CSR AND VALUE CREATION: DOES CSR PERFORMANCE AFFECT MERGER OUTCOME?

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Abstract:

With the ever-increasing global challenges, the world is facing, sustainability continues to be a major focus in society. Consequently, corporate social responsibility (CSR) is becoming an increasingly common topic of discussion for businesses. Today, firms are dedicating more resources to CSR than ever. This article studies the relationship between firms CSR performance and merger announcement returns. Previous literature examining this relationship has primarily found a positive connection. However, these studies have mainly been based on US mergers. By using a large sample of European mergers, we test if the previously found positive relationship between CSR performance and merger announcement returns also holds in Europe, a region which differs from the US in terms of sustainability progress and sustainability-related regulatory practices. We find no evidence that firms with higher CSR performance necessarily realize higher post-merger announcement returns in Europe. In some cases, low-CSR firms show higher returns while in other cases high-CSR firms show higher returns, with statistically insignificant differences. Thus, we conclude that there is no clear indication whether higher CSR performance in Europe results in higher merger announcement returns.

Keywords:

CSR, ESG, mergers, merger announcement returns, sustainability

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I. Introduction

With the ever-increasing global challenges, the world is facing, sustainability continues to be a major focus in society. Consequently, corporate social responsibility (CSR) is becoming an increasingly common topic of discussion for businesses. Today, firms are dedicating more resources to CSR than ever. In 2018, Fortune Global 500 firm's spending on CSR activities amounted to $20 billion (Meier and Cassar, 2018). Additionally, many companies have adopted sustainability reporting as part of their annual reports. According to the KPMG Survey of Sustainability Reporting, roughly 90% of the world's 250 largest corporations publish an annual sustainability report (KPMG, 2020). Following the increased attention attributed to CSR by companies, a debate regarding the impact of CSR on value creation has surfaced. Although the topic is relatively new compared to other fields within finance, researchers have already begun to investigate the relationship between CSR and value creation, in order to better understand how it affects different stakeholders. Previous research on the relationship between CSR and value creation has been quite contradictory with opposing results (Gillan, Koch and Starks, 2021). Additionally, a concern raised in previous research on the topic is the problem of reverse causality (Deng, Kang and Low, 2013). That is, for example, if superior CSR performance leads to higher shareholder wealth or higher shareholder wealth leads to superior CSR performance.

This article studies the relationship between firms' CSR performance and value creation. By using a large sample of European mergers, we investigate how the acquirer firm's CSR performance affects shareholder wealth, specifically merger announcement returns. For any company, a merger is one of the most significant investment decisions that the company can embark upon. It is a major event that heavily affects all of the company's stakeholders. As such, the merger- process and outcome could potentially be impacted by the attitude, support, and cooperation of important stakeholders (Deng et al., 2013). In theory, a firm with high CSR performance takes the interest of all stakeholders into account in business decisions to a larger extent than a firm with low CSR performance. This is based on the stakeholder value maximization view of CSR, where better CSR-performers are likely to get more support from its stakeholders, increasing overall shareholder wealth as a result (Deng et al., 2013). The opposing view of CSR is the shareholder expense view, in which spending on CSR-activities is seen as unproductive, ultimately resulting in the destruction of shareholder value ((Friedman, 1970); (McWilliams and Siegel, 2001)). Past research has found a positive link between a firm's CSR performance and merger announcement returns, supporting the stakeholder value maximization view (Deng et al., 2013).

Interestingly, mergers are particularly relevant to study in order to better understand the relationship between CSR and value creation. Firstly, as mergers are typically unanticipated events, examining merger announcement returns might reduce the reverse causality effect. Secondly, a merger is an event that could significantly affect shareholder wealth. Lastly, the merger process typically involves several stakeholders of a company (Deng et al., 2013).

Thus, studying how the acquiring firm's CSR performance affects merger announcement returns offers an interesting avenue for shedding light on the relationship between CSR and value creation.

However, most of the previous studies in the field have been conducted on US firms and mergers, with little research done on the European field (Liang and Renneboog, 2021). Previous findings in the US are not necessarily applicable in a global context. Our study therefore contributes to the existing literature on CSR performance and merger announcement returns by looking at a market where this relationship has not previously been studied. As the adoption of CSR practices and regulations in Europe is further ahead compared to the US (Sustainable Development Report, 2021), it would be of interest to investigate if the previously found relationship between CSR performance and merger returns in the US also holds in a European context.

Based on our sample of European mergers, we are not able to draw a significant conclusion regarding the relationship between CSR performance and merger announcement returns. We find no clear evidence that high-CSR firms necessarily realize higher merger announcement returns. In certain cases, the merger announcement returns are higher for the low-CSR firms, which supports the stakeholder value maximization theory. This is always the case when using the market-adjusted model to estimate the returns. However, when using the market model to estimate the returns, the results vary. In some cases, the returns are higher for the high-CSR firms but in other cases, the returns are higher for the low-CSR firms, neither supporting the stakeholder value maximization theory nor the shareholder expense view. Thus, there is no clear pattern among the results. Another aspect further supporting the ambiguity in our results is the fact that in terms of average merger announcement returns between the high-CSR and low-CSR subsamples, they are never significantly different from each other, regardless of the choice of model to estimate the returns.

The paper is structured as follows: Section I introduces the study. Section II discusses current literature within the main topic of CSR, mergers, and value creation. Section III outlines the hypothesis of the study. Then, section IV presents the data for our analysis, summary statistics for our sample, the different variables we use and the methodology of the study. In section V, the primary results of the study are presented, followed by several robustness tests in section VI. Finally, in section VII, we discuss the results, potential limitations of the study and ideas for future research opportunities within the topic before presenting our concluding remarks.

II. Literature review

In order to study the relationship between CSR performance and merger announcement returns, previous relevant literature within the field will be presented below.

A. Corporate social responsibility

Corporate social responsibility (CSR) as a term originates from the second half of the 20th century and refers to the concept of corporations including social and environmental factors in their business decisions and operations. By doing so, companies attempt to expand the number of stakeholders taken into consideration when conducting business. Consequently, companies that adopt CSR as part of their business strategy take a more balanced approach that encompasses economic, social, and environmental objectives; the triple bottom line (UNIDO, 2022). The matter of defining the term CSR is a complex issue, in part due to its relative novelty as a field of study. The literature surrounding the field of CSR is still developing and as the topic of CSR gains increasing attention the contributions to the literature follows, in turn adding to the dynamic nature of the field. Matten and Moon (2008) argued that CSR has become a broad umbrella term that encompasses the relationship between corporations and society. Other definitions of CSR include Davis (1973) where CSR is described as the additional responsibility of a firm in the areas where laws and regulations do not extend to and Frooman (1997) where CSR is described as the activities of a firm that benefit all the firm's stakeholders. Dahlsrud (2008) argues that the range of differing definitions of CSR does not necessarily pose a significant issue because the definitions share large similarities. The relationship between CSR and value creation is a topic that has received a lot of attention. Primarily two main opposing positions on CSR have been introduced, the stakeholder value maximization view and the shareholder expense view (Deng et al., 2013).

B. CSR and value creation: The stakeholder value maximization view

In the past, two different views on CSR have been proposed. One of which is the stakeholder maximization view, where CSR activities are seen as beneficial in terms of firm value creation and thus increasing shareholder wealth. According to this view, the reason behind the added shareholder wealth is because CSR activities imply a higher focus on the firm's various stakeholders (employees, suppliers etc.), which increases the stakeholders' willingness to support the firm and its operations, thus in turn resulting in higher firm value and shareholder wealth. The stakeholder value maximization view is in line with the contract theory and the theory of the firm, where the firm is seen as a series of contracts between shareholders and the firms' various stakeholders, in which each group of stakeholders provide the firm with resources in exchange for a liability explicitly outlined in a contract, such as wages in an employment contract ((Williamson, 1981); (Coase, 1937); (Alchian and Demsetz, 1972); (Jensen and Meckling, 1976); (Cornell and Shapiro, 1987)). However, in

addition to explicit contracts, there are also implicit contracts between a firm and its stakeholders, such as promises to continue supporting the product (Cornell and Shapiro, 1987). Implicit contracts are more unclear than explicit contracts, since they are based on observable but non-verifiable information, hence they cannot be enforced in court and thus contain little to no meaning in a legal context (Gurtler and Gurtler, 2014). As Cornell and Shapiro (1987) put it, the value of implicit agreements depends on whether the stakeholders expect the firm to fulfill the implicit contract or not. Firms with higher involvement in CSR-related activities are expected to better fulfill its implicit liabilities, therefore stakeholders are more likely to trust and support these firms and thus may be more willing to accept less favorable explicit terms than stakeholders of firms with lower CSR commitment (Deng et al., 2013).

Mergers play an important role in terms of stakeholder support and value creation since a merger involves a major corporate decision that can result in severe implications for the firm and thus potentially jeopardize its relations and past commitments towards its important stakeholders. Hence, there is pressure on the firm continuing to fulfill its implicit contracts towards its key stakeholders, even higher for high-CSR firms compared to low-CSR firms as the high-CSR firms are expected to better serve and fulfill them. This implies mergers are an important type of event where a firm's level of CSR commitment may affect shareholder wealth (Deng et al., 2013). In fact, in the 2001 McKinsey quarterly report, Bekier, Bogardus and Oldham (2001) find that some key factors as to why mergers fail is due to dissatisfied customers and distracted staff, which further highlights the importance of stakeholder relations in terms of mergers and value creation. In essence, high-CSR firms are more likely to adhere to its stakeholder relations and therefore should undertake more mergers that benefit its stakeholders, thus increasing firm value and shareholder wealth. The prediction is thereby that high-CSR acquirers should realize higher merger announcement returns compared to low-CSR acquirers.

C. CSR and value creation: The shareholder expense view

Another view on CSR is called the shareholder expense view, which can be seen as a completely contrasting view to the stakeholder value maximization view. In this view on CSR, managers of a firm spend time and money on unproductive CSR activities to pursue other interests, at the expense of shareholder wealth ((Friedman, 1970); (McWilliams and Siegel, 2001)). Milton Friedman, one of the main advocates of this view, argues that a company's sole purpose is to create profits for its shareholders (Friedman, 1970). This is achieved by minimizing CSR investments and only adhering to laws and regulations. Further, Friedman suggests that CSR should be viewed through the lens of agency theory (Friedman, 1970). Literature findings are in line with this view, which include Martin and Moser (2012), who suggest that managers frequently make unprofitable investments in CSR, thus destroying shareholder value. Additionally, Aupperle, Carroll and Hatfield (1985), and Marsat and Williams (2011) suggest that spending resources on CSR activities incurs costs that outweigh the benefits gained, thereby lowering overall firm value and thus destroy shareholder value.

The prediction from this view is thereby the opposite of the stakeholder value maximization view, high-CSR acquirers should realize lower merger announcement returns compared to low-CSR acquirers.

