergers refer to firms joining forces and usually happen between companies of similar size. An acquisition has a buyer and a target where either assets or shares are exchanged for ownership of the target firm. In the following chapter, an overview of the relevant literature on M&A will be provided.

2.2.1 Motives for M&A

First of all, it is important to understand why firms engage in mergers and acquisitions. M&A is a risky process and a large percentage of deals fail to deliver the expected results (Ravenscraft & Scherer, 1987). So, there must be good reasons for managers to take such gambles. Overall, the goal of takeovers is to increase the value of the combined firm. There are roughly three major motivations for firms to start M&A, namely economies of scale, synergies and managerial objectives (Trautwein, 1990).

Economies of scale are known as the reduction of marginal costs which occur as a result of increased market power. In the banking sector these cost reductions are widespread and one of the causes of the recent financial crisis (Beccali et al., 2015). Synergies can cause companies to gain a competitive advantage through increased efficiency and are the primary motivation for firms to merge (Porter, 1985). The two main categories are operational and financial synergies. Operational synergies can be achieved by for example increasing revenues through access to new markets or joining strengths in different business areas. Financial synergy can arise when there are higher cash flows through tax benefits or excess cash in one of the firms. It can also lower the cost of capital of the firms such that they can extend their debt capacity (Damordaran, 2005). Finally, there can also be some incentives for managers to do M&A for their personal gain. Grinstein and Hribar (2004) found that CEOs with more power are more likely to engage in takeovers and receive larger bonusses, regardless of the performance of a deal.

2.2.2 Announcement effect

For the firm and their managers, the possible gains of M&A are clear, even though they are hard to materialize. However, the ultimate goal of a company is to create value and maximize profits for its shareholders. This group must therefore also benefit from takeovers for firms to go ahead with a transaction. The efficient market hypothesis (EMH) in the semi-strong form states that the price of a stock reflects all publicly available information. Since the price adjusts almost immediately after the release of new information, it is impossible to beat the market without having private information (Fama, 1970). This implies that an announcement with a significant influence on the future cashflows or operations of a firm, will be calculated into the price by the market almost immediately. An analysis of the abnormal returns around the announcement date can signal the sentiment of shareholders about a certain event.

2.2.3 M&A announcement effect

As one of the most drastic corporate events, there has been extensive research on the announcement effect of mergers and acquisitions. There is an important distinction to be made between target and acquiror abnormal returns, or the returns to the shareholders of the target company and the acquiring shareholders. The academic consensus is that it pays to be a M&A target since most of the papers found significant abnormal returns for targets across industries and periods. One of the first studies on this topic was done by Jensen and Ruback (1983) who found very large average abnormal returns of 29% for targets of successful takeovers in the two months around the announcement date. Campa and Hernando (2004) observed cumulative abnormal returns (CARs) of about 9% in a one-month event window for a sample of deals over the period 1998-2000. There are many factors influencing the CARs, such as method of payment, industry or even ownership structure. Target firms with more managerial ownership for instance have larger positive returns (Bauguess et al., 2009). However, the overall consensus is that targets earn significant abnormal returns upon announcement of M&A.

The story for acquiring firms is not that straightforward and academic literature remains divided on the sign and significance of the returns. Jarrell and Poulsen (1989) found an average stock price reaction of zero or even slightly negative depending on the size of the acquiring firm, the bidding process and regulatory changes. The size of the bidder is of big importance to the eventual announcement returns, one study observed that small firms beat large ones with 2.24 percentage points (Moeller et al., 2004). Big cash-rich companies are also more likely to overbid in acquisitions and destroy 7 cents of value for every excess dollar spent (Harford, 2002). On the other hand, Chang (1998) found positive abnormal returns when bidders announce stock offers on privately held companies. This can be explained by the high concentration of ownership in private firms and the signalling of favourable information when taking a big stock position in a firm. For cross-border deals many researchers also identified positive returns for acquirors. It does remain uncertain whether these wealth effects are driven by synergy, reverse-internalization or even governance characteristics of the home country (Eun et al., 1996).

2.3 CSR and M&A

Now that the effects of CSR policies and M&A announcements have been studied, it is time to dive deeper into the recent literature combining both topics. First, Gomes (2019) studied the effect of CSR performance on target choice. He constructed a control group of non-targets with similar characteristics and found that they had lower ESG scores than their acquired counterparts. With a logit regression he then established that there also was a higher likelihood of getting an offer. In another paper, Gomes and Marsat (2018) found that bidders are paying higher M&A premiums for targets with stronger ESG scores. This is consistent with earlier research attributing a positive valuation effect to CSR related activities (Gregory et al., 2016). Besides becoming more attractive as a target and achieving a higher takeover premium, high ESG scores can also improve the post-acquisition performance of the combined firm. Salvi et al. (2018) found a significant positive impact on the bidder's return on assets two and three years after the M&A deal.

This thesis is focused on the short-term implications for shareholders and therefore studies the role of CSR related to the M&A announcement effect. Aktas et al. (2011) were one of the first to use the event study methodology to evaluate the effect of CSR on M&A announcement returns of acquirors. They found that an increase of the target intangible value assessment (IVA) score by one point resulted in an abnormal return of 0.9% for the bidder's shareholders. This means that CSR is indeed value-enhancing in M&A deals and provides support for the stakeholder maximization view. The authors further argue that the source of value creation is the learnings the acquiror can draw from the target's CSR practises. Although CSR seems to create shareholder value in this paper, the results need to be interpreted with caution because of the relatively small sample size of 106 deals.

Building upon this work, Deng et al. (2013) conducted more in-depth research by expanding the sample size and considering more value creation theories. They analysed the returns of 1556 deals between 1992 and 2007. High CSR acquirors are found to have higher announcement returns, post-merger operating cash flows and long-term stock returns. This provides additional support for the stakeholder value maximization theory, firms who engage all stakeholders in their operations are more profitable in the long run. An interesting extension was that the authors tested the value effects for non-shareholders. Although some proxies are little dubious, the employee job security post-merger was higher for high CSR companies.

