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# The Effect of Cross-border M&A on Shareholder Wealth

*a European event study*

**Jakob Opsahl & Stian Dokken Skarsbø**

**Supervisor: Francisco Santos**

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NORWEGIAN SCHOOL OF ECONOMICS

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# Abstract

This thesis aims to examine the effect of cross-border M&A transactions in the EU/EFTA. First, we find no cumulative abnormal return (CAR) differences between domestic and foreign acquirers. However, we discover a significant difference in CAR of 2,10% between cross-border and local targets. The premium is mainly driven by three factors: Western European targets, especially the UK and Belgium, perform considerably better than their local peers. Next, the two industries, Materials, and Telecom, perform remarkably well. Lastly, the relative size of the deal seems to give a stronger signal effect for cross-border targets compared to their local counterparts, which results in a higher CAR.

***Keywords*** – M&A, Cross-border, EU/EFTA, NHH

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# 1 Introduction

Mergers and acquisitions, especially cross-border transactions, have had an extraordinary activity boom ever since markets were deregulated and liberalized in the 1980s and 1990s (Stiglitz, 2004). Globalization started this trend which resulted in lower entry barriers to foreign countries. This increased the opportunities for companies and individuals. As a result, according to (KPMG-Advisory, 2022), the global M&A activity reached a staggering $5.1 trillion in 2021. So why has the literature (e.g.(Alexandridis, Petmecas & Travlos, 2010)) found that mergers and acquisitions do not have a significant positive wealth effect? The notion that mergers and acquisitions do not create shareholder value is supported by extensive research, and the result is somewhat conclusive (Rohrle & Meckl, 2016). Building upon this idea, on 28th February 2019, Aswath Damodaran said at a CFA institute regarding acquisitions (CFA-institute, 2019).

"Just say no"

However, these facts have not deterred companies from participating in M&A deals, continually striving to expand their scope of operation internationally. A leading thought may come from the fact that even though M&As are not value-creating, specific segments or circumstances could be overlooked. Sometimes, the target or acquirer benefits more based on the deal characteristics, which have been shown on several occasions. For instance, cross-border M&A has generated favorable premiums for cross-border targets in the UK (Danbolt, 2004). This is also true for acquirers operating in the financial sector in developed markets (Ochoriva, Frolova & Dranev, 2019). Despite the overall literature on cross-border M&A pointing to an inconclusive difference in the aggregate to local transactions. If some subgroups benefit from these announcements, what could be the driver for these?

This thesis aims to empirically analyze the possibility of differences in cross-border and local M&A transactions in EU and EFTA countries. Following the event study methodology by (MacKinlay, 1997), the analysis will give insight into how the market reaction might differ between different groups or parties. Using data on 1321 transactions in the last

19 years, we analyze the cumulative abnormal returns of acquirers and targets with an event window two days before and after the event day. We find that cross-border targets receive a significant 2.14% premium compared to local targets. Moreover, we find no significant difference between foreign or domestic transactions for acquiring companies. However, these results are not controlled for well-known factors. This will be done in the cross-sectional part of the analysis.

Furthermore, we divide the data into nations, industries, and regions to see if our finding is consistent across the whole sample or if, indeed, some groups react differently. Following the continuation of the event study, we observe that targets in Western Europe and especially countries like UK and Belgium experience higher CARs in cross-border transactions than locals. These findings align with previous studies (Goergen & Renneboog, 2004). However, when we look at the sample divided into industries, we get mixed results for both targets and acquirers in their cross-border transactions. In particular, we find that the most significant contributors to the cross-border premium are Materials, Industrials, and Consumer Products. Additionally, there seems to be no clear correlation between targets overperforming the average and acquirers performing under average in local transactions.

In our cross-sectional analysis, we control for variables that significantly impact the abnormal return for both targets and acquirers, based on studies from (Goergen & Renneboog, 2004) and (Kharin, Eckbo & Betton, 2009). The results from the analysis confirm our findings in the event study that cross-border targets receive a significant premium at 2.10% over their local counterparts. Moreover, there seem to be certain factors that give rise to target cross-border premiums. For example, in foreign transactions, an increase in the relative size of the deal has a more significant impact on abnormal returns for cross-border deals than locals. In addition, targets perform better when cross-border acquirers operate in unrelated industries. Further, by dividing the sample into industries and regions, we observe Materials, Telecom and Western Europe to have a significant cross-border premium for targets. Finally, we do not find a significant difference between foreign and domestic M&As for acquirers.

To ensure that our results capture the cross-border effect, we compare similar deals based on covariates that are significant in explaining the probability of the transaction being foreign or domestic. Using propensity score matching principles based on (Caliendo &

Kopeing, 2008), we end up with a significant cross-border premium of 2.30% compared to our non-matched sample of 2.10%. This result makes us more confident that our initial finding is not affected by confounding bias.

Following a study by (Berkovitch & Narayanan, 1993), we investigate whether differences in acquirer management motives could explain the higher premiums paid for foreign targets. By examining the correlation between target, acquirer, and total gain, we try to distinguish between the three main motives discussed in the literature: synergies, hubris, and agency. Synergies refer to the potential benefits that can arise when two companies merge or combine forces. Hubris refers to excessive pride or self-confidence, which can lead to overconfidence and misjudgment. Finally, agency refers to the motivations and incentives for the acquirer management team to pursue a M&A deal in order to benefit themselves rather than the firm's shareholders. Our findings suggest that a higher degree of hubris is present in our cross-border transactions, indicating that these acquisitions might more often be based on overconfidence and misjudgment than local M&As.

Our research offers new insights into the potential drivers of the observed differences between local and cross-border M&A transactions in EU and EFTA countries. For instance, our analysis highlights the importance of carefully considering the specific industries and regions when evaluating the potential outcomes of M&As. Furthermore, we identify factors that contribute to the difference in performance between foreign and domestic M&As. By providing insight into these underlying drivers, we aim to help shareholders make more informed decisions in the future. Overall, our work makes a contribution to the sparse literature on cross-border M&A activity in EU/EFTA and might provide valuable information for stakeholders in this area.

Further, this thesis is structured as follows. Section 2 consists of a summary of previous research in the area. In the third section, we present our data, sample selection criteria, and descriptive statistics. Section 4 showcases our results, discussions, and a summary of our methodology. Finally, Section 5 ends our thesis with a conclusion.

# 2 Literature Review

M&As are a common and important aspect of the business world. Thus, there has been a significant amount of research on mergers and acquisitions over the years. An important part of the M&A research is the difference in value creation within local and cross-border deals. However, the literature on cross-border M&As has largely focused on the US and UK, with less attention given to deals within Europe. Nevertheless, the European Union has seen a significant increase in cross-border transactions in recent years (Refinitive, 2022), making it an important area of study. Thus, we want to shed light on potential differences in value creation between local and cross-border transactions in EU/EFTA.

This section is divided into two parts. First, we start with a review of relevant literature on M&A, focusing on cross-border deals. Second, we compare our results to the existing literature and showcase our contribution.

## 2.1 Previous studies on foreign and local M&As

### Local transactions

The predominant topic researchers have focused on within local M&As is the case of value creation for shareholders. Here, one finds a clear and unanimous answer in the existing literature that the target firm receives a significant premium compared to the expected stock price performance. The size of the target premium varies in size, but on average, it is in the range of 20-40% (Goergen & Renneboog, 2004). However, the literature on bidders' wealth effect is more uncertain. We can generalize the findings into two groups. The first group of studies finds that M&A generates small negative abnormal returns (Sirower, 1997), (Healy, Palepu, & Ruback, 1997). Furthermore, the other half of the literature finds a slight positive to zero effect on the bidder's abnormal return (Eckbo & Thorburn, 2000), (Schwert, 2002). Since the acquirers are much larger than the target firm on average, the net wealth effect for the shareholders combined is barely positive. This suggests that it is hard to prove that M&A creates value on average in domestic transactions.

### Cross-border targets

Looking at the cross-border literature, considerable effort has been put into researching cross-border announcement effects in the US and UK, but this has lacked in other areas, such as the EU. In cross-border M&A studies, we can see similarities to domestic research in that the targets often receive a significant positive abnormal return after the M&A announcement. Nevertheless, the most interesting thing about the cross-border literature is to look at the differences between local and foreign deals. For example, research done by (Conn & Connell, 1990) on UK cross-border transactions showed that US targets received a higher wealth effect than UK local targets. On the other hand, (Danbolt, 2004) found no statistical difference between UK targets of domestic and cross-border acquisitions. Moreover, A paper about M&A deals within the EU found that targets received an abnormal return of 9% on the announcement day but had no significant differences between cross-border and domestic transactions (Goergen & Renneboog, 2004). Furthermore, some papers propose that cross-border effects for target companies do not come from fundamental differences in abnormal returns but from differences in bid characteristics between local and cross-border M&As, such as payment methods and hostile takeovers (Wansley, Lane, & Yang, 1983), (Dewenter, 1995).

### Cross-border acquirers

When we look at the bidding firms in cross-border M&A transactions, we find that empirical evidence is inconclusive. The study by (Tunyi, 2021) shows that the returns for US bidding firms are similar between cross-border and local transactions. Moreover, one paper focusing on the EU discovered that acquiring firms had no apparent differences from locals (Goergen & Renneboog, 2004). A contrary view to these articles is (Moeller & Schlingemann, 2005) and (Hughes, Guest, Cosh & Conn, 2005), which find that the abnormal returns for cross-border bidding firms in the US and UK are worse than domestic. Overall, most evidence shows that bidders achieve negligible or worse wealth creation from cross-border M&A compared to domestic.

**Summary**

In summary, the existing literature on M&A and value creation for shareholders is mixed. While target firms often receive a significant premium in domestic transactions, the wealth effect for bidding firms is more uncertain and may be negative or negligible. In cross-border transactions, similar results are found. Target achieves significant positive CARs, and acquirers do not. However, the more interesting part is the differences between local and cross-border deals. Unfortunately, the literature does not provide a clear answer. Thus, it is difficult to draw a final conclusion. There is evidence that targets benefit from cross-border transactions compared to locals, but the opposite is also found. Moreover, the same results apply to acquirers, but here the results are even more ambiguous. There are many indications that the acquirer does not earn anything from the M&As, regardless of whether the acquirer is local or foreign. While on the target's side, there is more of a discussion about who earns the most between local and cross-border targets. Table 1, on the next page, provides an overview of our thesis's most relevant research articles.

**Table 1:** Previous literature.
The table below shows the research articles most relevant to our thesis. The second column refers to what market the thesis focuses on.

| Author | Market | Title | Period | Findings |
|---|---|---|---|---|
| Conn and Connell (1990) | UK | International Mergers: Returns to US and British firms | 1971-1980 | Domestic targets receive smaller wealth effects than US targets |
| Aw and Chatterjee (2004) | UK | The performance of UK firms acquiring large cross-border and domestic takeover targets | 1991-1995 | UK bidders targeting local UK compared to US firms, receive superior abnormal returns |
| Danbolt (2004) | UK | Target Company Cross-border Effects in Acquisitions into the UK | 1986-1991 | Target cross-border impact is insignificant once characteristics such as payment types are controlled |
| Campa and Hernando (2004) | EU | Shareholder value creation in European mergers and acquisitions | 1998-2000 | Heavy regulated industries give lower acquirer returns |
| Goergen and Renneborg (2004) | EU | Shareholder wealth effect of European domestic and cross-border takeover bids | 1993-2000 | Statistical significant negative cross-border effect for acquirers, but inconclusive results for targets |
| Conn, Cosh, Guest and Hughes (2005) | UK | The impact on UK acquirers of domestic, cross-border, public and private acquisition | 1984-1994 | Cross-border results in lower short and long-run returns than domestic acquisitions |
| Gregory and McCorristion (2005) | UK | Foreign acquisitions by UK limited companies: short-run and long-run performance | 1985-1994 | Returns are insignificantly different from zero based on acquisition location |
| Moeller and Schlingemann (2005) | US | Global diversification and bidder gains: A comparison between cross-border and domestic acquisitions | 1985-1995 | Statistical lower announcement day stock returns for bidders |
| Tunyi (2021) | US | Revisiting acquirer returns: Evidence from unanticipated deals | 1988-2017 | Unclear cross-border significance for acquirer gains |

## 2.2 Comparison and contribution

Since there is no clear answer to the value creation of cross-border M&As compared to local, and the research on EU/EFTA is significantly less widespread. We wanted to investigate whether the difference between local and cross-border transactions is present and, if so, what drives this difference. What distinguishes our thesis from other cross-border articles is that we investigate the EU market. Other papers tend to mainly focus on the US and UK and primarily not compare cross-border to local transactions. In addition, our thesis actively tries to explain why the difference occurs. Finally, we use a widely used method from (Berkovitch & Narayanan, 1993) to examine acquirers' motives when they buy a target. However, to the best of our knowledge, we are the first who have used this method to investigate whether there are differences between the acquirer's motives when going abroad compared to staying local.

Our findings uncover some specific drivers of the cross-border premium for targets. First, Western Europe gives a significantly positive CAR for foreign targets. Previous research has generally not looked at how cross-border and local M&As are affected by regions but instead focused more on individual countries such as the US and UK. Thus, our findings suggest that regions and not just individual countries can affect CAR. Second, Materials and Telecom industries also perform significantly better in target cross-border deals. Previous literature tends to use industries as control variables and does not explicitly examine whether the industries affect the differences between cross-border and local transactions. Lastly, we provide new insight into the possibility of differences between foreign and local acquirer motives. This has mainly been looked at in its entirety, where no distinction has been made between local and foreign transactions. As a result, we find a greater tendency for hubris by acquirers in foreign deals.

# 3 Data

In the following, our gathering, cleaning, and sorting of the data are described. We start this section by elaborating on the data collection process. Then, we will explain how the sample cleaning and sorting were done, which is the basis of the data set we will use in our analysis. Further, descriptive statistics will be given, such that the overall details of the sample can be understood.

## 3.1 Data collection process

Daily stock price data and all explanatory variables used in this thesis were collected using the Refinitive Workspace. This was done for both the acquirer and the target firm. In order to control stock returns for market factors. We gathered the Fama-French factors from the (French, 2022). These factors are calculated using European data. Hence, it should better represent the different market factors in the EU and EFTA.

