



The effect of the European Debt Crisis on Eurozone Cross-Border
Acquisitions

by

Bogdan Kamenov Goleminov

Up201108823@fep.up.pt

Master Dissertation in Finance

Advised by

Prof. Miguel Augusto Gomes Sousa

2017

The Author

Bogdan Kamenov Goleminov was born in Porto on the 21st of October 1993 to a Bulgarian family of musicians. In 2011 he became a proud student of Faculdade de Economia da Universidade do Porto, having earned the Bachelor degree in Management in 2015. In the same year Bogdan was admitted to the Master in Finance course in the same institution, which lead to the writing of this dissertation.

Aside from his interest in Business and Finance, he is an athlete and instructor of Bodyboard and Surf, having competed at the national and European level.

Acknowledgments

First and foremost I would like to express my gratitude to Professor Miguel Sousa who helped me in various ways throughout the process of writing this dissertation. The Professor's comments, suggestions and overall motivation made this dissertation possible.

I would also like to thank and dedicate this dissertation to my mother and brother who inspire me every day to keep evolving into a better person.

Finally I would like to thank the University of Porto, the Faculty of Economics and all the Professors and faculty staff with whom I have crossed paths throughout my academic journey.

Abstract

Using event studies and difference-in-differences methodologies, applied to a sample of 313 deals announced by companies from the Eurozone between 2001 and 2016, this study provides empirical evidence on the impact of the latest financial crisis on the value creation of cross-border acquisitions, for the shareholders of the acquiring firm. Emphasis is given to the difference between the impact of the crisis upon Northern Eurozone companies and Southern Eurozone companies.

We found that Eurozone Cross-Border Acquirers earn, statistically significant positive announcement returns and that these returns have become higher since the beginning of the crisis. Despite the general increase in announcement returns, we show that, within the two groups of countries there were countries in which the impact of the crisis was relatively more positive and others in which it was relatively more negative.

Key-words: Cross-Border Mergers & Acquisitions, Value Creation, Asymmetric shocks, Crisis, Eurozone

JEL-codes: G01, G34

Sumário

Aplicando as metodologias de Event Studies e Difference-in-Differences a uma amostra de 313 aquisições anunciadas por empresas pertencentes à Zona Euro, evidenciamos o impacto da última crise financeira sobre a criação de valor conseguida através do anúncio de aquisições transfronteiriças, para os acionistas da empresa adquirente.

Mostramos que as empresas da Zona Euro geram retornos positivos estatisticamente significativos para os seus acionistas quando adquirem empresas fora do seu país e que esses retornos se tornaram mais elevados, desde o início da crise financeira. Mostramos ainda que, apesar de ser possível observar um aumento generalizado dos retornos atribuídos ao anúncio de aquisições transfronteiriças para a amostra como um todo, a crise teve um efeito diferente sobre os vários países da amostra. Dentro dos dois grupos correspondentes a países do Norte e do Sul da zona Euro foi possível identificar países sobre os quais o impacto da crise foi relativamente mais positivo e outros sobre os quais o impacto foi relativamente mais negativo.

Contents

1. Introduction.....	1
2. Literature Review.....	4
2.1 Advantages and disadvantages of belonging to the Eurozone.....	4
2.2 The crisis in the Eurozone.....	7
2.3 Cross-Border M&A activity	8
2.4 Similar studies.....	11
2.5 Literature Gap	12
3. Methodology	13
3.1 Event studies	13
3.2 Difference-in-Difference (DiD) methodology.....	18
4. Search criteria and resulting sample	21
5. Results.....	25
5.1 Event studies	25
5.2 Before and after the crisis	29
5.3 North versus South.....	32
5.4 Individual country analysis	34
5.5 Individual country Difference-in-Difference estimation	37
5.5.1 Germany.....	39
5.5.2 France.....	41
5.5.3 Belgium.....	43
5.5.4 Netherlands	45
5.5.5 Portugal and Spain	47
5.5.6 Ireland	49
5.5.7 Italy	51

6. Conclusions and further research	53
7. References	56

List of Tables

Table 1- Distribution of number of deals in the sample by country.....	22
Table 2 – Average Yearly Deal Value and Average Yearly Number of deals.....	23
Table 3 - Yearly Deal Value and Number of deals for the Northern Eurozone and Southern Eurozone companies	24
Table 4 - Cumulative average abnormal returns (CAAR) for the entire period.....	26
Table 5 - Cumulative average abnormal returns for “leakage” windows	28
Table 6 - Cumulative Average Abnormal Returns Before and After the Crisis	30
Table 7 - Results from Difference-in-Differences Methodology	33
Table 8 - Cumulative Average Abnormal Returns for Individual countries	36
Table 9 - Results from Difference-in-Differences Methodology for Germany	40
Table 10 - Results from Difference-in-Differences Methodology for France	42
Table 11 - Results from Difference-in-Differences Methodology for Belgium.....	44
Table 12 - Results from Difference-in-Differences Methodology for the Netherlands .	46
Table 13 - Results from Difference-in-Differences Methodology for Portugal and Spain	48
Table 14 - Results from Difference-in-Differences Methodology for Ireland.....	50
Table 15 - Results from Difference-in-Differences Methodology for Italy.....	52

List of Figures

Figure 1- Graphic representation of the Yearly Aggregate Deal Value for the entire sample	23
Figure 2 - Cumulative average abnormal returns	27

1. Introduction

The adoption of the euro as the single currency for the now nineteen countries which form the Eurozone has, among other benefits, developed the integration of product and capital markets in between Eurozone countries and increased the ability of Eurozone countries to create strong business ties with the rest of the world. The formation of the Eurozone created a structure for its members to compete globally via a more efficient allocation of resources and a currency which is accepted worldwide. By taking advantage of the common currency, doing business with companies from nearby countries became easier as well as doing business with companies from developed and developing countries in all corners of the world.

Business becomes easier for the members of the Eurozone partly because of the higher financial integration between the members of the monetary union. First, without the transaction costs involved in investing in foreign currency, companies from Eurozone countries are better able to exploit potential value creating deals located in fellow Eurozone countries (Neary, 2007). The fact that these deals are done in between companies with the same domestic currency, eliminates the uncertainty tied with the foreign exchange risk. Second, as member of the Eurozone, each of the countries owns a strong, liquid and widely accepted domestic currency which enables its relationship with the rest of the world (Coeurdacier et al., 2009).

Corporate takeovers are an essential function of capital markets, serving as both a way of restructuring industry and a form of entry into new markets. Takeovers are only one of the ways by which a company might invest in another company. Other means by which companies might invest, such as “greenfield” investments, partnering with other companies in “joint venture” or alliances, or any combination of these approaches (Collins and Hitt, 2006) will not be addressed in this research.

The focus of this research will be to assess the ability of Eurozone companies to successfully participate in the global market for corporate control by looking at the value creation (or destruction) the companies achieve for their shareholders through the announcement of Cross-Border Acquisitions (CBA). The objective is to get a sense of

the reaction of the market to announcements of CBAs, in different periods of time and for the different countries that made the Eurozone.

There is extensive literature on whether CBAs create value for the shareholders of the acquiring firms and whether they have significantly different value creation than domestic acquisitions. The main results from the existing literature are mixed and will be reviewed in the next section. Even though there are many studies investigating the value creation for acquiring firms from the announcement of CBA, there are not studies examining the effect of a crisis on this type of deals. The last European Debt Crisis provides a good opportunity to investigate this issue.

The Eurozone is made up of countries with very different characteristics and it is commonly stated that Southern Eurozone countries were hit more badly than their Northern counterparts because they were in a more fragile financial situation before the start of the financial crisis. Thus, we expect that the effect of the crisis on the ability of firms to create value through CBA should be different for different Eurozone countries because their ability to deal with crisis is not the same. This suggests the need for a separate analysis for each of these groups of countries, and for before/after the crisis periods, in order to take better conclusions.

This is the literature gap that this dissertation aims to fill. The purpose will not be to explain why crisis happens or what should be done at the national or at the Monetary Union level in order to avoid or fix them. The effect of the most recent crisis on the value creation of CBAs for the acquiring firms will be exposed, distinguishing between Eurozone countries and assessing if the crisis had different effects for different sets of companies, namely companies from Northern Eurozone countries and companies from Southern Eurozone countries. It should be noted that, as the focus is on the value creation for the shareholders of the acquiring firm, nothing will be said about the benefits of the CBA activity neither for society in general, nor for debtholders of the companies under analysis.

In order to quantify the value creation associated with the announcement of CBAs, the standard event studies methodology introduced by Fama et al. (1969) will be employed, which is consistent with the existing literature. Afterwards, the difference-in-differences

(DID) methodology will be used to assess how the crisis affect the different countries in the sample (Abadie, 2005; Meyer, 1995).

With this research we expect to contribute to the growing body of work about the implications of belonging to a monetary union for countries of heterogeneous characteristics and what can be expected to happen when periods of crisis come about. It is important to have a clear picture of both the advantages and disadvantages of belonging to a Monetary Union and the inability to respond to asymmetric shocks has drawn the attention of critics of monetary unions. It is in line with these objectives that this dissertation is framed.

In addition to the objectives mentioned in the previous paragraph, the results from this research will also be helpful for managers of firms in helping them to better predict the market's reaction in the case they decide to engage in CBAs and assess when it makes sense to pursue such a strategy. Finally, the results from this dissertation might be helpful for portfolio managers in possibly helping them to have a better idea of what the change in the value of their portfolio will be, if the manager thinks one or more of the companies in his portfolio are likely to engage in CBA.

The remainder of this dissertation will be organized as follows: in chapter 2 the main related literature and concepts are discussed; chapter 3 will introduce the methodology used in the dissertation; chapter 4 reports the search criteria and the resulting sample; in chapter 5 we present and discuss the results and in chapter 6 we conclude.