D. The relationship between CSR and merger announcement returns

Regarding the relationship between CSR and merger announcement returns, Deng et al. (2013) find that acquirer firms with high-CSR scores exhibit higher cumulative abnormal returns at merger announcement, compared to low-CSR acquirers. Furthermore, the study shows that high CSR acquirers also demonstrate superior long-term share price- and operating performance compared to low CSR acquirors. In line with the stakeholder maximization theory, the authors argue that the results could partially be explained by stronger support generated from stakeholders by high-CSR acquirors compared to low CSR acquirors. This would in turn facilitate a superior integration process and thus resulting in a more successful merger outcome. Additionally, when broadening the scope and studying the post-merger value creation for different stakeholders, the authors find that mergers with high-CSR acquirors are completed faster, less likely to fail and result in fewer layoffs compared to mergers with low-CSR acquirors. Thus, the results found by Deng, Kang et al. (2013) suggest that the acquirers' CSR performance appear to be an important determinant of the success - and probability of completion - of mergers.

E. Regional differences in CSR practices and regulations

While most of the current major studies on CSR performance and merger announcement returns have been conducted on US firms and mergers ((Liang and Renneboog, 2021); (Deng et al. 2013)), it can be difficult to draw conclusions for such studies in a global context. Different countries and regions may tackle sustainability matters differently. Additionally, attitude towards sustainability matters can vary in different parts of the world. Liang and Renneboog (2021) look at global CSR data and concludes that legal origin is strongly correlated with a firm's particular CSR rating, they find it to be the strongest predictor of a firm's adoption of CSR practices and CSR performance. Firms with origin in civil law countries perform significantly better in terms of CSR, compared to common law firms. Especially, the authors find Scandinavian firms to have the highest scores. When comparing CSR between the US and Europe, Danko, Goldberg, Goldberg and Grant (2008) find certain key differences in terms of CSR practices. They find that the US is more heavily characterized by explicit CSR statements and work communicated from the firms, while that is less so the case in Europe. For instance, Maignan and Ralston (2002) find that 53% of US firms explicitly mention CSR on their website, while the same could only be said to 29% of French firms and 35% of Dutch firms. Danko et al. (2008) primarily link the difference in explicit CSR statements to the differences in government regulations between the two regions, in terms of CSR matters. The US is characterized by less regulation on various CSR-related topics, such as employee protection rights or environmental regulations. Danko et al.

(2008) use the stance on GMO as an example of an environmental regulation, where in the US there is little regulation on GMO at a national level while in Europe it is almost completely banned in food products on an EU level. This implies firms in the US must take their own stance on the matter, while in Europe the decision is made centrally to a higher degree. This pattern is prevalent among other issues as well, like employee protection rights where such matters are often handled on a national level in Europe while in the US the policies and rules are to a higher degree dependent on the company in question. Thus, the main difference comes down to European governments having a more central role in terms of the general commitment towards various sustainability issues (e.g. environmental, social), while this is less so the case in the US, giving the firms and other private actors more of an assertive roll in their stance towards sustainability. As a result of these differences, CSR measures taken by US firms have more of a voluntary character and may differ depending on the firm and other factors, such as pressure from external stakeholders (Danko et al., 2008). In Europe, the work within sustainability matters is implicitly included in the firms' way of doing business, since the CSR and sustainability matters are more collectivized and thereby expected to be followed by all the firms (Danko et al., 2008).

III. Hypothesis

Previous research that has studied the relationship between CSR performance and merger announcement returns have primarily yielded results which are in line with the stakeholder maximization view, where the high-CSR acquirers are associated with higher merger announcement returns ((Liang and Renneboog, 2021); (Deng et al. 2013)). Therefore, we also expect the merger announcement returns to be higher for the high-CSR acquirers. Furthermore, Europe has been characterized by tighter regulations in terms of sustainability practices (Danko et al., 2008). Additionally, Europe has generally seen higher progress in terms of its work within the sustainability field. For instance, in the SDG global goals development ranking, the US is ranked no. 32 while 19 of the top 20 countries are served exclusively by European countries (Sustainable Development Report, 2021). Therefore, since Europe differs significantly from the US in terms of progress and regulations within the sustainability field, it could be of interest to examine if high CSR-firms in Europe also show better merger announcement returns and thus if the prior empirical findings, in line with the stakeholder value maximization view, also apply in a fundamentally different region.

The main research question for this study is thereby:
How does the acquirer firm's merger announcement returns compare between high-CSR firms and low-CSR firms in Europe?

The hypothesis for the study is that the merger announcement returns for the high-CSR acquirer firms is higher than the merger announcement returns for the low-CSR acquirer firms.

$$Hypothesis: MergerRet_{High} > MergerRet_{Low}$$

The merger announcement returns will be measured using the cumulative abnormal returns (CAR). The reasoning behind the choice of CAR as the primary measure of merger announcement returns is due to the study being an event study, where each merger is regarded as one event. Therefore, the CAR will be used, which is in line with previous research on similar topics (Deng et al., 2013).

IV. Data, summary statistics and methodology

In this section, we discuss the variables used for the analysis, the sample data and the methodology for the tests conducted. Furthermore, we introduce summary statistics for our sample data and explain how we control for various deal-specific and firm-specific characteristics.

A. Measuring CSR performance

Thomson Reuters ESG scores are used as a proxy to determine a firm's level of CSR performance, which is an established rating system for a firm's CSR/ESG performance (Liang and Renneboog, 2017). While ESG has been shown to be more expansive than CSR, both ESG and CSR have previously been used interchangeably to describe a firm's overall level of social performance (Gillan et al., 2021). In this study, Thomson Reuters ESG scores is used as a measure of a firm's overall level of CSR performance, since it is recognized as one of the extensive ESG rating databases. Thomson Reuters ESG scores is one of the most comprehensive ESG databases, covering over 6 000 public companies globally, across over 400 different data points. These data points are then used for over 70 key performance indicators across the three main pillars of environmental, social and governance. In the end, the data points boil down to 10 categories across the three ESG pillars. The final score is available as both a number from 0 to 100 and a grade from D- to A+. Thomson Reuters has one of the largest ESG content operations in the world, with over 150 content research analysts. The scores are benchmarked against TRBC Industry Group for all environmental and social categories, and against the country for all governance categories. In Europe, there are scores for over 1 400 public companies (Thomson Reuters, 2017). In the rest of the study, we will refer to the term "ESG" instead of CSR when referring to variables in the data, but as previously mentioned in this section of the study, ESG constitutes a proxy for CSR performance.

B. Other variables

In former studies of mergers and merger announcement returns, various acquirer firm-specific variables and deal-specific variables have been used as control variables ((Deng et al., 2013); (Masulis, Wang and Xie, 2007). We therefore include several variables to control for various acquirer and deal characteristics. Variables used to control for acquirer firm characteristics include *firm size, MB, leverage, free cash flow* and *Tobin's q* while variables used to control for the deal characteristics include *relative deal size, hostile dummy, high tech dummy, diversifying merger dummy, public target dummy, private target dummy, all-cash deal dummy* and a *stock deal dummy*.

We control for various acquirer firm-specific characteristics that have shown to have some sort of effect on an acquirer's cumulative abnormal return. Regarding the control variable

firm size, in past studies of mergers, acquirer firm size has been shown to hold a negative correlation with the cumulative abnormal return during the announcement period (Moeller, Schlingemann and Stulz, 2004). The negative correlation between firm size and CAR is shown to be linked with agency problems and takeover motives, specifically the manager hubris hypothesis coined by Roll (1986), in which the hypothesis assumes managers may be interested in takeovers for personal reasons, such as the pride of taking over another firm. Furthermore, Moeller et al. (2004) find that larger firms have a higher tendency to conduct takeovers that result in negative synergies. Additionally, the *MB* or the market-to-book ratio may also be affected by motives related to hubris (Nguyen, Yung and Sun, 2012). Thus, the use of firm size and MB controls for these potential agency issues. We define firm size as the log of book value of assets and MB as the market value of equity over book value of equity.

Tobin's q of the acquirer has been found to have varying effects on cumulative abnormal returns in the past, in certain acquiring events it is shown to be positively linked with acquirer CARs while in other acquiring events it has shown a negative link with acquirer CARs. We therefore include Tobin's q to control for its dubious effects on CAR. It is defined as the market value of assets over the book value of assets, where the market value of assets constitutes the book value of assets subtracted with the book value of equity plus the market value of equity.

The two final firm-specific characteristics we control for are *leverage* and *free cash flow*. Higher leverage is associated with increased incentives for managers to improve firm performance, therefore firms with higher leverage may get involved in more successful mergers and thus show higher CAR (Masulis et al., 2007). Meanwhile, free cash flow could either have a positive or negative effect on CAR. On one hand, free cash flow means there are more opportunities for managers to engage in mergers for personal motives such as empire building, rather than working in the best interest of the firm. One the other hand, free cash flow can also be seen as a sign of good recent firm performance (Masulis et al., 2007). Leverage is defined as the book value of debts divided by the market value of assets, where the market value of assets constitutes the book value of assets subtracted with the book value of equity plus the market value of equity. Free cash flow is defined as cash flow excluding capital expenditures and total cash dividends paid.

Apart from firm-specific characteristics, we also control for multiple deal-specific characteristics that have shown to have some sort of effect on acquirer CARs. *Relative deal size* is controlled for as previous studies have shown that acquirer CAR increases with relative deal size. We define relative deal size as the deal value reported in SDC platinum divided by the market value of equity, in line with Deng et al. (2013). *High tech* is a dummy variable and controls for mergers between high tech companies as defined by Loughran and Ritter (2004), since high tech mergers are associated with higher complexities in the process, hence possibly resulting in less successful mergers and lower acquirer CAR. High tech is defined as one if both the acquirer and target operate in high tech industries and zero otherwise. We include the dummy variable *diversifying merger* as diversifying mergers are characterized with the destruction of shareholder value (Masulis et al., 2007). We define

diversifying mergers as one if the acquirer and target have different first two-digit standard industrial classification codes and zero if not. Whether or not the target company is private or public also holds a relation to acquirer CAR, as former studies find acquirers of public targets to incur negative abnormal returns while acquirers of private targets and subsidiaries incur positive abnormal returns (Masulis et al., 2007). We therefore control for this factor by including the dummy variables *private target* and *public target*, where they are defined as one if the target firm is private or public respectively and zero otherwise. Furthermore, we account for the method of payment by adding the dummy variables *all-cash deal* and *stock deal* since acquirers tend to experience negative acquirer returns when paying with equity (Masulis et al., 2007). All-cash deal is thus defined as one if the merger is completely financed with cash and zero otherwise, while stock deal is defined as one if the merger is at least partly financed with equity and zero otherwise. Finally, we also include the deal-specific control variables *hostile, tender* and *toehold* as Deng et al. (2013). Hostile is defined as one if the merger is reported as hostile by SDC and zero if not, tender is defined as one if the merger is reported as a tender-offer by SDC and zero otherwise, while toehold is defined as one if the acquirer firm holds at least 5% of the target before the merger and zero otherwise.