2.4 Hypotheses

The aim of this thesis is to determine whether CSR is value-enhancing in M&A for the acquiring shareholders. Over the past couple of years CSR has become an important topic for many companies and investors are demanding firms to do more than simply looking after their shareholders.[1] This is in

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[1] Larry Fink, the chairman of the world's biggest asset manager Blackrock, wrote in his 2020 letter to CEOs that "purpose is the engine of profitability".

line with the stakeholder maximization theory which implies that firms maximize financial performance by improving their relationships with all shareholders. M&A has long been the tool of choice for managers to grow inorganically and create instant value for shareholders. In a recent study of deals post-2009 shareholders of acquiring companies were found to gain $62 million on average upon announcement (Alexandridis et al., 2017). Combining these two insights will therefore help to answer the research question. Whereas Deng et al. (2013) study the effect of acquiror CSR performance, it is probably more interesting to know whether targets with high CSR scores create more value. Therefore, the first hypothesis is formulated as follows:

H1: High target ESG scores have a positive effect on announcement returns of acquirors.

To understand the dynamics of CSR related M&A deals even better and give specific recommendations to managers, it can be interesting to look at deal and company characteristics. First, many researchers have argued that cross-border deals create more value (Eun et al., 1996). One of the explanations is that firms can improve their governance factors such as shareholder protection and accounting standards. Improving the corporate governance of either the acquiror or target is found to be a source of value in cross-border M&A (Martynova & Renneboog, 2008). This is particularly interesting as international CSR regulations are still not established which gives opportunity for arbitrage. Thus, the following hypothesis arises:

H2: Cross-border deals with high ESG targets create higher abnormal returns for shareholders.

In the second place, there might be big differences in possible CSR gains between industries. Polluting sectors are under increasing public scrutiny and must therefore look for ways to decarbonize their operations. Pätäri et al. (2014) study whether CSR performance was tied to financial performance for companies in the energy sector. They found that CSR Granger-caused higher profitability and market value. Following this intuition, the third hypothesis is:

H3: Shareholders in industries with low ESG performance achieve higher returns from acquiring high ESG targets.

Finally, an event study only calculates the short-term abnormal returns whereas CSR policies usually have an effect in the long run. Earlier mentioned CSR gains such as company image, employee satisfaction or environmental impact are hard to materialize and quantify. Because other researchers such as Aktas et al. (2011) fail to address these long-term wealth effects, the final hypothesis is the following:

H4: Target firms with strong ESG performance create more positive abnormal returns than weak ESG targets in the long-run.

3 Data & Methodology

3.1 Data

To determine the effects of target CSR levels on the M&A announcement returns, the first step is finding a suitable data set. The data on M&A deals is obtained from Eikon, which contains information on approximately 1.1 million deals. The following criteria were used to select the sample, based on earlier papers (Aktas et al., 2011; Deng et al., 2013):

a. The sample consists of announced mergers and acquisitions between 2010 and 2020, since one of the objectives was to use more recent data.

b. Deal value must exceed $1 million and the percentage of shares owned by the acquiror after the transaction should be larger than 50%.

c. The shares of the acquiring and target firm should be publicly listed in order to obtain stock prices and financial data.

d. The acquiror is not part of the utilities or financial industry, so the companies with SIC codes between 4000 and 4999 & 6000 and 6999 are excluded from the sample.

The next step is collecting the ESG scores of the bidding and target companies. Eikon, formerly known as the Thomson Reuters ASSET4 database, contains ESG scores for over 9000 companies globally. The underlying information is collected from annual reports, stock exchange filings and news sources, which are combined into more than 500 ESG metrics (Refinitiv, 2021). If there was no ESG score available for the year of the announcement, then the rating of the year before was used or the deal was deleted from the sample. Finally, the stock price data and abnormal returns of the acquiring firms around the announcement date were obtained using the Erasmus Data Service Center event study tool. The financial data and control variables were retrieved from Datastream. The balance sheet information was used for the year prior to the announcement, as this is the closest representation to the unmerged firm. After deleting the deals for which there was insufficient information available, the final sample consists of 303 deals.

In Table 1, the distribution of deal and company characteristics is displayed. Most of the firms are in the resources, industrials, IT or pharma industry. These sectors are capital intensive and might therefore offer more opportunity for traditional economies of scale. The majority of deals occurred in North-America, followed by Europe and Asia. These regions house the most developed economies and have a larger volume of M&A activity. Finally, most deals took place during the last 5 years of the sample. This can be attributed to the availability of ESG data and the financial crisis.

Table 1 Sample distribution by industry, geographic region and deal timing

Distribution by Industry						Timing		
Target Industry	N	%	Acquiror Industry	N	%	Year	N	%
Services	14	4.62	Services	13	4.29	2020	32	10.56
IT	43	14.19	IT	50	16.50	2019	57	18.81
Utilities	19	6.27	Utilities	17	5.61	2018	53	17.49
Resources	80	26.40	Resources	72	23.76	2017	41	13.53
FMCG	22	7.26	FMCG	29	9.57	2016	40	13.20
Industrials	49	16.17	Industrials	52	17.16	2015	8	2.64
Financials	21	6.93	Financials	17	5.61	2014	28	9.24
Healthcare & Pharma	42	13.86	Healthcare & Pharma	40	13.20	2013	6	1.98
Other	13	4.29	Other	13	4.29	2012	18	5.94
TOTAL	303	100.00	TOTAL	303	100.00	2011	12	3.96
						2010	8	2.64
Regional Distribution						TOTAL	303	100.00
Target Geography	N	%	Acquiror Geography	N	%			
Europe	32	10.56	Europe	55	18.15			
Middle-East	2	0.66	Middle-East	3	0.99			
Africa	6	1.98	Africa	6	1.98			
North-America	192	63.37	North-America	169	55.78			
South-America	3	0.99	South-America	3	0.99			
Asia	45	14.85	Asia	55	18.15			
Oceania	23	7.59	Oceania	12	3.96			
TOTAL	303	100.00	TOTAL	303	100.00			

3.2 Methodology

The announcement of a CSR driven M&A deal is of course an important corporate event that will have an impact on the shareholder value of the firms involved. An event study is the standard tool of choice to measure the stock price reaction related to such events in corporate finance. This methodology was first introduced by Fama et al. (1969) who studied the returns around stock splits. In the following sections, the methods used to answer the hypotheses will be explained further.

