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The impact of currency shocks on cross-border M&As

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O impacto de choques da moeda em aquisições e fusões transfronteiriças

RESUMO

O objetivo desta dissertação é analisar como os choques de moeda influenciam as fusões e aquisições transfronteiriças. A amostra é composta por 21,734 fusões e aquisições, tanto domésticas como transfronteiriças, feitas por empresas dos Estados Unidos, entre 2007 e 2017. O estudo examina se os adquirentes dos EUA tiram proveito de depreciações em moeda estrangeira para se envolver em mais fusões e aquisições em países estrangeiros. Os resultados indicam que, em média, isto não acontece. Com exceção do Brasil, não há evidências de que os adquirentes dos EUA adquiram mais empresas de países que sofreram um choque monetário negativo. No entanto, uma distância cultural maior diminui o volume de fusões e aquisições transfronteiriças quando acontece depreciação monetária. Os resultados também mostram que os compradores norte-americanos não se aproveitam das depreciações em moeda estrangeira para expandir os seus negócios para outras indústrias. Por fim, numa depreciação monetária, as empresas norte-americanas, ricas em dinheiro, aproveitam para comprar mais do que as empresas que não o são em aquisições internacionais.

Palavras-chave: aquisições de empresas em indústrias diferentes, depreciações de moeda, empresas ricas em dinheiro, fusões e aquisições

The impact of currency shocks on cross-border M&As

ABSTRACT

The purpose of this dissertation is to analyse how currency shocks influence cross-border Mergers and Acquisitions. The sample is composed of 21,734 domestic and cross-border M&A deals made by US acquirers between 2007 and 2017. The study examines whether US acquirers take advantage of foreign currency depreciations to engage in more M&As in foreign countries. The results indicate that, on average, this is not the case. Except for Brazil, there is no evidence that US bidders acquire more targets from countries that have suffered a negative currency shock. Nevertheless, a greater cultural distance decreases the volume of cross-border M&As in a currency depreciation. The results also show that US acquirers do not take advantage of foreign currency depreciations to expand their businesses to other industries. Finally, in a currency depreciation, US cash-rich firms engage more than non-cash rich firms in cross-border acquisitions.

Keywords: conglomerate acquisitions, currency depreciations, cash-rich firms, M&As.

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1. INTRODUCTION

Mergers and acquisitions (M&As) from acquiring and target firms located in different countries are considered cross-border M&As. In the last decades the volume has grown considerably – from 23% of total merger volume to an impressive 45%. As Erel, Liao & Weisbach (2012) refer in their work, cross-border mergers occur for the same reasons as domestic ones – two firms, a target and an acquirer, will merge when in the perspective of the latter, their merger increases value.

The purpose of this dissertation is to analyse whether US firms engage in more cross-border acquisitions to take advantage of currency depreciations in other countries. Moreover, it aims at understanding the patterns of these acquisitions and how companies handle it – what changes when currency movements are considered. For instance, do firms engage in conglomerate M&As when a currency depreciation happens? Do cash-rich firms engage more in cross-border M&As than non-cash firms following a foreign depreciation? Do geographical and cultural proximity enhance the likelihood of cross-border M&As in the aftermath of a currency depreciation?

The determinants of Cross-Border Mergers and Acquisitions have been studied by some authors (Erel, Liao, & Weisbach, 2012). Some fundamental conclusions are found which are important for my starting point. Besides conclusions about mergers in countries with currency movements and differences in relative stock market, they also conclude that countries that are geographically closer have more chances to be involved in cross-border M&As. This finding is also supported by the results of another paper by Kedia & Panchapagesan (2004). For cultural proximity the findings from Ahren et al. (2015) shows that countries culturally distant experience smaller volume of cross-border M&As. I will examine the influence of geographic and cultural proximity in cross-border M&As across this dissertation.

Erel et al. (2012) also concludes that when the currency of a country depreciates the probability of a company from a foreign country acquire a company from this country is higher – this is because the assets in that country are relatively cheaper. Other studies were also essential to substantiate my research. Udomkerdmongkol, Morrisey, & Görg (2009) and Xing (2006) conclude that a devaluation in the currency of a country increases foreign direct investment as it lowers the cost of the investment.

Understanding the patterns and motivations of mergers and acquisitions between companies from different countries is an important study topic that only recently has attracted more attention from scholars and practitioners. I will focus in one important factor: the currency movements of the countries. Additionally, I will examine whether currency depreciations stimulate cross-border acquisitions within the same industry or in different industries. In other words, I will analyse if foreign bidders take advantage of a currency depreciation to consolidate a certain industry across countries or if they see it as an opportunity to diversify their businesses. Datta el al. (1992) suggest that non-conglomerate M&As are preferable for both acquirer and target; however Herger & McCorriston (2016) refer that conglomerate cross-border M&As are driven by financial arbitrage opportunities.

Harford (1999) find that cash-rich firms engage in more acquisitions than others. Pinkowitz, Sturgess, & Williamson (2013) find that cash-rich firms are 23% less likely to make cash bids. Following these findings tests about the method of payment of cash-rich firms in a currency depreciation are going to be undertaken. Additionally, I will compare if cash-rich firms engage more in cross-border M&As than non-cash rich firms in a period of a foreign depreciation.

In this study all M&A bidders are located in the United States. In other words when I am studying currency movements, I will test the foreign currency depreciation against the dollar.

Overall the results indicate that US acquirers do not take advantage of foreign currency depreciations to participate in in more cross-border M&As. Furthermore, there is no corroboration that, following a currency shock, bidders from the United States acquire more foreign targets, except for Brazil.

However, I find evidence that a greater cultural distance decreases the volume of M&As in a currency depreciation. Results for geographic distance were undertaken, with no statistically significative results. I also conclude that US bidders do not try to make conglomerate M&As in a currency shock, in an attempt of expanding their business.

US cash-rich firms do engage more than others in cross-border acquisitions following a depreciation although results for the method of payment of cash-rich firms in a currency depreciation are not statistically significative.

The remainder of this dissertation is organized as follows: In Section 2, *Literature Review,* I present and review relevant literature related to my main study topic; Section 3, *Hypotheses and*

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Methodology, describes the hypotheses that I pretend to test, the models and methods that are going to be used during my investigation; Section 4, *Data Description*, I will explain the steps that I did in order to collect my data and the descriptive statistics about the study sample; In Section 5 the results obtained are discussed and Section 6 provides the most important conclusion for my dissertation; It is followed by Section 7, *References*, and Section 8, *Appendix*, where the variables used are explained.

2. LITERATURE REVIEW

The theme Cross-Border Mergers and Acquisitions is a very important one in the financial world. Cross-border M&As is a type of foreign direct investment (FDI). In recent years this topic was heavily studied by various authors. Erel, Liao & Weisbach (2012) analyse the determinants of cross-border mergers and acquisitions. The authors use a sample of 56,978 M&As between 1990 and 2007. The study reveals that 80% of the deals made had targets that did not belong to United States and 75% of the acquirers were not from the United States. However, in a general context, 47% of all deals involved an American company as a target or acquirer; 97% of the deals contain a private company and in most of the cases it was the target. This is an important factor for my research – in a broad view I am going to examine 25% of all M&As.

A major factor determining the frequency of cross-border deals are currency movements – when the currency of a country depreciates, there are more foreign companies with the intention to buy companies from that country – this is because the assets of that country become relatively cheaper.

The effect of the currency movements will affect the propension of mergers and are indicative of a general effect of valuation where companies with higher value tend to buy companies with a lower value – a higher-valued acquirer will purchase a relatively cheaper target after these changes. There are two arguments behind this effect.