C. Sample

Our sample consists of 490 mergers from 2010 to 2020, among 296 unique companies from 16 different European countries. The main reason for limiting it to 2010 – 2020 is due to the limited availability of ESG data in the Thomson Reuters ESG score database before and after 2010 and 2020 respectively. The initial merger data comes from Thomson Financial's Securities Data Company (SDC) Platinum database while the stock return and market return data are sourced from the Eikon Refinitiv database. The final sample of 490 mergers meet the following five criteria: (1) the deal value is higher than $1 million, (2) the acquirer holds less than 50% of the target's shares prior to the announcement and the combined business operation of the acquirer and the target is effective after the merger is completed, (3) the acquirer is a public company and has available stock return and financial data, (4) the acquirer has available ESG data on Thomson Reuters ESG scores and (5) the acquirer is not in the financial or utilities industries (i.e., firms with primary Standard Industrial Classification (SIC) codes between 6000 and 6999 or between 4900 and 4999). The criteria are in line with previous research on the topic of CSR performance and merger announcement returns (Deng et al., 2013), with slight variations for criteria (3) and (4) since not all the data was necessarily found from the same databases, mainly due to geographical differences in the datasets (Europe instead of the US in this study).

In this study, acquisition events (e.g., purchases of assets or subsidiaries from the targets) are excluded from the sample and thus the analysis. A merger is characterized by the acquirer and target merging to form a new combined company. However, in an acquisition the target continues to operate as its own independent entity after the completion of the acquisition. Since the target continues to operate separately after an acquisition, there is a high probability that the target stakeholders may not have any reason to renegotiate their contracts with the

firm responsible for the acquisition. Hence, there is a difference in terms of the need to renegotiate implicit and explicit contracts between mergers and acquisitions. Therefore, there is ambiguity in the effect of an acquirer's social performance on target stakeholders' willingness to support the acquisition event and thus the target stakeholders' wealth. Excluding acquisitions from the analysis is thereby in line with previous research in the field (Deng et al., 2013).

In Table 1, we present the distribution of our sample mergers, sorted by year and industry. The number of mergers each year ranges from 31 to 64 mergers, with an average of 44.5 mergers annually. The top three industry categories are manufacturing (51.8%), service industries (24.5%) and transportation and communication (8.6%) respectively.

Table 2 presents the summary statistics of our main independent variable (ESG score) and our various control variables for our sample acquirers, which are divided into high-ESG and low-ESG according to the sample median, which is in line with previous research (Deng et al., 2013).

In Table 3, we present a correlation matrix between the different independent variables used in our regressions.

Table 1: Sample distribution by year and industry

Year	Acquirer industry (first two digits of the SIC code)							
	Agriculture, forestry, and fisheries (01 – 09)	Mineral industries and construction (10-17)	Manufacturing (20-39)	Transportation and communications (40-48)	Wholesale trade and retail trade (50-59)	Service industries (70-89)	Public administration (91-99)	Total
2010	0	5	26	1	4	7	0	43
2011	0	4	20	4	2	11	0	41
2012	0	4	21	6	7	6	0	44
2013	0	1	20	6	1	5	1	34
2014	0	4	34	6	3	12	0	59
2015	0	3	18	3	1	7	0	32
2016	0	2	17	4	4	10	0	37
2017	0	3	15	3	4	6	0	31
2018	0	4	27	2	3	9	0	45
2019	0	0	26	5	6	23	0	60
2020	3	3	30	2	2	24	0	64
Total	3	33	254	42	37	120	1	490

Table 2: Summary statistics

*A one-sample t-test was conducted to determine if the mean is statistically different from 0, while a Wilcoxon signed rank test was conducted to determine if the median of the sample was statistically different from 0. The sample was also divided into a high ESG-sample and low-ESG sample according to the median ESG score. To test the difference between the subsamples, a two-sample t-test was used for the means while a Mann-Whitney U-test was used to test if the medians were statistically different from each other. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

Variable	Full sample (*N* = 490)		Subsample of high ESG: A (*N* = 245)		Subsample of low ESG: B (*N* = 245)		Test of difference (A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
ESG Score	51.794	52.184	67.785	67.258	35.803	37.869	31.982***	31.409***
Total asset (millions of dollars)	22039.71	4502.40	29557.81	13861.97	14521.60	1543.7	15036.21***	12318.27***
MB	6.298	2.906	-0.262	2.606	12.858	3.307	-13.119**	-0.701**
Tobin's q	4.250	1.760	2.269	1.691	6.237	1.855	-3.963**	-0.164**
Leverage	0.136	0.111	0.134	0.116	0.129	0.103	0.004	0.013
Firm size	3.658	3.653	4.071	4.142	3.244	3.189	0.827***	0.953***
Free cash flow	0.033	0.034	0.031	0.033	0.034	0.035	-0.003	-0.002
Relative deal size	0.168	0.041	0.148	0.043	0.187	0.039	-0.039	0.004
Hostile (dummy)	0.004	0.000	0.004	0.000	0.004	0.000	0.000	0.000
High tech (dummy)	0.082	0.000	0.057	0.000	0.106	0.000	-0.049**	0.000**
Diversifying merger (dummy)	0.437	0.000	0.420	0.000	0.453	0.000	-0.033	0.000
Public target (dummy)	0.326	0.000	0.457	0.000	0.196	0.000	0.261***	0.000***
Private target (dummy)	0.555	1.000	0.535	1.000	0.576	1.000	-0.041	0.000
Stock deal (dummy)	0.055	0.000	0.065	0.000	0.045	0.000	0.020	0.000
All-cash deal (dummy)	0.565	1.000	0.551	1.000	0.580	1.000	-0.029	0.000
Toehold (dummy)	0.063	0.000	0.057	0.000	0.069	0.000	-0.012	0.000
Tender (dummy)	0.116	0.000	0.171	0.000	0.061	0.000	0.110***	0.000***

Table 3: Correlation matrix

This table presents the pairwise correlations between the different independent variables used in our regression.

Variables	ESG Score	MB	Tobin's q	Leverage	Firm size	Free cash flow
ESG Score	1.000					
MB	-0.141	1.000				
Tobin's q	-0.111	0.720	1.000			
Leverage	0.061	-0.090	-0.129	1.000		
Firm size	0.593	-0.115	-0.089	0.268	1.000	
Free cash flow	-0.066	0.079	0.074	-0.263	-0.127	1.000
Relative deal size	-0.024	-0.013	-0.027	0.164	-0.078	-0.147
Hostile (dummy)	-0.001	-0.004	-0.008	-0.005	0.015	0.115
High tech (dummy)	-0.141	0.034	0.025	-0.002	-0.132	0.037
Diversifying merger (dummy)	0.013	0.066	0.057	-0.006	-0.027	-0.001
Public target (dummy)	0.290	0.008	0.075	0.020	0.366	-0.013
Private target (dummy)	-0.030	-0.041	-0.018	0.079	0.004	-0.010
Stock deal (dummy)	0.016	-0.003	0.016	-0.051	-0.100	0.040
All-cash deal (dummy)	0.014	0.044	-0.001	0.078	0.048	-0.024
Toehold (dummy)	-0.020	0.078	0.095	0.056	0.058	-0.012
Tender (dummy)	0.149	-0.108	-0.029	-0.027	0.232	-0.035

Continuation

Variables	Relative deal size	Hostile (dummy)	High tech (dummy)	Diversifying merger (dummy)	Public target (dummy)
Relative deal size	1.000				
Hostile (dummy)	0.002	1.000			
High tech (dummy)	0.019	-0.019	1.000		
Diversifying merger (dummy)	-0.066	0.008	-0.263	1.000	
Public target (dummy)	0.157	0.092	-0.065	-0.131	1.000
Private target (dummy)	0.045	-0.072	0.012	0.051	-0.252
Stock deal (dummy)	0.095	-0.015	0.026	-0.122	-0.035
All-cash deal (dummy)	-0.235	0.056	-0.084	0.075	-0.215
Toehold (dummy)	-0.012	0.246	-0.016	-0.009	0.016
Tender (dummy)	-0.052	0.077	-0.038	-0.076	0.521

Continuation

Variables	Private target (dummy)	Stock deal (dummy)	All-cash deal (dummy)	Toehold (dummy)	Tender (dummy)
Private target (dummy)	1.000				
Stock deal (dummy)	0.018	1.000			
All-cash deal (dummy)	-0.039	-0.275	1.000		
Toehold (dummy)	0.047	-0.063	0.059	1.000	
Tender (dummy)	-0.136	-0.060	-0.170	0.036	1.000

D. Method

Since the primary analysis of this study constitutes an event study where each merger is regarded as its own event, the calculation of the abnormal- and cumulative abnormal returns is based off the market model, which is in line with previous research (Deng et al., 2013). However, there are numerous variations of the market model, used to estimate abnormal- and cumulative abnormal returns. Marisetty and M (2020) find that the different expected return models used to estimate abnormal returns yield similar results, and the authors even find the market-adjusted model (where the beta is assumed to be equal to one) to deliver the best results. Therefore, the market-adjusted model will primarily be used to estimate the abnormal and cumulative abnormal returns for the merger announcement returns.

$$CAR_i = \sum_{t=t_1}^{t_2} AR_{it} = R_{it} - R_{mt}$$

Where the cumulative abnormal return is the summation of all abnormal returns of a particular stock during a particular event window, from day t_1 before the merger announcement date to day t_2 after the merger announcement date. In the market-adjusted model, the abnormal return is then defined as the observed return of the stock on a particular day subtracted with the observed market return on the same day. When deciding upon a proxy for the market return, the S&P 500 is often used as a proxy for the stock market in the US (Khattree and Bahuguna, 2018). However, it is a bit unclear what proxy to use for the European market, as the different European countries may not be as tightly integrated as one market like the US (Horvath and Petrovski, 2013), hence it may be unreasonable to use one market as the proxy for all the mergers. Instead, we use the market return based on a market

ETF that tracks the performance in the acquirer's country, for instance using the return of an ETF that tracks the performance in Austria for an acquirer based in Austria. This is believed to better represent the market for each stock, especially since an ETF is publicly traded like a stock, instead of picking one index to serve as the common market for all the different mergers. For the event window, three different event windows (t_1, t_2) are used for the CAR, three days (-1, 1), five days (-2, 2) and eleven days (-5, 5), which is in line with previous research on CSR performance and merger announcement returns (Deng et al., 2013). Solely using (-1, 1) as the event window may not properly catch the effects of the merger on the announcement returns and thus shareholder wealth. There may be hints or other information spread about the potential merger several days before the announcement of the merger, which implies effects of the merger may be reflected in the acquirer returns more than one day in advance of the announcement. Therefore, the event windows of (-2, 2) and (-5, 5) are also used to better capture the full effects of the merger as an event on the announcement returns.

Besides estimating the cumulative abnormal return for the three different event windows, we will conduct an ordinary least-squares regression to better understand the potential relation between our main dependent variable (CAR) and our main independent variable (ESG score). We will control for firm-specific and deal-specific characteristics by including a range of control variables presented in Table 2. The control variables will be used to reduce omitted variable bias, where the control variables take care of their own effect to get a clearer picture of the eventual relation between the independent and dependent variable. The regression performed can be regarded as a cross-sectional regression, since there is no time dimension in the data. Instead, there is only one observation for each merger. Furthermore, we will control for industry and year fixed effects. The empirical model for the regression can thus be presented as:

$$Y_i = \alpha + \beta ESG_i + \gamma X_i + \epsilon_i$$

Where:

i = 1, …., 490 (the number of mergers)
Y_i = Acquirer CAR for merger i
α = A constant, the vertical intercept
β = Coefficient of the ESG dependent variable
ESG_i = ESG score of the acquirer for merger i
X_i = Control variables for merger i
ϵ_i = Error term

V. Results

In this section our results from the study are presented. The results are divided between the merger announcement returns in subsection A and the results from the ordinary least-squares regression in subsection B.

