

Universidade do Minho

School of Economics and Management

Master in Finance

Lucas Leite Lucciola do Valle

PG 34387

Research Title:

Cross-border M&As: The effect of the method of payment and relative size on target's return

Supervisor:

Prof. Artur Rodrigues

DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS

Este é um trabalho académico que pode ser utilizado por terceiros desde que respeitadas as regras e boas práticas internacionalmente aceites, no que concerne aos direitos de autor e direitos conexos.

Assim, o presente trabalho pode ser utilizado nos termos previstos na licença abaixo indicada. Caso o utilizador necessite de permissão para poder fazer um uso do trabalho em condições não previstas no licenciamento indicado, deverá contactar o autor, através do RepositóriUM da Universidade do Minho.



Atribuição-NãoComercial
CC BY-NC

<https://creativecommons.org/licenses/by-nc/4.0/>

Acknowledgments

I would like to offer my heartfelt gratitude to Prof. Artur Rodrigues, my dissertation supervisor, for challenging, encouraging, and inspiring me to complete this project. I appreciate your assistance and patience in dealing with all the issues that arose during the production process. This task could not have been performed without it.

I would like to express my sincere thanks to all professors from the master's in finance, who were fundamental towards increasing my knowledge and always helpful whenever needed. I am grateful to all the lecturers throughout this excellent two-year program.

My special thanks also go to every friend and colleague I have encountered during the course that helped me not only in this course but also in my adaptation to Portugal and made everything so much smoother.

I would like to also express my gratitude to my family, mother Rita, and father Adriano, for always encouraging and supporting me to pursue this degree. I would also thank my wife, Larissa, for always being on my side and supporting me during this degree.



STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.



RESUMO

O objectivo deste trabalho é analisar o impacto do meio de pagamento, bem como a relação de tamanho entre as empresas em transações de fusões e aquisições entre empresas de diferentes países e seus retornos. Esse trabalho utilizou uma base de dados de em média 3.000 transações de fusões e aquisições para o período que vai de janeiro de 2015 a dezembro de 2020 focada no retorno médio acumulado da empresa adquirida. Para realizar as análises em questão foi utilizada a metodologia de estudo de evento. Os resultados demonstram claramente a influência dessas variáveis, mas mostra também que ainda há muito espaço para discussão sobre esse assunto.

Palavras-chave: estudo de evento, fusões e aquisições, cross-border, meios de pagamento, tamanho relativo.



ABSTRACT

The goal of this thesis is to analyze the impact of the payment method, as well as the relative size of firms in cross-border merger and acquisition and their returns. This study uses a sample of around 3,000 merger and acquisition transactions for the period from January 2015 to December 2020. The event study methodology was used to carry out the analysis focusing on the target's cumulative average abnormal return. The results demonstrate the influence of these variables, but also show that there is still much room for discussion on this subject.

Keywords: event study, merger, and acquisition, cross-border, means of payment, relative size.



Summary

<i>1. Introduction</i>	7
<i>1.1 Goals</i>	7
<i>1.2 Hypotheses</i>	8
<i>2. Literature Review</i>	8
<i>2.1 Cross-border M&A</i>	8
<i>2.2. Determinants of the M&A gains</i>	9
<i>2.2.1 Means of payment</i>	9
<i>2.2.2. Relative size</i>	11
<i>3. Methodology</i>	12
<i>4. Data and Results</i>	14
<i>4.1. Data collection</i>	14
<i>4.2. Cumulative Abnormal Return (CAR)</i>	15
<i>4.3. Determinants of the Merges and Acquisition</i>	17
<i>4.4. Results and Analysis</i>	18
4.4.1. Relative size	21
4.4.2. Means of payment.....	21
<i>5. Conclusion</i>	22
<i>6. References</i>	24



1. Introduction

The integration of global markets has grown substantially during the last several decades. Product and capital markets are more intertwined, new markets are forming, and globalization is a key strategic concern for organizations (Schlingemann & Moeller, 2002).

Mergers and acquisitions (M&A) are frequent strategies employed by businesses to expand their operations. Over the last century, research on mergers and acquisitions has revealed a great deal about their tendencies and characteristics. A plethora of event studies, for example, have shown that mergers appear to produce shareholder value, with the majority of the profits coming to the target business. (Andrade and Mitchell, 2001).

According to certain studies, mergers and acquisitions may produce synergy benefits by cutting costs through economies of scale, implementing more efficient technologies, and integrating administration and research and development facilities (Chakrabarti, 2008; Kale, 2009; Zhu & Malhotra, 2008).

Due to globalization and privatization initiatives, waves of mergers originating in developed economies have engulfed developing economies. This phase has markedly increased the number of M&A transactions between borders across the world, especially since 2000 (UNCTAD, 2000).

With this large increase in the number of transactions, Merge and Acquisitions became more and more frequent, and so the importance of understanding these transactions for companies to take the best possible decisions (Feito-Ruiz & Menéndez-Requejo, 2011).