The first one is the misvaluation effect. Rhodes-Kropf, Robinson, & Viswanathan (2005) find evidence that misvaluation drives mergers: acquirers and targets share a common misvaluation component although the first ones are priced significantly higher, suggesting that overvalued bidders can create gains by using expensive stock to acquire less overvalued targets; they also find that misvaluation explained about 15% of M&As activity level. Shleifer & Vishny (2003) also show evidence in support of this argument – either overpricing of the acquiring firm or underpricing of the target firm could lead to a potentially profitable investment for the acquiring firm. In the same line Lin, Officer, & Shen (2014) find strong evidence that acquirers in large currency appreciation deals make cross-border acquisitions that create wealth for acquirers.

The second argument is the wealth effect of Froot & Stein (1991). Their research shows that firms from wealthier countries will tend to purchase companies from poorer countries due to a lower cost of capital when there is a depreciation of the domestic currency – this can lead to

foreign acquisitions of certain domestic assets. Erel, Liao, & Weisbach (2012) evaluate both explanations and find more support to the wealth explanation rather than the mispricing explanation.

Exchange rates play a significant role in the inflows of FDI in a country. Udomkerdmongkol, Morrisey, & Görg (2009) investigate the impact of exchange rates on US FDI for the period 1990-2002. One of the conclusions of the research paper is that a cheaper currency (devaluation) stimulates inward FDI – devaluation lowers the cost of investment to foreign countries, increasing foreign investment. Xing (2006) and Xing & Wan (2006) study the Chinese market, finding evidence that fluctuations of foreign direct investment in China over a certain period can be attributed to the fluctuation of the exchange rate, reaching the same conclusion as the previous paper. Georgopoulos (2008) also concludes that a real currency depreciation leads to an increase in the probability of a cross-border M&As, using evidence of Canadian firms, but only in high R&D intensive industries.

Erel et al. also concludes that (2012) the effect of currency movements on cross-border M&As is more pronounced when the firms are from countries that are geographically closer and/or when the acquiring firm's country is more developed (or exhibits better stock market performance) than that of the target firm. Overall, it is expected that, after a recent change in the relative valuation of two countries, cross-border M&A activity increases regardless of whether they occur through currency or stock price movements and regardless of whether they are temporary or permanent.

Erel et al. (2012) also analyse geography as an independent factor: the results show that the distance between countries is an important factor to have into count in cross-border M&As – the closer the countries, the higher is the probability for a company being part of a cross-border deal. In same line, Kedia & Panchapagesan (2004) also present a similar conclusion: local-firms (geographically closer) tend to be acquired leading to higher returns. They also find that information is key to superior performance of local acquirers.

Besides the geographic proximity between countries, the cultural proximity is another significant aspect to consider. Ahren, Daminelli, & Fracassi (2015) measure distance in cultural space, along three dimensions: trust vs distrust, hierarchy vs egalitarianism and individualism vs collectivism. The main conclusion of this paper is that the greater the cultural distance, the smaller the volume of M&As. In another study Aybar & Ficici (2009) find support of the negative impact of cultural proximity on cumulative abnormal returns.

Another important result of the work by Erel, Liao & Weisbach (2012) is that higher economic development and better accountant quality are both associated with a higher propensity of the company to be a bidder instead of a target. Rossi & Volpin (2004) also report that volume of M&A activity is significantly larger in countries with better accounting standards and stronger shareholder protection. Both papers reach the same conclusion: acquirers have higher investor protection than targets.

Alongside these conclusions, Ellis et al. (2017) find that acquirers can transport the benefits from good country governance using data from 56 countries from 1990 to 2007. In other words, targets who are acquired by companies from countries with better country governance benefit from it, creating more wealth for their shareholders.

Following the previous idea Harford et al. (2008) show that worse governed firms tend to dissipate their cash reserves in comparison with firms with better-governance. It is also concluded that the cash is spent primarily in acquisitions.

Harford (1999) find that cash-rich firms are more likely than others firms to attempt acquisitions; also these firms are more likely to make diverse acquisitions and their targets are less likely to attract other bidders. Related to the previous results Datta et al. (1992) conclude that cash-acquisitions speed up the transaction, reducing the cost of making a M&A.

Against the conventional wisdom that says that cash-rich bidders are more likely to use their cash to engage in acquisitions, Pinkowitz, Sturgess, & Williamson (2013) conclude that firms who are cash-rich are 23% less likely to make cash bids than stock bids, comparing with not cash-rich firms.

Other topic of important relevance in cross-border M&As is conglomerate acquisitions. It can be defined as a merger between firms that are involved in unrelated business activities. Datta, Pinches, & Narayanan (1992) show that non-conglomerate M&As are preferible as acquirer and target benefit from economies available through resource sharing, transferable competencies and less risk overall, creating more wealth overall. Herger & McCorriston (2016) refer that conglomerate cross-border M&As are strongly driven by financial arbitrage opportunities when an investment occurs in countries where firms are undervalued.

In M&As is common for one company to make several acquisitions in a certain period. Fuller, Netter, & Stegemoller (2002) define a serial acquirer as one company that made more than

five acquisitions over the sample period. However, serial acquirers do not have a consistent definition. Macias, Rau, & Stouraitis (2016) defined three dimensions for characterizing serial acquirers: The first one was already mentioned above, while the other two are the number of acquisitions windows (acquisition blocks) and the intensity of transactions in each block. Using these three dimensions they document the existence of four different groups of bidders: loners, occasional acquirers, sprinters and marathoners.

Karolyi, Liao, and Loureiro (2015) refer that serial acquirers engage in cross-border and conglomerate acquisitions; they also conclude that if a serial acquirer is from a country with poor shareholder protection or has lower level of institutional ownership it tends to aggravate lower announcement returns, especially in later acquisitions. Macias, Rau, & Stouraitis (2013) conclude that the vast majority of acquisitions in the United States between 1980 and 2010 were conducted by serial acquirers (in frequency and transaction value) strategically shifting between methods of payment in an attempt to take advantage of their own overvalued stock.

Makaew (2009) studies the dynamic patterns of cross-border mergers in 1989-2008 period using data from 50 countries and presents some key facts about cross-border mergers. The first fact is that international mergers come in waves that are correlated with business cycles, even more than domestic mergers. Adding to this, mergers are more likely to occur when both the acquirer and the target economies are booming – it eliminates the common belief that acquirers will take advantage of a target financial crisis or liquidity problems, despite happening under some specific circumstances. Thirdly the study concludes that mergers booms have both an industry-level (productivity shock) and a country-level (financial shock) component. Lastly, he observes that acquirers tend to be more productive than their industry peers and targets tend to be less productive than their industry peers. This finding supports the neoclassical theory of mergers that high productivity firms acquire low productivity firms to redeploy their assets toward more profitable uses.

Nevertheless, the value of the target companies increases on average. A small study by Baran & Saikevicius (2015) concludes that cross-border mergers in EU-10 boost the value of the target companies during the 2004-2013 period.

Aguiar & Gopinath (2005) find that liquidity plays a significant and sizable role in explaining the dramatic increase in foreign acquisition activity in cross-border M&As in East Asian during the

crisis between 1997 and 1998 – it shows a link between the liquidity crises and the consequent continued inflow of FDI.

In sum financial literature mentions diverse factors which influence domestic and cross-border M&As: currency shocks, geography, culture, shareholder protection, cash-rich firms, serial acquirers, conglomerate acquisitions among others. Acknowledging these components and determinants my dissertation concentrates in the effect of currency depreciation and how other factors influence it.

3. HYPOTHESES AND METHODOLOGY

In this part I develop the hypotheses of my investigation and explain them following the literature presented in the previous section.