## 3.2 Sample Cleaning

**Table 2:** Sample Cleaning.
The table below shows the several steps in our sample cleaning. The number of observations refers to the deals. Hence, there are one target and one acquirer in each observation.

| Sample cleaning | |
|---|---|
| List of criteria | Number of observations |
| Headquarter of Target and Acquirer has to be in an EU or EFTA Country | 505 542 |
| Deal Announcement day interval: 01.01.2001 - 31.12.2019 | 299 512 |
| Deal must be completed | 253 790 |
| Acquirer and target has to be listed and publicly traded | 5 029 |
| Deal size must be larger than 10 million dollars | 3 164 |
| Remove deals where target and acquirer are the same company | 1 987 |
| Remove deals with missing values in estimation or event window | 1 347 |
| Remove top and bottom 1% of observations | 1 321 |
| Number of transactions used in the thesis | 1 321 |

As Table 2 show, our data consist of 1321 merger and acquisition in the EU and EFTA from 01.01.2001 to 31.12.2019, and the corresponding stock price interval to each target

or bidding firm. This data was extracted using Refinitive and the Datastream plug-in in excel. We include only mergers and acquisitions of public companies on the acquirer and target side since we need the stock prices to perform the event study. Additionally, we chose only to include M&As where the deal's value exceeded 10 million USD to sort out the deals that substantially affect the security valuation. Moreover, we removed the top and bottom 1% of our transactions to correct for extremality in our data set. This helped to correct irregular stock returns significantly affecting the model output. Without this correction, we would have a couple of observations with a 4000% gain on a single day, making our models and plots less trustworthy. Furthermore, our data set includes companies whose head office are in the EU/EFTA. However, there may be large companies in our sample that operate in several countries that are not members of the EU/EFTA. Lastly, we do not include M&As where the acquirer and target are the same company since we want to exclude transactions where companies buy their own shares.

## 3.3 Data sorting process

Since each security has individual announcement dates throughout the 20 years our data sample spans, each security will have different estimation- and event windows. Thus, our solution to this problem was to sort the daily stock returns based on the difference it has to their individual announcement date. Additionally, we had to control this difference for non-trading days, such that announcement day +6 days would be 6 trading days, not weekdays. The interval was set for each security at a trading year before and after the announcement day [-250, +250]. This was also done for each Fama-French factor since they had to match the corresponding interval to each security based on their position on the announcement day.

## 3.4 Descriptive statistics

**Table 3:** Descriptive statistics of our sample.
The table below displays the descriptive statistics of our data sample. Column three shows the sum of every deal value in that year, measured in million USD. Columns four to seven show the nation and industry mode each year. Finally, the last two columns display the average market capitalization for both targets and acquirers for each year, and the numbers are expressed in million USD.

| Year | Number of M&A | Sum deal value | Acquirer nation | Acquirer industry | Target nation | Target industry | Target average mcap | Acquirer average mcap |
|---|---|---|---|---|---|---|---|---|
| 2001 | 2 | 4 196 | Germany | Financials | Germany | Financials | 16 | 103 |
| 2002 | 52 | 41 135 | France | Financials | France | Financials | 2 904 | 7 245 |
| 2003 | 72 | 78 246 | UK | Financials | UK | Technology | 3 310 | 16 254 |
| 2004 | 82 | 123 008 | UK | Financials | UK | Technology | 1 633 | 12 153 |
| 2005 | 115 | 178 940 | UK | Financials | UK | Financials | 2 542 | 11 236 |
| 2006 | 153 | 361 504 | UK | Financials | UK | Technology | 4 708 | 15 665 |
| 2007 | 176 | 227 761 | France | Financials | UK | Industrials | 3 998 | 17 716 |
| 2008 | 100 | 109 708 | Germany | Financials | UK | Industrials | 4 212 | 19 016 |
| 2009 | 65 | 17 380 | UK | Financials | UK | Financials | 660 | 5 185 |
| 2010 | 51 | 24 798 | UK | Financials | UK | Financials | 978 | 8 909 |
| 2011 | 57 | 34 395 | France | Financials | France | Industrials | 1 373 | 12 166 |
| 2012 | 57 | 55 666 | France | Financials | France | Financials | 1 228 | 8 615 |
| 2013 | 45 | 21 034 | France | Financials | France | Financials | 1 045 | 8 058 |
| 2014 | 48 | 85 819 | Germany | Financials | France | Financials | 1 780 | 6 871 |
| 2015 | 49 | 228 937 | France | Real Estate | France | Real Estate | 3 430 | 16 721 |
| 2016 | 49 | 24 308 | France | Real Estate | France | Real Estate | 1 105 | 12 165 |
| 2017 | 57 | 96 075 | France | Real Estate | France | Real Estate | 2 484 | 11 165 |
| 2018 | 51 | 79 928 | France | Industrials | France | Energy | 1 808 | 18 636 |
| 2019 | 40 | 68 102 | Italy | Financials | UK | Industrials | 2 323 | 11 459 |

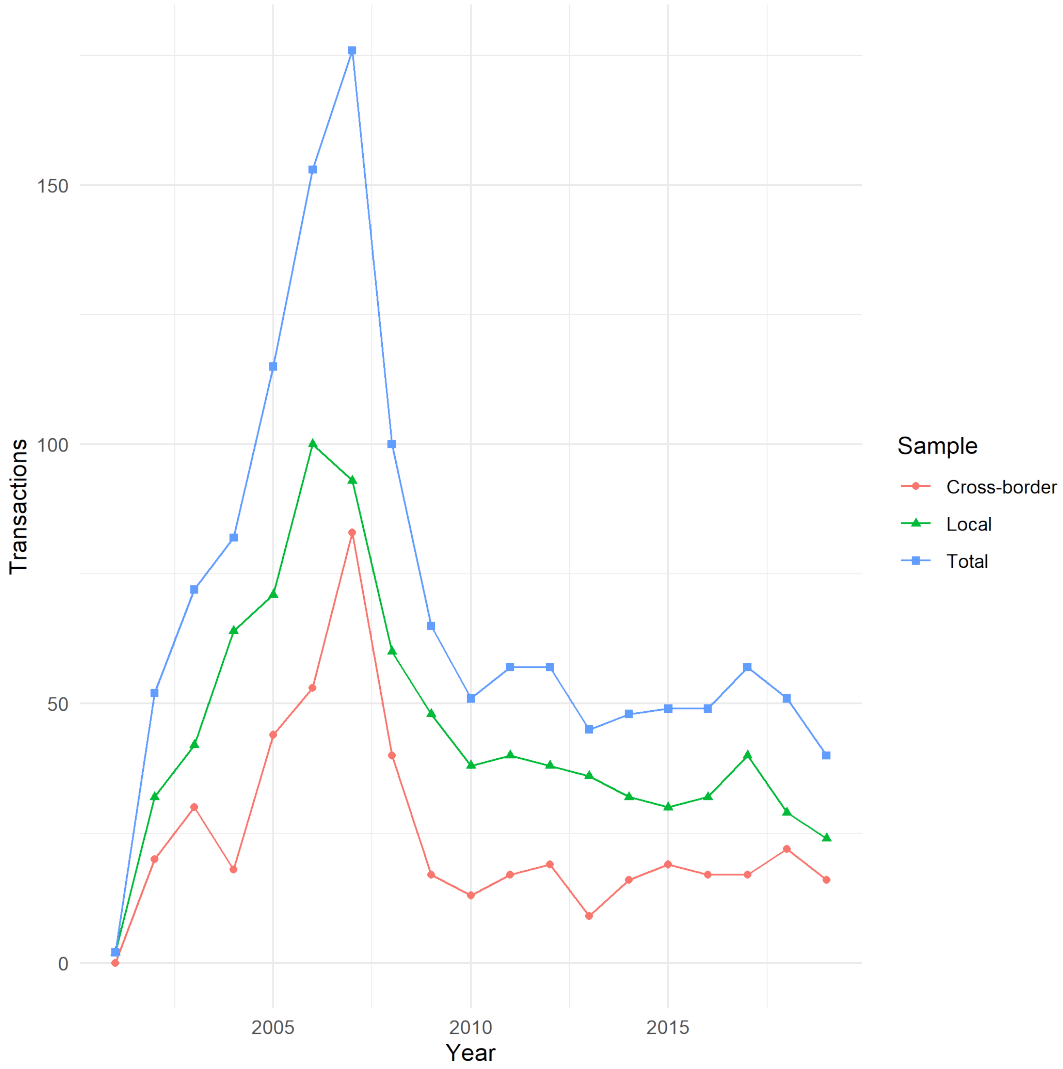
Our data set's highest activity of mergers and acquisitions was done before the financial crisis in 2008, and the highest number of M&As was in 2007 at 176. Additionally, the activity has never returned to the levels we saw before the financial crisis. For the last couple of years up to 2019, the amount of M&A has been relatively stable. The average deal size throughout the sample is 1 409 million dollars, and the median is 151 million dollars. Thus, it seems like there are some large deals that raise the average considerably. For instance, the reason why we have a large increase in deal value in 2015 is because of the megamerger between AB Inbev and SABMiller of $104 000 million.

In Table 3, the fourth and sixth column shows the most active nation each year for acquirer and target, respectively. It is no surprise that the largest economies are strongly represented, and France is the nation that appears the most. However, it was quite

unexpected that Germany, the country with the highest gross domestic product in Europe, did not occur more often. On the other hand, Paris and London's stock exchanges are the largest in Europe, which could explain the differences.

Column five and seven displays the most frequent industries by year. The financial sector is heavily represented, as expected, since they can take advantage of the economics of scale. Also, economic downturns tend to precipitate the activity of M&As in the financial industry, in which companies that weathered the storm have bought their struggling competitors out (Ivashina & Bord, 2021). Further, the last two columns show the average market capitalization for the target and acquirer company. On average, the acquirers are five times larger than the target companies.

**Figure 1:** Number of cross-border and local transactions in our data set.
The x-axis represents the years from 2001-2019, while the y-axis details the number of M&A transactions within each year.



To give insight into how cross-border and local transactions have changed over time in our data, we have provided visual information in Figure 1. From the figure, we can see that cross-border and local M&As are highly correlated. For example, this can be seen in the spike before the great financial crisis and the following downturn afterward. In addition, looking at the graphs, there is always a higher number of local transactions than cross-border.

Our data set includes countries in the EU and EFTA. However, in our time period from 2001 to 2019, there have been some new countries joining the European Union. Thus, our data set only includes mergers and acquisitions from these countries after they joined the union.

**Table 4:** Countries joining EU and our sample.

| Countries joining EU and our sample | | |
|---|---|---|
| 2004 | 2007 | 2013 |
| Czech Republic | Romania | Croatia |
| Estonia | Bulgaria | |
| Cyprus | | |
| Latvia | | |
| Lithuania | | |
| Hungary | | |
| Malta | | |
| Poland | | |
| Slovakia | | |
| Slovenia | | |

In 2004 the EU had its largest enlargement so far, and ten new countries were included, which can be seen in Table 4. Subsequently, Romania and Bulgaria were included in 2007. Finally, Croatia joined in 2013, resulting in 31 EU/EFTA countries in our sample.

Now that we have extracted, sorted, and cleaned the data, the next step is the analysis which will be presented in the next section.

# 4 Analysis

Our analysis aims to investigate the market reactions to cross-border and local mergers and acquisitions transactions. We are particularly interested in comparing the acquirer's and target's cumulative abnormal returns (CAR) in these two types of deals. To do this, we will use four methods: event study, cross-sectional analysis, propensity score matching, and examination of management motives.

In the first part of the analysis, we will use an event study to calculate the CAR for each company involved in the 1321 M&A deals in our sample. We will also split the sample by industry, nation, and region to see if our results vary across these characteristics. In the second part, we conduct a cross-sectional analysis to control for well-known determinants within M&As. In the third part, propensity score matching is used to pair similar transactions and investigate whether unobserved differences between cross-border and local firms could affect our results. Finally, we examine management motives to see if there are any differences between foreign and domestic M&A deals that could explain any observed differences in CAR.

## 4.1 Event Study

Before we start with the analysis, we will briefly review the event study methodology we have used. Our results will be presented after the methodology section.

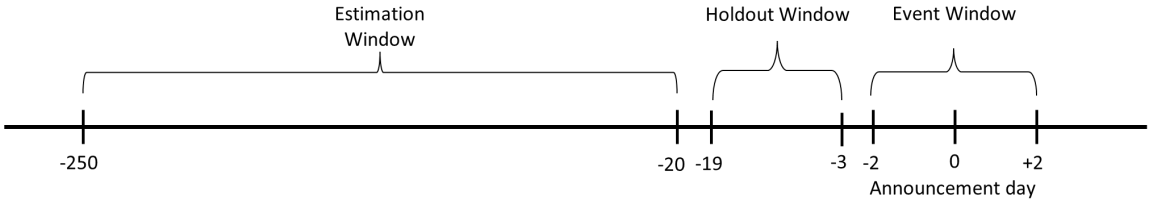
### Methodology

The purpose of this event study is to examine the impact of a cross-border acquisition announcement on abnormal returns. We will assume semi-strong market efficiency, meaning that the market quickly incorporates new public information into share prices. The announcement day used in this study is the day the acquisition is publicly announced on the stock exchange. We will measure the effect by calculating the change in abnormal returns associated with the announcement.

The estimation period should give an accurate representation of what the expected returns for the stock should be in the following period (MacKinlay, 1997). Our lower

and upper bound for the estimation period is -250 up to -20 trading days before the M&A announcement. Further, a holdout window of 17 days is chosen to reduce the risk of information leakage. Thus, our event window includes five trading days and has an interval of [-2, +2]. Additionally, we will calculate and test intervals of [-5, +5], [-1, +1], [0, +1], [-1, +5], and [-10, +2] to examine if there are large differences in cumulative abnormal return depending which window we use.

**Figure 2:** Event study timeline




To conduct an event study, we also need to specify the event window. From (MacKinlay, 1997), we get some criteria for choosing the right event window. The two criteria are that the estimation window and event window can not overlap, and the event window has to be longer than one day. Hence, there are no clear answers as to what the right event window length is, and for most cases, the event window needs to be suited for the analysis. In this thesis, we will base the following analysis on the [-2, +2] window, as we believe this best captures the announcement effect of the M&A without being interfered by other factors.