1.1 Goals

This study aims to contribute on understand and compare relevant characteristics of a cross-border M&A, focusing on analyzing specifically two variables, the mean of payment and the relative size. It takes the mean of payment as one of its main variables to understand its influence on cross-border deals. In addition to that, it takes the relative size holding the other variables constant to understand whether it has a positive or negative influence on cross-border deals. To summarize the focus of this study, we divided it into two hypotheses that will be tested throughout the course of this study.



1.2 Hypotheses

Hypothesis 1: On cross-border M&As, targets have higher returns when the method of payment is cash.

Hypothesis 2: On cross-border M&As, targets have higher returns when there is a small relative size between the two firms.

2. Literature Review

2.1 Cross-border M&A

The volume of cross-border acquisitions has been growing worldwide, from 23% of total merger volume in 1998 to 45% in 2007 (Erel et al., 2012). Cross-border mergers happen for the same reasons that domestic mergers do: two companies will merge if their combination adds value (or usefulness) in the eyes of the company's managers (Erel et al., 2012).

Cross-border M&A is a method of swiftly entering new markets. Companies interested in pursuing this strategy must examine the upside gain as well as the potential risk of these initiatives when compared to greenfield investments. A greenfield investment often gives a high amount of control over resources, knowledge, and revenue. On the other side, this type of investment is likely to be costly (Brouthers & Brouthers, 2000). Acquisitions have proved to be more effective and cost less than Greenfield initiatives because of the significant demand for expatriate staff, reliance on the headquarters, facility expenditures, and so forth. (Hanzing, 2002).

Several factors at various levels may influence firms to enter a foreign market such as firm, industry, and country level. Regarding firms, it was identified determinants such as multinational, local experience (Hanzing, 2002) and product diversification (Brouthers & Brouthers, 2000). Kogut and Singh (1988) argued that studies have concluded that low home-host cultural distance increases the likelihood of performing M&A operations, in the same way as low uncertainty avoidance in the home country.

In addition, frictions such as transaction costs, information asymmetries, and agency conflicts can prevent efficient transfers of control (Rossi & Volpin, 2004). Moreover, studies on corporate governance employ measures of the quality of the legal and regulatory environment within a country as proxies for some of these frictions and show that differences in laws, regulation, and



enforcement correlate with the development of capital markets, the ownership structure of firms, and the cost of capital (see, e.g., La Porta et al., 1997, 1998; Bhattacharya and Daouk, 2002).

Also, currency movements are determinants of cross-border deals. Countries whose currencies have appreciated are more likely to have acquiring firms while countries whose currencies have been in fall are more likely to have target firms. Short-term changes between two nations' currencies boost the likelihood that firms in the country with the appreciating currency purchase firms in the country with the depreciating currency, according to studies that control for these overall temporal patterns econometrically (Erel et al., 2012).

Further than that, studies also indicate that the relative stock market performance between two countries affects the tendency of firms in these countries to merge. Meaning that the higher the difference in stock market performance between the two countries, most likely the stock market that is performing the best will acquire firms in the worse performing country (Erel et al., 2012).

Furthermore, based on Wang and Xie (2009), in a merger or acquisition (M&A) that is accompanied by a change in control the stronger the acquirer's shareholder rights relative to the target's, the higher the acquisition synergy, *ceteris paribus*.

All in all, Cross-border mergers and acquisitions are a critical strategic effort encompassing several problems in the global economy. Although previous research has revealed significant results, it has not kept up with the growing globalization and popularity of these multinational methods. This field of study still requires more theoretical and empirical research (Shimizu et al., 2004).

2.2. Determinants of the M&A gains

Several variables may influence the gain's distribution of bidders and targets in a merger and acquisition operation. In this study, we focus on the means of payment and the relative size. Further than that, we also use control variables so we can provide more information to our model and understand its influence.

2.2.1 Means of payment

On domestic takeovers, where firms have a choice whether to pay in cash or equity, the form of payment usually is believed to have a strong signaling element. Cross-border transactions may



have weakened or non-existent signaling effects because foreign shareholders are less inclined to accept the bidder's shares as payment (Schlingemann & Moeller, 2002).

Decisions on payment methods are more complicated in cross-border purchases due to the unpredictability of working with a target in a foreign market (i.e. cash vs. stock). Therefore it may need further considerations (Dutta, Saadi, & Zhu, 2013).

Some may argue in favor of cash deals since investors generally have a “home country bias” in their portfolio decisions (Faccio & Masulis, 2005). Schwert, (1996), Franks and Harris, (1989), find that all-cash bids are more profitable for target shareholders than are all-equity ones.

Furthermore, Franks et al., (1991), Andrade et al., (2001), Goergen and Renneboog, (2004) argue that even within each takeover type subsample (mergers, friendly acquisitions, and tender offers), there is evidence that all-equity bids trigger lower target returns than all-cash bids.