3.1. Hypotheses Development

According to Froot & Stein (1991) the wealth effect influence the propension of M&As – the argument assume that firms from richer countries will engage in M&As when there is a depreciation of the domestic currency. Posteriorly Erel et al. (2012) find support for this theory rather than the misvaluation effect. Also it concludes that M&As are more probable to happen if the countries are closer to each other, as Kedia & Panchapagesan (2004) support. Ahren, Daminelli, & Fracassi (2015) find that the greater the cultural distance, the smaller the volume of M&As. Rossi & Volpin (2004) and Erel et al. (2012) find that M&A were at a greater number when countries had better accounting standards and stronger shareholder protection. Finally, Ellis et al. (2017) find that targets who are acquired by companies from countries with better country governance benefit from it. Based on this literature I formulate the following hypothesis, testing how geography, culture and shareholder protection influence it.

H1: **Firms from countries with a currency depreciation are more likely to be acquired by a US company, ceteris paribus.**

H1a: Geographic proximity increases the probability of a cross-border acquisition, following a currency depreciation in the target country.

H1b: Cultural proximity increases the probability of a cross-border acquisition, following a currency depreciation in the target country.

H1c: Weaker shareholder protection in the target country increases the probability of a cross-border acquisition, following a currency depreciation in the target country.

When a depreciation occurs, the currency of a given country is relatively cheaper to foreign countries and therefore foreign companies. Companies who have the intention to pursue a M&A in

a country with a currency depreciation can abdicate their own industry (the industry that they know better how to handle and how to do things) and go after another industry, in an attempt to expand their business (or just to buyout a firm that is at a sale price). Herger & McCorriston (2016) find that conglomerate cross-border M&As are driven by financial arbitrage opportunities when an investment occurs in countries where firms are undervalued. However, Datta, Pinches, & Narayanan (1992) find that non-conglomerate M&As create more weatlh for acquirers than conglomerate acquisitions and thus are preferable for both the acquirer and target. Based on the previous literature the second hypothesis is formulated as:

H2: Bidders take advantage of currency depreciation to engage in conglomerate cross-border acquisitions, ceteris paribus

Firms with excess cash holding would benefit if a foreign country had a currency depreciation and could exploit this fact, making a M&A in that region, acknowledging that the currency is worth more for that period. Harford (1999) find that cash-rich firms are more likely to engage in diverse acquisitions. Datta et al. (1992) show that cash-acquisitions also speed up the transaction. Udomkerdmongkol et al. (2009) Xing (2006), Xing & Wan (2006) and Georgopoulos (2008) find that a depreciation in currency stimulates inward FDI. Therefore, I formulate the following hypothesis:

H3.A: Firms from countries with a currency depreciation are more likely to be acquired by a cash-rich firm, ceteris paribus.

Pinkowitz, Sturgess, & Williamson (2013) find that firms who are cash-rich are 23% less likely to make cash bids. However conventional wisdom says that cash-rich bidders are more likely to use their cash to make acquisitions. This led me to the formulation of the following hypothesis:

H3.B: Cash-rich bidders take advantage of currency depreciation to make cash-based cross-borders M&As.

3.2. Methodology

In this subsection, I explain the models and the specific variables used.

Model 1

To test the first hypothesis, I use a model motivated by the works of Froot & Stein (1991) and Erel, Liao, & Weisbach (2012). Both papers argue that in a currency depreciation a firm from a richer country will engage in M&As when there is a depreciation of the domestic currency. So, it is expected, in this case, that firms that suffer from a currency depreciation in their country are likely to be acquired by U.S. firms. For my first hypothesis the following model was estimated:

$$Crossborder\ M\&As_{i,t} = \propto\ + \beta_1 Depreciation_{i,t} + \beta_2 Serial\ Acquirer_{i,t} + \beta_3 Control_{i,t} + \beta_4 Fixed\ Effects_{i,t} + \varepsilon_{i,t}$$

The dependent variable, $Crossborder\ M\&As_{i,t}$, is a dummy variable that equals 1 for cross-border acquisitions and 0 otherwise made by acquirer i in year t. $Depreciation_{i,t}$ is a dummy variable, 1 when it occurs and 0 when there is period without a depreciation, in any given region for that time. $Serial\ Acquirer_{i,t}$ is also a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise, using the definition of Fuller, Netter, & Stegemoller (2002). The model also includes variables of control, based in the work of Erel et al. (2012). Depending on the specific regression I consider from 2 to 4 variables at once. $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholder's equity. $ROE_{i,t}$ is the return on equity, being the ratio between net income and shareholders' equity; $BookLeverage_{i,t}$ is measure by long debt divided by total assets. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition. Finally, $\varepsilon_{i,t}$ is the independent and identically distributed error term with a mean of zero.

In addition, I test an alternative methodology. I split the sample in regions and then in specific groups - geographically closer (distant) countries and culturally closer (distant) countries. In each group I use the corresponding $Depreciation_{i,t}$ variable – it is calculated only considering periods of a currency crisis for that region/group and not for all countries combined, as in the

previous model. For that reason, China is not going to have this specific model because there are not depreciations in the domestic currency for the study period.

Geography, culture and shareholder protection are tested using another slightly different mode. The sample is restricted to only cross-border acquisitions. Geography, culture or shareholder protection are, in this case, the dependent variable, replacing $Crossborder\ M\&As_{i,t}$. The remain of this model is the same.

Model 2

For my second hypothesis I use a model that analyses if firms from the United States are more likely to engage in a cross-border M&A over a domestic M&A in a period where a foreign country is suffering a currency depreciation. Herger & McCorriston (2016) find support for conglomerate acquisitions in countries where firms are undervalued. It is my aim to test if acquirers take advantage of a currency depreciation to engage in conglomerate acquisitions. The model is used to test hypothesis 2 that predicts that companies could take advantage of a depreciation to expand their business:

$$Crossborder\ M\&As_{i,t} = \propto\ + \beta_1 Depreciation_{i,t} + \ \beta_2 Conglomerate_{i,t} + \beta_3 DepreciationConglomerate_{i,t} + \beta_4 Serial\ Acquirer_{i,t} + \beta_5 Control_{i,t} + \beta_6 Fixed\ Effects_{i,t} + \varepsilon_{i,t}$$

Where the dependent variable is the same as in the previous model. $Depreciation_{i,t}$ and $Serial\ Acquirer_{i,t}$ have the same meaning as well. $Conglomerate_{i,t}$ is a dummy variable created by using the two digit SIC-CODE: 0 when the acquirer and the target have the same industry and 1 when there are from distinct industries. $DepreciationConglomerate_{i,t}$ is the product of the coefficients from the two previous variables – it represents the sensitivity on the dependent variable. $Size_{i,t}$ and $MBV_{i,t}$ are used as control variables and the fixed effects remain the same as the previous model

Model 3.A

To test this hypothesis I use a model motivated by the findings of Harford (1999) that supports that cash-rich firms are more likely to undertake in diverse acquisitions. To complement I use the findings by Udomkerdmongkol et al. (2009) Xing (2006), Xing & Wan (2006) and Georgopoulos (2008) that show that depreciation in currency increases investment in that country. The model I use for this hypothesis states as follows:

$$Crossborder\ M\&As_{i,t} = \propto\ + \beta_1 Depreciation_{i,t} +\ \beta_2 Cashrich_{i,t} + \beta_3 DepreciationCashrich_{i,t} + \beta_4 Serial\ Acquirer_{i,t} + \beta_5 Control_{i,t} + \beta_6 Fixed\ Effects_{i,t} + \varepsilon_{i,t}$$

Where the dependent variable continues to be $Crossborder\ M\&As_{i,t}$. $Depreciation_{i,t}$ and $Serial\ Acquirer_{i,t}$ remain the same as the previous model. $Cashrich_{i,t}$ is also a dummy variable. It is calculated by dividing *Cash Holdings* by *Total Assets;* if the value for a given firm in a given year is above the median of all observations it equals 1, otherwise 0. $DepreciationCashrich_{i,t}$ is the product of the coefficients from the previous explained variables. Again, $Size_{i,t}$ and $MBV_{i,t}$ are used as control variables. The fixed effects remain the same.