2. Literature Review

In order to conduct this research, we have drawn knowledge from the existing literature on several topics. This section will detail the studies that were taken into consideration to frame the research question, the results of past studies on the value creation from Cross-Border Acquisitions as well as the grounds for why we expect there would be a different effect from the crisis on the different Eurozone countries.

2.1 Advantages and disadvantages of belonging to the Eurozone

At the turning point of the new millennium, twelve European countries established the euro as the official currency, giving away monetary policy to the European Central Bank. These twelve became nineteen and now include: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, The Netherlands, Portugal, Slovakia, Slovenia and Spain. The Maastricht Treaty on Economic and Monetary Union (EMU) provides for the establishment of a common currency area among European Community (EC) countries, but not a common fiscal policy. In other words, in the EMU, countries share the currency but there is no fiscal federalism.

Regional trade agreements such as the ones in the European Union and the EMU itself can improve its member countries' ability to participate in the globalized market and increase overall M&A activity for several reasons. First, trade liberalization increases competition by reducing trade costs, eliminating exchange rate risk and improve price transparency (Mundell, 1961; Lama and Rabanal, 2012). Second, a monetary union improves the capital markets, thus it makes the movement of capital easier by reducing the cost of capital and reducing transaction costs. This allows for easier access to capital by member countries and a strong currency which is accepted everywhere (Neary, 2007; Lama and Rabanal, 2012). Third, if a monetary union is able to reduce exchange rate volatility and stabilize inflation, it will make it safer to invest in countries which belong to the Union, thus helping member countries attract foreign investment from fellow EMU members and other non-EMU countries (Coourdacier et al., 2009; Mundell, 1961).

However, adopting the common currency might be costly for a country since it loses its autonomy in monetary and exchange rate policies which are crucial for macroeconomic stabilization (Mundell, 1961; Lama and Rabanal, 2012). Countries lose monetary policy autonomy when they join a Currency Union but, despite this, according to Mundell (1961) there are certain conditions under which a country joining a currency union will have less disadvantages in terms of loss of monetary autonomy. According to Mundell, a currency union will tend to be less costly for countries that experience high correlation in the variability of economic variables with other countries in the union, as this will increase the harmony of opinions over the direction of monetary policy to be taken by the monetary authority. Mundell adds that joining a currency union will also tend to have less costs for smaller, price-taking economies.

The fact is that these characteristics which are recommended by these authors for a Currency Union to work properly are not present in the countries which form the Eurozone.

In what regards the asymmetry of shocks within the countries which compose the Eurozone, several authors (see Bayoumi and Eichengreen, 1993a; Bayoumi and Eichengreen, 1993b; Silva and Tenreyro 2010) defend that a strong distinction exists between the shocks affecting the countries at the core of the EC (namely Germany, France, Belgium, the Netherlands and Denmark) and the distinct shocks affecting periphery EC members (such as the UK, Italy, Spain, Portugal, Ireland and Greece). These authors document that the shocks to core EC countries are both smaller and more correlated across neighbouring countries than for periphery EC countries and that there is little evidence of convergence in the sense of this difference between becoming less pronounced with the passing of time.

While it can be argued that the asymmetry of the shocks might be somewhat beneficial because it brings advantages in terms of financial diversification, these authors point to realities such as losses in human capital from high unemployment, costs in terms of work relations and fixed costs of closing and reopening plants that need to be considered when defending that financial diversification will be enough to smooth the shocks.

When countries in a monetary union are subject to asymmetrical shocks, monetary policy at the union level might not be able to deal with both problems at the same time. In fact, this is what we observe in the EMU. Despite the fact that the Eurozone as a whole has a relatively balanced current account, current accounts and public accounts for individual countries increasingly diverge between surplus and deficit (Mazier and Petit, 2013).

The Eurozone crisis, brought to attention the large macroeconomic imbalances in member countries that had been growing subsequently to the introduction of the common currency in 1999, but were hidden by relatively good growth performance. The main symptoms of these intra-Eurozone imbalances were the high current account deficits and increasing external debts in the Eurozone periphery countries, at the same time as the core countries experienced high surpluses. These imbalances were driven by high domestic demand growth in the periphery, which was financed by capital flows from the core (Servaas and Naastepad, 2015).

These authors argue that these imbalances arose as a result of strong domestic demand growth in the periphery, driven by a domestic credit boom made possible by European financial integration and consequent easier access to capital. The external finance coming from core countries to periphery, ended up in non-traded medium-low-tech activities such as construction instead of being used to evolve medium-high-tech activities. In other words, monetary policy deepened the already existing structural heterogeneity in the Eurozone making it more difficult for Southern Europe countries to respond to the adverse shocks that came with the crisis.

The fact that different countries in the Eurozone have a different ability to deal with crisis will serve as a starting point for this dissertation. By analyzing the dynamics of value creation from the CBA activity of Eurozone companies we will examine the impact of the crisis on this type of deals, focusing on the shareholders of the bidder firms and exposing if the effect of the last Crisis was different for the “stronger” Northern Eurozone Countries than for the more fragile Southern Eurozone Countries

2.2 The crisis in the Eurozone

As we are interested in knowing what the impact of the crisis was on the ability of Eurozone firms to generate value through CBAs, we need to establish the period in which we believe that the Eurozone was in a crisis environment. The origins of the crisis are complex and we do not aim at entering into details on this subject¹.

The global financial crisis, despite having started in 2007 in the United States, had quick repercussions across the international financial sector as a whole. After the United States sub-prime mortgage market began breaking down in the beginning of 2007, a worldwide financial turmoil, accelerated by the high international financial integration had a disastrous effect on the world economy.

Although the notorious collapse of investment firm Lehman Brothers in the United States and bail out of that country's largest insurance company by the Federal Reserve only happened in September 2008, the world financial crisis had already started long before that. In fact, Hudson and Quaglia (2009) document that, in August 2007, Germany was forced to bail out one of its banks, after it had incurred in large sub-prime-related losses and France's BNP Paribas decided to suspend three of its investment funds also due to large losses in assets originating in the US.

While the European Central Bank (ECB) almost immediately responded by granting almost €100 billion in short-term financing to banks in an effort to impede the advancement of the crisis, the damage had been done and the world economy had only started to feel the consequences. As Beltratti and Paladino (2013) document, a downward trend started after these events, mainly due to the credit crisis that made it difficult for European banks to access funding and to the lack of clearly defined answers to the crisis at the National and Monetary Union level.

Thus, for the purpose of this dissertation, we assume that deals announced on or after September 2007 belong to the crisis period.

¹ For a detailed factual overview of the financial crisis from a European perspective see Hodson and Quaglia (2009)

2.3 Cross-Border M&A activity

CBAAs are both a way of restructuring industry and an entry way to new foreign markets. (Bertrand and Zitouna, 2008).

Generally speaking, the acquisition or merger of companies is said to be done for a number of different reasons (DePamphilis, 2005). The acquiring company might: expect that the deal will bring operational or financial synergies of some sort; desire to diversify its product line or geographical area of business; implement a strategic realignment of the operations in the face of a significant regulatory or technological change; buy companies which are believed to be under-valued by the market; acquire companies which are currently being poorly managed and introduce its own processes in the target; acquire companies to take benefit from potential tax shelters; or buy companies to increase its market power and influence. Additionally, managers might decide to acquire a company because they unwillingly overestimate the potential synergies created by acquiring or merging with a certain target (Malmendier and Tate, 2008) or even because their compensation might be tied to the amount of assets under they control or to diversify the risk of their company in order to reduce the risk of becoming unemployed (Seth et al., 2000)

Acquiring foreign assets or companies is significantly more complex than acquiring domestic assets. However, when properly done, these deals can bring additional opportunities to the acquirer. Specifically, these foreign deals can deliver useful benefits in terms of technology, risk management and favourable government policies (Doukas and Travlos, 1988; Harris and Ravenscraft, 1991).

Companies in developed countries may desire to exploit their existing assets on a larger scale. They can do this by taking advantage of their superior products, technology, management capabilities, marketing channels, economies of scale or scope, better corporate governance, or special government incentives to get into higher growth markets or grow to participate in globalized markets (Bris and Cabolis, 2008; Makino et al., 2002; Errunza and Senbet, 1981).

Multinational companies based in less developed countries are more likely to be seeking strategic assets not available at their home market (Luo and Tung, 2007; Deng, 2009).

The assets these companies normally seek are: new technology, brands, talented employees and managers, wider distribution channels or natural resources. These companies might also be acquiring other companies overseas for the need to avoid institutional constraints at home (Child and Rodrigues, 2005; Deng, 2009; Luo and Tung, 2007; Rui and Yip, 2008). In order to be able to compete with companies from bigger, more developed countries, acquirers from less developed countries have to learn, reorganize their resources, and improve their capabilities (Kogut and Zander, 1992; Teece et al., 1997).

The strategic assets needed to succeed in an international setting are often difficult to develop organically partly because the institutional environment and the infrastructure network might be relatively under-developed in some countries (Makino et al., 2002). Thus, CBAs can help the companies mitigate domestic constraints, help develop competitive advantages and enable these companies to explore new opportunities in international markets.

The successful acquisition of companies and the intended internalization of the skills which were the motive for acquiring the target might not be straightforward. Because of the intangible nature of many assets, such as technology, culture, skills or human capital, the transfer of these assets to the acquiring firm involves a significant amount of knowledge transfer and much of this knowledge is embedded in the culture and people of the target. This can put the success of the deal in danger if not done carefully (Coff, 1999).

According to Coff (1999), embedded knowledge cannot be efficiently transferred through market transactions and is not always easy to learn. CBAs can serve as a way to overcome this difficulty (Capron et al., 1998). Javidan et al. (2005) explain that the main aspects of knowledge exchange in CBA deals are related to methods of operating, know-how and feedback about procedures and products and this transfer of knowledge can go on both directions. It might be that the acquirer is seeking to leverage on its superior processes and products to improve the target or it might be that the acquirer is seeking to buy a target in order to learn with it and adopt its processes and know-how. As Hitt et al., (1997) highlight, it is logical to predict that the deals in which the acquiring firm will be learning and absorbing knowledge are more challenging than the deals in which the

acquirer is exploiting its assets and spilling over its processes to the target. CBAs are high risk deals which may bring potentially high rewards as well as result in high losses due to the value of these transactions.