Based on Martynova and Renneboog, (2008), researchers in the United States generally agree that the announcements of all equity-financed acquisitions are associated with considerably negative anomalous returns on the bidders' shares, and that these takeovers underperform all-cash offers. However, European studies provide different conclusions: equity-financed takeovers result in positive and sometimes significant returns to the bidder.

Also, in cross-border acquisitions, acceptance of stock payments by the foreign shareholders may send a signal to the market that the acquirer's stock has high liquidity and intrinsic value (Dutta, Saadi, & Zhu, 2013).

Studies performed within continental Europe and the UK suggest that the means of payment influence differently domestic and cross-border acquisitions. It was discovered that when targets are located in Continental Europe, international bidders are more than willing to pay in cash. European bidders acquiring enterprises in the United Kingdom or Ireland, on the other hand, are more likely to employ equity (Mateev & Andonov, 2016).

Mateev & Andonov, (2016) also states that there is no supportive evidence that the probability of an all-cash bid decreases with the degree of investor protection in the acquirer country. Instead, important bid and firm characteristics such as the relative size of the target to the bidder,



the equity stake acquired in the target company, and the historical financial performance of the bidding firm do play an important role in explaining the managers' financing decision

In addition, cash offers have tax consequences for target business investors, but they also enable acquiring corporations to enhance the depreciation base of bought assets to market value. Capital gains achieved by the target firm's stockholders are deferred until the stock is sold, but the depreciation basis of bought assets stays unchanged. (Travlos, 1987).

On the other hand, there is empirical evidence that suggests that acquirers lose from shares exchange because it signals overvaluation of acquirers' stock or uncertainty over the true value of the target (Gregory & O'donohoe, 2014). Gregory and O'Donohoe, (2014), also mentions that returns for cross-borders targets are higher when shares are not part of the payment

Schlingemann & Moeller (2002) found that the form of payment has different effects on returns for bidders engaged in cross-border transactions than for bidders engaged in domestic transactions.

M&As announcement tends to push investors to re-evaluate the firms and update their value. Value-added information such as the form of bid, whether it is cross-border or not, means of payment, etc. as well as the sources of financing might indicate the quality of the takeover and price bidder and target accordingly (Martynova and Renneboog, 2009).

Generally, equity-financed takeovers are expected to trigger lower returns to the bidder's shareholders. The may explanation is that the market considers that the bidder is overpriced and hence adjust the share price downwards accordingly (Myers and Majiluf, 1984).

Also, prior research, such as Martynova and Renneboog (2006) analyzed the market reactions to different types of takeovers (hostile vs. friendly, tender offer vs. negotiated M&A), and find that for all these types there is a positive increase in the target share price at the bid announcement.

2.2.2. Relative size

The relative size of the company is also a variable that may influence a cross-border M&A. The larger the target firm, the more information there will be on it, as well as fewer adverse selection problems when valuing it (Asquith, Bruner, & Mullins, 1983; Conn et al., 2005; Fuller et al., 2002). On the other hand, it may lead to higher integration costs between the two firms (Agrawal, Jaffe, & Mandelker, 1992; Beitel et al., 2004).



The likelihood of success of product or market extension M&As depends on the relative size of the merging firms and the experience of the acquired firm in M&As. For example, large firms such as GE acquire many relatively small firms, thereby increasing their chances of subsequent successful mergers (Aguilera & Dencker, 2004).

In the literature, relative size can be found with different definitions such as the transaction value divided by the equity market capitalization of the acquirer at the end of the fiscal year before the acquisition announcement (Moeller, Schlingemann, & Stulz, 2004).

Asquith, Bruner & Mullins (1983) describe the relative size as the market value of the target's firm equity divided by the market value of bidding's firm equity which is the one that will be used for this study.

Usually, to define whether the relative size is small or large is taken the sample and calculated as the median of the relative size. For values above the median, the relative size will be considered small and for values below the median, the relative size is considered large.

3. Methodology

The event study approach has emerged as the most popular method for determining gain distributions among bidders and targets in Mergers and Acquisitions deals. This approach is often used to determine the influence of a certain item in an event over a specified time period. This will also be the approach employed in this study, which will be detailed in this section.

The event study has a lot of different applications. In the accounting and finance field, event studies have been applied to a variety of firm-specific and economy-wide events. Some examples include mergers and acquisitions, earnings announcements, issues of new debt or equity, and announcements of macro-economic variables (MacKinlay & A. C.,1997).

The first step in conducting an event study is to define the event of interest and determine the time frame during which the securities prices of the enterprises participating in the event will be analyzed in the event window (MacKinlay & A. C.,1997).

Also, it is important to define all the criteria that will be applied to the data to be analyzed.