Model 3.B

My last model is based that firms with excess holdings in cash will try to use that cash to acquire foreign firms in currency crisis. To test the third hypothesis, I estimated the following model:

$$Cash/Stock\ M\&As_{i,t} =\ \beta_1 Depreciation_{i,t} +\ \beta_2 Cashrich_{i,t} + \beta_3 DepreciationCashrich_{i,t} +\ \beta_4 Serial\ Acquirer_{i,t} + \beta_5 Control_{i,t} + \beta_6 Fixed\ Effects_{i,t} + \varepsilon_{i,t}$$

The dependent variable $Cash/Stock\ M\&As_{i,t}$ is a dummy variable that equals 1 for acquisitions with 100% cash and 0 otherwise. $Depreciation_{i,t}$, $Serial\ Acquirer_{i,t}$, $Cashrich_{i,t}$, $DepreciationCashrich_{i,t}$ do not change as well as $Size_{i,t}$ and $MBV_{i,t}$ that are used as control variables. The fixed effects remain the same.

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4. DATA DESCRIPTION

4.1 Data availability

These data used in this study are from 3 different databases: data from mergers and acquisitions are from Securities Data Company (SDC) database. All the information about the number of mergers, status, industry and others are found there. For accounting information Thomson Reuters DataStream is the database that was chosen; there I find not only information about accounting variables as well specific country information – for example exchange rates. A third database is used, in order to retrieve information that evaluates the quality of the country – specific variables.

4.2 Sample Construction

I focused only M&As when the acquirer is from the United States. The main reason for this restriction is that it helps to study the implication of currency movements – in this way only the American Dollar ($) is used instead of working with several currencies from different countries.

. The initial sample of this dissertation consists of 21,437 completed cross-border M&As and 102,098 domestic M&As undertaken by U.S. firms between January 1st, 2007 and 31st December 2017.This data is provided by SDC database, combining for a grand total of 123,535 M&A. where the bidder is always from the United States and there is no restriction for the target.

For each deal I collect from Securities Data Company Database the announcement date, Target Nation, Acquirer Industry Sector, Acquirer and Target public status, deal number, status of M&A, acquirer and target SEDOL and SIC CODE. As SDC does not provide many firm specific information I use the SEDOL number to retrieve this information from Thomson DataStream database.

I applied the following screenings to my initial sample: (1) only deals that were "Completed" between 2007 and 2017 and that showed that status publicly are considered; (2) All deals where firms are not Private, State-owned or Subsidiaries were dropped off. (3) If the SEDOLs are equal between the acquirer and the target the observations were not considered; (4) From the 174 target countries only a few are utilized. To minimize the number of different currencies used in the study, I only consider the biggest eight regions/currencies: Euro for the countries from the

Eurozone, Australian Dollar for Australia, Canadian Dollar for Canada, Yen for China, Pound for Great Britain, Rupee for India, Yuan for Japan and Real for Brazil; (5) If the acquirer firm did not have a validated SEDOL the observations were deleted; (6) All countries from the Eurozone with 10 observations or less were dropped off; (7) Utility and financial sectors are excluded - when the Standard Industry Classification code (SIC code) are between 4900-4949 and 6000-6999.

After applying these specifications, I obtain 21,764 M&As: 4,331 are cross-border and 17,433 are domestic. The target firms are from Australia, Brazil, Canada, China, India, Japan, United Kingdom and from Europe. In this subgroup the countries are: Austria, Belgium, Germany, France, Portugal, Spain, Italy, Netherlands, Ireland, Finland and Luxembourg. In total 19 countries are considered, including the United States that I use for domestic M&As.

To capture all information regarding accounting standards by firm I used all the validated SEDOLs from the first database and went to Thomson Reuters/DataStream to download the accounting information: Return on Equity (ROE), total assets, market value , debt in long run , total liabilities)and equity in shares for each company in each year.

After that, the ratios necessary for my regressions were created. For my models I am going to use some accounting variables: the logarithm of total assets, the book leverage, cash ratio, market-to-book ratio and return on equity. In order to avoid estimation biases created by potential outliers, I winsorize all variables at 1% of its distribution. Further, since some firms have missing values for some of the accounting variables there are variations in the size of the sample depending on the model used.

Ellis et al. (2017) use in their work the country level indicators of Kaufman, Kraay, and Mastruzzi (2009). Based on that I download them from the WorldBank website database as a measure of country governance. The variables considered are Voice and Accountability, Political Stability and No Violence, Government effectiveness, Regulatory quality, rule of law and control of corruption. In order to measure shareholder protection, I generate a new variable using the mean of the rank of the previous six variables. After I calculate the median of this new variable. Observations above the median are given the value 1 (implying countries with greater shareholder protection) and 0 otherwise. It is my purpose to measure shareholder protection using country governance. Finally, I need to analyse currency depreciations in relation to the dollar. In this case data was downloaded monthly - my objective is to see which currency suffers a depreciation in relation to the dollar in a quarter of a given year. I calculated the monthly return for all currencies

and then computed the quarters that had depreciation (for my work I consider that a currency crisis exists in a given quarter if the real exchange rate of the country increases by 15%). For the bidder (and consequently for my domestic M&As) whenever a depreciation for some currency had happened it is considered a currency crisis for that period. For example, if a currency crisis had happened in a given period in relation to euro and not for the others it is considered a currency crisis for domestic M&A for that period.

In order to analyse each currency separately I also create a dummy variable for each region – differently from above, this variable is created with only taking in consideration that region. For domestic M&As it is considered a currency crisis when that region had one in relation to the American dollar ($).

To test my hypotheses, I need culture variables. For that I based on a paper by Stulz & Williamson, (2002). They separate culture in religion and language spoken. I created a dummy variable culture – if a country has the same language spoken and religion the value 1 was given, 0 otherwise For geography I only consider Canada as a close country – I expect to see, comparing to the other 17 countries, if the effect is stronger when a currency crisis happen.

To create the dummy variable Serial acquirers I used the definition by Fuller, Netter, and Stegemoller (2002) - if a bidder made over 5 acquisitions in the sample period it is defined as a serial acquirer yielding 1, 0 otherwise.

All the variables are merged in a single file, that composes my database.

The rest of the dummy variables were created before my regressions. One for industry (1 for conglomerate acquisitions, 0 if the acquirer industry is the same than the target industry), one for cash (1 for a payment 100% in cash, 0 otherwise) and one for cash-rich bidders (observations above the median of the ratio between cash holdings and total assets were given the value 1, 0 otherwise).

4.3 Summary Statistics

This section presents the descriptive statistics of the variables that are used during the study.

Table 1 displays how Mergers and Acquisitions are distributed by Target country (since the bidder is always from the United States). Panel A show head to head the percentage of cross-border M&As versus domestic M&As in the United States. As we are expecting the quantity of M&As between 2007 and 2017 is much higher internally than externally. In Panel B, we can see which regions are represented in cross-border M&As. Eurozone leads the way with one third of M&As (1435 observations), followed by United Kingdom with 996 and Canada with 927 observations. Panel C shows the countries in the Eurozone – the country with fewer cross-border M&As is Luxembourg – only 11 deals; Germany has almost 29% of all observations for the eurozone region, followed by France and Netherlands with 279 and 211 observations respectively.

Table 1 - Description of the Mergers and Acquisitions Sample

The sample includes cross-border and domestic deals made by the United States between 2007 and 2017. Firms labeled as utilities and financial (SIC codes between 4900 and 4949 and between 6000 and 6999) are excluded from the final data. This data was obtained via Securities Data Company (SDC) Platinum database. Panel A presents the number of cross-border and domestic M&As; Panel B presents the observations for each currency region; Panel C shows the countries from Eurozone. 19 countries are considered, each one having at least 10 observations.