To calculate the normal return, we use the Fama-French 5-factor Model. This choice is based on the reasoning that it is essential to control for market factors when evaluating abnormal returns (Khotari & Warner, 2007). The Fama-French 5-factor Model is an extension of the Market Model, including four other risk factors in addition to $\beta$, identified by Fama and French (Fama & French, 1970).

$$E(R_{it}) = R_{ft} + \beta_1 R_m + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 RMW_t + \beta_5 CMA_t \tag{4.1}$$

The explanatory variables in the regression are gathered from (French, 2022) and are sorted to match the estimation period for each individual security based on their announcement date. Thus, the expected return from this regression is adjusted for the exposure each

security has to the five factors and represents what we can expect in return for the securities, given the event did not happen.

After calculating expected returns using the Fama-French 5-factor model, we find the abnormal return by taking the actual return and subtracting the expected return in the same period. In this thesis, we want to study the multi-day returns in the event window. Hence, we use cumulative abnormal returns (CAR). For the calculation of abnormal return and cross-sectional tests, see appendix A1.

**Results**

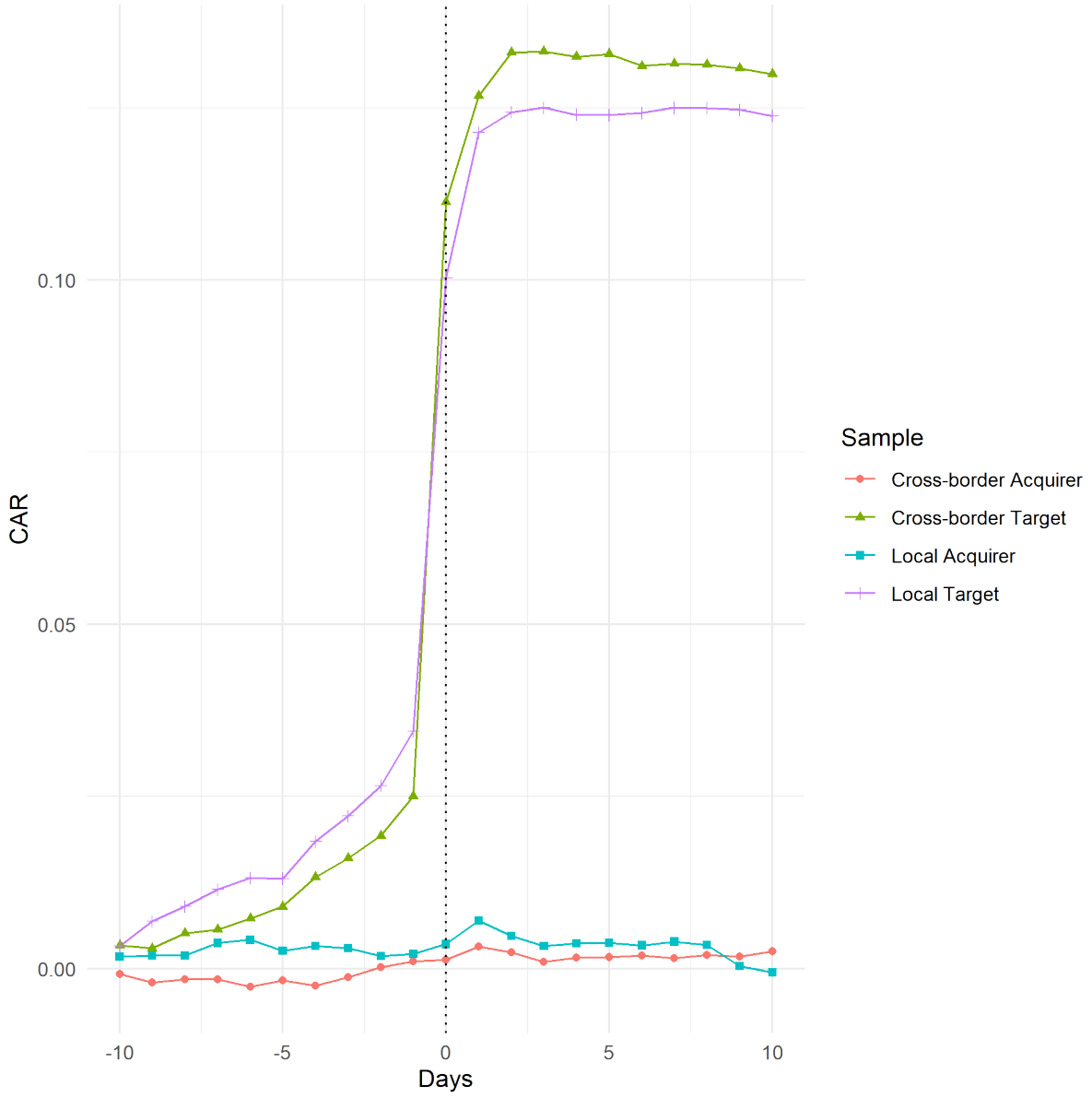
We will now present the results from the event study. First, we will examine the plot and see if there are any differences between cross-border and local targets and acquirers. Second, we will investigate six different event windows to see if the choice of window has a major impact on the outcome. To test whether the difference between cross-border and locals is significant, we use a two-sample t-test. Additionally, we will split the sample depending on their industry, nation, or region. Separating the data set allows us to see if our results vary across these characteristics.

In this part of the analysis, we interpret various results which are not controlled for well-known determinants. This is because we want to get an overview of the data and spot where potential differences in cross-border and local transactions might come from. Following in section 4.2, we will use a cross-sectional analysis to control for known variables. Nevertheless, the results we get from both methods will not be very different.

To avoid misunderstandings in the upcoming section, we want to clarify our definitions of the different types of targets and acquirers in a merger and acquisition. A cross-border target is a company that is being bought by an acquirer located in a foreign country. In contrast, a local target is a company bought by an acquirer in the same country as the target. Further, a cross-border acquirer is a firm located in a different country than the target it is buying, while a local acquirer is located in the same country as the target it is buying.

**Development in CAR for cross-border and local deals**

**Figure 3:** CAR for cross-border and local acquirer and target




In Figure 3, we showcase the CAR's development for cross-border and local targets and acquirers from 10 days before announcement day to 10 days after. The figure illustrates several effects. First, there is a substantial difference in CAR between the target and acquirer consistent with established research (see section 2.1). Second, there is little or no difference between cross-border and local acquirers. Unfortunately, the research in this area is less clear, as mentioned in the literature review. Therefore, it does not seem like Figure 3 provides us with further information on this topic. Finally, there are also no

large differences between local and cross-border targets. However, the graph implies that cross-border targets have a slightly higher CAR, especially from announcement day until the end of the window. Moreover, it seems like the announcement effect has a stronger impact on cross-border deals, as the increase in CAR on announcement day is more substantial compared to locals. On the other hand, the local targets have a marginally higher CAR in the days before the announcement. This might indicate that rumors spread more easily locally.

To expand on the findings in Figure 3, we have calculated six event windows to investigate the difference between cross-border and local transactions. To test whether the difference between cross-border and locals is significant, we use a two-sample t-test.

**Table 5:** Different event windows for target and acquirer.
This table presents the CAR with several event windows for both targets and acquirers. Column Diff refers to the difference between cross-border and local CAR in each event window. The t-stat represents the difference between cross-border and local CAR with the null hypothesis of Diff = 0.

| | Target | | | | Acquirer | | | |
|---|---|---|---|---|---|---|---|---|
| Event window | Cross-border | Local | Diff | T-Test | Cross-border | Local | Diff | T-Test |
| -5 , +5 | 13.02% | 11.07% | 1.95% | 1.89 | 0.21% | 0.08% | 0.13% | 0.18 |
| -2, +2 | 12.35% | 10.21% | 2.14% | 2.00 | 0.27% | 0.23% | 0.04% | 0.08 |
| -1, +1 | 11.27% | 9.48% | 1.79% | 1.78 | 0.25% | 0.54% | -0.29% | -0.74 |
| 0, +1 | 10.69% | 8.70% | 1.99% | 1.93 | 0.15% | 0.52% | -0.37% | -1.05 |
| -1, +5 | 12.27% | 9.72% | 2.55% | 2.29 | -0.03% | 0.29% | -0.32% | -0.60 |
| -10, +2 | 13.30% | 12.44% | 0.86% | 0.76 | 0.10% | 0.55% | -0.45% | 0.66 |

Table 5 displays the CARs for cross-border and local targets and acquirers in different event windows. When not controlling for anything, Table 5 indicates that cross-border targets get a significant premium of 2.14% over the local targets in our selected window [-2, +2]. Moreover, surprisingly, cross-border targets get a higher premium in all windows than local targets. The t-stat shows that this difference is significant on a 5% level for [-2, +2] and [-1, +5]. However, looking at the [-10, +2] window, the difference reduces. Table 5 above shows that the difference is because local targets have a higher abnormal return the days before the announcement. As mentioned in section 2.1, there is no clear consensus on the difference between foreign and domestic M&A transactions for targets. Nevertheless, based on our starting analysis, the result indicates that cross-border deals benefit the targets.

Looking at the acquiring firms, the difference between local and cross-border is much lower, only 0.04%, and insignificant in the [-2, +2] window. This is primarily because, on average, the acquirer's stock price gets a minimal reaction at the announcement of the M&A. Further, the table tells us that the local acquirers perform better in four out of six windows, but none of the differences are significant, which is in great contrast to the targets. Compared to other papers, we see that our results end up quite similar to established research. For instance, (Danbolt & Maciver, 2012) find a difference of 1.5% between cross-border and local acquirers in the UK. Meanwhile, (Goergen & Renneboog, 2004) find a difference of 0.74% within the EU, but it is insignificant.

### National, industry, and regional differences

To better understand why and where the differences between cross-border and local occur, we divide the data set into different countries, regions, and industries. Then, we examine if the cross-border premium is consistent across these characteristics. If not, some industries or nations could be the driver of this difference.

**Table 6:** Descriptive statistic for countries.
This table presents the CAR with the event window of [-2:+2] for both targets and acquirers, divided into each corresponding nation. N refers to the number of cross-border or domestic transactions within each country. Column Diff refers to the difference between cross-border and local CAR in each nation. The t-stat represents the difference between cross-border and local CAR with the null hypothesis of Diff = 0. Other countries represent the 21 remaining countries in the data set.

| | Target | | | | | | Acquirer | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cross-border | | Local | | | | Cross-border | | Local | | | |
| Countries | N | CAR | N | CAR | Diff | T-stat | N | CAR | N | CAR | Diff | T-stat |
| Germany | 51 | 6.74% | 72 | 10.23% | -3.49% | -0.95 | 75 | -0.36% | 72 | 0.85% | -1.21% | -1.20 |
| United Kingdom | 51 | 21.49% | 208 | 14.01% | 7.48% | 2.25 | 44 | -2.03% | 208 | -1.28% | -0.75% | -0.44 |
| France | 72 | 12.97% | 147 | 10.18% | 2.79% | 1.04 | 70 | -0.76% | 147 | 0.29% | -1.05% | -1.45 |
| Italy | 21 | 9.51% | 64 | 2.95% | 6.56% | 2.13 | 52 | 1.29% | 64 | 2.34% | -1.05% | -0.75 |
| Spain | 29 | 3.60% | 67 | 5.84% | -2.24% | -1.07 | 28 | -0.46% | 67 | -1.34% | 0.88% | 0.90 |
| Netherlands | 22 | 18.74% | 11 | 20.68% | -1.94% | -0.26 | 25 | 1.10% | 11 | -0.95% | 2.05% | 0.76 |
| Switzerland | 23 | 9.01% | 35 | 10.73% | -1.72% | -0.49 | 33 | 0.50% | 35 | -0.15% | 0.65% | 0.39 |
| Poland | 17 | 7.94% | 42 | 7.41% | 0.53% | 0.11 | 3 | -1.18% | 42 | 2.67% | -3.85% | -0.64 |
| Sweden | 30 | 17.82% | 46 | 16.35% | 1.47% | 0.34 | 36 | -1.50% | 46 | 0.59% | -2.09% | -1.46 |
| Belgium | 11 | 15.64% | 7 | 4.40% | 11.24% | 1.83 | 25 | 1.02% | 7 | 0.95% | 0.07% | 0.03 |
| Other countries | 143 | 11.72% | 152 | 9.13% | 2.59% | 1.55 | 79 | 2.91% | 152 | 0.24 % | 2.67% | -1.13 |
| Total sample | 470 | 12.35% | 851 | 10.21% | 2.14% | 2.00 | 470 | 0.27% | 851 | 0.230 % | 0.04% | 0.08 |

Table 6 summarizes the results for the ten biggest nations in the EU and EFTA measured by gross domestic product. The results show that the most significant contributors to

the cross-border target premium in the total sample are the UK, Italy, and Belgium. Additionally, we find that UK cross-border targets perform best in our data set. It is surprising how big a difference there is between UK and Germany, the two largest economies in Europe. By looking at the number of cross-borders that perform better, there is little to suggest that the cross-border premium applies to all nations. Table 6 shows six out of ten countries with higher premiums for cross-border. This result is quite different from the most similar study on the topic (Goergen & Renneboog, 2004), which found that all countries apart from the Benelux countries gave higher premiums for cross-border announcements. Looking at the total sample, we see that most of the transactions within the EU/EFTA during our sample period were domestic, at 64%.

When examining the differences in foreign and domestic M&A transactions for acquirers, it is less interesting, seeing that they are primarily insignificant regardless of country. Nevertheless, there are some striking observations. First, we notice that local and cross-border UK acquirers underperform compared to the sample average, which greatly contrasts with their target peers. Moreover, it appears to be no clear relationship between the target performing well and the acquirers performing poorly.

To further analyze how the location of a target or acquiring firm affects the market reaction to M&A deals, we went on to give a broader classification of location and divide the EU and EFTA into different regions. Table 7 represents the total sample divided into each region within the EU and EFTA. For explanations of which countries belong to each region, see appendix Table A15.