The appraisal of the event's impact requires a measure of the abnormal return. The abnormal return is the actual ex-post return of the security over the event window minus the normal return



of the firm over the event window. The normal return is defined as the expected return without conditioning on the event taking place. For firm i and event date t the abnormal return is:

Equation 1 - Abnormal Return Equation

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}|X_{\tau})$$

where AR , $R_{i\tau}$, and $E(R_{i\tau}|X_{\tau})$ are the abnormal, actual, and normal returns respectively for time-period t . X_{τ} is the conditioning information for the normal return mode (MacKinlay & A. C., 1997).

Based on this data, it is possible to calculate the cumulative abnormal return, which can be explained in the following equation:

Equation 2 - Cumulative Abnormal Return Equation

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau = \tau_1}^{\tau_2} AR_{i\tau}$$

Based on the cumulative abnormal return, in this study, of the target, it is possible to according to each company and date, run regressions, and come up with the coefficients and other statical results which can be used to support a hypothesis or even prove that they cannot be accepted.

At the end of this methodology, the goal is to understand the impact of an event in the return over a time period, the so-called event window, and understand, based on changes after the event date (in this case, announcement of the M&A) whether that event positively or negatively impacts on the stock return.

As already mentioned, the main tool for this research was the event study methodology, which was performed specifically following the steps below.

1. Obtain the announcement dates from SDC's Mergers & Acquisitions database.
2. Measure the portfolio abnormal returns by market-model adjusted returns around initial acquisition announcements.



3. Use the DataStream value-weighted return as the market return and estimate the market model parameters over the period from event day -30 to event day -11, where event day 0 is the acquisition announcement date.

After performing the above procedure, we were able to compute the cumulative abnormal returns for different event windows. In this study, we calculated the cumulative abnormal return for 5 days [-2, +2], 7 days [-3,+3], 11 days [-5,+5] and 40 days [-30,+9].

After computing the cumulative abnormal return (CAR) and the cumulative average abnormal return (CAAR) of the target, the study moved forward with the Ordinary least squares (OLS) regression, which is a statistical method of analysis that estimates the relationship between one or more independent variables and a dependent variable, where it was tested the 2 hypotheses of this study. We ran a regression with the CAR as the dependent variable and among others, the two variables of interest of this study, Mean of Payment and Relative Size. In tables 4 and 5 in the Data and Results section, there is a summary of the analyzed variables and their comparison.

4. Data and Results

4.1. Data collection

Data related to M&A variables were extracted from SDC Platinum and market data was extracted from DataStream and WORLDSCOPE. For the sake of the study, after extracting the data, to better analyze the returns and reduce the risk of outliers, this study was based on the TOP 10 target nations with higher M&A activity within the last ten years as shown on the below table.

The following criteria were also applied:

- All acquisitions must be completed.
- Transactions with insufficient data in the period covered by the analysis were excluded.
- After the transaction, the bidder should have < 50% of the company and > 50% before.

Table 1 - TOP 10 Nations with Higher M&A Activity

Target Nations	Quantity of M&A
----------------	-----------------



United States	16745
China	15317
South Korea	5209
Japan	4609
United Kingdom	3953
Canada	3118
Australia	2992
France	2590
India	2125
Hong Kong	1865

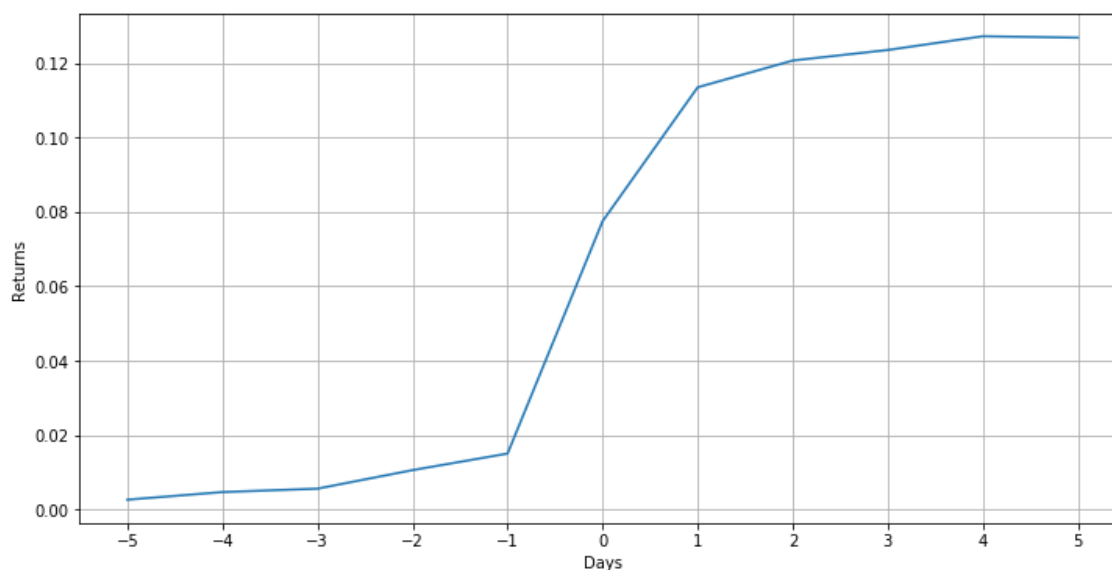
After cleaning up, filtering all the data and removing outliers so at the end we can rely on firms that we have enough consistent data for all the years without gaps, we ended up with 3110 firms within those countries to perform this study.