Panel A: Cross-border vs Domestic		
Type of M&A	**#M&As**	**%M&As**
Cross-Border	4331	19,90%
Domestic	17433	80,10%
Total	21764	100%
Panel B: Regions by currency		
Regions	**#M&As**	**%M&As**
Eurozone	1435	33,13%
United Kingdom	996	23,00%
Canada	927	21,40%
Australia	317	7,32%
China	217	5,01%
Brazil	202	4,66%
India	164	3,79%
Japan	73	1,69%
Total	4331	100%
Panel C: Eurozone		
Country	**#M&As**	**%M&As**
Luxembourg	11	0,77
Portugal	15	1,05
Austria	31	2,16
Finland	41	2,86
Belgium	60	4,18
Spain	111	7,74
Ireland	113	7,87
Italy	150	10,45
Netherlands	211	14,70
France	279	19,44
Germany	413	28,78
Total	**1435**	**100**

Table 2 presents the type of industries for the acquirer firms. There are two industries that are highlighted: Manufacturing and Services, each one with roughly 39% of the total number of observations; together they account to almost 80% of the sample.

Table 2 - Distribution of the M&As by Acquirer's Industry

The sample includes cross-border and domestic deals made by the United States between 2007 and 2017. Firms labeled as utilities and financial (SIC codes between 4900 and 4949 and between 6000 and 6999) are excluded from the final data. This data was obtained via Securities Data Company (SDC) Platinum database. In this table M&As are divided by industry, using the two digit SIC code.

Industry	#M&As	%M&As
Agriculture, Forestry and Fishing	48	0,22%
Mining	1449	6,66%
Construction	321	1,47%
Manufacturing	8428	38,72%
Transportation and Public Utilities	1466	6,74%
Wholesale Trade	1009	4,64%
Retail Trade	1016	4,67%
Services	8015	36,83%
Public Administration	12	0,06%
Total	21764	100%

In figure 1 it is displayed the distribution of M&As by year, separated by Domestic, Cross-Border and the total number. As we can see by the graphic the number of observations tends to decrease – in 2007 the number of domestic/cross-border and total are the highest from the observed years. This decline can be explained by the crisis of 2007, reveling some post-crisis uncertainty environment; 2009 is the year with the smallest number of cross-border M&As, with only 300 observations; in terms of domestic ones this statistic belongs to 2016.

Figure 1 - Description of M&A by year

This table reports the domestic, cross-border and total number of deals per year during the 2007 to 2017 period. The sample is composed by 21,764 observations made by the United States.
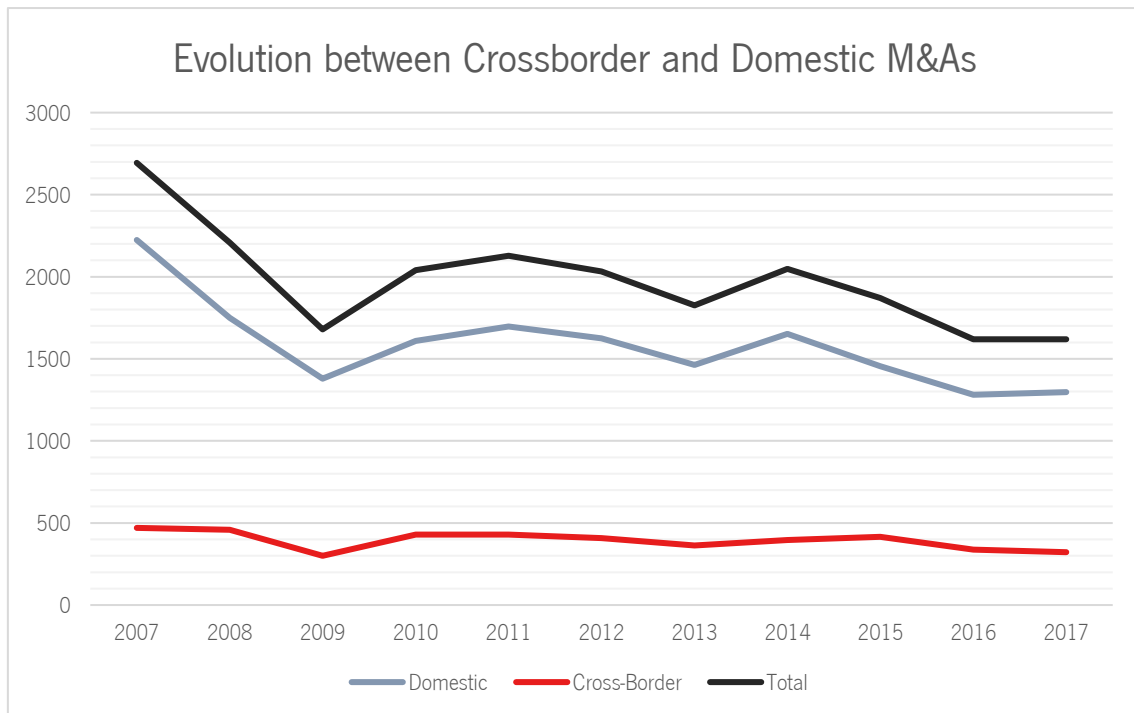
The next table presents summary statistics for the accounting and financial variables from each firm. These variables are used in the models created.

Table 3 - Summary Statistics

This table provides descriptive statistics of the main variables used. All variables are defined in Appendix A. The accounting and financial data are obtained from WorldScope and Thomson's DataStream Database. Each observation corresponds to the year before from 2007 to 2017. Utilities and Financial firms are excluded. All observations are winsorized at 1% and 99% of the distribution.

Variable	Number of Observations	Mean	Median	Standard Deviation
Size	19622	13.27409	13.76947	3.132779
Book Leverage	17804	.2527202	.1790433	.3276184
MBV	16619	.0018541	.0021131	.0898181
ROE	17563	-2,647305	10.58	80.72929

5. EMPIRICAL RESULTS AND DISCUSSION

In the next sections I examine the models created in order to test my hypotheses. For each sub-section I use a different model as detailed in *Section 3.* The models can include fixed effects as detailed in the tables and all include test for robustness.

5.1 Are target countries with a currency depreciation more likely to be acquired by a US company?

For my first hypothesis I analyse the effect of a currency depreciation and how it affects US companies who want to invest in a country with a depreciation.

Table 4 presents the results of the first model, using a *probit* regression. The dependent variable is the dummy $Crossborder\ M\&As_{i,t}$. In columns (1) to (4) the variables that are used change: in columns (3) and (4) $ROE_{i,t}$ and $BookLeverage_{i,t}$.are not considered. Fixed effects also change, explained in the table below.

Table 4 - Impact of a currency depreciation in cross-border M&As

The table presents the outcomes of the regressions using Model 1, discussed in *Section 3*, in order to test the first hypothesis of my investigation: "Firms from countries with a currency depreciation are more likely to be acquired by a US company, ceteris paribus." The sample for this regression only includes firms with available accounting information, reducing the sample number to 15,920 M&A's (both cross-border and domestic), ranging from 2007 to 2017. $Crossborder\ M\&As_{i,t}$ is the dependent variable and is a dummy variable that equals 1 for cross-border acquisitions and 0 otherwise. $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar (\$). $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. $ROE_{i,t}$ is the return on equity, being the ratio between net income and shareholders' equity; $BookLeverage_{i,t}$ is measure by long debt divided by total assets. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. In each column there is an indication of the fixed effects used, as noted below. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
$Depreciation_{i,t}$	-0.219***	-0.501***	-0.215***	-0.494***
	(0.007)	(0.012)	(0.007)	(0.011)
$Serial\ Acquirer_{i,t}$	-0.005	-0.002	0.000	-0.001
	(0.008)	(0.008)	(0.008)	(0.007)
$Size_{i,t}$	0.020***	0.015***	0.016***	0.012***
	(0.002)	(0.002)	(0.001)	(0.001)
$MBV_{i,t}$	-0.368	-0.875	-0.216	-0.458
	(0.709)	(0.634)	(0.519)	(0.459)
$ROE_{i,t}$	5.31e-05	4.81e-05		
	(5.52e-05)	(5.38e-05)		
$BookLeverage_{i,t}$	0.011	-0.020		
	(0.015)	(0.015)		
Observations	14,653	14,653	15,920	15,920
Pseudo R2	0.1377	0.2998	0.1371	0.2998
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Dummies	No	Yes	No	Yes

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In all columns the coefficients on the variable of interest are negative and statically significant at 1%. Correspondingly the probability of a cross-border M&A decreases by 21.9 percentage points when industry fixed effect are considered. When we include both fixed effects, in column (2), the probability decreases even more, reaching 50.1 percentage points. For the other two columns the results are similar: the effect is always negative and significant: for column (3) without $ROE_{i,t}$ and $BookLeverage_{i,t}$ the probability of a cross-border acquisition decreases 21.5 percentage points and this value goes to 49.4 when year dummies are used.