**Table 7:** Descriptive statistic for regions.
This table presents the CAR with the event window of [-2:+2] for both targets and acquirers, divided into each corresponding region. N refers to the number of cross-border or domestic transactions within each region. Column Diff refers to the difference between cross-border and local CAR in each region. The t-stat represents the difference between cross-border and local CAR with the null hypothesis of Diff = 0. In addition, to see which countries belong to each region, see appendix Table A15.

| | Target | | | | | | Acquirer | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cross-border | | Local | | | | Cross-border | | Local | | | |
| Country | N | CAR | N | CAR | Diff | T-stat | N | CAR | N | CAR | Diff | T-stat |
| Western Europe | 169 | 16.80% | 377 | 12.49% | 4.31% | 2.36 | 177 | 0.04% | 377 | -0.59% | 0.63% | 0.83 |
| Northern Europe | 81 | 17.52% | 134 | 12.91% | 4.61% | 1.51 | 78 | 1.05% | 134 | 0.47% | 0.58% | 0.42 |
| Central Europe | 114 | 8.09% | 162 | 8.91% | -0.82% | -0.38 | 121 | -0.08% | 162 | 1.51% | -1.58% | -1.67 |
| Southern Europe | 86 | 4.81% | 168 | 4.75% | 0.06% | 0.04 | 84 | 0.60% | 168 | 0.57% | 0.02% | 0.02 |
| Eastern Europe | 20 | 10.59% | 10 | 1.24% | 9.35% | 1.95 | 10 | -0.28% | 10 | 1.48% | -1.76% | -0.69 |
| Total Sample | 470 | 12.35% | 851 | 10.21% | 2.14% | 2.00 | 470 | 0.27% | 851 | 0.23% | 0.04% | 0.08 |

Our first observation from Table 7 is that targets receive a significant cross-border announcement premium in Western, Northern, and Eastern Europe when not controlling for anything. This will be done later in section 4.2. In Eastern Europe, there is a massive 9.35% difference between the local and cross-border, but it is essential to emphasize that the number of observations is few. Further, all targets achieve positive CARs on average, and cross-border targets outperform locals in all regions except Central Europe. However, Southern Europe has a minimal positive influence on the cross-border target premium.

On the acquirer side, there are smaller differences. The only significant difference is in Central Europe, where cross-border underperforms. Furthermore, cross-border transactions in Eastern Europe have the largest negative difference, but here we have a problem with power because of a few observations. It is hard to compare our results to other papers since articles use different definitions of which countries are included in the various European regions. Thus, it is usually not comparable and can be misleading in the worst case. However, (Campa & Hernando, 2004) found that Central Europe also has a negative cross-border effect, but as mentioned, there are some differences in which countries are included.

After looking at the performance of targets and acquirers in the different European regions, we can see a trend that cross-border target transactions in some parts of Europe receive a higher CAR relative to local targets. The outperformance is primarily observed in

Western, Eastern, and Northern Europe, where countries like the UK represent the most significant contributor to this result. In the cross-sectional part of the thesis, we will take these observations into consideration. Further, the same outcome is not found with the acquirers, and there are minor differences in most regions except Central Europe, where locals do slightly better than cross-border. Therefore, the numbers indicate fewer reasons to conclude that acquirers are affected by the location of the announcement. Going forward, we divide the sample into different industries.

**Table 8:** Descriptive statistic for industries.
This table presents the CAR with the event window of [-2:+2] for both targets and acquirers, divided into each corresponding industry. N refers to the number of cross-border or domestic transactions within each industry. Column Diff refers to the difference between cross-border and local CAR in each industry. The t-stat represents the difference between cross-border and local CAR with the null hypothesis of Diff = 0.

| | Target | | | | | | Acquirer | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cross-border | | Local | | | | Cross-border | | Local | | | |
| Industry | N | CAR | N | CAR | Diff | T-stat | N | CAR | N | CAR | Diff | T-stat |
| Energy | 47 | 7.58% | 72 | 12.66% | -5.08% | -1.72 | 44 | -0.11% | 68 | 0.87% | -0.98% | -0.64 |
| Technology | 53 | 14.03% | 119 | 15.64% | -1.61% | -0.40 | 39 | 1.34% | 84 | 0.12% | 1.22% | 0.75 |
| Retail | 15 | 15.27% | 40 | 10.95% | 4.32% | 0.89 | 25 | 0.77% | 30 | -1.18% | 1.95% | 1.63 |
| Real Estate | 33 | 4.27% | 95 | 6.73% | -2.46% | -1.28 | 24 | -2.63% | 95 | 1.02% | -3.65% | -1.86 |
| Financial | 74 | 9.75% | 145 | 7.08% | 2.67% | 1.06 | 99 | -1.30% | 206 | 0.98% | -2.28% | -1.91 |
| Healthcare | 27 | 19.95% | 40 | 16.70% | 3.25% | 0.52 | 32 | 0.88% | 23 | -2.07% | 2.95% | 1.41 |
| Industrials | 59 | 14.78% | 122 | 9.35% | 5.43% | 1.85 | 53 | 2.04% | 115 | 0.80% | 1.24% | 0.89 |
| Materials | 42 | 14.31% | 46 | 3.83% | 10.48% | 2.87 | 36 | 1.62% | 48 | -1.04% | 2.66% | 1.07 |
| Telecom | 35 | 10.86% | 29 | 7.10% | 3.76% | 0.80 | 45 | -1.29% | 35 | -1.32% | 0.03% | 0.02 |
| Media | 34 | 6.11% | 48 | 9.29% | -3.18% | -1.03 | 31 | 2.31% | 63 | 0.27% | 2.04% | 1.29 |
| Consumer Products | 51 | 19.88% | 95 | 12.39% | 7.49% | 2.28 | 42 | 1.05% | 84 | 0.20% | 0.85% | 0.60 |
| Total Sample | 470 | 12.35% | 851 | 10.21% | 2.14% | 2.00 | 470 | 0.27% | 851 | 0.23% | 0.04% | 0.08 |

Table 8 shows the total sample divided into several industries, as classified by the Refinitiv business classification (TRBC). When we look at the individual sectors, most of the total cross-border effect comes from Consumer Products, Materials, and Industrials. On average, these industries get a 7.8% premium compared to their local counterparts when we do not control for anything. On the other hand, when we inspect the acquirers, the foreign deals in Financials and Real Estate underperform in comparison with domestic, which is significant on a 10% level. Apart from these sectors, there are minor differences between cross-border and local for acquirers. The lack of significant difference could indicate that acquirers participating in foreign M&A transactions receive negligible benefits compared to domestic.

To summarize, the results from all three tables suggest fewer reasons to assume differences in acquiring firms when the company goes abroad in M&A transactions. However, when we look at the targets, we observe that some regions, nations, and industries generate statistically significantly higher returns for cross-border announcements than local ones. Until now, the analysis has mainly focused on results not controlled for firm-specific characteristics. To investigate if cross-border announcements are one of the drivers of premium for targets, we plan on doing a cross-sectional analysis controlling for well-established determinants in M&As.

## 4.2 Regression

The next section of the thesis will focus on the regression analysis results conducted on cross-border M&A transactions and their effect on companies. In this case, the dependent variable is the CAR for targets and acquirers in M&A transactions. Moreover, we will see if our finding is consistent across the different subgroups in our sample, even when controlled for well-known determinants.

### Methodology

Since we have observed some characteristics that affect the cross-border premiums for targets, we intend to take them into account in the following regressions. The dependent variable in the subsequent regressions will be the CAR with the event window of [-2,+2]. To prevent the problem of omitted variable bias and to explore whether we still find a positive cross-border effect, we have included several control variables based on studies from (Goergen & Renneboog, 2004) and (Kharin, Eckbo & Betton, 2009). Moreover, we add several interaction terms to the regression to further examine the relationship between cross-border and the other variables in the model. We especially want to know how the cross-border interaction term changes when we combine it with significant independent variables. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

Additionally, we want to control time-invariant variables, such as industry and European regions, and therefore add the fixed effect of these variables. Finally, we add a year fixed effect to the model to control for macro-economical factors that change over time and M&A waves. Following (MacKinlay, 1997), we intend to use robust standard errors in our regression since it is no reason to expect the residuals to be homoskedastic. Our last consideration to do before moving on to the results is the issue of multicollinearity. Looking at the correlation matrix in appendix Figure A4, there are fewer concerns about the problem of multicollinearity in the model.

### Results

**Table 9:** Regression for cross-border effect.
The regression outputs below display the coefficients for each independent variable and the t-stat. The t-stat is measured with robust standard errors. The dependent variable is the CAR with an event window of [-2:+2] for targets in the M&A transaction. Our variable of interest is the dummy variable cross-border, with a value of 1 if the transaction was done cross-border and 0 if the transaction was done domestically. All four models include Regions, Industries, and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14. A larger version of this table can be found in appendix, Table A24.

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | CAR Target | | | |
| | (1) | (2) | (3) | (4) |
| Cross-border | | 0.021** | 0.058** | 0.080* |
| | | (1.969) | (2.064) | (1.814) |
| Target Leverage | −0.027 | −0.026 | −0.028 | −0.028 |
| | (−1.488) | (−1.446) | (−1.544) | (−1.537) |
| Cash Available | 0.005 | 0.004 | 0.004 | 0.004 |
| | (1.133) | (0.944) | (1.008) | (0.920) |
| R&D Expense | −0.022** | −0.021** | −0.022** | −0.014 |
| | (−2.305) | (−2.264) | (−2.335) | (−1.179) |
| P/E | −0.00003 | −0.00003 | −0.00003 | −0.00003 |
| | (−0.713) | (−0.651) | (−0.592) | (−0.552) |
| M/B | −0.0001 | −0.0001 | −0.0001 | −0.0001 |
| | (−0.316) | (−0.329) | (−0.366) | (−0.284) |
| Synergies | −0.003 | −0.003 | −0.004 | −0.004 |
| | (−0.745) | (−0.842) | (−0.989) | (−1.074) |
| Acquirer mcap | 0.009** | 0.009** | 0.014*** | 0.014*** |
| | (2.230) | (2.098) | (2.611) | (2.701) |
| Target mcap | −0.011** | −0.011** | −0.010 | −0.011* |
| | (−2.099) | (−2.142) | (−1.486) | (−1.674) |
| Relative Size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.197) | (0.228) | (0.321) | (0.396) |
| Relative Deal Size | 0.020*** | 0.020*** | 0.016*** | 0.017*** |
| | (5.324) | (5.320) | (4.040) | (4.045) |
| Same Industry | 0.012 | 0.010 | 0.009 | 0.025* |
| | (1.087) | (0.866) | (0.848) | (1.842) |
| Tender Offer | 0.058*** | 0.058*** | 0.057*** | 0.052*** |
| | (5.424) | (5.465) | (5.314) | (3.988) |
| Cash | 0.026** | 0.021 | 0.020 | 0.021 |
| | (2.060) | (1.611) | (1.614) | (1.490) |
| Hostile | −0.012 | −0.012 | −0.010 | −0.009 |
| | (−0.862) | (−0.911) | (−0.765) | (−0.645) |
| Cross * Relative Deal Size | | | 0.024** | 0.024** |
| | | | (2.560) | (2.428) |
| Cross * Acquirer mcap | | | −0.014* | −0.014* |
| | | | (−1.749) | (−1.831) |
| Cross * Target mcap | | | −0.004 | −0.002 |
| | | | (−0.444) | (−0.161) |
| Cross * Cash | | | | 0.003 |
| | | | | (0.099) |
| Cross * Same Industry | | | | −0.046** |
| | | | | (−1.973) |
| Cross * Tender Offer | | | | 0.016 |
| | | | | (0.718) |
| Cross * R&D Expense | | | | −0.016 |
| | | | | (−0.851) |
| Regions FE | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Years FE | Yes | Yes | Yes | Yes |
| Constant | 0.049 | 0.055 | 0.045 | 0.031 |
| | (0.385) | (0.432) | (0.353) | (0.246) |
| Observations | 1,321 | 1,321 | 1,321 | 1,321 |
| $R^2$ | 0.135 | 0.137 | 0.145 | 0.148 |
| Adjusted $R^2$ | 0.106 | 0.108 | 0.114 | 0.115 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

In model 1 from Table 9, we run a regression without the cross-border variable to examine how the control variables affect CAR without the variable of interest. This allows us to discover if there are significant changes when including cross-border in the regression. In model 2, the cross-border variable is significant at a 5% level when controlling for determinants with a known impact on CAR. Everything else equal, cross-border targets receive, on average, a premium of 2.10% compared to their local peers. This is similar to the 2.14% premium found in the event study section. If we compare these results with previous articles, we get ambiguous answers. A paper from (Conn & Connell, 1990) showed that US cross-border targets received a higher premium than local UK targets. Conversely, (Lowinski, Schiereck & Thomas, 2004) do not find any significant difference in wealth creation between domestic and international merger activity in Switzerland.

In models 3 and 4, we include interaction terms step by step to observe how they affect the cross-border variable. This helps us understand what drives the cross-border effect. The models show that relative deal size, cash, and tender offer contribute positively to the cross-border effect. However, It is only the relative deal size that is significant. This interaction term displays that if everything else is equal and relative deal size increases by 10%, cross-border target CARs increase by 0.41% on average. For the local targets, CAR only increases by 0.17%. Thus, relative deal size has a much more substantial impact on foreign targets CAR than their domestic peers. One possible explanation could be larger relative deal sizes might indicate a higher level of commitment and resources on the part of the acquirer, which may be especially important in cross-border deals where there may be additional challenges and uncertainties. Additionally, larger relative deal sizes can signal a greater potential for synergies, making the deal more attractive to both the acquirer and the target. This might also be the reason why on announcement day the cross-border targets move substantially higher than locals, as shown in Figure 3.

The same industry coefficient stands out when we look at the negative interaction terms. It is significant, which is quite surprising. Everything else equal, cross-border targets CAR reduces by 2.1%, on average, if the acquirer operates in the same industry. Cross-border M&A deals between companies in the same industry are often justified by the potential of synergies. These benefits from cross-border M&A transactions are found to result in increased efficiency and profitability for the combined company (Oldford & Otchere,

2016). However, in our model, this does not seem to result in higher CAR for cross-border targets. One of the reasons this may be the case is that when the acquirer goes abroad and buys a target in the same industry, they might more often know the true price of the firm. Hence, these targets receive lower premiums than targets operating in different sectors. In other words, acquirers buying cross-border targets in a different industry than themselves might suffer from asymmetric information. Another possible explanation is that the target, being bought by an acquirer in a different industry, may provide access to new markets and resources, which can potentially lead to diversification for both parties. This can reduce its reliance on a single industry, leading to a better market reaction. Overall, asymmetric information and diversification might be contributing factors to the lower CAR observed in cross-border M&A deals between companies in the same industry.