4.2. Cumulative Abnormal Return (CAR)

After cleaning and gathering all the data, it was computed the abnormal return of the target for those 3110 firms and based on that the CAR. The results follow a usual trend if compared to other studies such as Wang (2008), where we can see a continuous increase of the CAAR (cumulative average abnormal return) from the day 0 onwards, where the day 0 is the announcement date of the M&A for a 11 -days event window, as observed in Figure 1.



Figure 1 - [-5;+5] event window



On the 11-day event window, we can clearly see the spike from day -1 to day 2, and then the curve starts flattening as the effects of the announcement start to decrease over time. This is an expected behavior and already mentioned on the literature.

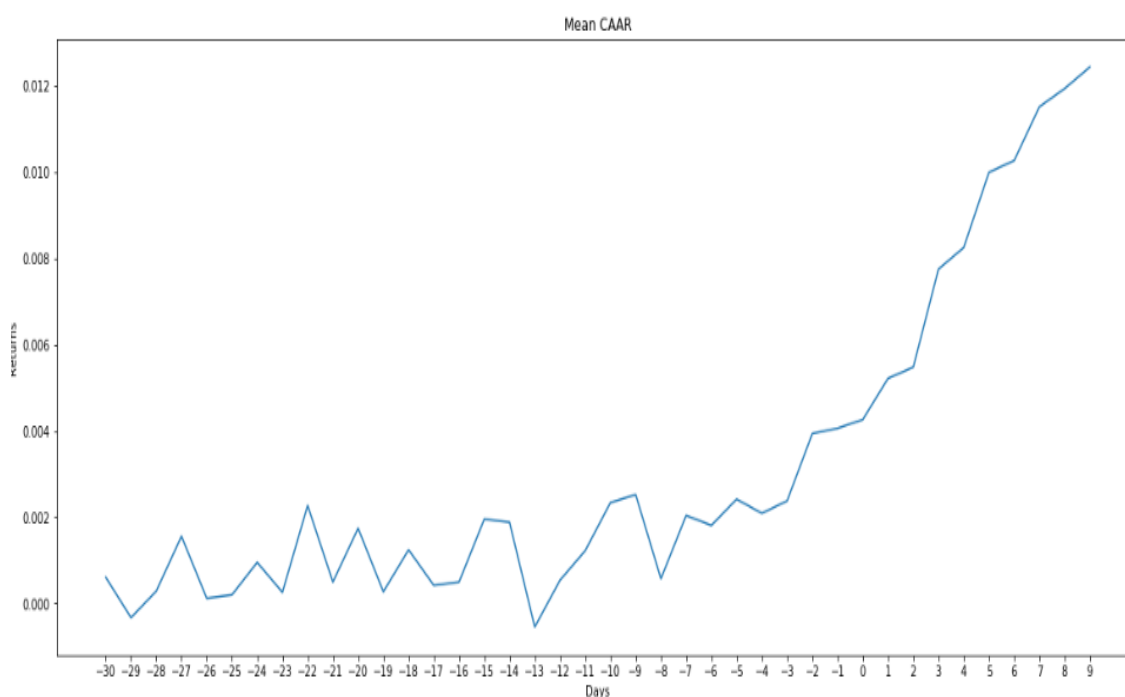
On the following table, we computed the p value and the percentual change for the CAAR over the event window where we can confirm that it is statistically significant by looking at the p-value and how it changes over time and the highest percentual change on day 0.

Table 2 - Statistics and Percentual change CAAR

Day	CAAR	Percentual change	P-Value
-5	0,002611	-	0,005161
-4	0,004655	43,91%	0,005171
-3	0,005574	16,49%	0,005079
-2	0,010562	47,23%	0,005273
-1	0,015015	29,66%	0,005287
0	0,077546	80,64%	0,006074
1	0,113554	31,71%	0,005859
2	0,120759	5,97%	0,005322
3	0,123596	2,30%	0,005215
4	0,127294	2,91%	0,005269
5	0,126909	-0,30%	0,004968



Figure 2 - [-30;+9] event window



In addition, in Figure 2, we can observe the graph from -30 to the 9th day after the announcement. With this larger graph, it is simple to comprehend the influence of the news on the CAAR a few days after the announcement and understand how it looks like 30 days before to the announcement. As we already have seen in the previous graph, the CAAR had a surge on the day 0 and it keeps rising till the day 9 as there is still impact from the transaction.