The results are surprising because previous literature for other periods does not support these discoveries. However, I hypothesize some explanation that can describe this outcome. My period of analysis coincides with the financial worldwide crisis which affected heavily the currencies from countries in North America and Europe; some of my target countries are from these regions. The overall results suggest a behavioural pattern difference for American bidders when a foreign currency depreciates. Furthermore, these depreciations have a different context than in previous studies: the financial crisis had a several impact in the United States, where all the acquirers of my study are from. The previous reasons can be an explanation for the results presented.

After finding this relation between currency depreciation and cross-border M&As, I analyse alternative methodology, splitting the sample in specific groups. In panel A of Table 5 I present the results for the model adapted for each region, except China, which does not have currency depreciations for the period of this study; panel B displays the results for the model when geographically closer/distant and culturally closer/distant countries are considered. Both models are compared to domestic M&As in United States. A currency crisis is only considered when there has been a depreciation in that group.

Table 5 - Impact of a currency depreciation in cross-border M&As for each specific group

The table presents the outcomes of the regressions using an alternative of Model 1, splitting the sample in specific groups by country and by geographically/culturally closer/distant countries, in order to test the first hypothesis of my investigation: "Firms from countries with a currency depreciation are more likely to be acquired by a US company, ceteris paribus." This is discussed in *Section 3*. The sample for this regression only includes firms with available accounting information (both cross-border and domestic), ranging from 2007 to 2017. $Crossborder\ M\&As_{i,t}$ is the dependent variable and is a dummy variable that equals 1 for cross-border acquisitions and 0 otherwise. $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for that specific group in relation to the dollar (\$). $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Impact of a currency depreciation in a cross-border M&A for each region

	(1) Australia	(2) Brazil	(3) Canada	(4) Eurozone	(5) India	(6) Japan	(7) United Kingdom
$Depreciation_{i,t}$	0.005	0.004**	-0.003	-0.011	0.002	-0.002	0.007
	(0.005)	(0.002)	(0.007)	(0.010)	(0.003)	(0.003)	(0.009)
$Serial\ Acquirer_{i,t}$	0.007**	0.002	-0.009*	-0.005		-0.001	0.004
	(0.003)	(0.002)	(0.005)	(0.007)		(0.002)	(0.006)
$Size_{i,t}$	0.001**	0.002***	0.002**	0.009***	0.003***	0.001***	0.004***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
$MBV_{i,t}$	-0.007	-0.194*	-0.071	-0.422	-0.043	0.005	0.168
	(0.182)	(0.104)	(0.282)	(0.397)	(0.082)	(0.061)	(0.344)
Observations	10,257	9,977	11,543	11,451	9,411	7,032	11,31
Pseudo R2	0.0394	0.1045	0.0699	0.0696	0.0905	0.0622	0.0373

Panel B: Impact of a currency depreciation in a cross-border M&A for geography/culture closer/distant groups

	(1) Geographically Closer	(2) Geographically Distant	(3) Culturally Closer	(4) Culturally Distant
$Depreciation_{i,t}$	-0.003	-0.501***	-0.085***	-0.420***
	(0.006)	(0.012)	(0.008)	(0.012)
$Serial\ Acquirer_{i,t}$	-0.009*	0.005	0.013**	-0.009
	(0.004)	(0.006)	(0.005)	(0.006)
$Size_{i,t}$	0.002**	0.012***	0.005***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)
$MBV_{i,t}$	-0.226	-0.156	0.233	-0.726*
	(0.261)	(0.422)	(0.349)	(0.384)
Observations	13,358	15,375	13,393	14,999
Pseudo R2	0.0664	0.2792	0.0590	0.2436

Panel A of table 5 has lack of results. The only value significative, at 5%, for the variable of interest $Depreciation_{i,t}$, is the result for column (2), where Brazil is analysed. It shows that when a depreciation occurs in Brazil, the likelihood of a cross-border M&A by a United States firm increases, on average, by 0,4%. This value, although is small, goes along the literature explored and it is a result we should expect. Additionally, the financial global crisis did not affect this country in the way it affected richer countries, which may imply why this outcome differs from the other conclusions of my work.

Panel B displays the results for the alternative version of Model 1, using specific groups. The results for column (1) and (2) cannot be compared as the result for geographically closer countries is not statically significant. For column (2) when a $Depreciation_{i,t}$ occurs leads, on average, to a decrease of 50.1 percentage points on $Crossborder\ M\&As_{i,t}$. The outcomes for culturally closer/distant countries can be compared. Although the general effect is negative, cross-border M&As decrease even more when there is a $Depreciation_{i,t}$ when the country is distant culturally. This goes along with previous literature – a greater cultural distance decreases the volume of M&As (Ahren, Daminelli, & Fracassi, 2015).

Shareholder Protection, Culture and Geography are used in an alternate methodology, testing only cross-border M&As. The mentioned variables are now the dependent variable instead of $Crossborder\ M\&As_{i,t}$. The next table reports the results for this model.

Table 6 - Impact of geography, culture and shareholder protection in cross-border M&As during a currency depreciation

The table presents the outcomes of the regressions using an alternative of Model 1, in order to test the first hypothesis of my investigation: "Firms from countries with a currency depreciation are more likely to be acquired by a US company, ceteris paribus." This is discussed in *Section 3*. The sample for this regression only includes cross-border M&A available accounting information, ranging from 2007 to 2017. $Geography_{i,t}$ $Culture_{i,t}$ and $Shareholder\ Protection_{i,t}$ are the dependent variable. $Geography_{i,t}$ is a dummy variable that equals 1 for geographically closer countries, 0 otherwise. $Culture_{i,t}$ is also a dummy variable that equals 1 for culturally closer countries and 0 otherwise $Shareholder\ Protection_{i,t}$ is also a dummy variable that is 1 if the value given is above median of the sum of the country level indicator of Kaufman et al. (2009) and 0 otherwise. $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar (\$). $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Geography	(2) Culture	(3) Shareholder Protect.
$Depreciation_{i,t}$	-0.035**	0.033	-0.064***
	(0.016)	(0.023)	(0.025)
$Serial\ Acquirer_{i,t}$	-0.031*	0.047**	-0.018
	(0.018)	(0.021)	(0.021)
$Size_{i,t}$	-0.011***	-0.008**	-0.009**
	(0.003)	(0.004)	(0.004)
$MBV_{i,t}$	0.153	2.085	1.986
	(1.223)	(1.469)	(1.563)
Observations	3,075	3,050	2,951
Pseudo R2	0.0979	0.0363	0.0776

Focusing on the analysis, the regression gives statistically significant results for column (1) and (3). The results of the model reveal that there is a significant negative relation between a currency crisis and cross-border acquisitions when the country of the target is geographically closer – when there is a $Depreciation_{i,t}$ it decreases a cross-border acquisition in a geographically closer country by 3.5 percentage points. This is also the case for countries with higher shareholder protection – when a $Depreciation_{i,t}$ happens it decreases the probability of a cross-border acquisition in a country with higher shareholder protection by 6.4 percentage points. These findings are not consistent with previous literature but, as I explain above, the period of crisis coinciding with my period of analysis can be an important factor in order to clear these results.