3.2.1 CARs

The EMH states that stock prices reflect all available information and as such prices will adjust accordingly to corporate events (Fama, 1970). So, by measuring the short-term effects of the event on stock prices the economic impact on the firm can be evaluated. MacKinlay (1997) conducted a literature review on the most used event study methodologies in finance and laid down the procedure for conducting these analyses. The first step is determining the event window, the period during which the stock price reaction to the event will occur. As McWilliams et al. (1999) point out, there might be some information leakage around the announcement date and the event window should be adjusted accordingly. However, the longer the window the more interference other factors might have on the returns. Therefore, most researchers set the event window between 11 and 3 days. In this paper, several options will be explored and the window with the highest statistical significance will be used for further

analyses. Next, the estimation window must be determined. This is a period prior to the event window which will be regarded as the control period of stock returns. In line with Deng et al. (2013) the estimation period has a length of 200 trading days and ends 11 days prior to the announcement.

The event study methodology includes a benchmark for the normal market returns. This paper will make use of the standard market model which gives the expected return for a given stock i at time t based on the return of the market portfolio:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

The variables α and β are respectively the ordinary least squares (OLS) intercept and slope for stock i. The error term ε of stock i at time t has a mean of zero. The intercept is the fixed price effect of the stock and the slope coefficient is the sensitivity of the equity to the chosen market portfolio. The market portfolio used is the MSCI World Index which captures returns of large and midcap companies in 23 countries as our sample includes global markets.

To determine the effect of the M&A announcement, the observed returns during the event window must be compared with the expected returns during the estimation period. So, to compute the abnormal returns, we must subtract expression 1 from the observed returns:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (2)$$

Where AR_{it} is the abnormal return of stock i at time t, R_{it} is the observed return of stock i at time t and $\alpha_i + \beta_i R_{mt}$ represents the estimated return using the market model. Ultimately, the cumulative abnormal returns can be obtained by summing up the abnormal returns over the event window between time t and $-t$:

$$CAR^i_{[t,-t]} = \Sigma^t_{-t} AR_{it} \quad (3)$$

$$CAAR_{[-t,t]} = \frac{1}{N} \Sigma^t_{-t} CAR_t \quad (4)$$

Before continuing to the regression analysis, the returns must first be tested for statistical significance. In this paper the cross-sectional t-test and the Wilcoxon signed-rank test will be used. The latter is a nonparametric test and does not require the CARs to be normally distributed. For the t-test the null hypothesis is that the sample mean is equal to zero. The Wilcoxon signed-rank test assumes that the median is zero. When the null hypotheses are rejected this means that the M&A announcement has a statistically significant effect on the stock price during the evaluation period. In the test statistics below for any CAAR with interval $[-t, t]$, N denotes the number of observations in the sample and W is the sum of the signed ranks:

$$t_{CAAR} = \sqrt{N} \frac{CAAR}{S_{CAAR}} \quad (5)$$

$$z_{wilcoxon} = \frac{W - N(N-1)/4}{\sqrt{(N(N+1)(2N+1)/12}} \quad (6)$$

3.2.2 Short-run multivariate linear regressions

By calculating equation 3, the short-run effects of the M&A announcement on the stock price can be evaluated. However, further analysis is needed to answer our hypotheses on the influence of CSR policies. This can be done by regressing the CARs over the ESG scores of the acquiring firm. The first hypothesis states that *high target ESG scores have a positive effect on announcement returns of acquirors*. The coefficient of interest here is β_1 and the variable of interest is target ESG score. Acceptance and rejection for all the coefficients of interest will be based on a one-tailed t-test. Several deal and company characteristics will be added to the equation as control variables. In section 3.2.4 these will be explained further. The regression used to study hypothesis 1 is as follows:

$$CAR^i = \alpha_0 + \beta_1 Target\ ESG + \beta_2 Control\ Variables + \varepsilon_i \quad (7)$$

The next hypothesis studies whether *cross-border deals with high ESG targets create higher abnormal returns for shareholders*. The coefficient of interest is β_3 and the variable of interest is cross-border. Therefore, a dummy variable will be added to the regression which will take value 1 when the country of the bidding and target firm differ and 0 when there is a domestic transaction. As there might be a difference in average ESG ratings between countries, an interaction term will be added to account for these differences:

$$CAR^i = \alpha_0 + \beta_1 Target\ ESG + \beta_2 Crossborder + \beta_3 Target\ ESG * Crossborder$$
$$+ \beta_4 Control\ Variables + \varepsilon_i \quad (8)$$

Finally, the industry effects on shareholder returns will be studied in the short run. This hypothesis expects *that shareholders in industries with low ESG performance achieve higher returns from acquiring high ESG targets*. This will be done by including a categorical variable for each of the different industries: FMCG, healthcare & pharma, financials, utilities, industrials, resources, IT, services and other. The variables will take one of these values if the acquiring firm is part of the specific industry. In the equation below, this is specified as the *j*th category. Again, an interaction term will be added since the industry might also influence the target ESG score. The variable of interest is industry and the corresponding coefficient is β_3 .The final regression is the following:

$$CAR^i = \alpha_0 + \beta_1 Target\ ESG + \beta_j Industry_j + \beta_3 Target\ ESG * Industry_j$$
$$+ \beta_4 Control\ Variables + \varepsilon_i \quad (9)$$

3.2.3 Long-run multivariate linear regression

The final hypothesis takes a different approach to the research question and aims to identify the long-term wealth effects of the M&A announcement. There are different methods for performing long-term event studies. Intuitively it makes sense to simply extend the event window of the standard event study mentioned earlier. However, this CARs approach does not represent a realistic investment strategy as the portfolio is rebalanced regularly (Van der Sar, 2018). When investors hold a stock portfolio there is a compounding effect and gains are only materialized over an extended period of time. That is why the

buy-and-hold abnormal return (BHAR) method is currently preferred for long-run event studies. As Mitchell and Stafford (2000) point out in their research, the BHAR can also be subject to several biases. Although the academic debate on the existence of long-run abnormal returns and the most suitable methodology remains ongoing, for the purpose of this thesis the BHAR approach will be followed.