Because of the complexity of the different stages involved in such deals, it can happen that the management lose track of what the merger is about and how it was supposed to be executed. The managers can also fail by failing to identify or misinterpret the challenges which the economic and regulatory environment of the target country might bring (Sudarsanam, 2003).

Apart from difficulties in integrating the target company, there are other factors that might contribute to the failure of a Merger or Acquisition. Bidder companies might fall in the trap of overpaying for the target company if they are not able to correctly estimate the target's value before launching an offer (Sung, 1993). Valuation errors might also be potentiated by the use of different accounting standards, failure to foresee large exchange rate fluctuations and cultural differences (Danbolt, 2004).

CBAs are an instrument that can be used by management to achieve a certain strategic objective. Thus, to the extent that the owners of shares in the bidder company and other investors in the market believe that the strategy and rationale behind the deal is correct and potentially successful, there will be a positive or negative reaction of the market to the announcement of these deals.

If the market participants believe in the validity of the objectives of the deal, they will increase the demand of shares of the bidder company and also the price they are willing to pay for these shares. On the contrary, if the shareholders of the bidder firm and other market participants see a certain CBA as lacking a valid strategy, they will tend to dispose themselves of the shares of the bidder company or lower the price they are willing to pay for shares of that company because they re-estimate the value of the bidder firm negatively with the new information.

There is extensive literature investigating if CBAs create or destroy value for the bidder firm, which will be presented in the next chapter.

2.4 Similar studies

A great deal of research has studied the announcement returns of Cross-Border Acquirers. There are, however, mixed results in the existing literature.

On one side we have Doukas and Travlos (1988), Eun et al., (1996), Cakici et al., (1996), Goergen and Renneboog (2004), Gubbi et al. (2010), Bhagat et al. (2011), DeYoung et al. (2009), Markides and Oyon (1998) and Markides and Ittner (1994) who found that cross-border acquirers earned positive announcement returns. These studies focus on acquirers from the United States, Europe, India, Brazil, China, Malaysia, Mexico, Philippines, Russia, and South Africa.

On the other side Spyrou and Siougle (2010), Aw and Chatterjee (2000), Eckbo and Thoburn (2000), Moeller et al. (2004), Aybar and Ficici (2009), Chakrabarti et al. (2009) and Datta and Puia (1995) have found a negative effect of the announcement of CBA activity on the acquirers' stock price. This set of authors focused on returns for bidder firms based in the United Kingdom, Canada, United States, India, South Africa, Honk Kong, China and Singapore.

Additionally, there is a set of authors who find that there is no significant market reaction to the announcement of CBA activity, for the acquiring firm. These include Campa and Hernando (2006) and Datta et al. (1992) who focused on bidder firms from Europe and the United states.

2.5 Literature Gap

The literature focusing on the short-term value creation achieved by bidder firms when they announce CBA deals is not a novelty. It started with studies focusing bidder companies from the United States of America and the UK, and later encompassed also companies from developed and emerging markets across the world. This body of literature does not, however, contain studies examining the effect of a crisis on the short-term market reaction to CBA announcements.

This dissertation, by examining all CBAs announced by listed companies from a sample of Eurozone countries, aims to contribute to the literature in two ways. First, by focusing only on Eurozone countries, the aim will be to assess how companies based in Eurozone countries were able to participate in the global market for corporate control, since the adhesion of their home countries to the shared currency. Second, by taking advantage of a sample which contains several years before and after the start of the crisis, we hope to shed light onto the issue of how the crisis impacts the short-term value creation companies achieve when announcing CBA deals, not only for the Currency Union as a whole, but also decomposing the effect of the crisis for the different countries in the European Union.

To our best knowledge, these issues have not been addressed to the present day.

3. Methodology

3.1 Event studies

Following what is the standard in value creation research, the “event studies” methodology will be used to assess if the individual deals created value, destroyed value or were value neutral, for the acquiring firm. This methodology was introduced by Fama et al. (1969) and has become the norm for this type of analysis.

This methodology is based on the assumption that the stock market can reflect any available information instantly and so the implications of the announcement of an acquisition by any given firm should immediately be reflected in the market price of that firm’s shares. According to this, in cases when the market interprets the deal as a positive event for the future profitability of the bidder firm, the market price of its shares will increase. When the market assesses the deal as bad news for the future of the bidder firm that will translate into a decrease in the price of its shares in the market. There is also the possibility that the deal is thought to be irrelevant for the future profitability of the firm and, in these cases, the share price of the bidder firm will not suffer any significant changes.

To assess if any given deal or event had an impact in the share prices of the bidder firm, the first step is to collect series of returns for the companies involved in the deals. Using this data, the returns of the bidder companies in the case they had not acquired any company are estimated. These hypothetical returns are called expected returns ($E[R]$), and are compared to the actual returns observed. Using this methodology, it is easy to measure the abnormal return (AR) and attribute it to a particular event, in this case the announcement of a CBA.

In this dissertation, we started by looking first at the significance of the simple cumulative returns (CR), without taking into consideration any expected aspect of the returns. Additionally, two different models of $E[R]$ were used. The first one was to assume that each of the companies under analysis has a Beta (β) equal to one which means that the $E[R]$ of that company move together with the returns of the benchmark Index chosen. The second one, following Sharpe (1963), assumes that the $E[R]$ for any given security is given by its relationship with the benchmark index chosen. The relationship between

the firm returns and the benchmark index returns is captured by the β parameter which is estimated by regressing the bidder firm returns against the returns of the Benchmark Index. The choice to consider different models for estimating $E[R]$ was done to ensure that the results are robust and do not depend on any model.

After deciding on how to estimate the $E[R]$, the event window and the estimation window must be set. The estimation window serves to estimate the relation between a certain firm's returns and the market returns while the event window consists of the days around the event date which are chosen to be analysed. The windows chosen for this dissertation were: $[-2,+2]$, $[-2,+5]$, $[-2,0]$, $[-10,-6]$ and $[-10,+5]$. The last window contains the total period under analysis.

For any given day, the difference between the observed return (R) and the $E[R]$ yields the AR and is computed as follows:

$$AR_{i,t} = R_{i,t} - E[R_{i,t}] \quad (3.1)$$

Where:

$AR_{i,t}$ – Abnormal Return for company i at day t .

$R_{i,t}$ – Observed Return for company i at day t .

$E[R_{i,t}]$ – Expected Return for company i at day t .

According to the two different models for the β parameter, the $E[R]$ will be computed in different ways. When β is assumed to be equal to 1, $E[R]$ for company i at day t is given by:

$$E[R_{i,t}] = R_{m,t} \quad (3.2)$$

Where $R_{m,t}$ is the return of the Benchmark Index on day t .

When the β parameter is estimated following Sharpe (1963), the $E[R]$ is given by:

$$E[R_{i,t}] = \alpha_i + \beta_i R_{m,t} \quad (3.3)$$

Where:

$E[R_{i,t}]$ – expected return of firm i on day t .

α_i – intercept or the part of the returns of firm i that are independent from the returns of the Benchmark Index.

β_i – measure of the sensitivity of the returns of firm i in relation to the returns of the chosen Benchmark Index.

The AR obtained with equation (3.1) which refer to each individual day and firm are then cumulated for the different windows which were chosen. For each event window, the AR for each day are cumulated from the first day of the window to the last, which yields Cumulative Abnormal Returns (CAR) such that:

$$CAR_i = \sum_{t=1}^N AR_{i,t} \quad (3.4)$$

Using equation (3.4), the CARs for the different deals are obtained and also for each deal, for the different event windows and models of estimating the β parameter. For all combinations of different ways of estimating β and different event windows the CARs obtained are summed and divided by the number of deals which they correspond to in order to obtain the Cumulative Average Abnormal Returns (CAAR), such that each CAAR is a measure of the average value created or destroyed by the deals in the sample, for a certain window and model of estimating β .

$$CAAR_i = \frac{\sum_{t=1}^N CAR_i}{N} \quad (3.5)$$

The chosen benchmark index was the Euro Stoxx 50 Index. In order to assess the sensitivity of the returns of bidder companies in the sample to the returns of the chosen index, the β parameter was estimated, considering the 200 trading days up to 10 days before the date of each deal. Using the returns of the index and the returns of each company under analysis, for that period, a β for each company and for each deal was estimated through a regression based on the Ordinary Least Squares (OLS) method.

Both the returns of the benchmark index and the returns of the individual firms were computed using the logarithmic transformation of the daily returns, such that R_{mt} from equation (3.2) is computed as:

$$R_{m,t} = \ln\left(\frac{P_{BM,t}}{P_{BM,t-1}}\right)$$

Where:

$P_{BM,t}$ – Benchmark Index level at day t.

$P_{BM,t-1}$ – Benchmark Index level at day t-1.

and R_{it} from equation (3.1) is computed as:

$$R_{it} = \ln\left(\frac{P_{i,t}}{P_{i,t-1}}\right)$$

where:

$P_{i,t}$ – price of the shares of company I on day t.

$P_{i,t-1}$ – price of the shares of company I on day t-1.

The resulting CAARs from equation (3.5) are a measure of the value that was created or destroyed for the holders of shares of the bidder firms in the sample. These results must not be interpreted without the respective tests of significance, that ensure that these returns are in fact significant and are not just result of random volatility. The significance tests used in this dissertation were the mean t-test and Wilcoxon signed rank test.

Through the mean t-test, we carry out the test of the null hypothesis that the mean μ of the CAAR across the sample is equal to zero, against the two-sided alternative that it is not equal to zero:

$$H_0: \mu = 0$$

$$H_1: \mu \neq 0$$

The t-statistic is computed as:

$$t = \frac{X-0}{\frac{s}{\sqrt{N}}} \quad (3.6)$$

Where:

X – Sample mean.

s – Unbiased sample standard deviation.