A. Univariate test - Announcement effects (market-adjusted model)

In Table 4 our primary results of the CAR are presented. The mean CAR values for all samples and event windows are statistically different from 0 at the 1% significance level. Meanwhile, for the median, all but two median values are statistically different from 0 at the 1% significance level. The remaining two median values are the median CAR (-2, 2) for the high-ESG subsample and the median CAR (-5, 5) for the low-ESG subsample, which are statistically different from 0 at the 5% significance level. One observation from these univariate results is that the mean CAR values for the low-ESG subsample are higher than the mean CAR values of the high-ESG subsample at all three event windows (-1, 1), (-2, 2) and (-5, 5). The biggest difference is experienced at the shortest event window (-1, 1), where on average, the low-ESG subsample realizes a CAR that is 0.798 percentage points higher than the high-ESG subsample. However, none of the differences in mean CAR between the subsamples are statistically different from each other at any significance level. Contrary to our hypothesis, these results do not support the stakeholder value maximization view and instead support the shareholder expense view since the merger announcement returns are lower for the high-ESG subsample at all three event windows.

Table 4: CAR for acquirers (percent), estimated using the market-adjusted model
*A one-sample t-test was conducted to determine if the mean is statistically different from 0, while a Wilcoxon signed rank test was conducted to determine if the median of the sample was statistically different from 0. The sample was also divided into a high ESG-sample and low-ESG sample according to the median ESG score. To test the difference between the subsamples, a two-sample t-test was used for the means while a Mann-Whitney U-test was used to test if the medians were statistically different from each other. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

CARs	Full sample (N = 490)		Subsample of acquirers with high ESG: A (N = 245)		Subsample of acquirers with low ESG: B (N = 245)		Test of difference (A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR (-1, 1)	1.609***	1.059***	1.210***	0.981***	2.008***	1.285***	-0.798	-0.304
CAR (-2, 2)	1.963***	0.973***	1.734***	0.974**	2.192***	0.950***	-0.458	0.024
CAR (-5, 5)	2.482***	1.553***	2.463***	1.653***	2.502***	1.311**	-0.039	0.342

B. Results from OLS regression (market-adjusted model)

While a univariate study of the cumulative abnormal returns may provide an indication of any potential relationship between a firm's CSR performance and its merger announcement return, to attain a better understanding of the data we run an ordinary least-squares regression. Cumulative abnormal return (-1, 1) is selected as the dependent variable, in line with previous

research (Deng et al., 2013). In addition to controlling for different firm-specific features and deal-specific features, we also control for industry and year fixed effects in the regression. Results from the ordinary least-squares regression are reported in Table 5. The estimates from the regression are presented in column 1. One immediate observation from the results is the positive coefficient of the main independent variable ESG Score. The positive coefficient of 0.00003 entails a 1-point increase in acquirer ESG score results in an increased CAR (-1, 1) of 0.003 percentage points. Opposite to the univariate results, this result rather supports the stakeholder value maximization view since it suggests acquirer firms with higher ESG scores see higher merger announcement returns. The regression results from Table 5 therefore do not confirm the univariate results reported in Table 4. However, this positive coefficient estimate is not statistically significant at any significance level, indicated by the lack of any stars next to the coefficient. Even if the positive coefficient would be statistically significant, at such a low value it would hardly hold any economic significance. Running the regression where the cumulative abnormal return (-2, 2) or (-5, 5) measures are used as the dependent variable provide comparable results, which are presented in appendix 2.1.1 and 2.1.2 respectively. The main difference when changing the event window is that the p-value for the main independent variable ESG Score is lower, but still never below the 10% threshold for any sort of significance.

Table 5: OLS regression of CAR (-1, 1) estimated using the market-adjusted model on explanatory variables
*The table displays the results from the OLS regression with the CAR (-1, 1) as the dependent variable on explanatory variables. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	3.31e-05
	(0.000219)
MB	1.72e-05
	(6.13e-05)
Tobin's q	-0.000147
	(0.000189)
Leverage	0.0689*
	(0.0375)
Firm size	-0.000527
	(0.00582)
Free cash flow	0.122**
	(0.0552)
Relative deal size	0.0335***
	(0.0102)
Hostile (dummy)	0.0221
	(0.0553)
High tech (dummy)	0.00774
	(0.0131)
Diversifying merger (dummy)	0.0111
	(0.00705)
Public target (dummy)	-0.0162*
	(0.00925)
Private target (dummy)	0.0155**
	(0.00679)
Stock deal (dummy)	0.0137
	(0.0153)

All-cash deal (dummy)	-0.0104
	(0.00733)
Toehold (dummy)	0.00656
	(0.0136)
Tender (dummy)	0.00915
	(0.0119)
Constant	-0.0385
	(0.0449)
Observations	490
R-squared	0.211
Industry and year fixed effects	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

VI. Robustness tests

The various robustness tests we conduct are presented in this section. The robustness tests range from the use of the market model instead of the market-adjusted model to estimate the merger announcement returns and the use of different variations of the main independent variable (ESG-score) in the regressions.

A. Market model

As part of our robustness check, we also estimate the abnormal and cumulative abnormal returns for the acquirer firms using the market model instead of the market-adjusted model. In the market model, the beta is no longer assumed to be one, instead the beta coefficient of each stock-merger combination is estimated using past stock return and market return data. In the market-adjusted model, abnormal returns are calculated simply by subtracting the market return from the observed stock return on a given day. In the market model, the abnormal return is calculated by subtracting the predicted return from the actual stock return on a given day. The formula for the cumulative abnormal return thereby comes down to the following:

$$CAR_i = \sum_{t=t_1}^{t_2} AR_{it} = R_{it} - (\alpha_i + \beta_i \cdot R_{mt})$$

Where the cumulative abnormal return is calculated as the sum of all abnormal returns of the acquirer firm of merger *i*. The predicted return consists of the alpha (intercept) and the beta (sensitivity measure of stock R_{it}) multiplied with the market return. As with the calculations of the cumulative abnormal return using the market-adjusted model, the market return constitutes the return of an exchange-traded fund that tracks the performance of the market in the acquirer firm's country. The market model is estimated using 200 days of past trading data, ending 11 days prior to the merger announcement, which is in accordance with previous research on the topic ((Deng et al., 2013); (Masulis et al., 2007)). The results for the acquirer cumulative abnormal returns estimated using 200 days of past trading data are presented in Table 6. Generally, the results are similar to the results using the market-adjusted model presented in Table 4, with a few notable differences. Unlike when using the market-adjusted model, in the case of the market model, the mean cumulative abnormal return for the low-ESG subsample is higher than the mean cumulative abnormal return for the high-ESG subsample in two of three event window periods, (-1, 1) and (-2, 2). Only in the final event window (-5, 5) is the mean value higher for the high-ESG subsample. The biggest difference between the two subsamples is recorded at the (-5, 5) event window, where the mean CAR of the high-ESG subsample is on average higher by 0.728 percentage points. However, in line with the estimation using the market-adjusted model reported in Table 4, the test of difference between the two subsamples is not significant at any level for any of the event windows.

Table 6: CAR for acquirers (percent), estimated using the market model

*A one-sample t-test was conducted to determine if the mean is statistically different from 0, while a Wilcoxon signed rank test was conducted to determine if the median of the sample was statistically different from 0. The sample was also divided into a high ESG-sample and low-ESG sample according to the median ESG score. To test the difference between the subsamples, a two-sample t-test was used for the means while a Mann-Whitney U-test was used to test if the medians were statistically different from each other. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

CARs	Full sample (*N* = 490)		Subsample of acquirers with high ESG: A (*N* = 245)		Subsample of acquirers with low ESG: B (*N* = 245)		Test of difference (A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR (-1, 1)	1.438***	0.913***	1.204***	0.840***	1.672***	1.056***	-0.468	-0.216
CAR (-2, 2)	1.680***	1.078***	1.662***	0.960*	1.698**	1.129**	-0.035	-0.169
CAR (-5, 5)	2.072***	1.927***	2.436***	1.951**	1.708*	1.904**	0.728	0.047

Like with the case of the market-adjusted model, the univariate results may not provide a full picture of the potential relation between CSR performance and acquirer cumulative abnormal returns. Therefore, to better understand the potential relationship between CSR performance and acquirer cumulative abnormal returns, we conduct an ordinary least-squares regression using various firm-specific and deal-specific control variables discussed in subsection IV.B. The results from the ordinary least-squares regression are presented in Table 7. The main dependent variable in Table 7 is the cumulative abnormal return within event-window (-1, 1). We also conduct separate regressions using the cumulative abnormal returns for the remaining event windows (-2, 2) and (-5, 5), which are presented in appendix 3.1.1 and 3.1.2 respectively. However, the results from the regressions are similar at all three event windows. The main dependent variable ESG Score has a slightly positive coefficient at 0.00005, which implies a 1-point increase in ESG score yields an increase in the cumulative abnormal return of 0.005 percentage points. Once again, the coefficient of the ESG Score variable is not significant at any level. Even if the coefficient was significant, it would likely not hold any economic significance due to the low value of the coefficient.

Table 7: OLS regression of CAR (-1, 1) estimated using the market model on explanatory variables

*The table displays the results from the OLS regression with the CAR (-1, 1) estimated using the market model as the dependent variable on explanatory variables. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error while values within brackets [] denote the p-value. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	4.49e-05
	(0.000218)
MB	3.85e-05
	(6.09e-05)
Tobin's q	-0.000189
	(0.000188)
Leverage	0.0800**
	(0.0373)
Firm size	0.00362
	(0.00579)

Free cash flow	0.128**
	(0.0549)
Relative deal size	0.0315***
	(0.0101)
Hostile (dummy)	0.0231
	(0.0550)
High tech (dummy)	0.00921
	(0.0131)
Diversifying merger (dummy)	0.00926
	(0.00701)
Public target (dummy)	-0.0177*
	(0.00919)
Private target (dummy)	0.0117*
	(0.00675)
Stock deal (dummy)	0.0157
	(0.0153)
All-cash deal (dummy)	-0.0107
	(0.00729)
Toehold (dummy)	0.00275
	(0.0135)
Tender (dummy)	0.0123
	(0.0118)
Constant	-0.00979
	(0.0447)
Observations	490
R-squared	0.211
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

B. ESG (dummy) as main independent variable

One possible explanation as to why the coefficients of the ESG Score are economically insignificant in the ordinary least-squares regressions presented in Table 5 and 7 could be the use of ESG Score as the main independent variable. Since ESG Score is a variable ranging from 0-100, each incremental point may not have much of an impact on the overall acquirer CAR, regardless of the event window period. Instead, creating a dummy variable of the ESG Score between a high- and low-ESG subsample as explained in section IV.C, may allow us to better capture the cross-sectional effect between high- and low ESG acquirers in relation to acquirer CAR. The results from the ordinary least-squares regression with ESG (Dummy) as the main independent variable and CAR (-1, 1) estimated using the market model, are presented in Table 8. As expected, the coefficient is still positive but considerably higher than in the previous regressions where ESG (Score) was used as the primary independent variable. On average, high-ESG acquirers see a higher CAR of 0.182 percentage points. However, while the coefficient is positive to a higher degree, it is still not statistically significant with a p-value above 10%, indicated by the lack of any stars next to the coefficient. When using the remaining two event windows of CAR (-2, 2) and CAR (-5, 5), the overall results are similar, which are presented in appendix 4.1.1 and 4.1.2 respectively. The main differences being a higher coefficient and lower p-value, but still not low enough for any statistical significance. Additionally, when using the CAR measures estimated using the market-adjusted model, the results are still similar across all three event windows. These results are presented in appendix 4.2.1, 4.2.2 and 4.2.3 respectively.