The construction of BHAR differs from the CAR process by compounding the monthly returns of the equity rather than summing the abnormal daily returns. The significance tests used will be the same as for the CARs. Barber and Lyon (1997) used the following formula in their paper to determine the BHAR for individual firms:

$$BHAR_{it} = \Pi_1^t(1 + R_{it}) - \Pi_1^t(1 + R_{bt}) \quad (10)$$

$$ABHAR_{it} = \frac{1}{N}\Sigma_{-t}^t[\Pi_1^t(1 + R_{it}) - \Pi_1^t(1 + R_{bt})] \quad (11)$$

To calculate the BHARs a 6-month, 1-year and 2-year event window was used. This also meant that the sample needed to be adjusted since there is not enough data for the most recent deals. In total there were 216 deals for which BHARs could be obtained. As can be seen in expression 8, the benchmark returns are needed to compute the BHAR. The benchmark used in this thesis is the MSCI World Index. The last step needed to answer the hypothesis stating that *target firms with strong ESG performance create more positive abnormal returns than weak ESG targets in the long-run*, is performing a regression. This process is very similar to the CAR regressions and makes use of the same control variables. The variable of interest is once again target ESG score with coefficient β_1:

$$BHAR^i = \alpha_0 + \beta_1 Target\,ESG + \beta_2 Control\,Variables + \varepsilon_i \quad (12)$$

3.2.4 Control variables

As mentioned in the previous sections, there are several control variables included in the regression. This is done to prevent omitted variable bias (OVB) of certain company and deal characteristics.

First, the company related control variables will be discussed. Large firms are found to overpay for their targets (Loderer & Martin, 1990). Therefore, it is recommended to control for the size of the acquiror. In this paper, the market value of equity (MV) will be used as a proxy for firm size. This is equal to the share price multiplied by the total number of ordinary shares outstanding. In the regressions the natural logarithm of MV will be taken to make the variable more normally distributed. Next, Harford (2002) pointed out that firms with excess cash destroy value through acquisitions. That is why free cash flow (FCF) is often included as a control variable. FCF is a measure of profitability and represents the cash generated from operations after subtracting capital expenditures. Just like with MV, the regression models will use the natural logarithm of FCF to improve normality. Additionally, Jensen (1986) showed that leverage can reduce agency costs within the firm. Managers under capital constraints are more likely to invest in profitable projects. Leverage is computed as the ratio of the book value of debt to the market value of equity. Finally, this paper will control for Tobin's Q which is the market value of equity to the

book value of assets. Servaes (1991) found that acquirors with a high Tobin's Q ratio have larger announcement returns.

Besides controlling for company characteristics, there are three deal features which will be accounted for. First, deal size is added to control for the complexity of large deals which can have a negative effect on announcement returns (Alexandridis et al., 2013). As with the other variables expressed in dollars, the natural logarithm will be taken. Secondly, the research of Ramiah et al. (2013) suggested that environmental government policies can have a negative effect on abnormal returns. Therefore, a dummy variable will be added for the Paris Agreement which takes value 1 if the deal took place after the treaty entered into force on 4 November 2016. Ultimately, in regressions 9 and 12 the cross-border dummy variable will be included to reduce the interference of the nationality of firms.

3.2.5 Descriptive statistics

In Table 2, several descriptive statistics are calculated for the sample. What immediately draws the attention is that the average CAR for acquiring firms is slightly negative. This is in line with previous research on M&A announcement returns (Jarell & Poulsen, 1989). Significance tests will be conducted in the next chapter. Next, there is a relatively large spread in ESG scores and on average the target firms seem to perform worse than acquiring firms. This is an interesting observation and suggests that there might be some synergy gains from raising the target ESG score. Finally, there is a big variance in company and deal financials. The mean differs much from the median and the standard deviation is quite large which might be an indication that the sample is not normally distributed.

Table 2   **Descriptive statistics for acquiror returns, ESG scores and acquiror financials**

Variable	N	Median	Mean	SD	25th %	75th %
Acquiror Returns						
CAR (-5, +5)	303	-0.0062	-0.0080	0.0813	-0.0503	0.0275
CAR (-3, +3)	303	-0.0035	-0.0004	0.0704	-0.0335	0.0233
CAR (-1, +1)	303	0.0000	-0.0002	0.0447	-0.0187	0.0174
BHAR 6m	216	-0.0002	0.0000	0.0142	-0.0076	0.0060
BHAR 1y	216	-0.0001	-0.0007	0.0187	-0.0103	0.0094
BHAR 2y	216	0.0019	-0.0001	0.0271	-0.0122	0.0137
ESG Scores						
Acquiror ESG Score	303	45.31	45.71	21.62	27.34	63.53
Target ESG Score	303	31.23	34.47	18.99	20.41	48.46
Acquiror Financials						
Deal Size (MM$)	303	1073	5028	1192	162	4297
MV (MM$)	303	8402	18490	9477	1436	41171
FCF (MM$)	303	135	-449	265	-20	1232
Assets (MM$)	303	10004	24543	12706	2298	54418
Debt (MM$)	303	2368	5951	3669	303	11090
Leverage	303	0.24	0.25	0.09	0.10	0.36
Tobin's Q	303	0.88	1.31	0.28	0.49	1.39

4 Results

4.1 Distribution and significance of CARs & BHARs

Before running the regressions and answering the hypotheses, it is important to assess the distributions of the dependent variables and subsequently determine their significance. One of the central assumptions of the OLS regression model is that the error terms must be normally distributed. When a dependent variable is heavily skewed or contains outliers, this could have an influence on the distribution of the error terms. Although normality can be assumed under the Central Limit Theorem (CLT), it is still common to control for outliers. This is why the data will be winsorized for values outside 1.5 times the interquartile range. The dependent variables are now less sensitive to outliers.