N – Number of observations.

If the series of CARs is normally distributed, under the null hypothesis the t-statistic follows a t-distribution with N-1 degrees of freedom. Based on the reported probability value (p-value) of the test, the null hypothesis that the mean value of series of CARs is equal to zero is rejected if that p-value is lower than 0.01, 0.05 or 0.1 for levels of significance of 1%, 5% and 10%, respectively.

To complement the mean t-test we chose to apply the nonparametric median Wilcoxon signed rank test (Wilcoxon, 1945). This median test carries out the test of the null hypothesis that the median of the resulting CARs is equal to 0 against the two-sided alternative that it is not equal to zero:

$$H_0: \text{median} = 0$$

$$H_1: \text{median} \neq 0$$

This test is done by computing the absolute value of the difference between each observation and the mean, and then ranking these observations from high to low. The Wilcoxon test is based on the idea that the sum of the ranks for the samples above and below the median should be similar. This test considers both the sign and the magnitude of the ARs.

The test statistic for the Wilcoxon Signed Rank Test is defined as:

$$Z_{\text{Wilcoxon, t}} = \frac{W - N(N-1)/4}{\sqrt{(N(N+1)(2N+1)/12)}} \quad (3.7)$$

With:

$$W_t = \sum_{i=1}^N \text{rank}(\text{CAR}_i)$$

Where:

Rank (CAR_i) – positive rank of the absolute value of the CAR for firm i.

As with the t-test, the resulting test statistic from the Wilcoxon signed rank test comes with an associated p-value which will be interpreted and used to reject or not reject the null hypothesis according to the levels of significance of 1%, 5% and 10%.

3.2 Difference-in-Difference (DiD) methodology

In order to capture the differential in the effect of the crisis upon the countries of Northern Eurozone versus Southern Eurozone, the difference-in-difference (DiD) methodology will be employed (Abadie, 2005; Meyer, 1995). DiD is one of the tools used for applied research in economics to evaluate the effects of public interventions and other “treatments” on relevant variables. This methodology allows us to assess how different the outcomes are for the two groups under analysis.

For the purpose of this dissertation, the “treatment” that will be analysed will be the fact that a certain country belongs to the group of countries which makes the Southern Eurozone. The two groups of interest are the groups of countries which compose the Northern Eurozone countries and the Southern Eurozone countries. The sample is naturally constructed and consists of a situation in which we are able to observe pre-crisis and post-crisis outcomes for a sample of M&A deals.

Taking advantage of this methodology, we will be able to assess how different the effect of the crisis was for the two groups of countries by analysing the dynamics in the value creation from the M&A deals performed by companies in these countries before and after the crisis.

DiD methodology belongs to the field of “natural experiments”. A “natural experiment” is an empirical study in which individuals or groups of individuals exposed to a

“treatment” are determined by nature or by other exogenous factors outside the control of the investigators. Thus, these experiments are observational studies which are not controlled by the investigator like in the randomized experiments.

As explained in the literature review, countries in the Southern Eurozone are believed to have been in a more fragile situation before the start of the crisis and so this dissertation aims to assess if the effect of the crisis was felt more strongly by these more fragile countries than by their Northern Eurozone counterparts. To do this we will assume that the treatment group is the group of countries which represents the Southern Eurozone and the control group is the group of countries representing the Northern Eurozone. With this separation and using the DiD methodology to assess the differences in value creation before and after the crisis for these two sets of countries, we hope to shed light on this issue.

To employ the DiD methodology to answer our research question, the series of CAARs relative to the several event windows and models of $E[R]$ must be regressed against the dummy variables according to the following equation and using Ordinary Least Squares:

$$CAR_i = \beta_0 + \beta_1 \text{Period}_t + \beta_2 \text{Location}_i + \beta_3 \text{Period}_t * \text{Location}_i + \mu_{it} \quad (3.8)$$

Where:

CAR_i – Cumulative abnormal return for a certain deal, associated with a given event window and model of Expected Return.

Period – Dummy variable which takes the value of 1 when the deal in question has occurred during/after the crisis and zero if the deal has happened before the crisis.

Location – Dummy variable which takes the value of 0 when the deal has been announced by a company belonging to the Northern Eurozone group and 1 if the deal has been announced by a company in the Southern Eurozone.

The coefficient β_3 , called the difference-in-difference estimator, represents the effect of the crisis upon the treatment group, the countries in the Southern Eurozone. The statistical significance of this coefficient indicates that there, in fact, has been a differential in the effect of the crisis for the two groups of countries. Contrarily, if these

coefficients do not prove to be significant, the effect of the crisis for the two groups under analysis has been similar.

4. Search criteria and resulting sample

The sample used for this dissertation was gathered from the Zephyr database and comprises all the available cross-border acquisitions announced (and completed) by companies listed in the main stock indices¹ of Portugal, Italy, Ireland, Greece, Spain, Germany, France, Belgium and the Netherlands.

While all the bidder firms are public, the target firms in the sample are both public and private. No domestic acquisitions were considered as the focus of the research is on the ability of Eurozone companies to invest outside of their country borders. The choice of the countries was made in order to have a sample representative of both the North and the South of the Eurozone.

In order to qualify for this sample, deals are required to have been announced and completed between January 2001 and the December 2016, have a minimum deal value of €100 million and the bidder firm must have had a stake in the target lower than 49% before the acquisition and ended up with a stake higher than 50% after the deal, so that only acquisitions of majority stakes are considered.

Deals in which the bidder firm belonged to the banking sector were excluded due to the specific profile of this industry's accounting information. Also, when acquirers have announced more than one deal in a single year, only the first deal is considered for this sample because the estimation of the parameters needed to conduct the event studies methodology of the latest deal would be compromised by the market's reaction to the first deal.

Along with these criteria, the sample amounts to 313 deals, 232 of which announced by bidder companies from Northern Eurozone countries (Germany, France, Belgium and the Netherlands) and 81 of them by bidder companies from the Southern Eurozone (Portugal, Italy, Ireland, Greece and Spain).

Table 1, reports the distribution of the number of deals in the sample by country of the bidder firm. Unfortunately we ended up with zero observations for Greece. This

¹ PSI20, FTSE MIB Index, ISEQ 20 Index, FTSE Athex Large Cap, IBEX 35, DAX, CAC 40, BEL 20, and AEX Index

happened because the only available deals for Greece have been done by companies in the banking sector which were, as mentioned earlier in this chapter, excluded. We conclude from this that Greece never had the proper structure for its companies to seek business opportunities abroad. Also, except for one deal in which French AXA SA insurance company acquired Greek Alpha Insurance Company SA, Greek companies do not appear as targets of CBAs in the gathered sample showing that the Greek market for corporate control has not developed even with the benefits of the introduction of the euro as a single currency.

Table 1- Distribution of number of deals in the sample by country

This table reports the number of deals announced by companies based in each of the countries in the sample, during the entire period under analysis.

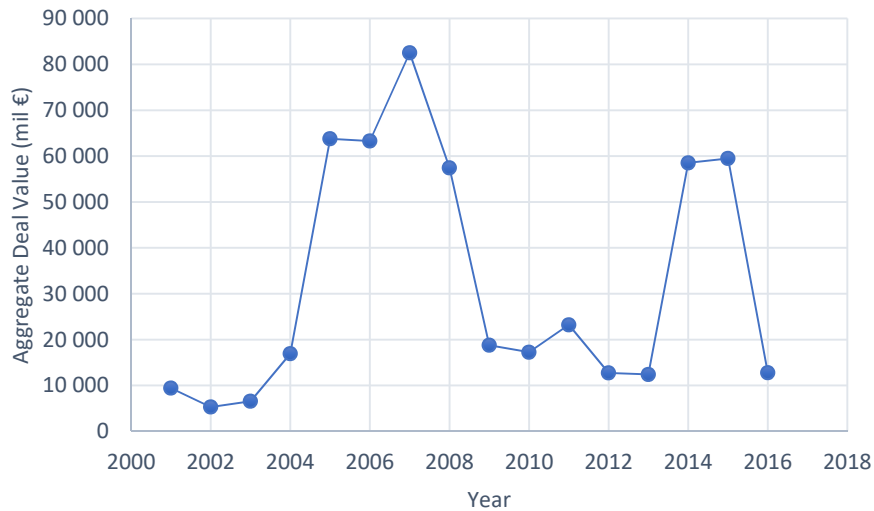
Country	Nº of Deals
Germany	70
Netherlands	45
Belgium	25
France	93
Italy	29
Spain	28
Portugal	4
Greece	0
Ireland	19
Total	313

The sample period includes the totality of what was documented by Weitzel et al (2014) as the “Sixth European Merger Wave”, from 2004 to 2007. This merger wave can easily be seen when looking at the Graphic representation of the evolution of the Yearly Aggregate deal value, shown in Figure 1.

After this merger wave, there is a pronounced decline in the CBA activity following the start of the financial crisis, in 2007 and, although the Yearly Deal Value showed signs of increase in 2014 and 2015, it has yet to return to pre-crisis levels.

Figure 1- Graphic representation of the Yearly Aggregate Deal Value for the entire sample

This Graph presents the evolution of the Aggregate Value of the deals in the sample, throughout the years of the period under analysis.



As presented in Table 2, there was a general reduction in both the average number and the average value of deals announced since the beginning of the crisis. This reduction has been more accentuated for the Southern Eurozone countries.

Table 2 – Average Yearly Deal Value and Average Yearly Number of deals

This table presents the Average Aggregate Yearly Deal Values and the Average Number of deals announced every year by companies from the Northern and Southern Eurozone, while distinguishing between the two periods: before and after the start of the crisis.