Table 8: OLS regression of CAR (-1, 1) estimated using the market model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) estimated using the market model as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.00182
	(0.00762)
MB	3.79e-05
	(6.09e-05)
Tobin's q	-0.000188
	(0.000188)
Leverage	0.0797**
	(0.0371)
Firm size	0.00374
	(0.00535)
Free cash flow	0.127**
	(0.0549)
Relative deal size	0.0317***
	(0.0101)
Hostile (dummy)	0.0232
	(0.0550)
High tech (dummy)	0.00928
	(0.0131)
Diversifying merger (dummy)	0.00932
	(0.00700)
Public target (dummy)	-0.0177*
	(0.00918)
Private target (dummy)	0.0117*
	(0.00675)
Stock deal (dummy)	0.0156
	(0.0153)
All-cash deal (dummy)	-0.0106
	(0.00728)
Toehold (dummy)	0.00278
	(0.0135)
Tender (dummy)	0.0122
	(0.0118)
Constant	-0.00804
	(0.0451)
Observations	490
R-squared	0.211
Industry and year fixed effects	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

C. ESG without the governance component

One potential issue of including the entire ESG-score as the main independent variable is the fact that it explicitly includes the governance component. Some high-ESG firms may simply be included in the high-ESG subsample because of a high governance score in Thomson Reuters ESG rating system. To account for this governance component, we construct an adjusted ESG score without the governance component, thus becoming an ES score.

According to Thomson Reuters ESG methodology, the environment-, social- and governance components account for 34%, 35.5% and 30.5% respectively, totaling at 100% (Thomson Reuters, 2017). We construct the ES score by taking the individual environment- and social scores, weighing them according to their weights defined by Thomson Reuters before scaling them up to match the scale of a score between 0 and 100. The univariate results using the ES score instead of the ESG score are presented in Table 9 below, where the cumulative abnormal return of the acquirer is estimated using the market-adjusted model, as in subsection V.A. The results are consistent with those found in Table 4 under subsection V.A, since the mean CAR for the low-ES sample is also higher at all three event windows. Conversely, when estimating the CAR using the market model based on 200 days of past trading data, the mean CAR is higher for the high-ES subsample at two of the three event windows, more specifically (-2, 2) and (-5, 5). These results are presented in Table 10.

Table 9: CAR for acquirers (percent) using ES-scores instead of ESG-scores, estimated using the market-adjusted model
*A one-sample t-test was conducted to determine if the mean is statistically different from 0, while a Wilcoxon signed rank test was conducted to determine if the median of the sample was statistically different from 0. The sample was also divided into a high ES-sample and low-ES sample according to the median ES score. To test the difference between the subsamples, a two-sample t-test was used for the means while a Mann-Whitney U-test was used to test if the medians were statistically different from each other. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

CARs	Full sample (N = 490)		Subsample of acquirers with high ES: A (N = 245)		Subsample of acquirers with low ES: B (N = 245)		Test of difference (A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR (-1, 1)	1.609***	1.059***	1.282***	0.718***	1.936***	1.623***	-0.653	-0.905**
CAR (-2, 2)	1.963***	0.973***	1.782***	0.697**	2.143***	1.280***	-0.361	-0.583
CAR (-5, 5)	2.482***	1.553***	2.324***	1.442**	2.641***	1.553***	-0.317	-0.111

Table 10: CAR for acquirers (percent) using ES-scores instead of ESG-scores, estimated using the market model
*A one-sample t-test was conducted to determine if the mean is statistically different from 0, while a Wilcoxon signed rank test was conducted to determine if the median of the sample was statistically different from 0. The sample was also divided into a high ES-sample and low-ES sample according to the median ES score. To test the difference between the subsamples, a two-sample t-test was used for the means while a Mann-Whitney U-test was used to test if the medians were statistically different from each other. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

CARs	Full sample (N = 490)		Subsample of acquirers with high ES: A (N = 245)		Subsample of acquirers with low ES: B (N = 245)		Test of difference (A-B)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CAR (-1, 1)	1.609***	1.059***	1.339***	0.656***	1.537***	1.286***	-0.198	-0.630
CAR (-2, 2)	1.963***	0.973***	1.809***	0.620*	1.552**	1.590***	0.257	-0.970
CAR (-5, 5)	2.482***	1.553***	2.384***	1.745**	1.760**	2.262**	0.624	-0.517

In line with the previous sections, besides the univariate test of the cumulative abnormal return, we also conduct an ordinary least-squares regression to better test the relationship between the main independent variable (ES score in this case) and the cumulative abnormal return estimated using the market-adjusted model, controlling for various firm- and deal-specific characteristics discussed in subsection IV.B. We present the results from the regression in Table 11, where the main independent variable is ES Score, and the dependent variable is cumulative abnormal return (-1, 1). The results are similar to the other regressions conducted in this work, characterized by a low but positive coefficient for the ES score, albeit

statistically insignificant. CAR estimated using the market model based on 200 days of trading data and using ES (dummy) as the main independent variable are presented in appendices 5.1.1 – 5.4.3. The results are similar across the board, with positive insignificant coefficients for the ES score or ES (dummy) variables. However, it is statistically significant at the 10% level during the 11-day event-window (-5, 5), when using the ES score as the main independent variable, as shown in appendix 5.1.2 and 5.2.3. Although, significance at the 10% level is rarely considered significant enough for a result.

Table 11: OLS regression of CAR (-1, 1) estimated using the market-adjusted model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000208
	(0.000208)
MB	2.94e-05
	(6.11e-05)
Tobin's q	-0.000164
	(0.000188)
Leverage	0.0803**
	(0.0372)
Firm size	0.000512
	(0.00680)
Free cash flow	0.132**
	(0.0550)
Relative deal size	0.0321***
	(0.0101)
Hostile (dummy)	0.0172
	(0.0550)
High tech (dummy)	0.00928
	(0.0132)
Diversifying merger (dummy)	0.00978
	(0.00702)
Public target (dummy)	-0.00238
	(0.0423)
Private target (dummy)	0.0200
	(0.0419)
Stock deal (dummy)	0.0155
	(0.0154)
All-cash deal (dummy)	-0.0127*
	(0.00730)
Toehold (dummy)	0.00526
	(0.0137)
Tender (dummy)	0.0119
	(0.0118)
Constant	-0.0220
	(0.0627)
Observations	490
R-squared	0.207
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VII. Discussion and conclusion

The final section discusses our main empirical findings and how to possibly interpret them. We also discuss potential limitations with our study, future research opportunities, before ending the section with our concluding remarks.

A. Discussion

The results from the study indicate that the relationship between an acquirer firm's CSR performance (using ESG score as a proxy) and its merger announcement returns (using cumulative abnormal return as a proxy) are ambiguous. Unlike Deng et al. (2013) which found a clear connection between acquirer CSR performance and merger announcement returns, where high-CSR firms clearly experienced higher merger announcement returns, we cannot make such a clear interpretation of our results. We find that in some cases, the acquirer merger announcement returns are higher for the low-ESG subsample, such as in Table 4 and Table 9, when the cumulative abnormal return estimated using the market-adjusted model is higher for the low-ESG and low-ES subsample at all three event windows. When estimating the cumulative abnormal return using the market model based on 200 days of past trading data, the results are more ambiguous as presented in Table 6 and Table 10. Using the ESG score as the main independent variable as in Table 6, the CAR is higher for the low-ESG subsample at two of three event windows. The opposite is the case when controlling for governance and thus using the ES score instead, the mean CAR is on the contrary higher for the high-ESG subsample at two of the three event windows, presented in Table 10. The regression results only add to the ambiguity of the results. While the main independent variable always has a positive coefficient, suggesting higher ESG- or ES-acquirers see higher merger announcement returns, it is in most cases statistically insignificant. The only two cases where we find the positive relationship between the main independent variable to have any statistical significance is when using the ES score as the main independent variable and only when using the CAR (-5, 5) as the dependent variable, both in the case of using the market-adjusted model and market model estimated using 200 days of past trading data, presented in appendix 5.1.2. and 5.2.3. respectively. Although, in these two cases the coefficients are only significant at the 10% level, which is rarely considered significant enough. Thus, there is no clear support for the hypothesis that the merger announcement returns are higher for high-ESG acquirer firms. This implies there is little support for neither the stakeholder value maximization theory nor the shareholder expense view since there is little consistency among the results.

One possible explanation as to why our results differ substantially from those found by Deng et al. (2013) could be related to the sample itself. While Deng et al. (2013) base their study on a sample of US mergers, we base our sample on mergers from European countries. As Danko et al. (2008) writes, there is a fundamental difference in the attitude towards CSR- and ESG-related issues from US and European authorities. In a relative stance, Europe generally scores higher in terms of its work within sustainability and its sustainable rankings, such as the

progress of the work towards the 17 Sustainable Development Goals as defined by the United Nations, where 19 of the top 20 countries are in Europe (Sustainable Development Report, 2021). As the way of tackling CSR and sustainability issues is more collectivized in Europe, firms are legally obliged to adhere to the minimum government regulations, for instance regarding carbon emissions (Danko et al., 2008). This is not usually the case in the US, where the relative lack of regulations puts the commitment in the hands of the firms.

The higher focus on sustainability in Europe combined with the fundamental differences in how such issues are addressed through regulations may entail that the expectations from investors on European firms could differ. Since there are less regulatory measures in the US in terms of sustainable practices, it would be less expected for a US-based firm to get involved in more sustainable practices, since these would likely be voluntary measures or at least not measures that the firm is legally required to participate in. Meanwhile, in Europe the firms may have more expectations put on them by investors and other stakeholders to conduct certain sustainability-related practices, as a result of the more direct regulations and higher focus on sustainability matters in Europe. Thus, there may not be a premium associated with the merger announcement returns for high-CSR acquirers in Europe as investors may already expect the firms to continue to maximize value for their different stakeholders, anything else would be abnormal.