Next up is determining the statistical significance of the CARs and BHARs. As mentioned in chapter 3, the t-test and the Wilcoxon signed-rank test are performed. However, Kolari and Pynnonen (2011) point out that daily stock returns are not normally distributed and nonparametric tests are therefore preferred.

Table 3   **Statistical significance CARs and BHARs**

Test statistics and p-values for cross-sectional t-test and Wilcoxon signed-rank test of cumulative abnormal returns with 3-, 5-, and 11-day event window. * denotes that the p-value is statistically significant at the 5% level.

Variable	t statistic	p-value t-test	z statistic	p-value Wilcoxon
CAR (-5, +5)	-1.7031	0.0896	-2.3280	0.0199*
CAR (-3, +3)	-0.0979	0.9221	-1.2570	0.2089
CAR (-1, +1)	-0.0901	0.9283	-0.1580	0.8745
BHAR 6m	0.0118	0.9906	-0.4950	0.6208
BHAR 1y	-0.5321	0.5952	-0.2720	0.7857
BHAR 2y	-0.0716	0.9430	0.4110	0.6810

From Table 3 it can be concluded that none of the t-tests have delivered any statistically significant results at the 5% level. This means that the null hypothesis holds and that the mean of the returns does not differ significantly from 0. The economic interpretation is that there are no abnormal returns to be obtained upon M&A announcements for this sample. The Wilcoxon signed-rank test shows an interesting result. Even though other variables remain insignificant, the CAR with a 11-day event window is significant at the 5% level. One explanation might be that nonparametric tests are more sensitive to small abnormal returns. More elaborate statistical tests are needed to establish whether the other returns also hold explanatory power for the population.

Ultimately, a correlation matrix is constructed for all the variables used in the regressions. One of the assumptions of the linear regression model is that the independent variables should not be correlated to each other. When multicollinearity occurs, the model loses statistical significance. In Table 4 this matrix is shown. On the first sight, none of the variables seem to have a high correlation. The variables with the largest correlation are deal size and market value, but with a value of 0.4496 this is not likely

to cause multicollinearity. It also makes economic sense as large firms have more cash available for big deals. An interesting observation is that the CAR has a very low correlation to most of the explanatory variables, except leverage. This might mean that the independent variables only explain a small part of the variation of the CAR, but this needs to be explored by performing the regressions.

Table 4: Pearson's correlation matrix of regression variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.CAR (-5, +5)	1.0000									
2.Target ESG	0.0162	1.0000								
3.ln(MV)	-0.0377	0.1776	1.0000							
4.ln(FCF)	0.0076	0.1434	0.3521	1.0000						
5.Leverage	0.1236	-0.0147	0.0450	-0.0527	1.0000					
6.Tobin's Q	-0.0205	0.0053	0.0007	-0.0159	-0.1688	1.0000				
7.ln(Deal Size)	-0.0231	0.1530	0.4496	0.3064	0.2005	-0.0473	1.0000			
8.Paris Agreement	-0.0979	-0.0018	-0.0102	-0.0433	0.2208	0.0111	0.2246	1.0000		
9.Cross-border	0.0452	0.0774	0.1523	0.1796	-0.0135	-0.0618	0.1084	0.0437	1.0000	
10.Industry	0.0003	0.0267	0.0628	0.0337	0.0788	0.0806	0.1256	0.0629	0.0490	1.0000

4.2 OLS regressions

In order to answer the hypotheses, several regressions have been constructed. The regression models and control variables have been specified in chapter 3. Since the CARs with an 11-day event window were the most significant, they will be used as dependent variables. Despite their statistical insignificance, regression of the 1-year BHARs can still shed some light on the relationship with other variables. Robust standard errors will be used in all regressions to prevent heteroscedasticity. Table 5 contains the results of the four regression models used in this thesis.

Regression model 1 aims to answer hypothesis 1 which predicts that *high target ESG scores have a positive effect on announcement returns of acquirors*. The variable of interest, target ESG score, has a positive coefficient as expected. However, since the variable is insignificant using a one-tailed t-test this only provides an indication and no statistical interference can be made based on the sample. Besides that, the value is also very close to zero and the model only explains a small part of the variance in the CARs. Interestingly, leverage is very statistically significant and seems to be a better predictor of CARs than the other variables. This fortifies the argument of Jensen (1986) who argued that leverage reduces agency costs. Additionally, the Paris Agreement dummy is significant at the 5% level and negative in accordance with the findings of Ramiah et al. (2013). From this sample and regression model it cannot be concluded that target ESG score has a positive impact on CARs which is contrary to earlier findings (Aktas et al., 2011). Nevertheless, model 1 has the highest adjusted R-squared and the F-statistic is significant at the 10% level, which means that at least one coefficient is not equal to zero.

The second regression adds the cross-border element to the regression. Hypothesis 2 expects *cross-border deals with high ESG targets to create higher abnormal returns for shareholders*. The variable of interest here is the interaction term between target ESG score and the cross-border dummy. Again,

the only variables with statistical significance are leverage and the Paris Agreement dummy. Target ESG remains insignificant but positive. Deal size and market value have a negative effect on CARs which is in line with Loderer and Martin (1990). Big and cash-rich firms are more likely to overpay for their targets. Although statistically insignificant, the cross-border coefficient is positive which might indicate that cross-border deals are more profitable as shown by Eun et al. (1996). The interaction term does not seem to have an important effect.