Looking at Table 9, model 4, we see that the acquirer's size significantly impacts local targets CAR positive. At the same time, the interaction term with cross-border is significantly negative. When an acquirer is larger, it may have more resources, allowing it to negotiate a better deal and pay a lower premium for the target. This can be especially true in local M&A transactions, where the acquirer and target are in the same country, and the acquirer may have more knowledge about the local market. On the other hand, in cross-border M&A deals, the acquirer could have less knowledge and familiarity with the foreign market and might not be able to use the advantage of their size. This can make it more difficult for the acquirer to secure a favorable deal and, as a consequence, might have to pay a higher premium for the target. As a result, the acquirer's size impacts the target's CAR less in a cross-border M&A deal.

In Table 10, we have split the data set and used local and cross-border target CARs as dependent variables. Separating the data gives us an even better understanding of what creates the differences. There may be situations where negative and positive effects between local and foreign targets cancel each other out, making it difficult to analyze. Thus, Table 10 below will provide better help in understanding the differences.

**Table 10:** Regression for local and cross-border differences.
The regression output below displays the coefficients for each independent variable and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with [-2:+2] for targets either in domestic or foreign transactions. Both models include Regions, Industries and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | |
|---|---|---|
| | CAR.T(Local) | CAR.T(Cross-border) |
| | (1) | (2) |
| Target Leverage | −0.026 | −0.034 |
| | (−1.153) | (−1.172) |
| Cash Available | 0.009* | −0.007 |
| | (1.656) | (−0.983) |
| R&D Expense | −0.015 | −0.037*** |
| | (−1.131) | (−2.750) |
| P/E | −0.00002 | −0.00000 |
| | (−0.253) | (−0.032) |
| M/B | 0.00004 | −0.0005 |
| | (0.109) | (−0.695) |
| Synergies | −0.012** | 0.014** |
| | (−2.531) | (2.058) |
| Acquirer mcap | 0.013** | 0.003 |
| | (2.270) | (0.476) |
| Target mcap | −0.010 | −0.018** |
| | (−1.446) | (−2.283) |
| Relative Size | 0.00000 | −0.001 |
| | (0.589) | (−0.718) |
| Relative Deal Size | 0.017*** | 0.041*** |
| | (4.012) | (4.864) |
| Same Industry | 0.027* | −0.021 |
| | (1.849) | (−1.124) |
| Tender Offer | 0.054*** | 0.054*** |
| | (3.926) | (3.133) |
| Cash | 0.024 | 0.010 |
| | (1.564) | (0.368) |
| Hostile | 0.007 | −0.032 |
| | (0.380) | (−1.542) |
| Regions FE | Yes | Yes |
| Industry FE | Yes | Yes |
| Years FE | Yes | Yes |
| Constant | 0.028 | 0.161** |
| | (0.212) | (2.432) |
| Observations | 851 | 470 |
| $R^2$ | 0.146 | 0.238 |
| Adjusted $R^2$ | 0.102 | 0.165 |
| *Note:* | | *p<0.1; **p<0.05; ***p<0.01 |

An interesting observation from Table 10 is that the synergy variable counts positively for cross-border and negatively for locals, both significant. This effect eliminated each other in the previous regression. Hence, it was difficult to detect this effect before the data set was split. Moreover, the synergy variable measures the earnings per share the acquirer expects to realize due to the transaction. Thus, one of the reasons synergies might have a more significant impact on cross-border targets can be because the shareholders have less information about the foreign acquirer and the potential synergies the M&A entails compared to the locals. Hence, the foreign shareholders choose to rely more on the stock exchange press release of the acquirer. Another possible interpretation for this difference could be that cross-border M&A transactions may offer greater opportunities for synergies between the acquirer and target companies than domestic M&A transactions. This difference can be due to the possibility of taking advantage of lower costs of labor, materials, or other inputs. As a result, investors may perceive that the potential benefits of synergies are greater in cross-border transactions, leading to a higher CAR for target companies.

Finally, there is a relatively significant negative effect on R&D expenses. It harms both local and cross-border targets but has a more considerable negative impact on foreign targets. R&D expenses can be a high cost for a company, and if a company spends a lot on R&D, it may be perceived as a risk by investors. This is because there is no guarantee that the R&D will result in successful products or technologies that can generate revenue to offset the expenses. As a result, investors may be concerned that the R&D expenses will impact the company's bottom line and potentially lead to a decline in the company's stock price. Additionally, cross-border targets may face further challenges and uncertainty related to different countries' regulatory and legal frameworks (Maung, Shedden, Wang & Wilson, 2019), which can further increase the perceived risk associated with R&D expenses.

We have now controlled for known determinants and divided the data set into local and foreign targets to examine the differences. We still find a significant positive effect for cross-border targets CAR and some variables that affect local and cross-border targets differently. Going forward, we now want to see if our results from the event study, which pointed to differences in industries and regions, are consistent when adding control

variables. Thus, we split the sample and ran each industry and European region as a dependent variable to see if any of them contributed more to the cross-border difference. Table 11 is a summary table with the regions and industries that proved to have an impact. The rest of the regressions can be seen in appendix Chapter A3.

**Table 11:** Selection of regressions with significant cross-border effect.
The regression outputs below display the coefficients for the cross-border dummy and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for either Materials, Telecom, or Western Europe. Models include different variations of Regions, Industries, and Years fixed effects. In addition, the control variables are the ones we use in Table 9. The full regression can be found in the appendix Table A18. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | |
|---|---|---|---|
| | CAR.T(Materials) | CAR.T(Telecom) | CAR.T(W.Europe) |
| | (1) | (2) | (3) |
| Cross-border | 0.093** | 0.153* | 0.041** |
| | (2.18) | (1.95) | (2.23) |
| Control variables | Yes | Yes | Yes |
| Regions FE | Yes | Yes | No |
| Industry FE | No | No | Yes |
| Years FE | Yes | Yes | Yes |
| Constant | −0.016 | 0.302* | 0.0055 |
| | (−0.17) | (1.88) | (0.915) |
| Observations | 88 | 64 | 546 |
| $R^2$ | 0.490 | 0.506 | 0.221 |
| Adjusted $R^2$ | 0.222 | 0.027 | 0.156 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

Table 11 provide evidence that cross-border targets are strongly influenced within Materials, Telecom, and Western Europe compared to locals. In model 3, the cross-border variable is significant and indicates that, on average, foreign targets in Western Europe collect a premium of 4.1%. There are many different reasons why this might be the case. For instance, London and Paris have the two largest stock exchanges in Europe, which provide very liquid markets, which in turn means less uncertainty for the acquirer. It has been shown that highly liquid targets receive a higher premium and post-announcement returns compared to non-liquid targets (Massa & Xu, 2013). Further, countries in Western Europe

score particularly well on the corruption index (Transparency International, 2022). This implies that acquirers might pay a premium for markets with high credibility.

In Model 1, Materials provide an abnormal return of 9.3% over local transactions. The constant is also negative, suggesting that local transactions generally receive negative abnormal returns. Model 2 shows that Telecom, on average, provides an additional abnormal return to cross-border targets of 15.3%. This is surprisingly high, and we are more skeptical of the results in the Telecom sector. This result is in stark contrast to the 3.76% premium found in Table 8. In the Telecom sample, we have few observations, and since we have many control variables, this increases the probability of extreme values.

There could be various economic reasons why cross-border activity may positively affect the CAR for companies in these industries. For example, cross-border activity may allow companies to access new markets and expand their customer base, leading to increased revenue and profits. Cross-border activity may also allow companies to take advantage of economies of scale (Buch & DeLong, 2004) by producing and distributing products on a larger scale, which can lead to cost savings and increased competitiveness. Additionally, cross-border activity may enable companies to access new sources of capital, technology, and other resources that can support their growth and innovation (Stiebale, 2016). However, although this is true, it is difficult to conclude that this mainly happens in Materials and Telecom, even if that is what the model suggests. The fact that our results are mainly driven from these areas suggests that the results should be interpreted with caution.

So far, we have left the acquirer out of the analysis. This is mainly because the tables in section 4.1 showed little or no difference between local and cross-border acquirers. Nevertheless, we still performed regressions to examine whether controlling for known determinants would change the outcome. However, results from the regression on acquirer CAR found no significant effect of cross-border announcements compared to domestic ones. Thus, we have chosen not to devote more attention to the acquirer in the thesis. For details on the regression output, see appendix Table A17.

Overall, there is a tendency where the target shareholders to react more positively to the news of cross-border deals in specific sectors and areas. This appears to be one of the

underlying drivers of the cross-border target premium we are seeing. Nevertheless, even though we have controlled for known determinants of M&A performance, there may still be an inherent difference between firms being bought locally and cross-border that our regression does not capture. If so, this will weaken the validity of our results. Therefore, we want to do an analysis that can take this potential problem into account.

## 4.3 Propensity Score Matching

To further examine whether our findings in Table 9 are robust, we will use propensity score matching to characterize the M&A deals that are done cross-border and the ones that are done locally. We assume some firm-specific characteristics might make some companies more likely to be acquired cross-border. Further, these firm-specific characteristics may not be captured in our initial regression, and therefore, propensity score matching can be used as a robustness check.

To implement propensity score matching, we are following the steps suggested by (Caliendo & Kopeing, 2008). First, we have to estimate the propensity score for each individual company. To do so, we have to choose which variables to include in the model. It is important that only variables that are unaffected if the firm gets acquired locally or cross-border are included (Dehejia & Wahba, 1999). The variables that we have chosen are same industry, deal value, relative size, and years. This implies that how each deal scores on these four variables will determine which propensity score each M&A transaction in our sample will have. Furthermore, the matching estimator we use is the nearest neighbor; therefore, the local deal with the closest propensity score to a cross-border deal will be matched. Thus, each cross-border deal gets a local match based on the propensity score that, in turn, is based on the four variables. In our original sample, we have 470 cross-border deals and 851 local deals. After the matching, we have found a local deal for each cross-border deal, and this means that 381 of the least fitting locals in our sample are left out.

Next, it is important to investigate if the matching has been successful. When we visually analyze the distribution and examine the t-tests for differences in means, the matching seems successful (see appendix Table A16). There are no statistical differences between the means of the treatment and control groups, and the distribution seems to imply the same.

Thus, it seems reasonable to conclude that the matching has been successful (Caliendo & Kopeing, 2008), (Dehejia & Wahba, 1999). Consequently, 381 outliers are left out of the new sample, and the results are more trustworthy.

**Table 12:** Propensity score matching regression.
The regression outputs below display the coefficients for the independent variables and the t-stat for those corresponding variables. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for targets. In addition, the models are regressed on matched and control group samples. All six models include Regions, Industries, and Years fixed effects. Further, we have the same control variables as used in Table 9 for all regressions. The full regression can be found in the appendix Table A19. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | *Non-Matched:* | *Matched:* | *Non-Matched:* | *Matched:* | *Non-Matched:* | *Matched:* |
| | CAR.T | CAR.T | CAR.T | CAR.T | CAR.T | CAR.T |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Cross-border | 0.021** | 0.023* | 0.058** | 0.064** | 0.080* | 0.094** |
| | (1.969) | (1.936) | (2.064) | (2.098) | (1.814) | (1.984) |
| Cross * Relative Deal Size | | | 0.024** | 0.025** | 0.024** | 0.026*** |
| | | | (2.560) | (2.556) | (2.428) | (2.616) |
| Cross * Acquirer mcap | | | −0.014* | −0.004 | −0.014* | −0.004 |
| | | | (−1.749) | (−0.423) | (−1.831) | (−0.476) |
| Cross * Target mcap | | | −0.004 | −0.019* | −0.002 | −0.018 |
| | | | (−0.444) | (−1.774) | (−0.161) | (−1.612) |
| Cross * Cash | | | | | 0.003 | 0.014 |
| | | | | | (0.099) | (0.454) |
| Cross * Same Industry | | | | | −0.046** | −0.062** |
| | | | | | (−1.973) | (−2.380) |
| Cross * Tender offer | | | | | 0.016 | 0.002 |
| | | | | | (0.718) | (0.092) |
| Cross * R&D Expense | | | | | −0.016 | −0.005 |
| | | | | | (−0.851) | (−0.291) |
| Control variables | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Regions FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.055 | 0.081* | 0.045 | 0.051 | 0.031 | 0.032 |
| | (0.432) | (1.867) | (0.353) | (1.081) | (0.246) | (0.641) |
| Observations | 1,321 | 940 | 1,321 | 940 | 1,321 | 940 |
| $R^2$ | 0.137 | 0.156 | 0.145 | 0.167 | 0.148 | 0.173 |
| Adjusted $R^2$ | 0.108 | 0.116 | 0.114 | 0.125 | 0.115 | 0.127 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

Regression in Table 12 showcases the different results before and after the propensity score matching. The cross-border effect is still significant as in previous regression, and the t-stat does not change much. However, the cross-border coefficient increases and especially

when including the interaction terms. Further, we observe that the R2 increase in all three regressions. All these discoveries are reassuring as they strengthen our previous results, implying that the difference between local and foreign targets is legitimate. Moreover, the relative deal size is still the only significant positive contributor to the cross-border effect. Interestingly, the cash coefficient increases, and the tender offer decrease. When we look at the negative contributing interaction terms, we detect that acquirer market capitalization has gone from negative significant to insignificant. This is most likely since we match firms based on the relative size; therefore, in the new regression, this effect is eliminated. Additionally, the same industry interaction term amplifies, which is both interesting and surprising. As previously mentioned in section 4.2, this can be justified by asymmetric information and diversification. Acquirers who go cross-border and outside of their industry more frequently make poor decisions, which leads to value-destruction (Dos Santos, Errunza & Miller, 2008). Consequently, acquirers might overpay for foreign targets operating in different sectors, which seem to give higher premiums for the targets.

To summarize the analysis so far. The event study indicated that cross-border targets might have a premium when not controlling for anything compared to local targets. Further, it also showed that specific industries or European regions could drive this difference. Next, we controlled for well-known determinants that might impact the result, and we still found a difference between local and cross-border M&As. We then ran regressions with each industry and European region as dependent variables. Our findings suggest that the cross-border effect could mainly be driven by the two industries, Materials and Telecom, and the Western Europe region. Moreover, we did the propensity score matching to evaluate the robustness of our findings. The propensity score matching gave similar results, strengthening our findings, but they must still be interpreted cautiously. There might still be unknown factors that have not been considered. Nevertheless, because of this observed difference between cross-border and local deals, we want to find out whether there are differences in motives for acquirers when they go abroad compared to staying home since this might impact target and acquirer gains.