Thirdly, while both studies use merger data from SDC Platinum, we use different proxies for estimating a firm's CSR performance. In the study by Deng et al. (2013), the authors use corporate social performance scores from KLD stats to measure an acquirer firm's CSR performance, while we use Thomson Reuters ESG scores as a proxy for CSR performance. Both are established ways of determining a company's CSR- or ESG-performance, but they are still not based on the same methodology since they are constructed by different raters. In certain applications the choice of rating system may not have a detrimental effect on the classification of the firm, for instance in terms of a firm's credit worthiness. Regarding the credit rating agency, Ruddy (2021) finds that ratings from different credit rating agencies are highly correlated. However, when it comes to ESG- and CSR ratings, the landscape is more dispersed. When examining different ESG- and CSR raters, Berg, Koelbel and Rigobon (2019) find that different ratings only have a correlation between 0.38 and 0.71. The major spread in correlation between different rating standards is concerning for a number of reasons. First of all, it is concerning because in the end, all of the raters are trying to measure the same aspect, namely a firm's CSR or ESG performance. The relatively low correlation and major disparity between the ratings imply that the same firm that is rated as high-CSR according to one standard can be rated as low-CSR according to another standard, and this could go back and forth between different rating systems. This is a crucial limitation since the classification of a firm's CSR performance is vital to the study. It implies the use of a different rating system on the identical sample could generate different results, since the division of the sample between high-CSR and low-CSR could differ substantially.

B. Limitations

The sample of mergers upon which this study is based was limited to public companies. The reason for this limitation is because financial and accounting data is more easily accessible for public companies compared to privately held firms. Furthermore, the access to ESG- and CSR ratings is also more extensive for public companies. This is likely because public companies publish sustainability reports to a higher extent than private firms. This limitation, although necessary, results in an exclusion of a large sample of mergers by private companies. As publicly traded companies typically tend to be of the larger size compared to private firms, our data sample excludes mergers by small- and mid-sized companies which constitute a large segment of the total market. Further, the sample size of mergers that this study is based on is relatively small compared to other research conducted in this field of study. Previous studies that have found strong evidence of a connection between CSR performance and merger outcome such as Deng et al. (2013) have had larger sample sizes than this study.

Given the research question and scope of this study, Thomson Reuters was the only adequate database available for gathering ESG ratings that suited our requirements. As such, the ESG data used in this study is solely based on the Thomson Reuters database. Given that CSR performance can be complex to measure correctly (Chatterji, Levine and Toffel, 2009), it could have been valuable to compare ESG-scores across several different agencies had there been sufficient access to multiple adequate providers of this type of data. Although the Thomson Reuters database is one of the most comprehensive and widely used databases for ESG-ratings, a comparison could potentially lead to valuable insights.

Another limiting factor that could potentially impact the results is related to the practices of the rating agencies. Although companies can be legally required to disclose certain types of ESG information, they are generally not required to publish an annual sustainability report. It is becoming increasingly common for public companies to publish annual sustainability reports, however, the format and the type of ESG information that is shared differs between companies. When a rating agency is not able to access certain or adequate ESG information in a company's public reports, the firm is graded a zero rating in that category. As companies that have the resources and capabilities to collect and report this data are the ones that will be awarded a correct ESG-rating by agencies, typically being larger and financially stable companies, the total ESG score could potentially be biased towards these firms. Thus, smaller firms with superior CSR practices could possibly be assigned a low ESG-score due to insufficient sustainability reporting, while larger companies with inferior CSR practices could be awarded a high CSR-score due to better and more extensive sustainability reporting.

Lastly, another limitation of the study is the underlying assumption that the efficient market hypothesis holds. We use cumulative abnormal returns as a proxy for merger announcement returns, which in turn is a way to measure shareholder wealth and firm value creation. The hypothesis of the study assumes that the stock market incorporates most of the available public information. Another assumption is that investors have access to this information (i.e.

no information asymmetry), the implication is that new information (such as a merger announcement) should be reflected into the stock price (Degutis and Novickytė, 2014). This assumption is crucial for our study, since at its core, we conduct an event study and examine its effects on stock returns (merger announcement returns). Research on the efficient market hypothesis in practice has produced mixed results, but overall, the evidence shows the stock market can be somewhat efficient, but with clear signs of market inefficiency, such as investor overreaction or delayed reactions (Degutis and Novickytė, 2014). We mitigate for the potential anomalies of the market by not restricting our measures of merger announcement returns to an event window of three days (-1, 1), but also including event windows of five days (-2, 2) and eleven days (-5, 5). However, by using longer event windows, we may still not be able to account for all kinds of market reaction anomalies.

C. Further research opportunities

Previous literature on the relationship between CSR performance and merger announcement returns, such as Deng et al. (2013), have in line with the stakeholder maximization view found a positive relationship between the two. However, previous studies in this field have primarily focused on the US and been based on a sample consisting of US mergers. As mentioned previously, our study contributes to the literature by investigating whether the prior empirical findings are applicable in a European context, by using a data sample of European mergers. However, no scientific study can have an endless scope and this study is no exception. Hence, we have identified some further research opportunities that would be valuable contributions to investigating the relationship between CSR performance and merger announcement returns in a European context.

As CSR performance can be difficult to measure, a company's CSR performance can be rated differently by different rating agencies. Hence, it would be interesting to conduct a study investigating the relationship between CSR performance and merger announcement returns and use acquirer ESG-scores from multiple different rating agencies. This would a valuable contribution as it could explain if prior empirical findings hold regardless of which ESG-rating agency is used and would enable a comparison of how the results vary based on which ESG-rating agency is used. Additionally, it would be interesting to conduct a similar study, but instead use the same ESG-rating for different geographical samples, e.g., US-sample, and European sample.

Another contribution that could provide valuable insights to existing literature on the relationship between CSR and mergers would be a study examining how CSR performance affects the acquiring firm's long-term post-merger returns, in a European context. One of the potential benefits of superior CSR performance, in connection with a merger, is an improved integration process. As the post-merger integration process is conducted over a longer period and oftentimes complex to quantify, it could be the case that the high-CSR benefits associated with this are not sufficiently priced in at the time of announcement. Thus,

examining how the long-term returns differ based on CSR performance could highlight possible mispricing at announcement.

Further, previous empirical findings in line with the stakeholder maximization view have suggested that mergers with high CSR acquirers are likely to take longer time to complete and are also more likely to fail. The reasoning, in this case, would be that because shareholders hold veto power in a merger process, they can block or delay mergers that benefit other stakeholders at the expense of shareholders (Deng et al., 2013). As these findings have been based on US mergers, it would be relevant to examine whether these results hold in Europe as well.

D. Conclusion

In this study we investigate the relationship between CSR performance and merger announcement returns. Mainly, there are two opposing views on how CSR activities affect economic value creation, the stakeholder maximization view and the shareholder expense view. The stakeholder maximization view suggests that superior CSR performance results in higher stakeholder satisfaction and, in turn, higher stakeholder support throughout a merger process. In turn, this would result in superior merger outcomes thus increasing shareholder wealth. On the contrary, the shareholder expense view predicts that high CSR firms, in efforts to benefit all stakeholders, will undertake value-destroying mergers that reduce shareholder wealth. Previous studies on this topic, which have primarily been based on US mergers, have presented contradicting findings. As the adoption of CSR practices is further along in Europe compared to the US, this study sheds a light on this topic in a European context. By using a large sample of European mergers, we investigate how the acquiring firm's CSR performance affects merger outcome, specifically merger announcement returns.

Our results indicate that the relationship between an acquirer firm's CSR performance (using ESG performance as a proxy) and merger announcement returns (using cumulative abnormal return as a proxy) is ambiguous. Based on these results, we are not able find clear evidence of a connection between an acquirers CSR performance and merger announcement returns. In some cases, we find that the merger announcement returns are higher for the low-CSR subsample. This always holds when using the market-adjusted model to estimate the merger announcement returns, no matter if the ESG performance or ES performance is used as a proxy. However, the results are less consistent when using the market model to estimate the merger announcement returns. In our standard case, when ESG performance is used as a proxy, the merger announcement return is higher for the low-CSR subsample in two of three event windows. When using the ES performance as a proxy, the situation is the opposite, where the high-CSR subsample sees higher returns in two of three event windows. In the regressions between the ESG performance and merger announcement returns, the ESG performance always has a slight positive link to the merger announcement return, which suggests higher-CSR firms realize higher merger announcement returns, supporting the stakeholder maximization theory. However, these results are not significant in most cases,

regardless of the proxy of CSR performance used. Essentially, the results lack any clear patterns. One aspect which further supports the ambiguity of the results is that the merger announcement returns between the low-CSR and high-CSR subsamples are never significantly different from each other, regardless of choice of estimation method or CSR performance proxy. Thus, we cannot draw any clear conclusions regarding the relationship between CSR performance and value creation.

VIII. References

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IX. Appendix

Appendix 1: Variable definitions

Variables	Definition
ESG Score	A measure of ESG-performance as defined by Thomson Reuters ESG rating methodology, ranges from 0 to 100
ESG Score (dummy)	One if the ESG score of the acquirer is above the median, zero if it is below the median
ES Score	Thomson Reuters ESG score excluding the governance-component, it is calculated using the standalone environment- and social scores respectively, weighted accordingly and then scaled up to fit the range of 0 to 100
ES Score (dummy)	One if the ES score of the acquirer is above the median, zero if it is below the median
MB	The market value of equity over book value of equity of the acquirer
Tobin's q	The market value of assets over the book value of assets, where the market value of assets constitutes the book value of assets subtracted with the book value of equity plus the market value of equity
Leverage	Leverage is defined as the book value of debts divided by the market value of assets, where the market value of assets constitutes the book value of assets subtracted with the book value of equity plus the market value of equity
Firm size	Log of book value of assets
Free cash flow	Free cash flow is defined as cash flow excluding capital expenditures and total cash dividends paid.
Relative deal size	Relative deal size is defined as the deal value reported in SDC platinum divided by the market value of equity
Hostile (dummy)	One if the merger is reported as hostile by SDC and zero if not
High tech (dummy)	One if both the acquirer and target operate in high tech industries as defined by (Loughran and Ritter, 2004) and zero otherwise
Diversifying merger (dummy)	One if the acquirer and target have different first two-digit standard industrial classification codes and zero if not
Public target (dummy)	One if the target firm is public and zero otherwise
Private target (dummy)	One if the target firm is private and zero otherwise
Stock deal (dummy)	One if the merger is partly financed with equity and zero if not
All-cash deal (dummy)	One if the merger is fully financed with cash and zero otherwise
Toehold (dummy)	One if the acquirer firm holds at least 5% of the target before the merger and zero otherwise
Tender (dummy)	One if the merger is reported as a tender offer in SDC platinum and zero otherwise

Appendix 2.1.1 OLS regression results from CAR (-2, 2), market-adjusted model

Appendix 2.1.1: OLS regression of CAR (-2, 2) estimated using the market-adjusted model on explanatory variables, using ESG score as the main independent variable,

*The table displays the results from the OLS regression with the CAR (-2, 2) as the dependent variable on explanatory variables, with ESG score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	0.000160
	(0.000297)
MB	1.64e-05
	(8.29e-05)
Tobin's q	-0.000222
	(0.000256)
Leverage	0.0732
	(0.0507)
Firm size	0.000187
	(0.00788)
Free cash flow	0.116
	(0.0747)
Relative deal size	0.0401***
	(0.0137)
Hostile (dummy)	0.0305
	(0.0748)
High tech (dummy)	0.0132
	(0.0178)
Diversifying merger (dummy)	0.0104
	(0.00954)
Public target (dummy)	-0.0174
	(0.0125)
Private target (dummy)	0.0122
	(0.00918)
Stock deal (dummy)	0.0126
	(0.0207)
All-cash deal (dummy)	-0.0185*
	(0.00992)
Toehold (dummy)	0.00790
	(0.0184)
Tender (dummy)	-0.00383
	(0.0161)
Constant	-0.0302
	(0.0608)
Observations	490
R-squared	0.189
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 2.1.2 OLS regression results from CAR (-5, 5), market-adjusted model