Next, the third regression model involving hypothesis 3 anticipates that *shareholders in industries with low ESG performance achieve higher returns from acquiring high ESG targets.* For answering this hypothesis, the interaction between target ESG and industry needs to be significant. There are several surprising changes in the other explanatory variables. Target ESG score has turned slightly negative whereas previous research indicated positive effects. Leverage is now only significant at the 5% level. The categorical industry variable with the services industry as base case is only significant for the resources industry at the 10% level. If a firm is active in the resources sector, CARs decrease by 5.53% on average. When looking at the interaction terms, only the interaction between ESG score and the resources industry is statistically significant at the 5% level. So, a 1% increase in target ESG score will cause a 0.17% increase in CARs given that the acquiror is active in the resources industry. This directly supports the stakeholder value maximization view and indirectly Pätäri et al. (2014) who predict that ESG is linked to financial performance.

Ultimately, hypothesis 4 predicts that *target firms with strong ESG performance create more positive abnormal returns than weak ESG targets in the long-run*. With other words, target ESG score is the variable of interest and its coefficient should be positive. When looking at the results from regression model 4, we find that all the coefficients are insignificant and that the model has the lowest adjusted R-squared. This asks for cautious interpretation of the results. Nevertheless, many variables kept the same sign which might indicate that similar effects are at play as in the other models. The most interesting observations are that the natural logarithm of market value has become positive and leverage is not statistically significant anymore.

Table 5: OLS regression results CAR (-5, +5) and BHAR 1y

This table contains the OLS regression results for CARs with an 11-day event window (H1-H3) and 1-year BHARs (H4) as dependent variables. The control variables are the ln of MV, ln of FCF, leverage, Tobin's Q, the ln of deal size and the Paris Agreement dummy. Cross-border is a control variable for the last two regressions. The robust standard errors of the independent variables are placed between brackets. *, ** and *** indicate that the p-values are significant at the 10%, 5% and 1% level respectively. At the bottom, the p-value of the F-test and the adjusted R-squared are displayed. N stands for the number of observations in the sample used to perform the regression.

Variable	1.CAR (-5, +5)	2.CAR (-5, +5)	3.CAR (-5, +5)	4.BHAR 1y
Constant	-0.0014	-0.0028	0.0314	0.0001
	(0.0170)	(0.0175)	(0.0295)	(0.0048)
Target ESG Score	0.0001	0.0001	-0.0007	0.0000
	(0.0002)	(0.0003)	(0.0006)	(0.0001)

Control variables

Ln(MV)	-0.0014	-0.0015	-0.0016	0.0003
	(0.0016)	(0.0016)	(0.0018)	(0.0004)
Ln(FCF)	0.0002	0.0001	0.0002	0.0001
	(0.0003)	(0.0003)	(0.0004)	(0.0001)
Leverage	0.0585***	0.0588***	0.0521**	0.0080
	(0.0227)	(0.0232)	(0.0257)	(0.0059)
Tobin's Q	0.0002	0.0003	0.0001	0.0001
	(0.0006)	(0.0006)	(0.0007)	(0.0002)
Ln(Deal Size)	-0.0004	-0.0004	-0.0005	-0.0008
	(0.0019)	(0.0019)	(0.0021)	(0.0006)
Paris Agreement	-0.0180**	-0.0184**	-0.0199**	-0.0027
	(0.0079	(0.0080)	(0.0081)	(0.0021)

Research variables

Cross-border		0.0104	0.0109	0.0001
		(0.0174)	(0.0090)	(0.0026)
Industry				
IT			-0.0362	
			(0.0320)	
Utilities			0.0115	
			(0.0434)	
Resources			-0.0553*	
			(0.0302)	
FMCG			-0.0108	
			(0.0364)	
Industrials			-0.0480	
			(0.0302)	
Financials			-0.0330	
			(0.0528)	
Health & Pharma			-0.0273	
			(0.0310)	
Other			-0.0074	
			(0.0386)	

Interaction effects

ESGxCross-border		-0.0001		
		(0.0004)		
ESGxIndustry				
IT			0.0010	
			(0.0008)	
Utilities			-0.0003	
			(0.0009)	
Resources			0.0017**	
			(0.0008)	
FMCG			0.0004	
			(0.0008)	
Industrials			0.0008	
			(0.0007)	
Financials			0.0011	
			(0.0010)	
Health & Pharma			0.0008	
			(0.0008)	
Other			0.0002	
			(0.0009)	

N	303	303	303	216
p > F	0.0903*	0.1285	0.3138	0.7448
Adjusted R2	0.0126	0.0093	-0.0031	-0.0139

4.3 Robustness tests

To check whether the results derived from the OLS regressions are robust, several alternative models are constructed. First, the different CAR window lengths will be used. These CARs were found to be insignificant and the results must therefore not be interpreted as statistically correct. The independent variables used will be the same as in hypothesis 3 for the CARs. The 6-month and 2-year BHARs will be regressed using the methods of hypothesis 4. Finally, acquiror ESG score will be explored as an explanatory variable for CARs over an 11-day event window. Deng et al. (2013) found that these ratings have a significant positive effect on acquiror returns. The regression results can be found in Appendix A Table 6.

The regression of the CARs for a 7-day event window shows similar results as the 11-day event window regression, except that leverage, the Paris Agreement dummy and the interaction term of ESG and resources are not significant anymore. Surprisingly, the IT, resources and financials industry variables did turn significant at the 10% level. This provides further evidence for the influence of the acquiror's activities on CARs. Other interesting results are that the target ESG score is now close to zero and that deal size is positive. The regression of the 3-day event window differs a little from the longer windows as there is a significant positive effect for ESG score and significant negative coefficients for resources and financials. The industry interaction terms remain insignificant.