4.3. Determinants of the Merges and Acquisition

To perform this study, it was used some control variables, as listed in the below table. Those variables have the aim to make the study more accurate and the regression more reliable.

Table 3 - Computed Control Variables

Variable	Relation
ROA_MV	NET INC BEFORE EXTRA/PFD DIVS/ (TOTAL SHAREHOLDERS EQUITY. TOTAL ASSETS)



BTM	COMMON SHAREHOLDERS' EQUITY/TOTAL SHAREHOLDERS EQUITY
Log_Cash	LOG CASH
Log_Sales	LOG SALES
Leverage	TOTAL DEBT / (TOTAL SHAREHOLDERS EQUITY . TOTAL ASSETS)
Relative Size	Market value of Total assets of the Target / Market value of Total assets of the Bidder

4.4. Results and Analysis

On this study, we used the control variables, previously described as the independent variables, and the CAR as our dependent variable. The aim was to try to understand the dependency of the CAR in relation to the other variables, but mainly with the mean of payment and the relative size, which is the aim of this study and verify whether those two variables have influence on the event and if they affect it according to our hypotheses.

Below, we can see the coefficients for each of those variables we analyzed.

Table 4 - Statistical results of the regression

Variable	Coefficients	std err	t	P> t
Industry Match	-0.0508	0.012	-4.368	0.000
All cash	-0.0214	0.011	-1.913	0.050



Constant	0.3369	0.012	28.577	0.000
ROA MV	0.6372	0.557	1.145	0.252
BTM	-0.0944	0.026	-3.633	0.000
log_casht (target)	0.0118	0.016	30.231	4.023
log_cashb (bidder)	0.0356	0.011	-6.384	5.025
log_salest (target)	-0.0179	0.004	-4.354	0.000
log_salesb (bidder)	0.0235	0.002	-3.371	0.001
Leverage	-0.0380	0.001	-0.221	0.825
RelSize	-0.0124	0.001	4.578	0.000

As a result of the OLS regression performed based on the CAR for the 11-day event window, [-5, +5] and 3110 observations we had the above results. Based on those results, we could analyze the impact of those variables in the CAR. Therefore, we can point whether it influences or not by analyzing the $P > |t|$.

We have two dummy variables in this study, of which one of those variables is the focus of this study. One is the All cash, which is 1 for 100% payment with cash and 0 for less than 100% payment with cash. Also, as part of our control variables, there is the so-called 'industry match', which is 1 if the industry is the same on both target and acquirer and 0 if the industry isn't the same.

For the sake of the study, we will only go through the control variables apart from the main ones that have an influence on the CAR which are: ROA, log_sales, BTM, and industry match, based on their $P > |t|$.

Based on variables and coefficients, which is a summary of the results, we can see that one of the main variables of this study has an influence on the CAR and therefore we can accept this hypothesis proposed by this model which will be discussed in detail. Further than that, the Relative Size (RS) has shown a negative impact on the CAR, since it tends to decrease the CAAR



as higher as it is, meaning that the relative size between the bidder and target has an influence on the deal and that as closest it is, higher will be the CAR. In the next section, was analyzed each variable and tried to understand its influence on the CAR based on the output from the OLS regression. All the variables that will be listed on the next section were used or calculated throughout the course of this research.

The *ROA*, *Return on asset*, is calculated based on other variables, which are net income, dividends, and total assets. Based on our results, for this specific model, ROA has no explanatory power for 0.05, but its coefficients indicate that as higher the ROA, the higher would be the return.

About the *BTM*, As previously shown, the book to market ratio, is a relation between the common shareholder's equity and total shareholder equity which means an indicator of the company's value. This variable does have explanatory power and a negative coefficient, which indicates that as higher the BTM, the lower will be the return. A high book to market ratio (>1) assumes that the company is undervalued and the opposite, overvalued. Managers may want to invest in stocks when it is undervalued, but based on our results, a highly undervalued company may have a higher negative interference than an overvalued company.

The *Industry Match* variable, as the name suggests, is a dummy variable that could be either 1 or 0, 1 if the industry from the acquirer and target is the same, and 0 if they are different.

As a result of our analysis, when industries are equal, the acquirer management may influence more on the decisions, since it will be the same industry and, on many times, since they will have more experience in that field and on many times try to change the culture of the new company, which at sometimes could seem like a hassle for the target. Based on our results, the industry has an influence on the acquisition.

The *leverage* is a relation between shareholders' debt and equity and total assets. Leverage is a strategy used where the company uses borrowed capital to invest in a project. A high leverage relation indicates that the company has a lot of debt, which of course acquirers are not willing to take over and will negatively impact the target's CAAR as it will reduce the target's value. However, in this study, leverage was revealed not to have explanatory power on the target's CAAR.