Appendix 2.1.2: OLS regression of CAR (-5, 5) estimated using the market-adjusted model on explanatory variables, using ESG score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) as the dependent variable on explanatory variables, with ESG score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	0.000610
	(0.000406)
MB	-6.07e-05
	(0.000113)
Tobin's q	-0.000116
	(0.000349)
Leverage	-0.0193
	(0.0693)
Firm size	-0.00544
	(0.0108)
Free cash flow	0.121
	(0.102)
Relative deal size	0.0496***
	(0.0188)
Hostile (dummy)	0.0791
	(0.102)
High tech (dummy)	0.0333
	(0.0243)
Diversifying merger (dummy)	0.0197
	(0.0130)
Public target (dummy)	-0.0292*
	(0.0171)
Private target (dummy)	0.0280**
	(0.0125)
Stock deal (dummy)	0.0322
	(0.0283)
All-cash deal (dummy)	-0.00928
	(0.0136)
Toehold (dummy)	-0.00681
	(0.0251)
Tender (dummy)	0.0153
	(0.0220)
Constant	-0.0246
	(0.0830)
Observations	490
R-squared	0.186
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 3.1.1 OLS regression results from CAR (-2, 2), market model

Appendix 3.1.1: OLS regression of CAR (-2, 2) estimated using the market model on explanatory variables, using ESG score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) estimated using the market model as the dependent variable on explanatory variables, with ESG score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	0.000181
	(0.000295)
MB	5.55e-05
	(8.25e-05)
Tobin's q	-0.000307
	(0.000254)
Leverage	0.0942*
	(0.0504)
Firm size	0.00533
	(0.00784)
Free cash flow	0.129*
	(0.0743)
Relative deal size	0.0347**
	(0.0137)
Hostile (dummy)	0.0328
	(0.0744)
High-tech (dummy)	0.0186
	(0.0177)
Diversifying merger (dummy)	0.00851
	(0.00949)
Public target (dummy)	-0.0184
	(0.0124)
Private target (dummy)	0.00654
	(0.00913)
Stock deal (dummy)	0.0152
	(0.0206)
All-cash deal (dummy)	-0.0174*
	(0.00987)
Toehold (dummy)	0.00368
	(0.0183)
Tender (dummy)	0.00192
	(0.0160)
Constant	0.0118
	(0.0605)
Observations	490
R-squared	0.196
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 3.1.2 OLS regression results from CAR (-5, 5), market model

Appendix 3.1.2: OLS regression of CAR (-5, 5) estimated using the market model on explanatory variables, using ESG score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) estimated using the market model as the dependent variable on explanatory variables, with ESG score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG Score	0.000625
	(0.000391)
MB	5.68e-06
	(0.000109)
Tobin's q	-0.000285
	(0.000337)
Leverage	0.0373
	(0.0669)
Firm size	0.00103
	(0.0104)
Free cash flow	0.162
	(0.0985)
Relative deal size	0.0449**
	(0.0181)
Hostile (dummy)	0.0811
	(0.0986)
High tech (dummy)	0.0356
	(0.0235)
Diversifying merger (dummy)	0.0134
	(0.0126)
Public target (dummy)	-0.0288*
	(0.0165)
Private target (dummy)	0.0154
	(0.0121)
Stock deal (dummy)	0.0333
	(0.0274)
All-cash deal (dummy)	-0.00836
	(0.0131)
Toehold (dummy)	-0.00604
	(0.0242)
Tender (dummy)	0.0150
	(0.0212)
Constant	0.0431
	(0.0802)
Observations	490
R-squared	0.196
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 4.1.1 ESG (dummy) regression results from CAR (-2, 2), market model

Appendix 4.1.1: OLS regression of CAR (-2, 2) estimated using the market model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) estimated using the market model as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.00548
	(0.0103)
MB	5.31e-05
	(8.24e-05)
Tobin's q	-0.000305
	(0.000254)
Leverage	0.0924*
	(0.0502)
Firm size	0.00634
	(0.00724)
Free cash flow	0.127*
	(0.0743)
Relative deal size	0.0352**
	(0.0137)
Hostile (dummy)	0.0331
	(0.0744)
High tech (dummy)	0.0187
	(0.0177)
Diversifying merger (dummy)	0.00880
	(0.00948)
Public target (dummy)	-0.0182
	(0.0124)
Private target (dummy)	0.00655
	(0.00914)
Stock deal (dummy)	0.0152
	(0.0206)
All-cash deal (dummy)	-0.0170*
	(0.00985)
Toehold (dummy)	0.00359
	(0.0183)
Tender (dummy)	0.00151
	(0.0160)
Constant	0.0173
	(0.0611)
Observations	490
R-squared	0.196
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 4.1.2 ESG (dummy) regression results from CAR (-5, 5), market model

Appendix 4.1.2: OLS regression of CAR (-5, 5) estimated using the market model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) estimated using the market model as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5% and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.0179
	(0.0137)
MB	-2.68e-06
	(0.000109)
Tobin's q	-0.000282
	(0.000338)
Leverage	0.0305
	(0.0666)
Firm size	0.00481
	(0.00961)
Free cash flow	0.157
	(0.0987)
Relative deal size	0.0466**
	(0.0182)
Hostile (dummy)	0.0817
	(0.0987)
High tech (dummy)	0.0360
	(0.0235)
Diversifying merger (dummy)	0.0144
	(0.0126)
Public target (dummy)	-0.0281*
	(0.0165)
Private target (dummy)	0.0154
	(0.0121)
Stock deal (dummy)	0.0336
	(0.0274)
All-cash deal (dummy)	-0.00718
	(0.0131)
Toehold (dummy)	-0.00645
	(0.0243)
Tender (dummy)	0.0135
	(0.0212)
Constant	0.0613
	(0.0810)
Observations	490
R-squared	0.194
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 4.2.1 ESG (dummy) regression results from CAR (-1, 1), market-adjusted model

Appendix 4.2.1: OLS regression of CAR (-1, 1) estimated using the market-adjusted model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.000980
	(0.00775)
MB	8.50e-06
	(6.17e-05)
Tobin's q	-0.000118
	(0.000190)
Leverage	0.0680*
	(0.0375)
Firm size	0.000776
	(0.00539)
Free cash flow	0.128**
	(0.0555)
Relative deal size	0.0354***
	(0.0102)
Hostile (dummy)	0.0134
	(0.0555)
High tech (dummy)	0.00779
	(0.0133)
Diversifying merger (dummy)	0.0120*
	(0.00708)
Public target (dummy)	-0.0240
	(0.0427)
Private target (dummy)	-0.00272
	(0.0423)
Stock deal (dummy)	0.0122
	(0.0156)
All-cash deal (dummy)	-0.0122*
	(0.00732)
Toehold (dummy)	0.00757
	(0.0138)
Tender (dummy)	0.00831
	(0.0120)
Constant	-0.0291
	(0.0634)
Observations	490
R-squared	0.201
Industry and year fixed effects	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix 4.2.2 ESG (dummy) regression results from CAR (-2, 2), market-adjusted model

Appendix 4.2.2: OLS regression of CAR (-2, 2) estimated using the market-adjusted model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.00431
	(0.0104)
MB	1.43e-05
	(8.28e-05)
Tobin's q	-0.000221
	(0.000256)
Leverage	0.0714
	(0.0505)
Firm size	0.00123
	(0.00728)
Free cash flow	0.115
	(0.0747)
Relative deal size	0.0406***
	(0.0138)
Hostile (dummy)	0.0307
	(0.0748)
High tech (dummy)	0.0133
	(0.0178)
Diversifying merger (dummy)	0.0106
	(0.00953)
Public target (dummy)	-0.0172
	(0.0125)
Private target (dummy)	0.0122
	(0.00919)
Stock deal (dummy)	0.0127
	(0.0208)
All-cash deal (dummy)	-0.0182*
	(0.00990)
Toehold (dummy)	0.00776
	(0.0184)
Tender (dummy)	-0.00421
	(0.0161)
Constant	-0.0258
	(0.0614)
Observations	490
R-squared	0.189
Industry and year fixed effects	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix 4.2.3 ESG (dummy) regression results from CAR (-5, 5), market-adjusted model

Appendix 4.2.3: OLS regression of CAR (-5, 5) estimated using the market-adjusted model on explanatory variables, using ESG (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) as the dependent variable on explanatory variables, with ESG (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ESG (dummy)	0.0155
	(0.0142)
MB	-6.88e-05
	(0.000113)
Tobin's q	-0.000116
	(0.000350)
Leverage	-0.0265
	(0.0690)
Firm size	-0.00118
	(0.00995)
Free cash flow	0.116
	(0.102)
Relative deal size	0.0512***
	(0.0188)
Hostile (dummy)	0.0795
	(0.102)
High tech (dummy)	0.0335
	(0.0243)
Diversifying merger (dummy)	0.0207
	(0.0130)
Public target (dummy)	-0.0283*
	(0.0171)
Private target (dummy)	0.0281**
	(0.0126)
Stock deal (dummy)	0.0328
	(0.0284)
All-cash deal (dummy)	-0.00811
	(0.0135)
Toehold (dummy)	-0.00742
	(0.0251)
Tender (dummy)	0.0138
	(0.0220)
Constant	-0.00845
	(0.0839)
Observations	490
R-squared	0.183
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.1.1 ES regression results from CAR (-2, 2), market-adjusted model

Appendix 5.1.1: OLS regression of CAR (-2, 2) estimated using the market-adjusted model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000336
	(0.000283)
MB	7.27e-06
	(8.30e-05)
Tobin's q	-0.000204
	(0.000255)
Leverage	0.0729
	(0.0505)
Firm size	-0.00428
	(0.00924)
Free cash flow	0.118
	(0.0747)
Relative deal size	0.0402***
	(0.0138)
Hostile (dummy)	0.0252
	(0.0747)
High tech (dummy)	0.0139
	(0.0179)
Diversifying merger (dummy)	0.0109
	(0.00953)
Public target (dummy)	-0.0163
	(0.0574)
Private target (dummy)	0.00578
	(0.0569)
Stock deal (dummy)	0.0119
	(0.0209)
All-cash deal (dummy)	-0.0209**
	(0.00991)
Toehold (dummy)	0.0101
	(0.0186)
Tender (dummy)	-0.00453
	(0.0161)
Constant	-0.0238
	(0.0852)
Observations	490
R-squared	0.188
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.1.2 ES regression results from CAR (-5, 5), market-adjusted model