Next the 6-month BHARs are regressed using the model of hypothesis 4. Here there are some interesting changes. Although the variable of interest remains close to zero and insignificant, Tobin's Q has become significant. In line with the research of Servaes (1991), firms with a higher market to book value ratio are found to have higher announcement returns. When the 2-year BHARs are studied, the results look similar to the 6-month returns but the constant term and FCF are also significant at the 10% level. Strangely, cross-border transactions have a negative coefficient.

Finally, the alternative model using the acquiror ESG score is regressed. This time many of the coefficients are significant. The main coefficient of interest, acquiror ESG score, is significant but negative. This is a sharp contrast with the findings of Deng et al. (2013). Given the proximity to zero and the highly positive significant intercept, this does not mean that the stakeholder view can be rejected. The control variables leverage and Paris Agreement are also significant and compliant with the theoretical expectations. The most interesting fact about this last regression is that all the industry variables are significant and negative. This means that the services sector has the highest abnormal returns. Furthermore, all the interaction effects are significant and positive. In other words, the target ESG rating positively affects CARs when the acquiror is active in one of these industries. This provides further support for the third hypothesis.

5 Conclusion

5.1 Evaluation of hypotheses and research question

Although hard conclusions cannot be made due to the statistical insignificance of the majority of the variables, the results in this thesis do provide some food for thought. Under pressure from governments and growing public scrutiny, companies are forced to embrace CSR policies and play their part in society. The speed of change asks for extensive academic research on all topics surrounding CSR, and finance in particular. While there are two views on the financial gains from ESG investments, the last couple of years there seems to be more support for the stakeholder maximization view. However, the effects of CSR policies on M&A remain a relatively new area of research. That is why this thesis aimed to answer the following research question:

Can targets with strong CSR performance create value for shareholders of the acquiring firm?

In order to find an answer to this question, four hypotheses were constructed and studied through OLS regressions. The first hypothesis as seen below studied the target ESG score and predicted a positive effect in relationship to acquiror returns. However, none of the regression models found a statistically significant coefficient for this variable based on the sample. As there is no evidence for the positive effect of target ESG score on CARs, the first hypothesis must be rejected. This is a sharp contrast to the paper by Aktas et al. (2011), but not surprising when those results are studied more extensively. One of the main limitations of their research is the limited sample size which makes statistical interference difficult. They found that a unit increase in target ESG score increases acquiror returns by 0.9% which is significant at the 10% level. This value is very small and with a sample size of 94 observations very likely to suffer from selection bias.

H1: High target ESG scores have a positive effect on announcement returns of acquirors.

Next up is the hypothesis looking at the effect of cross-border transactions following the results of Eun et al. (1996). The expectation was to find a significant positive effect on abnormal returns when a deal was international. Although the results were insignificant, all the models found a positive effect of cross-border transactions on announcement returns of approximately 1% for CARs. Unfortunately, the insignificance means the hypothesis is academically rejected but there is an indication that it might hold in practice.

H2: Cross-border deals with high ESG targets create higher abnormal returns for shareholders.

The third hypothesis extends the previous models by including an industry effect. Sectors with bad CSR reputations might use M&A as a means to increase their own ratings. Jo and Na (2012) found that ESG policies can reduce corporate risk and that this effect is more pronounced for polluting industries.

The results found in this thesis are mixed, but for the resources sector there is a positive significant interaction effect. The majority of businesses in this category are active in oil and gas production or mining. These industries are very polluting and need to transform to more sustainable business models. It seems like M&A is a reliable vehicle to achieve this goal. The hypothesis is therefore accepted.

H3: Shareholders in industries with low ESG performance achieve higher returns from acquiring high ESG targets.

Finally, the last hypothesis aims to take a long-term perspective on value creation through M&A based on CSR policies. The approach was a bit different: buy-and-hold abnormal returns were obtained and regressed over the independent variables. In contrast to Deng et al. (2013), there was no significant effect found for target ESG score using the BHAR approach. This means that also hypothesis 4 must be rejected. One possible explanation might be that it is more difficult to isolate the effect of the event as the event window becomes longer and other factors might influence the stock returns.

H4: Target firms with strong ESG performance create more positive abnormal returns than weak ESG targets in the long-run.

Overall, there is little statistical evidence for the hypotheses based on the sample and methodology used in this thesis. Nevertheless, there is a significant positive effect found for companies in the utilities and resources industry. Target ESG scores and acquiror ESG scores respectively seem to increase acquiror returns upon M&A announcement. The conclusion of this thesis is therefore that target CSR performance can create value for acquiring shareholders, but only under certain conditions. Additional research is needed to further identify these opportunities. The findings in this paper support the stakeholder maximization view as there is no evidence that value is destroyed by CSR driven mergers and acquisitions.

5.2 Limitations and suggestions for further research

Based on the outcomes of this thesis there are several limitations and suggestions to be made for further research. First, the selection methods of the data used in the sample could be altered. A larger sample size will increase the reliability and significance of the results. One of the major issues when performing CSR related studies is the availability of ESG scores. In this paper the ASSET4 database was used, but this universe only contains data on 9000 companies. Different sources also employ different metrics and scales. For instance, the MSCI KLD database which is used by Deng et al. (2013) measures different variables and the composite score is a value between 1 and 7. It would be interesting to compare the results obtained using the same methodology for both databases. Another option is to consider monthly ESG ratings from providers such as Sustainalytics or CSRHub. As an increasing number of companies

is reporting on their CSR efforts and more data providers are entering the market, there is ample opportunity to compare different data sources.