<u>Average Yearly Deal Value</u>		
(mil €)	Before	After
North	27 305	25 551
South	8 100	4 739
<u>Average yearly number of deals</u>		
	Before	After
North	16	14
South	6	4

While the average yearly deal value decreased approximately 6% between the two periods for the Northern Eurozone countries, the same indicator for Southern Eurozone countries decreased by approximately 41.5%.

In what regards the number of deals announced by companies in the two groups of countries we can see that while companies from Northern Eurozone went from announcing an average of 15 deals per year to announcing an average of 14 deals per year, companies from Southern Eurozone saw that number change from 6 to 4 average deals announced per year.

More disaggregated data can be seen in Table 3 and it confirms that companies from the North were more active than their South counterparts in terms of CBA, both in terms of volume and value of the deals.

Table 3 - Yearly Deal Value and Number of deals for the Northern Eurozone and Southern Eurozone companies

This table presents the Number of Deals and the Aggregate Value of the deals announced by companies based in the two sub-groups of countries, for each year of the period under analysis.

Year	<u>South</u>		<u>North</u>	
	Nº Deals	Deal Value (mil €)	Nº Deals	Deal Value (mil €)
2016	13	11 897	5	870
2015	13	51 178	5	8 311
2014	23	38 862	8	19 665
2013	9	10 691	2	1 714
2012	12	11 823	4	909
2011	16	21 907	4	1 322
2010	12	14 618	1	2 639
2009	9	17 156	4	1 617
2008	17	51 826	4	5 606
2007	28	69 346	12	13 172
2006	30	58 191	7	5 099
2005	19	32 371	9	31 413
2004	14	13 057	7	3 873
2003	7	4 925	6	1 639
2002	8	3 812	3	1 501
2001	2	9 430	0	0
Total	81	99 350	232	421 090

5. Results

The objective of this dissertation is to assess the impact of the global financial crisis upon the ability of European firms to create short-term value for their shareholders through CBAs. It was expected that the crisis and its devastating effect on the world economy would make it more difficult to create value through CBAs. Liquidity shortage, major write-downs on securities and loans by Eurozone banks and uncertainty over the depth and duration of the recession (Hodson and Quaglia, 2009) could result in fear on the part of investors and, thus, in lower average value creation for the subsample during/after the crisis. Additionally, it was also expected that Northern Eurozone countries would be impacted in a different way than Southern Eurozone countries. The expected difference in the impact of the crisis is attributed to the fact that the latter group of countries was in an apparently more fragile situation than the former because of the reasons previously explained in the literature review.

5.1 Event studies

The measurement of the short-term impact of the announcement of a CBA on the value of the bidders' shares was done using the event study's methodology introduced earlier.

The results for the full sample, reported in Table 4, show that there is a significant positive value creation around the event day. This value creation, evidenced by positive CAARs is statistically significant across the three different event windows and the three models of $E[R]$.

For the window with the longest period, ranging from 10 days before the event to 5 days after, the resulting CAARs are significantly positive suggesting that deals in the sample created value for the shareholders of the acquiring firm.

Table 4 - Cumulative average abnormal returns (CAAR) for the entire period

This table presents the cumulative average abnormal returns which resulted from the event studies methodology, for the several event windows and models of expected returns. ***, ** and * indicate statistical significance of the CAARs according to the t-test, for levels of significance of 1%, 5% and 10% respectively. a), b) and c) represent statistical significance of the resulting CAAR according to the Wilcoxon Ranked Sum test, for levels of significance of 1%, 5% and 10% respectively.

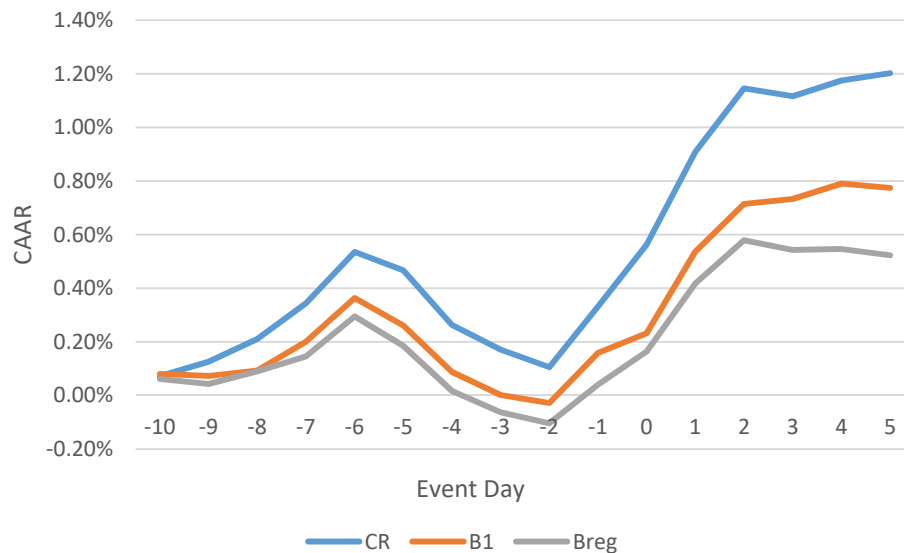
	<u>Event Window</u>		
	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2,+5]</u>
<u>1. Cumulative Returns</u>			
CAAR	1.20% ***	0.96% ***	1.06% ***
% Positive CAAR / Wilcoxon	48% a)	68% b)	45% a)
<u>2. $\beta=1$</u>			
CAAR	0.77% **	0.71% ***	0.78% ***
% Positive CAAR / Wilcoxon	51% b)	44% b)	48% a)
<u>3. β regression</u>			
CAAR	0.52%	0.60% ***	0.58% **
% Positive CAAR / Wilcoxon	48%	40% a)	45%

Shortening the event window to the 4 days around the event date, the window [-2,+2], yields significant positive CAARs. The CAARs provided by this event window appears to be not only statistically significant but also definitive because when 3 days are added to that window, making it range from day -2 to day +5, the resulting CAAR is also statistically significant. This suggests that the value created during the days of the window [-2,+2] is maintained or even increasingly supported and not just a temporary effect.

To analyze the full behavior around the announcement day, the cumulative average abnormal returns throughout the entire period is plot in Figure 2.

Figure 2 - Cumulative average abnormal returns

This graph shows the graphic representation of the cumulative average abnormal returns throughout the entire period used in the event study's methodology, for the three different models of expected returns.



By plotting the CAARs of the entire window one can see that there is, on average, a positive and increasing CAAR starting in day -10 up until day -6 that is erased in the following days until day -2. Similarly, we can observe a positive CAAR in the two days preceding the deals. The existence of these reactions before the day of the deal could indicate leakage of information about the deal or an expectation by the market participants that the deal might be realized.

We proceeded to analyze event windows [-10,-6] and [-2,0] to assess if there was, in fact, an anticipation of the transactions by the market. Table 5 reports the results of this analysis.

From the two possible evidence of leakage, only one proved to be statistically significant. For event window [-10,-6] there is, on average, a statistically significant positive reaction from the market to the deals in our sample. This reaction is presented in the form of a positive CAAR ranging from 0.29% to 0.53%, depending on the model of E[R]. Although the Wilcoxon signed rank test does not show statistical significance for this window, except for the cumulative returns, the t-test is statistically significant across all three models of E[R]. On the contrary, the apparent reaction during window [-2,0] is only

statistically significant for the cumulative returns so we cannot argue anything about leakage of information during this window.

Table 5 - Cumulative average abnormal returns for “leakage” windows

This table presents the cumulative average abnormal returns which resulted from the event studies methodology, for the two event windows which potentially prove there was leakage of information, for the three models of expected returns. ***, ** and * indicate statistical significance of the CAARs according to the t-test, for levels of significance of 1%, 5% and 10% respectively. a), b) and c) represent statistical significance of the resulting CAAR according to the Wilcoxon Ranked Sum test, for levels of significance of 1%, 5% and 10% respectively.

	Event Window	
	[-10;-6]	[-2;0]
<u>1. Cumulative Returns</u>		
CAAR	0.53% **	0.39% **
% Positive CAAR / Wilcoxon	58% a)	54%
<u>2. $\beta=1$</u>		
CAAR	0.36% **	0.24%
% Positive CAAR / Wilcoxon	51% a)	51%
<u>3. β regression</u>		
CAAR	0.29% *	0.18%
% Positive CAAR / Wilcoxon	52%	50%

Thus, we can argue that, during the period between 2001 and 2016, companies in the Eurozone were able to achieve significantly positive returns for their shareholders when they acquire companies outside of their home country. Additionally we can also argue that there was, in fact, leakage of information which lead the market participants to trade the shares of the bidder companies 10 days before the deals. Although our results are consistent with Goergen and Renneboog (2004) in the sense that we found statistically significant positive CAARs for European bidders of CBAs, our results show lower announcement returns than the 3.09% that these authors found for event window [-2;+2] during the period between 1993 and 2000.

5.2 Before and after the crisis

In order to answer the question of what the impact of the crisis was on the value creation from CBA activity, the sample was split into two periods: before and during/after the crisis.

As Table 6 reports, the value created with the deals announced during the sub-period before the crisis cannot be statistically distinguished from zero¹, whereas after the crisis deals, on average, created statistically significant value. Although our results for the period before the crisis, which includes what is called the sixth merger wave are not statistically significant, they show similar announcement returns to the 0.47% CAARs found by Martynova and Renneboog (2011) for the fifth merger wave.

The results from the direct comparison of the two series of CAARs show that, while the CAARs are apparently different, that difference is only statistically significant for window [-2;2]. Thus, we can argue with our results that the companies in our sample were, on average, able to get significantly higher Cumulative Average Abnormal Returns with the announcement of CBAs since the beginning of the crisis.