## 4.4 Management Motives

When firms do mergers and acquisitions, most acquirers use arguments about synergies as justification. However, the predicted profit is frequently not achieved (Bradley, Desai & Kim, 1983). There are several reasons why this might be the case, but three primary motives for doing M&As are discussed in the literature: agency, synergies, and hubris. To try to distinguish between these three hypotheses in our M&A sample, we use the correlation test introduced by (Berkovitch & Narayanan, 1993). Checking the correlation between target, acquirer, and total announcement gains will indicate the managers' motives. Thus, we will use this method to investigate whether bidding management motives differ depending on whether they go cross-border or not.

In our analysis, we use these four regressions to calculate the correlation and investigate the different motives between acquirers going abroad and those staying in their domestic market. This is in line with (Berkovitch & Narayanan, 1993).

$$Cross-border\ target\ gain = \alpha + \beta Total\ cross-border\ gain \tag{4.2}$$

$$Cross-border\ target\ gain = \alpha + \beta Acquirer\ cross-border\ gain \tag{4.3}$$

$$Local\ target\ gain = \alpha + \beta Total\ local\ gain \tag{4.4}$$

$$Local\ target\ gain = \alpha + \beta Acquirer\ local\ gain \tag{4.5}$$

**Synergies**

M&As based on the synergy motive should increase shareholder wealth for both the target and the acquirer. This is because when the management for both parties wants to maximize shareholder wealth, they would only engage in mergers and acquisitions if it results in positive net present value. Thus, the difference in gains between the target and acquirer should only depend on the relative bargaining power of the acquirer and target.

Hence, this leads to a situation where acquirer, target, and total gains will be positively correlated (Goergen & Renneboog, 2004).

### Hubris

A second reason for M&As can be related to the hubris hypothesis. The management in the bidding firm might falsely believe they carry abilities allowing them to run the target firm more efficiently than the current management. Therefore, this leads to a situation where acquiring managers overpay for the target firms (Roll, 1986). Conversely, the acquiring management might underestimate the value of the target company. However, the manager will only overpay for the target when they overestimate the synergies to be gained by the M&A. Thus, we assume there is a 50% chance for the acquiring manager to destroy wealth for its shareholders. As a result, the M&A is a zero-sum game, and it follows that the higher the target gain, the lower the bidder gain, and the total gain is zero (Berkovitch & Narayanan, 1993). In other words, the acquirer and target gain are negatively correlated, and the target and total gain are zero correlated.

### Agency

Another motive that has been suggested for mergers and acquisitions are agency related. The self-interest of the acquiring management might be the prime motivation for the offer. For example, (Nguyen, Young & Sun, 2012) find that many acquiring managers use overvalued shares to promote personal goals or other objectives through merger activity. Further, they find that 59% of the M&As in their sample are related to agency motives or hubris. Also, (Conyon & Murphy, 2002) show that size and not performance is the main determinant of management salary and bonuses in the UK. This might tempt CEOs to enrich themselves with value-destroying M&As. Thus, the correlation between target gain and total and acquiring gain will be negative.

**Table 13:** Correlation table for management motives.
The table below displays the correlation between target gain and total gain, as well as target gain and acquirer gain. The CAR is measured using the [-2:+2] window, and the target and acquiring gain are computed by multiplying the CAR with each firm's market capitalization. The total gain is the sum of the acquirer and target gains. Further, the correlations are computed using the four equations (4.2, 4.3, 4.4, and 4.5). Additionally, the sample is divided into cross-border and local sub-samples. For each sample, we divide it further into several sub-samples based on positive or negative transactions in total gain to shareholders. The upper level of the table shows the expected sign correlation for each motive. Moreover, the *,**, and *** represent each correlation's statistical significance at 10%, 5%, and 1%, respectively.

| | Correlation between | |
|---|---|---|
| | Target gain and total gain | Target gain and acquirer gain |
| Synergy | + | + |
| Agency | - | - |
| Hubris | 0 | - |
| Cross-border Sample | 0.014*** | 0.001 |
| Positive Cross-border Gain sub-sample | 0.144*** | -0.001 |
| Negative Cross-border Gain sub-sample | 0.001 | -0.002 |
| Local Sample | 0.479*** | 0.089*** |
| Positive Local Gain sub-sample | 0.609*** | 0.156*** |
| Negative Local Gain sub-sample | 0.039** | -0.087*** |

### Cross-border sample

Table 13 shows the results of the different regressions above. The correlation between target gain and total gain is positively significant for the cross-border sample. This is also the case with the positive sub-sample. Although both lean towards the synergy hypothesis, this does not hold throughout the entire sample. If we look at the negative sub-sample, the correlation is more or less equal to 0, which supports the hubris hypothesis. These results indicate that the primary motive for M&As in our positive sample is synergies, but in the negative sample, it is hubris. The positive sample makes up 62% of the total, which tells us that, on average, most cross-border transactions in Europe are motivated by synergies. However, bad decision-making from the acquiring management still makes up a reasonable part of the M&As. The lack of correlation between target gain and acquirer gain in the total positive and negative samples strengthens this. These discoveries are consistent with (Goergen & Renneboog, 2004) and (Berkovitch & Narayanan, 1993), who find support for synergies being the primary motive for M&As, but hubris and agency are

also present.

**Local Sample**

Investigating the local sample, the evidence for synergies is even more apparent. The correlation between target gain and total gain is highly positive and significant. This is true for the total sample, the positive sub-sample, and even for the negative sub-sample. Moreover, looking at the correlation between target gain and acquirer gain, we again see that the total sample and the positive sub-sample are positively significant. However, in the negative sub-sample, we have a significant negative relationship. This might indicate that hubris is present in some of the local transactions as well, but not to the same extent as in cross-border.

**Summary**

To summarize, the results from the correlation tests introduced by (Berkovitch & Narayanan, 1993) imply that more local M&As are motivated by synergies than cross-border M&As. Further, on the basis that there is more hubris in the cross-border deals, this can indicate that acquiring management more often makes poor decisions when going abroad compared to staying in the domestic market. When we see this in the context of our previous findings, this might be one of the reasons why, on average, cross-border targets receive a higher premium than their local peers. Both local and cross-border targets gain large premiums, but our findings suggest that misjudgments are more often made by the acquiring management when going abroad, which could lead to foreign targets collecting a larger share of the premium.

# 5 Conclusion

In this thesis, we have researched the difference between cross-border and local M&A transactions within the EU and EFTA. With a total sample of 1321 deals from 2001 to 2019, we apply the event study methodology in line with (MacKinlay, 1997) to examine the abnormal returns from targets and acquirers after the announcement day. In addition, we use cross-sectional regression to control for well-known determinants that are known to affect the performance in M&A deals. Furthermore, we use propensity score matching as a robustness check to see if our results may be due to inherent differences between local and cross-border deals. Finally, we investigate if there are differences in motives for acquirer management in foreign and domestic transactions.

Our results suggest a significant difference in target premiums between cross-border and local M&A transactions. We find that cross-border M&As give a significant premium of 2.10% for targets during an event window of [-2:+2]. Further, when using the propensity score matching, we get similar outcomes running the same regression on matched and non-matched groups. However, when we look at the acquirers, we find no clear indication that transactions to foreign countries significantly impact CAR compared to domestic ones. The result from our analysis builds upon previous M&A literature, which is divided on the benefits or disadvantages of cross-border M&A transactions.

When digging deeper into the differences, we find that Western Europe, Materials, and Telecom have a significant cross-border premium for targets and could explain the cross-border effect. We discover that Western Europe is the only region in our sample where cross-border is significantly positive, with a premium of 4.10%. Further, we detect countries like UK and Belgium to outperform the European average. Our main argument for the Western European outperformance in our sample is due to higher liquidity and credibility in Western markets. Similar results are found when we look at the different industries in our sample. Materials and Telecom have a significant cross-border premium of 9.3% and 15.3%, respectively. However, there might be a problem with the goodness of fit for Telecom, seeing that the adjusted r-squared is low in the model.

In addition to our investigation of the cross-border premium, we look at how management

motives change based on foreign or domestic transactions. Here we uncover a more apparent tendency of hubris in the cross-border sample compared to the local. Our interpretation is that the cross-border premium could also arise from poor judgment from acquirer management in foreign transactions, which might lead to overpaying for foreign targets. Nevertheless, our findings do not provide a clear answer to what generates the cross-border effect but rather indicate that the effect comes from several different sources.

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# Appendix

## A1 Empirical calculations

We pursue the event study methodology by (MacKinlay, 1997) in our calculation of abnormal returns (AR) and cumulative abnormal returns (CAR). AR is calculated by taking the expected return and subtracting the actual return of each security. This can be derived using equation (.1) below:

$$AR_{it} = R_{it} + E(R_{it}|X_t) \tag{.1}$$

To see the market reaction in our multi-day event window, we aggregate the abnormal return trough time for each security. The CAR can be derived formally in equation (.2)

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \tag{.2}$$

In order to check if cross-border and local CARs differ from each other, we will use the two-sample t-test assuming equal variance. In equation (.3), we can see the pooled variance for the two different samples.

$$t = \frac{(\overline{x_1} - \overline{x_2}) - (\mu_1 - \mu_2)}{\sqrt{\frac{S_1^2}{\eta_1} + \frac{S_2^2}{\eta_2}}} \tag{.3}$$

To be able to investigate if cross-border is significantly different from local CAR, we use a cross-sectional regression to examine whether CAR is significantly different from each other:

$$CAR_j = \delta_0 + \delta_1 x_{1j} + ... + \delta_M x_{Mj} + \eta_j \tag{.4}$$

$$E(\eta_j = 0) \tag{.5}$$

$$var(\eta_j) = \sigma^2 \tag{.6}$$

# A2 Tables and figures

**Table A14:** Independent variables used in regressions.

| Variables used | |
|---|---|
| Variable Name | Variable Definition |
| Cross-border | Dummy =1 if the target is located in another country than the acquirer |
| Target Leverage | Target debt/ Target market cap |
| Cash Available | Log of the amount of cash available held by the target closest to announcement |
| R&D Expense | Log of target research and development expenses |
| P/E | Log of Price per share offered by acquirer divided by the target earnings per share |
| M/B | Log of premium offering price from acquirer over target book value |
| Synergies | Log of EPS the acquirer expect to realize as a result of the transaction as disclosed in the press release |
| Acquirer mcap | Log of Acquirer market cap |
| Target mcap | Log of Target market cap |
| Relative size | Target market cap / Acquirer market cap |
| Relative Deal Size | Deal value/Target market cap |
| Same Industry | Dummy = 1 if the target and acquirer operate in the same industry |
| Tender Offer | Dummy = 1 if the acquirer offers to buy the whole target company |
| Cash | Dummy = 1 if the payment is made with cash |
| Hostile | Dummy = 1 if the target board officially rejects the offer, but the acquirer persists with the takeover |
| Deal value | The value of the transaction measured in million USD |
| Cross * Relative Deal Size | Cross-border dummy variable multiplied by Rel. Deal dummy |
| Cross * Acquirer mcap | Cross-border dummy variable multiplied by Acquirer mcap dummy |
| Cross * Target mcap | Cross-border dummy variable multiplied by Target mcap dummy |
| Cross * Cash | Cross-border dummy variable multiplied by Cash dummy |
| Cross * Same Industry | Cross-border dummy variable multiplied by Same Industry dummy |
| Cross * Tender Offer | Cross-border dummy variable multiplied by Tender Offer dummy |
| Cross * R&D Expense | Cross-border dummy variable multiplied by R&D Expense dummy |
| Regions FE | Fixed effect of European regions as defined in Table A15 Leaving out Central Europe |
| Industry FE | Fixed effect of industries, as presented in Table 8 Leaving out Retail |
| Years FE | Fixed effect of Years, from 2001-2019, leaving out 2001 |

**Figure A4:** Multicollinearity test

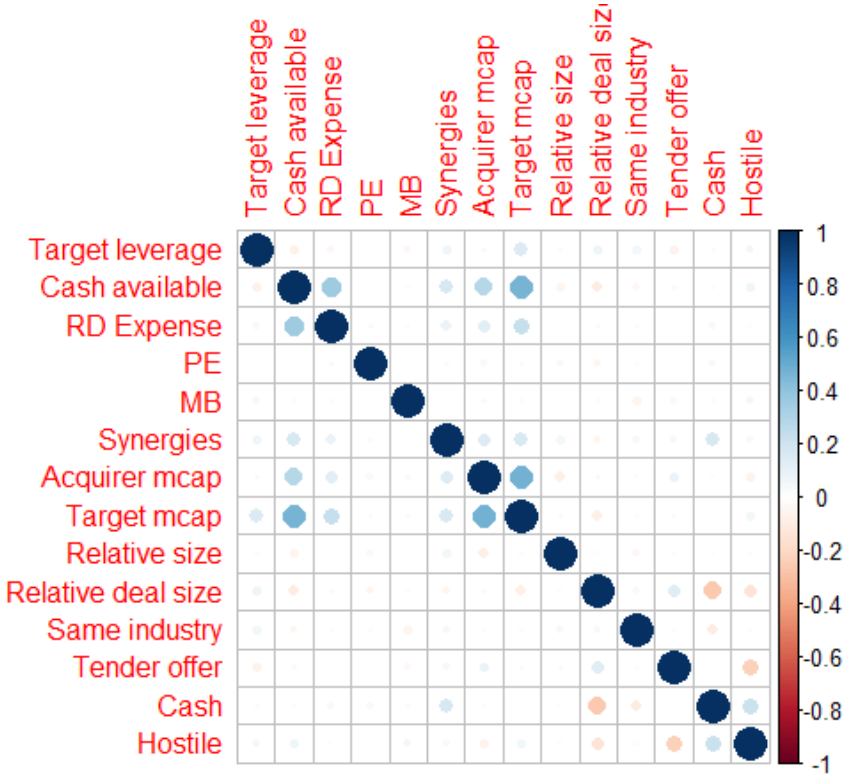


**Table A15:** European region definition

| Regions of Europe | | | | |
|---|---|---|---|---|
| Northern-Europe | Western- Europe | Central-Europe | Southern-Europe | Eastern-Europe |
| Norway | UK | Germany | Portugal | Croatia |
| Sweden | Ireland | Poland | Spain | Estonia |
| Denmark | France | Czech Republic | Italy | Lithuania |
| Iceland | Netherlands | Switzerland | Greece | Latvia |
| Finland | Belgium | Slovenia | Malta | Cyprus |
| | Luxembourg | Austria | | Romania |
| | | Lichtenstein | | Hungary |
| | | | | Bulgaria |