About the variables *Sales*, based on the results, both sales on target and bidder have explanatory power, which is expected once sales will affect directly its cash flow and therefore influences in the M&A. However, we can see that on each side it has different coefficients, on one side it is negative and on the other side, it is positive. This can be explained since if the target has a low sale, it may lead to uncertainty about their product and therefore whether this is a reliable acquisition and will add value to the investors. The results indicate that as higher the sales are on the target side, it will influence negatively on the stock return since there will be a lack of confidence whether the new company will keep up with the sales.

4.4.1. Relative size

Most of the studies state that the relative size influences the M&A, which means that the difference in size between the bidder and the target will impact the in a merger and acquisition transaction. The acquisition of a relatively large target is likely to be a more important economic event for the acquirer than is the acquisition of a relatively small target. Thus, if the post-merger underperformance reflects the impact of the merger, underperformance should be greater when the target is relatively large (Agrawal et al., 1992).

In this study, we tested it for cross-border M&As and the outcome goes in the same direction as the literature, where regression analysis indicates that the relationship between the bidding firm's cumulative return and the relative size of the target firm's equity is positive and statistically significant. It means that as higher is the size of the target in relation to the bidder, will negatively impact in target's CAR.

4.4.2. Means of payment

Most of the deals were in cash, around 75% of the completed deals. This higher number of cash deals shows that the managers of acquirers' firms believe that the target companies are highly undervalued, otherwise they would opt for equity instead of cash. It is also important to consider that all the deals analyzed were cross-border deals.

This trust that other companies put in acquiring a new firm, plus with cash, flag the company as undervalued and so the market tends to start buying stocks from that company – which leads to a surge in the stock price in the upcoming days.



Even though in theory it seems easy to understand, when we start adding data often researchers have different outputs depending on the scenario, kind of M&A, industries, and so on. In this study, we can clearly see based on the coefficients and estimates that the mean of payment influences the returns.

This is still an ongoing study that there is not much information available yet and with the advance of technology, it is becoming easier to generate more accurate models and be able to understand better this relation between the mean of payment and the stock return.

5. Conclusion

This study tried to answer two questions: Whether cross-borders M&As with cash payments, targets capture a higher fraction of the synergies, and if cross-borders M&As, targets capture a higher fraction of the synergies when there is a small relative size between the two firms.

To answer these questions, it was used the event study methodology, where we assessed around 10 years of data related to mergers and acquisitions transactions. After cleaning up everything, we ended up with around 3 thousand different transactions and 5 years of data, from 2015 till the end of 2020. Also, we limited our study to the countries with higher M&A activities, as targets as shown in Table 1, which is one of the limitations of this study.

In the first part of this study, we calculated the abnormal return and compared it to the actual return to understand whether we can see an impact from the M&A announcements on the stock price. As shown in Figure 1, stock prices rise exponentially after the announcement, which is expected based on the literature we've previously discussed in the first section of this study. Following that, we took the cumulative abnormal return and used it to run an OLS regression with various distinct factors, including means of payment and relative size, which were the subject of this work.

Based on the OLS regression and its results, we can see that based on the t-test versus p-values for 5% acceptance, we can accept the hypothesis that cross-borders Merge and Acquisition with cash payments, targets capture a higher fraction then with others means of payments.

In addition, different studies agree that the mean of payment has a strong impact on Merge and Acquisition transactions, and others don't, which leads us to room for some further research on



this subject as based on our best knowledge, the mean of payment is a relatively recent variable of interest within the researchers.

From a different perspective, it is easy to see that the means of payment has its impact, as firms tend to acquire under-evaluated firms and managers do not want to trade in stocks as they believe that the acquisition will push the value of the target firm up. Another matter to bear in mind for the result we got, is that the transactions, around 75% of them, were done in cash, which impacts our sample and makes it harder from a statistics point of view to understand its impact on the target's CAR.

Based on our coefficients, it is also possible to affirm, according also to the literature, that as higher is the relative size, negative will be the impact on the target's CAR, meaning that the larger the target is in comparison to the bidder, the lower the target's CAR will be, meaning that we can also accept the second hypothesis, that on cross-borders M&As with cash payments, targets capture a higher fraction of the synergies when there is a small relative size between the two firms.