5.2 Do Bidders take advantage of currency depreciations to engage in conglomerate cross-border acquisitions?

In my second hypothesis, I test if acquirers from the United States take advantage of a currency crisis in a foreign country to engage in conglomerate cross-border acquisition instead of trying to acquire firms that work in the same industry.

The next table displays the results of *probit* estimate in order to test the hypothesis formulated in *Section 3*. The dependent variable continues to be $Crossborder\ M\&As_{i,t}$, a dummy variable that is 1 for cross-border M&As and 0 when it is a domestic M&A in the United States. The independent variable is also the same as the previous model, $Depreciation_{i,t}$. $Conglomerate_{i,t}$ is a dummy variable that takes the value 1 when there is an acquisition in a different industry of the acquirer – I am using the 2 digit SIC-CODE to identify the industry of a firm. $DepreciationConglomerate_{i,t}$ is the interaction between $Conglomerate_{i,t}$ and $Depreciation_{i,t}$. Fixed effects are used in all regressions for this model. The sample is divided and analysed in three different groups – in column (1) I compute the regression for all the sample available; in columns (2) and (3) I split the sample in two – restricting only for conglomerate M&As and then only for M&As that happened when the firms where from the same industry.

Table 7 - Impact of currency depreciation in conglomerate cross-border acquisitions

The table shows the marginal effects of the regressions using Model 2, discussed in *Section 3*, in order to test the second hypothesis of my investigation: "Bidders take advantage of currency depreciation to engage in conglomerate cross-border acquisitions." The sample for this regression only includes firms with available accounting information, reducing the sample number to 15,920 M&As (both cross-border and domestic), ranging from 2007 to 2017. $Crossborder\ M\&As_{i,t}$ is the dependent variable and is a dummy variable (1 when it is a cross-border M&A). $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar (\$). $Conglomerate_{i,t}$ is a dummy variable that equals 1 when the acquirer and the target are from different industries, using the two digit SIC-CODE. $DepreciationConglomerate_{i,t}$ is the product of the coefficients of $Depreciation_{i,t}$ and $Conglomerate_{i,t}$. (\$). $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2) Conglomerate M&As	(3) Same Industry M&As
$Depreciation_{i,t}$	-0.489***	-0.535***	-0.461***
	(0.013)	(0.016)	(0.015)
$Conglomerate_{i,t}$	0.010		
	(0.008)		
$DepreciationConglomerate_{i,t}$	-0.008		
	(0.011)		
$Serial\ Acquirer_{i,t}$	-0.002	0.007	-0.007
	(0.007)	(0.012)	(0.009)
$Size_{i,t}$	0.012***	0.013***	0.011***
	(0.001)	(0.002)	(0.002)
$MBV_{i,t}$	-0.456	-0.553	-0.449
	(0.459)	(0.767)	(0.570)
Observations	15,920	6,965	8,786
Pseudo R2	0.2999	0.2962	0.3088

The overall results are negative. In column (1) the coefficient of $Depreciation_{i,t}$ is negative and significative at 1% level - the probability of a cross-border M&A decreases by 48.9 percentage on average, when a depreciation occurs. In column (2), only considering conglomerate M&As the outcome of the regression are negative and significative. When a depreciation occurs the probability of a conglomerate cross-border M&A decreases 53.5 percentage points. Comparing this result to column (3) it is expected that firms look more for targets in the same industry when a depreciation occurs, although a depreciation always decrease the probability of cross-border M&A. The results are statistically significative at 1% and are expected as Datta el al. (1992) show that non-conglomerate are preferable than conglomerate acquisitions.

An alternative model is also used here. Instead of $Crossborder\ M\&As_{i,t}$ $Conglomerate_{i,t}$ is the dependent variable. The sample is restricted to only cross-border M&As. The remaining model keeps equal. Table 8 presents the results for this alternative methodology despite them not being statistically significative.

Table 8 - Impact of conglomerate cross-border M&As in a currency depreciation

The table shows the marginal effects of the regressions using an alternative of Model 2, discussed in *Section 3*, in order to test the second hypothesis of my investigation: "Bidders take advantage of currency depreciation to engage in conglomerate cross-border acquisitions." The sample for this regression only includes cross-border M&As, ranging from 2007 to 2017 (\$). $Conglomerate_{i,t}$ is a dummy variable that equals 1 when the acquirer and the target are from different industries, using the two digit SIC-CODE and is the dependent variable. $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar. $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Conglomerate M&As
$Depreciation_{i,t}$	-0.018
	(0.026)
$Serial\ Acquirer_{i,t}$	0.062**
	(0.025)
$Size_{i,t}$	0.003
	(0.004)
$MBV_{i,t}$	-0.917
	(1.728)
Observations	3,070
Pseudo R2	0.0900

5.3 Do cash-rich bidders take advantage of currency depreciation to make cash-based cross-based M&As?

For my final hypothesis I check if cash-rich bidders from the United States engage in cross-border M&As during a currency depreciation in a foreign country.

Table 9 displays the *probit* estimates performed by the model, in order to address this hypothesis of my dissertation: "Firms from countries with a currency depreciation are more likely to be acquired by a cash-rich firm, ceteris paribus". The dependent variable is once again $Crossborder\ M\&As_{i,t}$, a dummy variable that is 1 for cross-border M&As and 0 when it is a domestic M&A in the United States. The independent variable is the same as before, $Depreciation_{i,t}$. $Cashrich_{i,t}$ is also a dummy variable – it is calculated by dividing Cash Holdings by Total Assets and if the value for a given firm in a given year is above the median of all observations it takes the value 1, otherwise 0. creates $DepreciationCashrich_{i,t}$ is created by the interaction between $Depreciation_{i,t}$ and $Cashrich_{i,t}$. These three are the variables of interest in the columns. Fixed effects are used in all regressions for this model. The sample is then divided in three groups – column (1) shoes the regression for all the sample available where columns (2) and (3) the sample is split in two – first only for cash-rich firms and then for non-cash-rich firms.

Table 9 - Impact of a currency depreciation in cash-rich acquirers

The table shows the marginal effects of the regressions using Model 3A, discussed in *Section 3*, in order to test the third hypothesis of my investigation: "Firms from countries with a currency depreciation are more likely to be acquired by a cash-rich firm, ceteris paribus." The sample for this regression only includes firms with available accounting information, reducing the sample number to 15,920 M&As (both cross-border and domestic), ranging from 2007 to 2017. $Crossborder\ M\&As_{i,t}$ is the dependent variable and is a dummy variable (1 when it is a cross-border M&A). $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar (\$). $Cashrich_{i,t}$ is a dummy variable - it is calculated by dividing Cash Holdings by Total Assets; if the value for a given firm in a given year is above the median of all observations it equals 1, otherwise 0. $DepreciationCashrich_{i,t}$ is the product of the coefficients of $Depreciation_{i,t}$ and $Cashrich_{i,t}$ (\$). $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2) Cash-rich firms	(3) Non cash-rich firms
$Depreciation_{i,t}$	-0.518***	-0.457***	-0.570***
	(0.014)	(0.013)	(0.020)
$Cashrich_{i,t}$	-0.002		
	(0.008)		
$DepreciationCashrich_{i,t}$	0.031**		
	(0.012)		
$Serial\ Acquirer_{i,t}$	-0.000	0.000	-0.002
	(0.007)	(0.009)	(0.011)
$Size_{i,t}$	0.012***	0.012***	0.011***
	(0.001)	(0.002)	(0.002)
$MBV_{i,t}$	-0.497	-0.131	–1.086
	(0.460)	(0.574)	(0.756)
Observations	15,920	9,708	6,104
Pseudo R2	0.3005	0.2717	0.3596

In column (1) the values for $Depreciation_{i,t}$ and $DepreciationCashrich_{i,t}$ are statistically significative. Even though the probability of a cross-border M&A decreases when a depreciation occurs by 51.8 percentage points the coefficient for $DepreciationCashrich_{i,t}$ is positive and statistically significative at 5%. This is important as it means that when a depreciation occurs it increases the likelihood of a cross-border M&A for cash-rich firms by 3.1 percentage points. The results are in accordance with the study of Harford (1999) – cash-rich firms are more likely to attempt acquisitions than non-cash rich firms.