**Figure A5:** Propensity score distribution

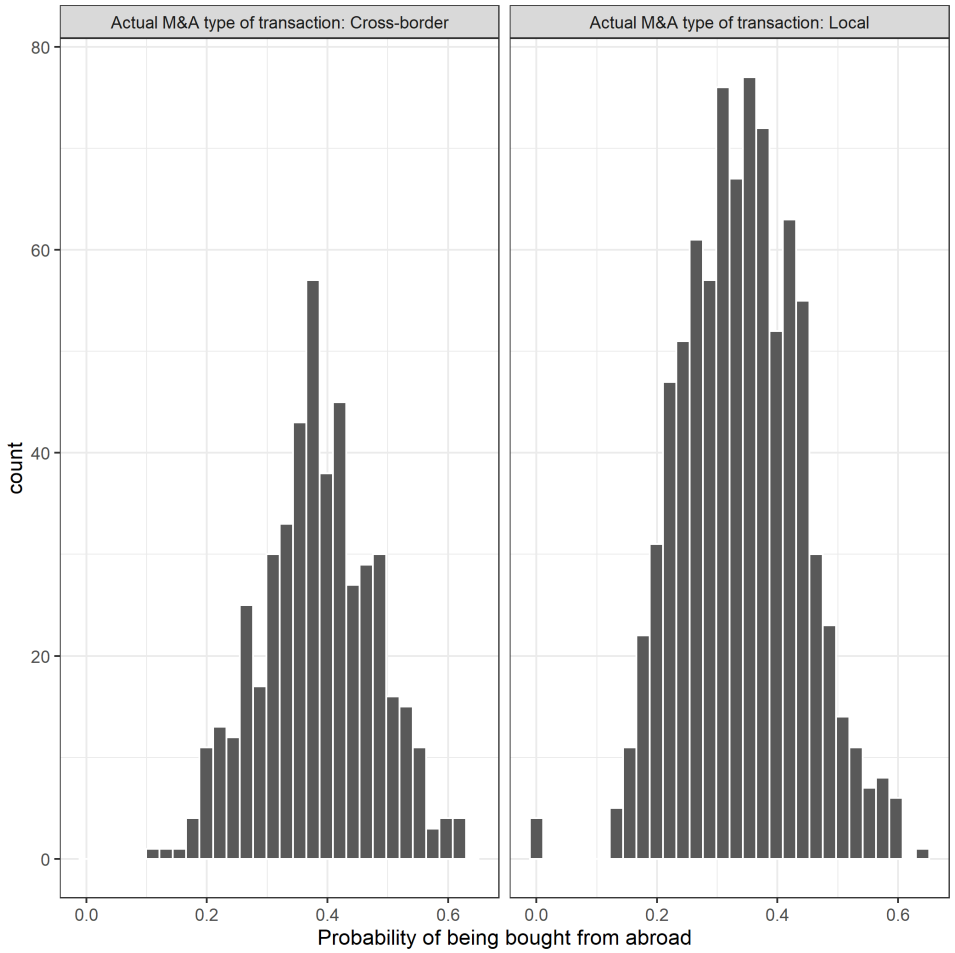


**Table A16:** T-test for difference after matching.
The table below shows the coefficient, t-stat, and p-value to their corresponding covariate for the matched and control group. The t-stat represents the difference between the matched and control group with the null hypothesis of the difference in means = 0. The same industry has identical means and 1 in T-stat because the same industry is a dummy. There are, in total, 919 same-industry transactions, and 350 are cross-border deals. Thus, each cross-border transaction will get a local transaction perfectly matching this covariate.

| | Same Industry | Deal Value | Relative size |
|---|---|---|---|
| Cross-border coefficient | 0.744 | 2.412 | 0.518 |
| Control group coefficient | 0.744 | 2.392 | 0.846 |
| T-stat | 0.000 | 0.369 | -0.895 |
| P-value | 1.000 | 0.711 | 0.370 |

# A3 Regressions

**Table A17:** The regression outputs below display the coefficients for each independent variable and the t-stat. The t-stat is measured with robust standard errors. The dependent variable is the CAR with an event window of [-2:+2] for acquirer in the M&A transaction. Our variable of interest is the dummy variable cross-border, with a value of 1 if the transaction was done across borders and 0 if the transaction was done domestically. Both models include Regions, Industries, and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | |
|---|---|---|
| | CAR Acquirer | |
| | (1) | (2) |
| Cross-border | | 0.001 |
| | | 0.23 |
| Target Leverage | −0.017** | −0.017** |
| | −2.07 | −2.06 |
| Cash Available | 0.001 | 0.001 |
| | 0.69 | 0.66 |
| R&D Expense | 0.002 | 0.002 |
| | 0.44 | 0.44 |
| PE | −0.0001 | −0.0001 |
| | −1.08 | −1.07 |
| M/B | 0.0001 | 0.0001 |
| | 0.44 | 0.44 |
| Synergies | 0.004** | 0.004** |
| | 2.02 | 2.01 |
| Acquirer mcap | −0.004** | −0.004** |
| | −2.26 | −2.27 |
| Target mcap | 0.003 | 0.003 |
| | 1.25 | 1.24 |
| Relative Size | −0.000 | −0.000 |
| | −0.72 | −0.72 |
| Relative Deal Size | 0.008*** | 0.008*** |
| | 4.67 | 4.66 |
| Same Industry | −0.005 | −0.005 |
| | −0.95 | −0.97 |
| Tender Offer | −0.006 | −0.006 |
| | −1.23 | −1.22 |
| Cash | 0.001 | 0.001 |
| | 0.23 | 0.18 |
| Hostile | −0.003 | −0.003 |
| | −0.46 | −0.46 |
| Regions FE | Yes | Yes |
| Industry FE | Yes | Yes |
| Years FE | Yes | Yes |
| Constant | 0.011 | 0.011 |
| | 0.18 | 0.18 |
| Observations | 1,321 | 1,321 |
| $R^2$ | 0.049 | 0.049 |
| Adjusted $R^2$ | 0.017 | 0.017 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

**Table A18:** Selection of regressions with significant cross-border effect.
The regression outputs below display the coefficients for the cross-border dummy and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for either Materials, Telecom, or Western Europe. Models include different variations of Regions, Industries, and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | |
|---|---|---|---|
| | CAR.T(Materials) | CAR.T(Telecom) | CAR.T(W.Europe) |
| | (1) | (2) | (3) |
| Cross-border | 0.093** | 0.153* | 0.041** |
| | (2.182) | (1.946) | (2.226) |
| Target Leverage | −0.079 | 0.038 | −0.051 |
| | (−0.579) | (0.331) | (−1.594) |
| Cash Available | −0.014 | 0.051 | 0.004 |
| | (−0.686) | (1.571) | (0.583) |
| R&D Expense | −0.012 | −0.002 | −0.022 |
| | (−0.354) | (−0.040) | (−1.510) |
| P/E | 0.0001 | 0.0002 | −0.0002** |
| | (0.198) | (0.845) | (−2.179) |
| M/B | 0.001 | 0.002 | −0.0004 |
| | (0.239) | (1.117) | (−0.603) |
| Synergies | 0.023 | 0.041 | −0.008 |
| | (1.362) | (1.454) | (−1.385) |
| Acquirer mcap | −0.005 | 0.024 | 0.009 |
| | (−0.322) | (1.014) | (1.209) |
| Target mcap | 0.007 | −0.043 | −0.010 |
| | (0.353) | (−1.669) | (−1.061) |
| Relative Size | −0.016 | 0.0001 | 0.003 |
| | (−0.506) | (0.060) | (0.340) |
| Relative Deal Size | 0.106*** | 0.036 | 0.046*** |
| | (4.051) | (0.995) | (6.007) |
| Same Industry | −0.031 | −0.109 | 0.007 |
| | (−0.756) | (−1.368) | (0.379) |
| Tender Offer | −0.014 | 0.042 | 0.039** |
| | (−0.303) | (0.560) | (2.227) |
| Cash | 0.063 | −0.200* | 0.040* |
| | (1.121) | (−1.921) | (1.965) |
| Hostile | −0.043 | 0.005 | 0.023 |
| | (−0.737) | (0.064) | (0.867) |
| Industry FE | No | No | Yes |
| Regions FE | Yes | Yes | No |
| Year FE | Yes | Yes | Yes |
| Constant | −0.016 | 0.302* | 0.055 |
| | (−0.165) | (1.880) | (0.915) |
| Observations | 88 | 64 | 546 |
| $R^2$ | 0.490 | 0.506 | 0.221 |
| Adjusted $R^2$ | 0.222 | 0.027 | 0.156 |
| *Note:* | | | *p<0.1; **p<0.05; ***p<0.01 |

**Table A19:** Full Propensity score matching regression.
The regression outputs below display the coefficients for the independent variables and the t-stat for those corresponding variables. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for targets. In addition, the models are regressed on matched and control group samples. All six models include Regions, Industries, and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | | | | |
|---|---|---|---|---|---|---|
| | *Non-Matched:* | *Matched:* | *Non-Matched:* | *Matched:* | *Non-Matched:* | *Matched:* |
| | CAR.T | CAR.T | CAR.T | CAR.T | CAR.T | CAR.T |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Cross-border | 0.021** | 0.023* | 0.058** | 0.064** | 0.080* | 0.094** |
| | (1.969) | (1.936) | (2.064) | (2.098) | (1.814) | (1.984) |
| Target Leverage | −0.026 | −0.029 | −0.028 | −0.032 | −0.028 | −0.032 |
| | (−1.446) | (−1.397) | (−1.544) | (−1.586) | (−1.537) | (−1.563) |
| Cash Available | 0.004 | 0.002 | 0.004 | 0.002 | 0.004 | 0.002 |
| | (0.944) | (0.365) | (1.008) | (0.490) | (0.920) | (0.446) |
| R&D Expense | −0.021** | −0.028*** | −0.022** | −0.031*** | −0.014 | −0.027** |
| | (−2.264) | (−2.859) | (−2.335) | (−3.101) | (−1.179) | (−1.973) |
| P/E | −0.00003 | −0.0001 | −0.00003 | −0.0001 | −0.00003 | −0.0001 |
| | (−0.651) | (−1.088) | (−0.592) | (−1.102) | (−0.552) | (−1.120) |
| M/B | −0.0001 | −0.0002 | −0.0001 | −0.0002 | −0.0001 | −0.0002 |
| | (−0.329) | (−0.609) | (−0.366) | (−0.689) | (−0.284) | (−0.530) |
| Synergies | −0.003 | 0.008* | −0.004 | 0.007 | −0.004 | 0.007 |
| | (−0.842) | (1.747) | (−0.989) | (1.627) | (−1.074) | (1.602) |
| Acquirer mcap | 0.009** | 0.002 | 0.014*** | 0.003 | 0.014*** | 0.003 |
| | (2.098) | (0.491) | (2.611) | (0.511) | (2.701) | (0.532) |
| Target mcap | −0.011** | −0.006 | −0.010 | 0.004 | −0.011* | 0.004 |
| | (−2.142) | (−1.042) | (−1.486) | (0.473) | (−1.674) | (0.467) |
| Relative Size | 0.00000 | −0.0001 | 0.00000 | −0.0002 | 0.00000 | −0.0004 |
| | (0.228) | (−0.136) | (0.321) | (−0.210) | (0.396) | (−0.361) |
| Relative Deal Size | 0.020*** | 0.020*** | 0.016*** | 0.014** | 0.017*** | 0.013** |
| | (5.320) | (4.292) | (4.040) | (2.557) | (4.045) | (2.386) |
| Same Industry | 0.010 | 0.002 | 0.009 | 0.004 | 0.025* | 0.035* |
| | (0.866) | (0.171) | (0.848) | (0.297) | (1.842) | (1.880) |
| Tender Offer | 0.058*** | 0.060*** | 0.057*** | 0.060*** | 0.052*** | 0.059*** |
| | (5.465) | (4.930) | (5.314) | (4.856) | (3.988) | (3.509) |
| Cash | 0.021 | 0.004 | 0.020 | 0.003 | 0.021 | 0.0001 |
| | (1.611) | (0.288) | (1.614) | (0.222) | (1.490) | (0.008) |
| Hostile | −0.012 | −0.002 | −0.010 | −0.0003 | −0.009 | 0.001 |
| | (−0.911) | (−0.142) | (−0.765) | (−0.018) | (−0.645) | (0.073) |
| Cross * Relative Deal Size | | | 0.024** | 0.025** | 0.024** | 0.026*** |
| | | | (2.560) | (2.556) | (2.428) | (2.616) |
| Cross * Acquirer mcap | | | −0.014* | −0.004 | −0.014* | −0.004 |
| | | | (−1.749) | (−0.423) | (−1.831) | (−0.476) |
| Cross * Target mcap | | | −0.004 | −0.019* | −0.002 | −0.018 |
| | | | (−0.444) | (−1.774) | (−0.161) | (−1.612) |
| Cross * Cash | | | | | 0.003 | 0.014 |
| | | | | | (0.099) | (0.454) |
| Cross * Same Industry | | | | | −0.046** | −0.062** |
| | | | | | (−1.973) | (−2.380) |
| Cross * Tender offer | | | | | 0.016 | 0.002 |
| | | | | | (0.718) | (0.092) |
| Cross * R&D Expense | | | | | −0.016 | −0.005 |
| | | | | | (−0.851) | (−0.291) |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Regions FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant | 0.055 | 0.081* | 0.045 | 0.051 | 0.031 | 0.032 |
| | (0.432) | (1.867) | (0.353) | (1.081) | (0.246) | (0.641) |
| Observations | 1,321 | 940 | 1,321 | 940 | 1,321 | 940 |
| $R^2$ | 0.137 | 0.156 | 0.145 | 0.167 | 0.148 | 0.173 |
| Adjusted $R^2$ | 0.108 | 0.116 | 0.114 | 0.125 | 0.115 | 0.127 |
| *Note:* | | | | | | *p<0.1; **p<0.05; ***p<0.01 |