The sub-period of the sample starting in September 2007 is particularly interesting because the deals announced during this period were done by companies that were strong enough to take advantage of the global environment of shortage of liquidity and forced divestitures from competitors who found themselves in a fragile financial situation and in need to strengthen their liquidity position. In other words, this period was an opportunity for companies that were able to build a strong position in capital and liquidity to increase their market share at significantly lower prices than the prices they would be able to achieve in a non-distressed period, or without the crisis (Acharya et al., 2011). This happens mainly because of a reduction in the number of financially healthy companies willing to bid and an increase in the number of potential targets due to the forced sales by companies trying to survive the crisis period (James and Wier, 1987).

The higher ARs obtained by companies announcing acquisition in a crisis period may be explained by the fact that, during a period of this type, companies announcing

¹ With the exception of the Cumulative Returns model

Table 6 - Cumulative Average Abnormal Returns Before and After the Crisis

This table presents the CAARs resulting from the Event Studies methodology, when the sample is split in two periods, the period before the crisis and the period after the crisis. Also presented are the probability values associated with the t-test, for the significance of the series of CAARs and for the difference between the pairs of series of CAARs corresponding to deals before and after the crisis. ***, ** and * indicate statistical significance of the CAARs according to the t-test, for levels of significance of 1% 5% and 10% respectively whereas a), b) and c) represent statistical significance of the resulting CAAR according to the Wilcoxon Ranked Sum test, for levels of significance of 1%, 5% and 10% respectively. The last three columns present the resulting t-test and Wilcoxon/Mann-Whitney test for the difference between the CAARs corresponding to the two periods, for the three event windows.

	<u>Before Crisis</u>			<u>After Crisis</u>			<u>Difference between Periods</u>		
	<u>Event Window</u>			<u>Event Window</u>			<u>Event Window</u>		
	<u>[-10;+5]</u>	<u>[-2;+2]</u>	<u>[-2;+5]</u>	<u>[-10;+5]</u>	<u>[-2;+2]</u>	<u>[-2;+5]</u>	<u>[-10;+5]</u>	<u>[-2;+2]</u>	<u>[-2;+5]</u>
1. Cumulative Returns									
CAAR	0.73%	0.53%	0.60%	1.58%	1.30%	1.43%	-	-	-
P-value (t-test)	0.136	0.086 *	0.107	0.009 ***	0.001 ***	0.002 ***	0.286	0.121	0.165
% Positive CAAR/Wilcoxon	51% c)	66% c)	47%	46% b)	69% a)	44% a)	-	-	-
2. $\beta=1$									
CAAR	0.47%	0.20%	0.39%	1.02%	1.13%	1.08%	-	-	-
P-value (t-test)	0.233	0.460	0.226	0.034 **	0.001 ***	0.004 ***	0.395	0.029 **	0.175
% Positive CAAR/Wilcoxon	55%	41%	49%	47% c)	47% a)	47% b)	-	- c)	-
3. β regression									
CAAR	0.12%	0.10%	0.16%	0.85%	1.00%	0.92%	-	-	-
P-value (t-test)	0.770	0.711	0.635	0.081 *	0.001 ***	0.013 **	0.263	0.029 **	0.129
% Positive CAAR/Wilcoxon	51%	35%	45%	45%	45% a)	44% b)	-	- c)	-

acquisitions are perceived to be signaling superior financial health and confidence in the strength of their capital and strategy. Literature on value creation often shows negative ARs for bidder firms, so the fact that an acquisition is being announced in a crisis period does not necessarily mean that the returns attributed to the bidder firm should be positive for the reasons now presented, but it means they should be at least less negative or more positive than they would be in a normal period (Beltratti and Paladino, 2013).

Our results are in line with the findings of these authors as we document an increase in the overall value creation achieved by Eurozone companies through their CBA activity, since the beginning of the crisis

5.3 North versus South

Using the difference-in-difference methodology, we sought to answer the second research question of how different the impact of the crisis was between countries of Northern Eurozone versus countries of Southern Eurozone.

Two dummy variables were created: the first, called “Period”, takes the value of 1 when the deal has been announced during/after the crisis and 0 when the deal has been announced before the crisis; the second dummy variable which is called “Location” takes the value of 0 when the deal has been announced by a company from the Northern Eurozone and 1 when the deal has been announced by a company from the Southern Eurozone.

The regressions are based on equation (3.8) and were done using as a dependent variable the CARs according to the different models of $E[R]$ and for the different event windows. The event windows related to the information leakage are not considered at this point. The resulting coefficients and their corresponding “p-values” are presented in Table 7.

The result from the DiD methodology was, in this case, a non-positive, because the coefficient associated with the interaction variable, the DiD estimator, was not found to be statistically significant for any of the regressions. Consequently, we are not able to state that the impact of the crisis was different for the two sets of countries which make the Northern Eurozone and the Southern Eurozone in our sample. In other words, distinguishing between the countries of Northern Eurozone and countries from Southern Eurozone in the analysis, as was the initial idea, does not provide significantly different results. Using the available sample and methodology, we cannot argue that the crisis impacted the value creation from CBAs differently in the Southern countries than in the Northern countries.

The initially obtained results were unexpected and paint an incomplete picture of the impact of the crisis on the countries under analysis. In search of an answer for the research question of if and how the impact of the crisis was different for countries of Northern and Southern Europe, we proceeded to analyze the countries in the sample individually.

Table 7 - Results from Difference-in-Differences Methodology

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	1. Cumulative RETURNS			2. Beta=1			3. Beta regression		
	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]
Constant	0.005 (0.447)	0.007 * (0.098)	0.007 (0.157)	0.006 (0.302)	0.004 (0.273)	0.006 (0.147)	0.002 (0.698)	0.003 (0.392)	0.004 (0.331)
Period	0.007 (0.456)	0.005 (0.364)	0.006 (0.428)	0.002 (0.746)	0.007 (0.173)	0.005 (0.389)	0.003 (0.718)	0.006 (0.205)	0.005 (0.44)
Location	0.007 (0.583)	-0.007 (0.398)	-0.006 (0.581)	-0.004 (0.717)	-0.008 (0.274)	-0.009 (0.278)	-0.004 (0.730)	-0.008 (0.254)	-0.010 (0.232)
Period*Location	0.007 (0.711)	0.009 (0.407)	0.011 (0.432)	0.012 (0.418)	0.010 (0.322)	0.007 (0.564)	0.018 (0.229)	0.011 (0.236)	0.012 (0.305)

5.4 Individual country analysis

Dummy variables for each country in the sample were created. By comparing the deals of one specific country against the rest of the sample, we were able to find statistically significant differences. With this, it was possible to identify the countries in the sample which are associated with the higher and lower CAARs and, additionally, which countries experienced similar value creation from their CBAs between each other. Table 8 reports the resulting CAARs for each country and the statistical significance of the difference between subsamples of individual countries against the rest of the sample.

This alternative way of looking at the data yielded results that guided us in the right direction. The first conclusion is that, inside these two groups, there are countries with very distinct ranges of value creation. This is shown by the fact that Belgium and Ireland have, on average, significantly higher CARs than their peers. Further, inside the Northern Eurozone group, Germany and the Netherlands, although not having statistically significant CAARs when looked at individually, seem to have CAARs in a lower range than France.

Inside the Southern Eurozone group we can see that Ireland clearly stands out with higher CAARs while Portugal and Spain experience, on average, negative CAARs. Italy does not seem to be in the same range as neither Ireland nor Portugal and Spain.

These results show that, inside the two groups of countries, there are countries that differ significantly from their peers, in terms of bidder firm's ability to generate value through CBAs.

The resulting average CAARs, when the entire period is considered, are only statistically significant for Belgium and Ireland, as shown in Table 8. However, we saw in chapter 5.2, that the two sub-periods corresponding to before and after the crisis are significantly different. Thus, it is likely that the results now given by the analysis of the countries individually can be improved by taking into account the two different periods.

By including the dummy variable "Period" in the analysis for the individual countries, we investigated if and how different the average value creation from CBA deals was, for

each of the countries in the sample, before and after the crisis by employing again the DiD methodology. The next sections presents the results from this analysis.

Table 8 - Cumulative Average Abnormal Returns for Individual countries

This table presents the CAARs which result from the Event Studies Methodology, for each of the countries in the sample, individually. Also presented in this table are the statistical significance of these CAARs according to the t-test and the Wilcoxon Signed Rank test. ***, ** and * indicate statistical significance of the CAARs according to the the t-test, for levels of significance of 1%, 5% and 10% respectively. a), b) and c) represent statistical significance of the resulting CAAR according to the Wilcoxon Ranked Sum test, for levels of significance of 1%, 5% and 10% respectively.

		<u>Northern Eurozone</u>				<u>Southern Eurozone</u>				
		Belgium	France	Germany	Netherlands	Ireland	Italy	Portugal	Spain	
1.Cumulative RETURNS	[-10,+5]	1.76%	1.63%	0.79%	-0.71%	3.02%		1.39%	3.13%	1.68%
	[-2,+2]	3.04% *** a)	1.15%	0.63%	0.73%	3.09% *** b)	0.28%	-0.34%	-0.10%	
	[-2,+5]	3.41% *** a)	1.50%	0.44%	0.49%	2.76%	1.06%	0.71%	-1.06%	
2.Beta=1	[-10,+5]	0.33%	1.06%	0.54%	0.05%	2.99% ***	0.62%	0.43%	0.77%	
	[-2,+2]	2.54% ** a)	0.71%	0.39%	0.54%	2.90% *** a)	-0.18%	-1.58%	-0.40%	
	[-2,+5]	2.73% *** a)	1.82%	0.25%	0.64%	2.36%	0.17%	-1.65%	-0.84%	
3.Beta regression	[-10,+5]	-0.10%	0.93%	0.81%	0.96%	2.65% **	0.97%	-0.56%	-0.08%	
	[-2,+2]	2.36% *** a)	0.69%	0.44%	0.22%	2.72% *** a)	0.01%	-1.69%	-0.43%	
	[-2,+5]	2.51% ** a)	1.01%	0.16%	0.12%	2.15%	0.37%	-1.66%	-0.81%	

5.5 Individual country Difference-in-Difference estimation

Up until this point we have reached the conclusion that, with respect to the entire period, Belgium and Ireland are the two countries associated with the highest CAARs in our sample. We have also seen that, since the beginning of the crisis, the deals which make our sample have generated, on average, higher CAARs than the deals announced before the crisis. While this is true, we can observe that, inside the two groups of Northern and Southern Eurozone there are different levels of CAARs and possibly different effects of the crisis upon countries of the same group.