Subsequently, several methodological aspects could be improved upon. To calculate BHARs, the MSCI World Index was used. As Barber and Lyon (1997) point out this might lead to misspecified test statistics. Therefore, it is preferred to match the sample to control firms with similar size and book-to-market ratios. The significance tests for abnormal returns are not optimal since they do not control for skewness. According to Kolari and Pynnonen (2011) the generalized rank test would then be preferred over the parametric t-test. Lastly, more or other control variables could be included in the regressions. The size control used in this paper is the natural logarithm of market value, but maybe the logarithm of sales or book value of assets would be a better proxy. Merger rumours can cause the share price to run up prior to an announcement. Additionally, relative size between the target and acquiror might be an interesting variable to add. Large targets with a high ESG score will likely have a larger positive effect on announcement returns for low ESG acquirors. Furthermore, several controls for CEO characteristics could be incorporated. The shareholder expense view sees CSR related M&A as a means for management to achieve personal gains or reduce turnover risk (Hubbard et al., 2017).

Finally, there are many possibilities to extend this research. One of the main practical implications is that oil & gas producers and mining companies can benefit from acquiring high CSR targets. Although there were no significant results found for other industries in this sample, it is very likely that other industries with low ESG scores might see similar effects. Further research is needed to determine which sectors can create value by CSR induced M&A. Since the BHARs in this paper were insignificant, no conclusions can be made for the long-term wealth effects. However, it remains important to consider returns over a longer horizon as many CSR investments take a long time to materialize. For example, it might take years for an oil company to switch their business model to clean energy alternatives. Ultimately, more research is needed to determine which elements of CSR create the most value such that companies can concentrate their efforts on the factors with the highest returns. If it is known whether environmental or governance related investments are most valued by investors, then policy makers can also adjust their measures accordingly. In conclusion, the financial research on CSR is just beginning and has important practical implications which can help companies in transitioning towards a more sustainable future.

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APPENDIX A

Table 6: OLS regression results robustness tests

This table contains the OLS regression results for CARs with a 7-day & 3-day event window, 6-month & 2-year BHARs and CARs with an 11-day event window as dependent variables. The control variables are the ln of MV, ln of FCF, leverage, Tobin's Q, ln of deal size, the Paris Agreement and cross-border dummies. The robust standard errors of the independent variables are placed between brackets. *, ** and *** indicate that the p-values are significant at the 10%, 5% and 1% level respectively. At the bottom, the p-value of the F-test and the adjusted R-squared are displayed. N stands for the number of observations in the sample used to perform the regression.

Variable	CAR (-3, +3)	CAR (-1, +1)	BHAR 6m	BHAR 2y	CAR (-5, +5)
Constant	0.0105	0.0141	-0.0019	0.0141*	0.0958***
	(0.1745)	(0.0137)	(0.0035)	(0.0073)	(0.0314)
Target ESG Score	-0.0001	0.0003*	0.0000	0.0000	
	(0.0003)	(0.0002)	(0.0000)	(0.0001)	
Acquiror ESG Score					-0.0021***
					(0.0005)
Control variables					
Ln(MV)	-0.0003	0.0012	0.0004	-0.0006	-0.0014
	(0.0014)	(0.0009)	(0.0002)	(0.0006)	(0.0017)
Ln(FCF)	0.0001	0.0000	0.0000	0.0003*	0.0003
	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0004)
Leverage	0.0260	0.0050	0.0036	-0.0015	0.0510**
	(0.0207)	(0.0136)	(0.0040)	(0.0089)	(0.0258)
Tobin's Q	-0.0002	-0.0001	0.0005***	0.0004**	0.0003
	(0.0009)	(0.0006)	(0.0002)	(0.0002)	(0.0007)
Ln(Deal Size)	0.0007	-0.0016	-0.0005	-0.0012	-0.0001
	(0.0018)	(0.0012)	(0.0004)	(0.0007)	(0.0020)
Paris Agreement	-0.0098	-0.0051	-0.0021	-0.0034	-0.0180*
	(0.0065)	(0.0043)	(0.0015)	(0.0031)	(0.0083)
Research variables					
Cross-border	-0.0009	0.0035	0.0003	-0.0008	0.0107
	(0.0070)	(0.0047)	(0.0017)	(0.0035)	(0.0088)
Industry					
IT	-0.0378*	-0.0253			-0.0809**
	(0.0196)	(0.0156)			(0.0323)
Utilities	-0.0034	-0.0015			-0.1489***
	(0.0290)	(0.0191)			(0.0434)
Resources	-0.0304*	-0.0268*			-0.0918***
	(0.0183)	(0.0148)			(0.0306)
FMCG	-0.0086	-0.0222			-0.1046**
	(0.0223)	(0.0168)			(0.0429)
Industrials	-0.0142	-0.0231			-0.0951**
	(0.0204)	(0.0154)			(0.0397)
Financials	-0.0601*	-0.0362			-0.0790*
	(0.0330)	(0.0177)**			(0.0439)
Health & Pharma	-0.0118	-0.0105			-0.0854***
	(0.0205)	(0.0149)			(0.0325)
Other	0.0154	0.0070			-0.0722**
	(0.0377)	(0.0176)			(0.0359)

Interaction effects

ESGxIndustry

IT	0.0005	-0.0001			0.0016**
	(0.0005)	(0.0003)			(0.0007)
Utilities	-0.0004	-0.0005			0.0032***
	(0.0006)	(0.0003)			(0.0009)
Resources	0.0007	-0.0003			0.0020***
	(0.0004)	(0.0003)			(0.0007)
FMCG	0.0001	0.0000			0.0023**
	(0.0004)	(0.0004)			(0.0009)
Industrials	-0.0001	-0.0001			0.0017**
	(0.0004)	(0.0003)			(0.0008)
Financials	0.0010	0.0002			0.0019**
	(0.0006)	(0.0003)			(0.0008)
Health & Pharma	-0.0001	-0.0004			0.0019***
	(0.0005)	(0.0003)			(0.0006)
Other	-0.0004	-0.0009			0.0016**
	(0.0008)	(0.0004)			(0.0008)
N	303	303	216	216	303
$p > F$	0.5565	0.0266**	0.0573*	0.0537*	0.0016***
Adjusted R2	-0.0228	-0.0035	0.0117	0.0077	-0.0097