**Table A20:** Regression for cross-border effect in industries.
The regression outputs below display the coefficients for the cross-border dummy and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for either Energy, Financials, Media, or Industrials. Models include Regions and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | CAR.T(Energy) | CAR.T(Financials) | CAR.T(Media) | CAR.T(Industrials) |
| | (1) | (2) | (3) | (4) |
| Cross-border | −0.047 | 0.024 | 0.055 | 0.020 |
| | (−1.332) | (0.786) | (1.308) | (0.601) |
| Target Leverage | −0.152*** | −0.004 | −0.074 | −0.062 |
| | (−2.704) | (−0.115) | (−0.968) | (−1.023) |
| Cash Available | −0.010 | 0.005 | −0.005 | 0.007 |
| | (−0.814) | (0.491) | (−0.232) | (0.489) |
| R&D Expense | 0.002 | 0.003 | −0.030 | −0.014 |
| | (0.046) | (0.010) | (−0.251) | (−0.748) |
| P/E | −0.0001 | −0.0001 | −0.0005 | −0.0004*** |
| | (−0.347) | (−0.471) | (−1.200) | (−2.929) |
| M/B | −0.0001 | −0.0001 | 0.001 | −0.001 |
| | (−0.174) | (−0.028) | (0.406) | (−0.804) |
| Synergies | 0.0002 | 0.009 | −0.011 | −0.014 |
| | (0.016) | (0.906) | (−0.594) | (−1.228) |
| Acquirer mcap | 0.019 | −0.006 | 0.004 | 0.013 |
| | (1.347) | (−0.586) | (0.254) | (1.069) |
| Target mcap | −0.008 | −0.007 | −0.020 | −0.005 |
| | (−0.502) | (−0.534) | (−0.941) | (−0.297) |
| Relative Size | −0.002 | −0.001 | −0.007 | −0.0003 |
| | (−0.128) | (−0.170) | (−0.701) | (−0.138) |
| Relative Deal Size | 0.042** | 0.002 | 0.012 | −0.013 |
| | (2.202) | (0.245) | (0.359) | (−1.176) |
| Same Industry | 0.022 | −0.012 | 0.059 | −0.014 |
| | (0.518) | (−0.234) | (1.491) | (−0.436) |
| Tender Offer | 0.015 | 0.078*** | 0.057 | 0.077** |
| | (0.393) | (2.737) | (1.360) | (2.197) |
| Cash | 0.038 | −0.015 | −0.058 | 0.002 |
| | (0.964) | (−0.444) | (−0.945) | (0.053) |
| Hostile | 0.004 | −0.022 | −0.053 | −0.025 |
| | (0.089) | (−0.584) | (−1.065) | (−0.658) |
| Regions FE | Yes | Yes | Yes | Yes |
| Years FE | Yes | Yes | Yes | Yes |
| Constant | 0.025 | 0.084 | 0.042 | 0.099 |
| | (0.236) | (0.610) | (0.403) | (1.065) |
| Observations | 119 | 219 | 82 | 181 |
| $R^2$ | 0.340 | 0.140 | 0.472 | 0.231 |
| Adjusted $R^2$ | 0.095 | −0.014 | 0.127 | 0.065 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |

**Table A21:** Regression for cross-border effect in industries 2.0.
The regression outputs below display the coefficients for the cross-border dummy and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for either Technology, Retail, Real Estate, Healthcare, or Consumer Products. Models include Regions and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | CAR.T(Technology) | CAR.T(Retail) | CAR.T(Real Estate) | CAR.T(Healthcare) | CAR.T(Consumer Products) |
| | (1) | (2) | (3) | (4) | (5) |
| Cross-border | −0.026 | −0.031 | −0.008 | −0.113 | 0.045 |
| | (−0.625) | (−0.512) | (−0.390) | (−1.170) | (1.081) |
| Target Leverage | 0.089 | −0.096 | 0.029 | 0.011 | −0.099 |
| | (1.344) | (−0.648) | (0.805) | (0.070) | (−1.289) |
| Cash Available | 0.059** | 0.026 | −0.009 | 0.002 | 0.007 |
| | (2.428) | (1.223) | (−1.119) | (0.059) | (0.420) |
| R&D Expense | −0.023 | 0.025 | 0.185 | −0.039 | −0.001 |
| | (−0.662) | (0.260) | (1.326) | (−0.718) | (−0.015) |
| P/E | 0.0001 | −0.002*** | −0.0002 | 0.0002 | 0.0002 |
| | (0.639) | (−3.516) | (−1.497) | (0.261) | (1.427) |
| M/B | −0.001 | 0.002 | 0.001 | −0.001 | −0.002 |
| | (−1.286) | (1.183) | (0.196) | (−0.321) | (−0.546) |
| Synergies | −0.033** | 0.031 | −0.002 | −0.003 | 0.009 |
| | (−2.223) | (1.137) | (−0.339) | (−0.084) | (0.707) |
| Acquirer mcap | −0.037 | 0.041* | −0.005 | −0.050 | 0.019 |
| | (−1.584) | (1.981) | (−0.676) | (−0.902) | (1.290) |
| Target mcap | −0.006 | −0.062* | 0.011 | 0.031 | 0.007 |
| | (−0.180) | (−1.960) | (1.132) | (0.506) | (0.320) |
| Relative Size | −0.077 | −0.044 | −0.002 | −0.308** | 0.00000 |
| | (−1.298) | (−0.750) | (−0.265) | (−2.404) | (0.526) |
| Relative Deal Size | 0.046*** | 0.115*** | 0.019*** | 0.084 | 0.076*** |
| | (3.271) | (2.875) | (4.421) | (1.079) | (3.503) |
| Same Industry | 0.046 | −0.009 | 0.065** | 0.195* | 0.012 |
| | (1.051) | (−0.141) | (2.466) | (1.801) | (0.353) |
| Tender Offer | 0.061* | −0.016 | 0.024 | 0.028 | 0.059* |
| | (1.728) | (−0.278) | (1.428) | (0.303) | (1.717) |
| Cash | 0.031 | 0.020 | 0.055*** | 0.173 | −0.009 |
| | (0.600) | (0.283) | (2.650) | (1.542) | (−0.194) |
| Hostile | −0.009 | 0.086 | −0.030 | 0.131 | 0.029 |
| | (−0.145) | (1.344) | (−1.330) | (1.011) | (0.611) |
| Regions FE | Yes | Yes | Yes | Yes | Yes |
| Years FE | Yes | Yes | Yes | Yes | Yes |
| Constant | −0.014 | 0.021 | 0.003 | 0.017 | 0.003 |
| | (−0.125) | (0.155) | (0.060) | (0.043) | (0.031) |
| Observations | 172 | 55 | 128 | 67 | 146 |
| $R^2$ | 0.349 | 0.713 | 0.494 | 0.439 | 0.336 |
| Adjusted $R^2$ | 0.205 | 0.354 | 0.323 | −0.059 | 0.148 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

**Table A22:** Regression for cross-border effect in regions.
The regression outputs below display the coefficients for the cross-border dummy and the t-stat to that corresponding variable. The t-stat is measured with robust standard errors. The dependent variable is the CAR with the event window of [-2:+2] for either Southern Europe, Northern Europe, Central Europe, or Eastern Europe. Models include Industry and Years fixed effects. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | CAR.T(S.Europe) | CAR.T(N.Europe) | CAR.T(C.Europe) | CAR.T(E.Europe) |
| | (1) | (2) | (3) | (4) |
| Cross-border | −0.008 | 0.040 | −0.002 | 0.026 |
| | (−0.505) | (1.107) | (−0.079) | (0.144) |
| Target Leverage | −0.068*** | −0.121* | 0.093** | 0.017 |
| | (−2.631) | (−1.890) | (2.251) | (0.112) |
| Cash Available | −0.003 | 0.006 | 0.010 | 0.020 |
| | (−0.495) | (0.345) | (0.961) | (0.298) |
| R&D Expense | −0.012 | −0.016 | −0.045** | −0.048 |
| | (−0.456) | (−0.429) | (−2.468) | (−0.260) |
| P/E | 0.0001 | 0.0002 | 0.0001 | −0.001 |
| | (1.075) | (1.554) | (0.627) | (−0.553) |
| M/B | 0.001 | 0.0004 | −0.0001 | 0.006 |
| | (0.522) | (0.269) | (−0.114) | (0.987) |
| Synergies | 0.022*** | 0.033** | −0.008 | −0.024 |
| | (2.721) | (2.592) | (−0.900) | (−0.310) |
| Acquirer mcap | 0.008 | −0.005 | 0.013 | −0.009 |
| | (1.538) | (−0.332) | (1.482) | (−0.227) |
| Target mcap | 0.001 | −0.026 | −0.010 | −0.053 |
| | (0.151) | (−1.199) | (−0.912) | (−1.831) |
| Relative Size | 0.0005 | −0.0002 | 0.00000 | −0.009 |
| | (0.631) | (−0.720) | (0.526) | (−0.236) |
| Relative Deal Size | 0.003 | 0.008 | 0.017*** | 0.082 |
| | (0.276) | (0.867) | (2.749) | (0.572) |
| Same Industry | −0.011 | −0.040 | 0.048* | 0.055 |
| | (−0.630) | (−1.057) | (1.834) | (0.342) |
| Tender Offer | 0.043** | 0.108*** | 0.057** | 0.005 |
| | (2.392) | (3.104) | (2.481) | (0.042) |
| Cash | −0.022 | 0.021 | 0.020 | 0.022 |
| | (−1.077) | (0.465) | (0.596) | (0.083) |
| Hostile | 0.001 | −0.002 | −0.036 | −0.031 |
| | (0.073) | (−0.038) | (−1.299) | (−0.278) |
| Industry FE | Yes | Yes | Yes | Yes |
| Years FE | Yes | Yes | Yes | Yes |
| Constant | 0.038 | 0.428** | 0.040 | −0.001 |
| | (0.332) | (2.092) | (0.207) | (−0.006) |
| Observations | 254 | 215 | 276 | 30 |
| $R^2$ | 0.230 | 0.230 | 0.283 | 0.755 |
| Adjusted $R^2$ | 0.073 | 0.041 | 0.150 | −0.186 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

**Table A23:** Regression with covariables.
The logit regression below displays the coefficients for the covariates and the t-stat for those variables. The dependent variable is the cross-border dummy. We add fixed effect of Years to the model. For a detailed explanation of the independent variables used in the regression, see appendix Table A14.

| | *Dependent variable:* |
|---|---|
| | Cross-border |
| Same Industry | 0.293** |
| | (0.133) |
| Deal value | 0.271*** |
| | (0.075) |
| Relative size | −0.015 |
| | (0.016) |
| Years FE | Yes |
| Constant | −14.554 |
| | (372.546) |
| Observations | 1,321 |
| Log Likelihood | −830.553 |
| Akaike Inf. Crit. | 1,705.107 |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 |

**Table A24:** Regression for cross-border effect - large version.

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | CAR Target | | | |
| | (1) | (2) | (3) | (4) |
| Cross-border | | 0.021** | 0.058** | 0.080* |
| | | (1.969) | (2.064) | (1.814) |
| Target Leverage | −0.027 | −0.026 | −0.028 | −0.028 |
| | (−1.488) | (−1.446) | (−1.544) | (−1.537) |
| Cash Available | 0.005 | 0.004 | 0.004 | 0.004 |
| | (1.133) | (0.944) | (1.008) | (0.920) |
| R&D Expense | −0.022** | −0.021** | −0.022** | −0.014 |
| | (−2.305) | (−2.264) | (−2.335) | (−1.179) |
| P/E | −0.00003 | −0.00003 | −0.00003 | −0.00003 |
| | (−0.713) | (−0.651) | (−0.592) | (−0.552) |
| M/B | −0.0001 | −0.0001 | −0.0001 | −0.0001 |
| | (−0.316) | (−0.329) | (−0.366) | (−0.284) |
| Synergies | −0.003 | −0.003 | −0.004 | −0.004 |
| | (−0.745) | (−0.842) | (−0.989) | (−1.074) |
| Acquirer mcap | 0.009** | 0.009** | 0.014*** | 0.014*** |
| | (2.230) | (2.098) | (2.611) | (2.701) |
| Target mcap | −0.011** | −0.011** | −0.010 | −0.011* |
| | (−2.099) | (−2.142) | (−1.486) | (−1.674) |
| Relative Size | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.197) | (0.228) | (0.321) | (0.396) |
| Relative Deal Size | 0.020*** | 0.020*** | 0.016*** | 0.017*** |
| | (5.324) | (5.320) | (4.040) | (4.045) |
| Same Industry | 0.012 | 0.010 | 0.009 | 0.025* |
| | (1.087) | (0.866) | (0.848) | (1.842) |
| Tender Offer | 0.058*** | 0.058*** | 0.057*** | 0.052*** |
| | (5.424) | (5.465) | (5.314) | (3.988) |
| Cash | 0.026** | 0.021 | 0.020 | 0.021 |
| | (2.060) | (1.611) | (1.614) | (1.490) |
| Hostile | −0.012 | −0.012 | −0.010 | −0.009 |
| | (−0.862) | (−0.911) | (−0.765) | (−0.645) |
| Cross * Relative Deal Size | | | 0.024** | 0.024** |
| | | | (2.560) | (2.428) |
| Cross * Acquirer mcap | | | −0.014* | −0.014* |
| | | | (−1.749) | (−1.831) |
| Cross * Target mcap | | | −0.004 | −0.002 |
| | | | (−0.444) | (−0.161) |
| Cross * Cash | | | | 0.003 |
| | | | | (0.099) |
| Cross * Same Industry | | | | −0.046** |
| | | | | (−1.973) |
| Cross * Tender Offer | | | | 0.016 |
| | | | | (0.718) |
| Cross * R&D Expense | | | | −0.016 |
| | | | | (−0.851) |
| Regions FE | Yes | Yes | Yes | Yes |
| Industry FE | Yes | Yes | Yes | Yes |
| Years FE | Yes | Yes | Yes | Yes |
| Constant | 0.049 | 0.055 | 0.045 | 0.031 |
| | (0.385) | (0.432) | (0.353) | (0.246) |
| Observations | 1,321 | 1,321 | 1,321 | 1,321 |
| $R^2$ | 0.135 | 0.137 | 0.145 | 0.148 |
| Adjusted $R^2$ | 0.106 | 0.108 | 0.114 | 0.115 |
| *Note:* | | | | *p<0.1; **p<0.05; ***p<0.01 |