6. References

- A. Agrawal, J. Jaffe and G. (1992). The post-merger performance of acquiring firms: A re-examination of an anomaly. *The Journal of Finance*, 47(4), 1605–1621.
- Andrade, Gregor, Mark Mitchell, and Erik Stafford. (2001). "New Evidence and Perspectives on Mergers." *Journal of Economic Perspectives*, 15 (2): 103-120.
- Aguilera, R. V., & Dencker, J. C. (2004). The role of human resource management in cross-border mergers and acquisitions. *The International Journal of Human Resource Management*, 15(8), 1355–1370.
- Asquith, P., Bruner, R. F., & Mullins, D. W. (1983). The gains to bidding firms from merger. *Journal of Financial Economics*, 11(1-4), 121–139.
- Beitel, P., Schiereck, D., & Wahrenburg, M. (2004). Explaining M&A success in European banks. *European Financial Management*, 10(1), 109–139.
- Brouthers, K., & Brouthers, L. (2000). Acquisition or greenfield start-up? Institutional, cultural and transaction cost influences. *Strategic Management Journal*, 21(1): 89-97.
- Bhattacharya, U., Daouk, H., (2002). The world price of insider trading. *Journal of Finance* 57, 75–108.
- Conn, R. L., Cosh, A., Guest, P. M., & Hughes, A. (2005). The impact on UK acquirers of domestic, cross-border, public and private acquisitions. *Journal of Business Finance Accounting*, 32(5-6), 815–870.
- Dutta, S., Saadi, S., & Zhu, P. (2013). Does payment method matter in cross-border acquisitions? *International Review of Economics & Finance*, 25, 91-107.
- EREL, I., LIAO, R. C., & WEISBACH, M. S. (2012). Determinants of Cross-Border Mergers and Acquisitions. *The Journal of Finance*, 67(3), 1045–1082.
- Faccio, M., & Masulis, R. W. (2005). The Choice of Payment Method in European Mergers and Acquisitions. *The Journal of Finance*, 60(3), 1345-1388.
- Franks, J., Harris, R., Titman, S., 1991. The postmerger share-price performance of acquiring firms. *Journal of Finance and Economics*. 29, 81–96
- Fuller, K., Netter, J., & Stegemoller, M. (2002). What do returns to acquiring firms tell us? evidence from firms that make many acquisitions. *The Journal of Finance*, 57(4), 1763–1793.
- Goergen M., Renneboog, L., 2004. Shareholder wealth effects of european domestic and cross-border takeover bids. *Eur. Finan.Manage.* 10 (1), 9–45.
- Gregory, A., & O'donohoe, S. (2014). Do cross border and domestic acquisitions differ? Evidence from the acquisition of UK targets. *International Review of Financial Analysis*, 31, 61-69.
- Harzing, A.-W. (2002). Acquisitions versus greenfield investments: international strategy and management of entry modes. *Strategic Management Journal*, 23(3), 211–227.



- Isabel Feito-Ruiz, Susana Menéndez-Requejo, Cross-border Mergers and Acquisitions in different legal environments, *International Review of Law and Economics*, Volume 31, Issue 3, 2011, pp. 169-187.
- Kogut, B., & Singh, H. (1988). The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, 19(3), 411–432.
- Martynova, M., & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking & Finance*, 32(10), 2148–2177.
- Mateev, M., & Andonov, K. (2016). Do cross-border and domestic bidding firms perform differently? new evidence from continental Europe and the UK. *Research in International Business and Finance*, 37, 327–349.
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73(2), 201-228.
- Martynova, M., Renneboog, L., (2009). What determines the financing decision in corporate takeovers: Cost of capital, agency problems, or the means if payment? In: *Journal of corporate finance* 15 (2009), pp. 290-315.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
- Martynova, M., Renneboog, L., 2006. Mergers and acquisitions in Europe. In: Renneboog, L. (Ed.), *Advances in Corporate Finance and Asset Pricing*. Elsevier B.V., Amsterdam, pp. 15–76.
- MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, 35(1), 13–39.
- Zhu, P., & Malhotra, S. (2008). Announcement effect and price pressure: An empirical study of cross border acquisitions by Indian firms. *International Research Journal of Finance and Economics*, 13, 24–41.
- UNCTAD (2000). *World investment report: Cross-border mergers and acquisitions and development*. New York and Geneva: United Nations Publications.
- Rossi, S., & Volpin, P. F. (2004). Cross-country determinants of mergers and acquisitions. *Journal of Financial Economics*, 74(2), 277-304.
- Schlingemann, F. P., & Moeller, S. B. (2002). Are Cross-Border Acquisitions Different from Domestic Acquisitions? Evidence on Stock and Operating Performance for U.S. Acquirers. *SSRN Electronic Journal*.
- Schwert, G.W., 1996. Markup pricing in mergers and acquisitions. *Journal of Finance and Economics*. 41 (2), 153–162
- Shimizu, K., Hitt, M. A., Vaidyanath, D., & Pisano, V. (2004). Theoretical foundations of cross-border mergers and acquisitions: A Review of Current Research and recommendations for the future. *Journal of International Management*, 10(3), 307–353.
- Travlos, Nickolas. G. (1987). Corporate takeover bids, methods of payment, and bidding firms' stock returns. *The Journal of Finance*, 42(4), 943–963.



Wang, C. and Xie, F., (2009). Corporate Governance Transfer and Synergistic Gains from Mergers and Acquisitions. *Review of Financial Studies*, 22(2), pp.829-858.

Wang, C., & Xie, F. (2008). Corporate governance transfer and synergistic gains from mergers and acquisitions. *Review of Financial Studies*, 22(2), 829–858.