Given that the results from the DiD analysis were not conclusive when separating the sample into countries of Northern and Southern Eurozone, we have decided to compare the changes in value creation of each country with the remaining members of these two groups, since the start of the crisis, by looking at each of the countries individually. In this section we assess if and how different the effect of the crisis was upon each of the countries in the sample, relative to the other countries in their group. As we are, again, comparing CAARs in two different dimensions, separating between the periods before and after the crisis and separating between a certain country and the remaining countries in its group, the DiD methodology is appropriate and was the chosen methodology.

It must be noted that, for the purpose of employing the DiD methodology, the countries Portugal and Spain have been analysed together. This was done because Portugal has only 4 deals which would be a sample size too small to make meaningful conclusions with the DiD methodology and because we have seen from the results in Table 8 that the two countries have very similar levels of CAARs.

In this case, the treatment group is the group of companies belonging to a certain country and the control group are the companies based in the remaining countries in the group.

The analysis was done separately for Northern and Southern Eurozone countries. Accordingly, the original series of abnormal returns was separated into the abnormal returns for the North and for the South.

This methodology yielded results that help understand the dynamics of changes in the average CARs since the beginning of the crisis.

Before we go into the discussion of the results for the individual countries, there is a general result worth mentioning. We see that the dummy variable “Period” has a positive and statistically significant coefficient across most of the performed regressions. However, these coefficients appear to be of higher value and statistically significant for more event windows for the returns of Southern Eurozone deals. The positive coefficients for this variable confirms the previous result that the CAARs have increased since the beginning of the crisis but the fact that the coefficients are more pronounced for the South means that the increase was more pronounced in the South than in the North, which was not expected.

We proceed to present the results in the next sections.

5.5.1 Germany

Germany makes up 22% of our sample with 70 out of the 313 deals.

The results of the DiD regressions for Germany are presented in Table 9. The resulting coefficients for the DiD estimator, β_3 , vary significantly depending on the event window and model of $E[R]$ but are generally not statistically significant. For event window $[-10;5]$ of the cumulative returns model we obtained a statistically significant positive coefficient. This suggests that, since the beginning of the crisis, companies from Germany were able to improve their announcement returns more than companies from the remaining Northern Eurozone countries, meaning that the impact of the crisis was more positive for Germany than for the other countries in the group.

Despite this statistically significant result, as the results are not consistent across the different event windows and models of $E[R]$, one needs to be careful drawing conclusions from this result.

Table 9 - Results from Difference-in-Differences Methodology for Germany

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	1. Cumulative RETURNS			2. Beta=1			3. Beta regression		
	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]
Constant	0.012 (0.171)	0.009*** (0.075)	0.010 (0.119)	0.009 (0.18)	0.004 (0.332)	0.007 (0.162)	0.005 (0.471)	0.003 (0.5247)	0.004 (0.398)
Period	-0.003 (0.762)	0.004 (0.532)	0.005 (0.54)	-0.002 (0.827)	0.009 (0.104)	0.009 (0.207)	-0.003 (0.736)	0.008 (0.134)	0.008 (0.244)
Germany	-0.018 (0.203)	0.004 (0.45)	-0.007 (0.512)	-0.012 (0.297)	-0.003 (0.726)	-0.003 (0.703)	-0.010 (0.384)	0.000 (0.961)	-0.001 (0.942)
Period*Germany	0.035*** (0.088)	0.004 (0.78)	-0.002 (0.882)	0.020 (0.219)	-0.004 (0.663)	-0.012 (0.344)	0.025 (0.129)	-0.004 (0.705)	-0.013 (0.309)

5.5.2 France

France has a weight of nearly 30% in our sample with French companies having announced 93 CBAs during the period under analysis, the highest for any individual country in our sample.

The results of the DiD regressions for France are presented in Table 10.

It is worth noting that, for these regressions, the dummy variable Period was not found to be statistically significant, which suggests that the CAARs for the Northern Eurozone as a whole have not increased significantly since the beginning of the crisis.

The β_3 coefficients are mostly positive and statistically significant for event window $[-2;5]$ of panels 2 and 3. Thus, the coefficients for the DiD estimator for France suggest that the CAARs achieved by French companies have increased significantly more than the CAARs in other Northern countries, since the beginning of the crisis. This means that the impact of the crisis was more positive for France than for the other countries in the Northern Eurozone.

Table 10 - Results from Difference-in-Differences Methodology for France

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	<u>1. Cumulative RETURNS</u>			<u>2. Beta=1</u>			<u>3. Beta regression</u>		
	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>
Constant	0.000 (0.973)	0.005 (0.343)	0.007 (0.314)	0.001 (0.839)	0.005 (0.208)	0.009*** (0.061)	-0.004 (0.562)	0.004 (0.353)	0.006 (0.232)
Period	0.010 (0.435)	0.009 (0.249)	0.002 (0.832)	0.007 (0.468)	0.005 (0.452)	-0.004 (0.552)	0.008 (0.41)	0.005 (0.421)	-0.003 (0.655)
France	0.016 (0.277)	0.006 (0.508)	0.003 (0.782)	0.010 (0.382)	-0.006 (0.401)	-0.010 (0.239)	0.015 (0.187)	-0.004 (0.587)	-0.006 (0.511)
Period*France	-0.008 (0.678)	-0.007 (0.538)	0.007 (0.632)	-0.008 (0.601)	0.010 (0.285)	0.025** (0.031)	-0.011 (0.462)	0.007 (0.48)	0.009** (0.019)

5.5.3 Belgium

Companies from Belgium have announced a total of 25 deals during the period under analysis, which makes about 8% of the sample.

As we have seen previously, Belgium, along with Ireland, is associated with some of the highest CAARs in the sample, when the entire period is considered. The results of the DiD regressions presented in Table 11, on one hand confirm that, indeed, Belgium has higher CAARs than its Northern Eurozone peers because the coefficient associated with the Belgium dummy variable is positive and statistically significant but, on the other hand, suggest that, since the beginning of the crisis, there has not been any significant change in these CAARs, different from the change occurred in other Northern countries, as the coefficients associated to the interactive variable (Period*Location) are not statistically significant for any of the windows or models of E[R].

Table 11 - Results from Difference-in-Differences Methodology for Belgium

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	1. Cumulative RETURNS			2. Beta=1			3. Beta regression		
	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]
Constant	0.005 (0.456)	0.005 (0.24)	0.004 (0.449)	0.006 (0.287)	0.002 (0.624)	0.003 (0.425)	0.002 (0.707)	0.001 (0.775)	0.001 (0.749)
Period	0.005 (0.608)	0.005 (0.427)	0.007 (0.378)	0.003 (0.714)	0.008 (0.128)	0.007 (0.264)	0.004 (0.621)	0.007 (0.178)	0.006 (0.323)
Belgium	-0.002 (0.932)	0.018 (0.185)	0.034** (0.047)	-0.012 (0.496)	0.015 (0.19)	0.025*** (0.065)	-0.008 (0.669)	0.015 (0.168)	0.027** (0.048)
Period*Belgium	0.020 (0.511)	0.008 (0.672)	-0.015 (0.528)	0.014 (0.564)	0.008 (0.582)	-0.009 (0.611)	0.004 (0.861)	0.007 (0.655)	-0.013 (0.491)

5.5.4 Netherlands

Companies from the Netherlands have announced 45 deals during the period under analysis and make up 14% of our sample and the results of the DiD regressions are presented in Table 12.

The resulting DiD estimators for the Netherlands are mainly negative and are statistically significant for window [-10;+5] in panel 1 and 2. These results suggest that companies from the Netherlands have seen their CAARs decrease more, since the beginning of the crisis, than the CAARs achieved by companies from the other Northern Eurozone countries. The impact of the crisis was more negative for the Netherlands than for the remaining Northern Eurozone countries.

Table 12 - Results from Difference-in-Differences Methodology for the Netherlands

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	<u>1. Cumulative RETURNS</u>			<u>2. Beta=1</u>			<u>3. Beta regression</u>		
	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>
Constant	0.004 (0.574)	0.009 (0.059)	0.010 (0.077)	0.003 (0.624)	0.003 (0.513)	0.005 (0.273)	0.002 (0.745)	0.003 (0.411)	0.006 (0.244)
Period	0.017 (0.112)	0.004 (0.57)	0.003 (0.721)	0.011 (0.184)	0.011** (0.034)	0.009 (0.158)	0.009 (0.267)	0.008 (0.105)	0.005 (0.441)
Netherlands	0.005 (0.772)	-0.010 (0.368)	-0.014 (0.294)	0.010 (0.467)	0.004 (0.655)	0.005 (0.64)	-0.003 (0.827)	-0.003 (0.744)	-0.007 (0.533)
Period*Netherlands	-0.047** (0.046)	0.011 (0.432)	0.013 (0.475)	-0.033*** (0.068)	-0.013 (0.275)	-0.016 (0.273)	-0.025 (0.18)	-0.005 (0.681)	-0.001 (0.967)

5.5.5 Portugal and Spain

Together, Portugal and Spain have a weight of 10% of our sample, with Portuguese companies having announced 4 CBAs and Spanish companies announced 28 deals of such kind, during the period under analysis.

We called this group of countries “Iberia” and the results of the DiD regressions are presented in Table 13.