Appendix 5.1.2: OLS regression of CAR (-5, 5) estimated using the market-adjusted model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000695*
	(0.000388)
MB	-8.50e-05
	(0.000114)
Tobin's q	-8.48e-05
	(0.000350)
Leverage	-0.0256
	(0.0692)
Firm size	-0.0105
	(0.0127)
Free cash flow	0.126
	(0.102)
Relative deal size	0.0504***
	(0.0189)
Hostile (dummy)	0.0658
	(0.102)
High tech (dummy)	0.0340
	(0.0245)
Diversifying merger (dummy)	0.0215
	(0.0131)
Public target (dummy)	-0.0231
	(0.0787)
Private target (dummy)	0.0155
	(0.0780)
Stock deal (dummy)	0.0320
	(0.0287)
All-cash deal (dummy)	-0.0141
	(0.0136)
Toehold (dummy)	-0.00296
	(0.0255)
Tender (dummy)	0.0129
	(0.0221)
Constant	-0.0126
	(0.117)
Observations	490
R-squared	0.178
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.2.1 ES regression results from CAR (-1, 1), market model

Appendix 5.2.1: OLS regression of CAR (-1, 1) estimated using the market model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) estimated using the market model as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000208
	(0.000208)
MB	2.94e-05
	(6.11e-05)
Tobin's q	-0.000164
	(0.000188)
Leverage	0.0803**
	(0.0372)
Firm size	0.000512
	(0.00680)
Free cash flow	0.132**
	(0.0550)
Relative deal size	0.0321***
	(0.0101)
Hostile (dummy)	0.0172
	(0.0550)
High tech (dummy)	0.00928
	(0.0132)
Diversifying merger (dummy)	0.00978
	(0.00702)
Public target (dummy)	-0.00238
	(0.0423)
Private target (dummy)	0.0200
	(0.0419)
Stock deal (dummy)	0.0155
	(0.0154)
All-cash deal (dummy)	-0.0127*
	(0.00730)
Toehold (dummy)	0.00526
	(0.0137)
Tender (dummy)	0.0119
	(0.0118)
Constant	-0.0220
	(0.0627)
Observations	490
R-squared	0.207
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.2.2 ES regression results from CAR (-2, 2), market model

Appendix 5.2.2: OLS regression of CAR (-2, 2) estimated using the market model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) estimated using the market model as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000369
	(0.000281)
MB	4.50e-05
	(8.23e-05)
Tobin's q	-0.000292
	(0.000253)
Leverage	0.0931*
	(0.0501)
Firm size	0.000303
	(0.00917)
Free cash flow	0.129*
	(0.0741)
Relative deal size	0.0343**
	(0.0137)
Hostile (dummy)	0.0299
	(0.0741)
High tech (dummy)	0.0183
	(0.0177)
Diversifying merger (dummy)	0.00887
	(0.00946)
Public target (dummy)	0.0224
	(0.0570)
Private target (dummy)	0.0440
	(0.0565)
Stock deal (dummy)	0.0170
	(0.0207)
All-cash deal (dummy)	-0.0190*
	(0.00984)
Toehold (dummy)	0.00704
	(0.0184)
Tender (dummy)	0.00165
	(0.0160)
Constant	-0.0234
	(0.0846)
Observations	490
R-squared	0.198
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.2.3 ES regression results from CAR (-5, 5), market model

Appendix 5.2.3: OLS regression of CAR (-5, 5) estimated using the market model on explanatory variables, using ES score as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) estimated using the market model as the dependent variable on explanatory variables, with ES score being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES Score	0.000709*
	(0.000373)
MB	-1.79e-05
	(0.000109)
Tobin's q	-0.000266
	(0.000336)
Leverage	0.0299
	(0.0665)
Firm size	-0.00458
	(0.0122)
Free cash flow	0.164*
	(0.0985)
Relative deal size	0.0445**
	(0.0181)
Hostile (dummy)	0.0736
	(0.0984)
High tech (dummy)	0.0351
	(0.0235)
Diversifying merger (dummy)	0.0147
	(0.0126)
Public target (dummy)	0.0341
	(0.0757)
Private target (dummy)	0.0689
	(0.0750)
Stock deal (dummy)	0.0371
	(0.0275)
All-cash deal (dummy)	-0.0114
	(0.0131)
Toehold (dummy)	-0.00102
	(0.0245)
Tender (dummy)	0.0134
	(0.0212)
Constant	-0.00551
	(0.112)
Observations	490
R-squared	0.196
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.3.1 ES (dummy) regression results from CAR (-1, 1), market-adjusted model

Appendix 5.3.1: OLS regression of CAR (-1, 1) estimated using the market-adjusted model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.00106
	(0.00914)
MB	8.51e-06
	(6.17e-05)
Tobin's q	-0.000119
	(0.000190)
Leverage	0.0677*
	(0.0375)
Firm size	0.000632
	(0.00611)
Free cash flow	0.128**
	(0.0555)
Relative deal size	0.0353***
	(0.0102)
Hostile (dummy)	0.0133
	(0.0555)
High tech (dummy)	0.00773
	(0.0133)
Diversifying merger (dummy)	0.0120*
	(0.00710)
Public target (dummy)	-0.0241
	(0.0426)
Private target (dummy)	-0.00285
	(0.0422)
Stock deal (dummy)	0.0122
	(0.0155)
All-cash deal (dummy)	-0.0122*
	(0.00732)
Toehold (dummy)	0.00758
	(0.0138)
Tender (dummy)	0.00831
	(0.0120)
Constant	-0.0284
	(0.0639)
Observations	490
R-squared	0.201
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.3.2 ES (dummy) regression results from CAR (-2, 2), market-adjusted model

Appendix 5.3.2: OLS regression of CAR (-2, 2) estimated using the market-adjusted model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.00287
	(0.0123)
MB	7.56e-06
	(8.31e-05)
Tobin's q	-0.000203
	(0.000256)
Leverage	0.0695
	(0.0505)
Firm size	0.00222
	(0.00824)
Free cash flow	0.121
	(0.0749)
Relative deal size	0.0415***
	(0.0138)
Hostile (dummy)	0.0232
	(0.0748)
High tech (dummy)	0.0130
	(0.0179)
Diversifying merger (dummy)	0.0111
	(0.00957)
Public target (dummy)	-0.0209
	(0.0575)
Private target (dummy)	6.96e-05
	(0.0569)
Stock deal (dummy)	0.0122
	(0.0209)
All-cash deal (dummy)	-0.0196**
	(0.00987)
Toehold (dummy)	0.00853
	(0.0186)
Tender (dummy)	-0.00484
	(0.0161)
Constant	-0.0213
	(0.0861)
Observations	490
R-squared	0.185
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.3.3 ES (dummy) regression results from CAR (-5, 5), market-adjusted model

Appendix 5.3.3: OLS regression of CAR (-5, 5) estimated using the market-adjusted model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.0155
	(0.0169)
MB	-8.52e-05
	(0.000114)
Tobin's q	-7.45e-05
	(0.000351)
Leverage	-0.0329
	(0.0693)
Firm size	-0.000781
	(0.0113)
Free cash flow	0.128
	(0.103)
Relative deal size	0.0524***
	(0.0189)
Hostile (dummy)	0.0615
	(0.103)
High tech (dummy)	0.0323
	(0.0245)
Diversifying merger (dummy)	0.0214
	(0.0131)
Public target (dummy)	-0.0297
	(0.0789)
Private target (dummy)	0.00725
	(0.0781)
Stock deal (dummy)	0.0322
	(0.0288)
All-cash deal (dummy)	-0.0114
	(0.0135)
Toehold (dummy)	-0.00496
	(0.0255)
Tender (dummy)	0.0125
	(0.0221)
Constant	0.00126
	(0.118)
Observations	490
R-squared	0.173
Industry and year fixed effects	YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.4.1 ES (dummy) regression results from CAR (-1, 1), market model

Appendix 5.4.1: OLS regression of CAR (-1, 1) estimated using the market model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-1, 1) estimated using the market model as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.00295
	(0.00907)
MB	2.95e-05
	(6.12e-05)
Tobin's q	-0.000162
	(0.000188)
Leverage	0.0782**
	(0.0372)
Firm size	0.00408
	(0.00606)
Free cash flow	0.133**
	(0.0551)
Relative deal size	0.0328***
	(0.0101)
Hostile (dummy)	0.0159
	(0.0550)
High tech (dummy)	0.00873
	(0.0132)
Diversifying merger (dummy)	0.00988
	(0.00704)
Public target (dummy)	-0.00489
	(0.0423)
Private target (dummy)	0.0169
	(0.0419)
Stock deal (dummy)	0.0156
	(0.0154)
All-cash deal (dummy)	-0.0119
	(0.00726)
Toehold (dummy)	0.00444
	(0.0137)
Tender (dummy)	0.0117
	(0.0119)
Constant	-0.0194
	(0.0634)
Observations	490
R-squared	0.206
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.4.2 ES (dummy) regression results from CAR (-2, 2), market model

Appendix 5.4.2: OLS regression of CAR (-2, 2) estimated using the market model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-2, 2) estimated using the market model as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.00717
	(0.0122)
MB	4.50e-05
	(8.25e-05)
Tobin's q	-0.000288
	(0.000254)
Leverage	0.0892*
	(0.0501)
Firm size	0.00586
	(0.00818)
Free cash flow	0.131*
	(0.0743)
Relative deal size	0.0354***
	(0.0137)
Hostile (dummy)	0.0277
	(0.0742)
High tech (dummy)	0.0174
	(0.0177)
Diversifying merger (dummy)	0.00892
	(0.00950)
Public target (dummy)	0.0186
	(0.0570)
Private target (dummy)	0.0392
	(0.0565)
Stock deal (dummy)	0.0172
	(0.0208)
All-cash deal (dummy)	-0.0176*
	(0.00979)
Toehold (dummy)	0.00585
	(0.0184)
Tender (dummy)	0.00142
	(0.0160)
Constant	-0.0169
	(0.0854)
Observations	490
R-squared	0.196
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 5.4.3 ES (dummy) regression results from CAR (-5, 5), market model

Appendix 5.4.3: OLS regression of CAR (-5, 5) estimated using the market model on explanatory variables, using ES (dummy) as the main independent variable

*The table displays the results from the OLS regression with the CAR (-5, 5) estimated using the market model as the dependent variable on explanatory variables, with ES (dummy) being the main independent variable. The regression is based on our sample of 490 mergers. Announcement year dummies of the merger are used as year fixed effects while two-digit standard industrial classification code dummies are used to control for industry fixed effects. Values within parenthesis () denote the standard error. *, ** and *** denote the statistical significance at the 10%, 5%, and 1% levels respectively.*

VARIABLES	(1)
ES (dummy)	0.0193
	(0.0163)
MB	-1.83e-05
	(0.000110)
Tobin's q	-0.000253
	(0.000337)
Leverage	0.0223
	(0.0666)
Firm size	0.00391
	(0.0109)
Free cash flow	0.165*
	(0.0987)
Relative deal size	0.0463**
	(0.0182)
Hostile (dummy)	0.0693
	(0.0987)
High tech (dummy)	0.0333
	(0.0236)
Diversifying merger (dummy)	0.0144
	(0.0126)
Public target (dummy)	0.0286
	(0.0758)
Private target (dummy)	0.0617
	(0.0751)
Stock deal (dummy)	0.0372
	(0.0276)
All-cash deal (dummy)	-0.00868
	(0.0130)
Toehold (dummy)	-0.00259
	(0.0245)
Tender (dummy)	0.0131
	(0.0213)
Constant	0.0119
	(0.114)
Observations	490
R-squared	0.192
Industry and year fixed effects	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1