Comparing columns (2) and (3) an interesting result is found. Although the negative general effect, cash-rich firms take advantage of currency depreciations to make cross-border M&As than non-cash rich firms. For column (2) if a $Depreciation_{i,t}$ occurs, the probability of cash-rich firm to make a cross-border M&A decreases by 45.7 percentage points and in column (3) it decreases even more to 57 percentage points. Both results are significative at 1%. These results reinforce the previous conclusions and literature.

An alternative methodology is presented in Table 10, regarding to my hypotheses 3.B - "Cash-rich bidders take advantage of currency depreciation to make cash-based cross-borders M&As. The sample is restricted to cross-border M&As and the analysis falls on the impact of cash-based M&As made by cash-rich acquirers in a currency depreciation. Instead of $Crossborder\ M\&As_{i,t}$ $Cash/Stock\ M\&A's_{i,t}$ is the dependent variable - it is a dummy variable that takes the value 1 when the acquisition was 100% made in cash and 0 otherwise. The results for this alternative model are presented below, despite them not being statistically significative.

Table 10 - Impact of cash-based M&As by cash-rich acquirers in a currency depreciation

The table shows the marginal effects of the regressions using Model 3B, discussed in *Section 3*, in order to test the third hypothesis of my investigation: "Cash-rich bidders take advantage of currency depreciation to make cash-based cross-borders M&As". The sample for this regression only cross-border M&As, ranging from 2007 to 2017. $Cash/Stock\ M\&A's_{i,t}$ is the dependent variable and is a dummy variable; it has the value 1 when the acquisition was 100% in cash and 0 otherwise. $Depreciation_{i,t}$ is also a dummy variable, yielding 1 if there is a depreciation in that period for every currency in relation to the dollar (\$). $Cashrich_{i,t}$ is a dummy variable - it is calculated by dividing Cash Holdings by Total Assets; if the value for a given firm in a given year is above the median of all observations it equals 1, otherwise 0. $DepreciationCashrich_{i,t}$ is the product of the coefficients of $Depreciation_{i,t}$ and $Cashrich_{i,t}$. $Serial\ Acquirer_{i,t}$ is a dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise. The model also includes variables of control: $Size_{i,t}$ is calculated as the natural logarithm of total assets; $MBV_{i,t}$ is calculated as the ratio between market value of equity and shareholders' equity. The model includes year and industry fixed effects: $Industry\ FE_{i,t}$ is a dummy by industry for the acquirer firm, using the two digit SIC-CODE and $Year\ FE_{i,t}$ is a dummy by year of the acquisition; all these variables are winsorized at 1% and 99%. Robust standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Cash-based M&As
$Depreciation_{i,t}$	-0.013
	(0.027)
$Cashrich_{i,t}$	-0.008
	(0.017)
$DepreciationCashrich_{i,t}$	0.020
	(0.032)
$Serial\ Acquirer_{i,t}$	-0.049***
	(0.019)
$Size_{i,t}$	0.007***
	(0.003)
$MBV_{i,t}$	-1.939
	(1.183)
Observations	3,022
Pseudo R2	0.0422

6. CONCLUSION

The present dissertation examines cross-border and domestic M&As across a period after the economic crisis, from 2007 until 2017. It aims to analyze what is the impact of currency depreciation in cross-border M&A when the bidder is from the United States. Using a sample with 21,734 observations from 19 countries the results obtained are mixed and surprising, some supporting previous studies.

Following preceding literature three hypotheses are formulated in order to test what is the effect of currency depreciation.

Testing my first hypothesis I find evidence that is not supported by previous studies. When a currency depreciation occurs, on average, the percentage of cross-border M&As decreases. This result is surprising because it was expected exactly the opposite to happen – the prices of the country that suffer the depreciation are relatively cheaper to the American Dollar, what should encourage firms to acquire companies for the country with a currency depreciation. Further alternatives are tested after finding this relation, splitting the samples into groups. When testing each region separately one result is significative and different from the previous conclusions - when a currency crisis happened in Brazil, the cross-border tendency increased. I hypothesise that the results can be the direct consequence of global financial crisis – a crisis that had little impact in Brazil but a great one in richer countries. Additionally, tests for geographically and culturally closer/distant countries were undertaken. The results lead to the conclusion that in fact greater cultural distance decreases the volume of cross-border M&As.

Alternative methodology is used, testing only cross-border M&As. The results reveal that there is a significant negative relation between a currency shock and cross-border M&As when the country is either geographically closer or with higher shareholder protection.

My findings reject the hypothesis for a positive relation between cross-border M&As and conglomerate acquisitions. In a currency depreciation in a foreign country, acquirers from U.S. prefer same industry M&As than conglomerate M&As. An alternative methodology is tested but no results are statistically significative.

For my third hypothesis 2 models are computed. The first model goes along with previous literature – although a general negative effect, cash-rich firms take advantage of a currency depreciation to engage in cross-border M&As, in comparison to non-cash rich firms. For the second

model, to test if cash-rich firms pay with cash, the results are inconclusive as no values are statistically significative.

Overall the results are varied, some being contradictory while others strengthen previous literature. Nevertheless, I admit that these results are very limited – my sample selection is restricted, my period of analysis matches in part with the financial crisis and some variables can be defined in a more complex way, with more information being implemented. In addition, there are more crucial determinants of cross-border M&As that are overlooked in this dissertation. It would be interesting for further research to focus on the limitations presented here and see if the conclusions remain equal for other periods.

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8. APPENDIX

Appendix A – Variable definition

Variable	Definition
$Crossborder\ M\&As_{i,t}$	Dummy variable that equals 1 for cross-border acquisitions and 0 otherwise made by acquirer i in year t.
$Depreciation_{i,t}$	Dummy variable, 1 when it occurs and 0 when there is period without a depreciation
$Serial\ Acquirer_{i,t}$	Dummy variable that equals 1 if an acquirer made over 5 acquisitions in the sample period and 0 otherwise
$Size_{i,t}$	Natural log of the firm's market value
$MBV_{i,t}$	Ratio between market value of equity and shareholder's equity
$ROE_{i,t}$	Return on equity, being the ratio between net income and shareholders' equity
$BookLeverage_{i,t}$	Long debt divided by total assets
$Conglomerate_{i,t}$	Dummy variable created by using the two digit SIC-CODE: 0 when the acquirer and the target have the same industry and 1 when there are from distinct industries.
$Cashrich_{i,t}$	Dummy variable that is calculated by dividing *Cash Holdings* by *Total Assets;* if the value for a given firm in a given year is above the median of all observations it equals 1, otherwise 0.
$Cash/Stock\ M\&As_{i,t}$	Dummy variable that equals 1 for acquisitions with 100% cash and 0 otherwise.
$Geography_{i,t}$	Dummy variable that equals 1 for geographically closer countries,
$Culture_{i,t}$	Dummy variable that equals 1 for culturally closer countries and 0 otherwise
$Shareholder\ Protection_{i,t}$	Dummy variable that is 1 if the value given is above median of the sum of the country level indicator of Kaufman et al. (2009) and 0 otherwise.