Apart from the coefficients attached to the dummy variable “Period”, for window [-2;+2] of panel 2 and 3, we see no other statistically significant coefficient in the results for “Iberia” countries. These results suggest that Southern Eurozone as a whole saw its CAARs increase after the beginning of the crisis. These results also show that Portugal and Spain have not experienced any significantly different changes in their CAARs when compared to the changes occurred in other Southern Eurozone countries. This means that we cannot say anything about the difference in the impact of the crisis between Portugal and Spain and the rest of the Southern Eurozone group of countries.

Table 13 - Results from Difference-in-Differences Methodology for Portugal and Spain

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	<u>1. Cumulative RETURNS</u>			<u>2. Beta=1</u>			<u>3. Beta regression</u>		
	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>
Constant	0.016 (0.241)	0.006 (0.504)	0.012 (0.193)	0.009 (0.454)	0.000 (0.977)	0.005 (0.579)	0.008 (0.503)	-0.001 (0.884)	0.002 (0.842)
Period	0.012 (0.551)	0.018 (0.166)	0.010 (0.459)	0.016 (0.333)	0.026** (0.029)	0.014 (0.285)	0.020 (0.235)	0.026** (0.021)	0.019 (0.136)
Iberia	0.003 (0.885)	-0.006 (0.646)	-0.015 (0.312)	-0.009 (0.607)	-0.007 (0.574)	-0.016 (0.259)	-0.011 (0.522)	-0.006 (0.595)	-0.014 (0.33)
Period*Iberia	-0.012 (0.705)	-0.020 (0.333)	-0.003 (0.901)	-0.016 (0.553)	-0.022 (0.249)	-0.010 (0.634)	-0.014 (0.586)	-0.022 (0.217)	-0.013 (0.519)

5.5.6 Ireland

Irish companies have announced 19 deals during the period of our sample. This makes up 6% of the total sample and the results of the DiD regressions are reported in Table 14.

As we have seen previously Ireland, along with Belgium, is associated with the highest CAARs in the whole sample. The results from the DiD methodology show statistically significant positive coefficients for the DiD estimator, β_3 . This suggests that Irish firms have been able to increase their ability to generate value through their CBAs significantly more than the other Southern Eurozone countries, since the beginning of the crisis, meaning that the impact of the crisis was more positive for Ireland than for the rest of the Southern Eurozone countries.

Thus, we see that the findings that Irish companies generate relatively higher CAARs than its Southern Eurozone peers and the remaining countries in the sample are driven by the period after the crisis.

Table 14 - Results from Difference-in-Differences Methodology for Ireland

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	<u>1. Cumulative RETURNS</u>			<u>2. Beta=1</u>			<u>3. Beta regression</u>		
	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>	<u>[-10,+5]</u>	<u>[-2,+2]</u>	<u>[-2;5]</u>
Constant	0.018 (0.102)	0.002 (0.762)	0.005 (0.535)	0.004 (0.635)	-0.003 (0.627)	0.000 (0.957)	0.003 (0.784)	-0.004 (0.495)	-0.003 (0.652)
Period	-0.003 (0.863)	-0.003 (0.809)	0.002 (0.897)	-0.003 (0.85)	0.002 (0.823)	-0.006 (0.64)	0.004 (0.763)	0.005 (0.64)	0.002 (0.895)
Ireland	-0.008 (0.76)	0.007 (0.688)	0.009 (0.668)	0.002 (0.93)	0.005 (0.997)	-0.007 (0.697)	0.002 (0.925)	0.003 (0.832)	-0.003 (0.869)
Period*Ireland	0.035 (0.335)	0.037 (0.116)	0.021 (0.428)	0.040 (0.201)	0.048** (0.025)	0.055** (0.028)	0.030 (0.335)	0.039*** (0.057)	0.042*** (0.082)

5.5.7 Italy

From the 313 deals in our sample, 29, or around 9% of them were announced by Italian companies and the results of the DiD regressions are presented in Table 15.

The coefficients associated to the interaction variable are negative but they are not statistically significant for any of the event windows or models of $E[R]$. The coefficients associated with the dummy variable 'Period' are statistically significant and positive for window $[-2;+2]$ on panel 2 and 3 and for window $[-2;+5]$ of panel 3. These results suggest that Southern Eurozone as a whole has seen its CAARs increase since the beginning of the crisis. However, the results do not show any significantly different effect from the crisis, when Italy is compared to the rest of the Southern Eurozone, thus we cannot say that the impact of the crisis was neither more positive nor more negative for Italy than for its Southern Eurozone peers.

Table 15 - Results from Difference-in-Differences Methodology for Italy

This table reports the outputs from the regressions performed to employ the difference-in-difference methodology. ***, ** and * indicate statistical significance of the resulting coefficients with the level of significance of 1%, 5% and 10% respectively. The corresponding P-values are reported in brackets.

	1. Cumulative RETURNS			2. Beta=1			3. Beta regression		
	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]	[-10,+5]	[-2,+2]	[-2;5]
Constant	0.018 (0.182)	0.003 (0.716)	0.002 (0.809)	0.003 (0.795)	-0.002 (0.765)	-0.007 (0.489)	0.000 (0.993)	-0.004 (0.592)	-0.009 (0.315)
Period	0.012 (0.538)	0.016 (0.216)	0.017 (0.217)	0.017 (0.298)	0.022*** (0.054)	0.022 (0.1)	0.019 (0.244)	0.022** (0.049)	0.023*** (0.07)
Italy	-0.002 (0.916)	0.000 (0.991)	0.010 (0.52)	0.004 (0.805)	-0.002 (0.898)	0.012 (0.412)	0.007 (0.698)	0.001 (0.921)	0.013 (0.358)
Period*Italy	-0.016 (0.616)	-0.017 (0.425)	-0.020 (0.382)	-0.020 (0.465)	-0.017 (0.404)	-0.032 (0.158)	-0.012 (0.666)	-0.014 (0.464)	-0.024 (0.27)

6. Conclusions and further research

By looking at all 313 Cross-Border Acquisitions announced by listed companies from Belgium, France, Germany, the Netherlands, Ireland, Italy, Portugal and Spain between 2001 and 2016 we were able to draw several conclusions about the decision of companies to acquire assets outside of their borders and the ability of these companies to generate short-term value for their shareholders with these deals.

The period under analysis has characteristics that make it especially interesting to analyse. It includes the sixth and latest European merger wave which allowed us to compare this wave to the previous in terms of value creation. Also, our sample period includes a severe crisis which followed the peak of the sixth merger wave in late 2007. Although terrible in its consequences on the world economy and the labour market, this financial crisis provides a unique “natural experiment” to understand the functioning of an Economic and Monetary Union during times of global financial turmoil.

This dissertation takes advantage of this “natural experiment” to fulfil its goal which is to assess the impact of the crisis upon the CBA activity of Eurozone companies, in terms of its value, volume and value creation for the shareholders of the bidder firms.

First, we found that, between 2001 and 2016, the companies in our sample have created value for their shareholders by acquiring companies in countries other than their own. This is inferred from the results from the event studies methodology which yielded statistically significant positive CAARs ranging from 0.52% to 1.20%, depending on the choice of event window. These results were consistent across event windows [-10;+5], [-2;+2] and [-2;+5] and for the three different models of expected returns we considered. This suggests that the market, on average, welcomed the decision of Eurozone companies to acquire foreign assets. Additionally we found that there is anticipation of the deals in our sample by investors in the market. Somehow, information about the deals leaks to the market which leads to a statistically significant positive CAAR from day -10 to day -6, which is then erased in the following days until day -2 before the event.

The first main purpose of this dissertation was to assess the impact of the crisis upon the ability of companies to generate value with CBAs. Thus, after analysing the results from the event studies methodology for the entire period, we split the sample into two sub-periods: before and

after the crisis. Doing this, we were able to reach several conclusions. We found that the crisis has depressed both the average number and the average value of CBAs announced by Eurozone companies. At the same time, our results show that the deals announced after the beginning of the crisis generated more value than the deals announced before the crisis. These findings suggest that the companies which were strong and confident enough to acquire foreign assets during a period of global financial turmoil were able to do better deals and generate more value for their shareholders than they would during a normal period.

The second main purpose of this dissertation was to assess if the effect of the crisis was similar across the countries of Northern Eurozone and the countries of Southern Eurozone. We expected that there would be a difference in the impact of the crisis between the two groups so that countries from Southern Eurozone would be more strongly affected by the crisis due to their more fragile financial situation and their inability to use monetary policy to fix the situation. In order to analyse this issue, a difference-in-differences model was estimated. Our findings with this methodology confirm the result that deals announced during the crisis generated more value than the ones announced before it but, at the same time, the results do not show any significant difference in the effect of the crisis upon the North and the South of the Eurozone, in the specific subject of value creation from CBAs. However, by estimating difference-in-differences models for the individual countries, we were able to observe differences in the effect of the crisis between countries within the two groups initially defined.

While we can say that the Southern Eurozone as a whole saw its CAARs increase since the beginning of the crisis, which is evidenced by positive and significant coefficients associated with the “Period” dummy variable in the Southern Eurozone countries regressions, we cannot say that for the Northern Eurozone group. The regressions for the Northern Eurozone countries do not result in statistically significant coefficients for the dummy variable “Period” so we argue that, for this group of countries as a whole, there were no significant differences between the periods before and after the crisis.

The difference-in-differences models estimated for the individual countries of the Northern Eurozone indicate that companies from Germany and France have seen their CAARs increase more since the beginning of the crisis, when compared to the changes occurred in their Northern Eurozone peers. At the same time the results show that companies from the Netherlands saw their CAARs decrease more, since the beginning of the crisis, when compared

to the rest of the Northern Eurozone while results for Belgium show no significantly different changes when compared to the changes occurred for its group.

Regarding the Southern Eurozone group of countries, we did not find any significantly different changes of the CAARs achieved by companies from Portugal, Spain and Italy, when compared to the changes occurred for the Southern Eurozone as a group. Yet, we found that companies from Ireland saw their CAARs increase significantly more than the CAARs of their Southern peers, since the beginning of the crisis.

In sum, our results lead us to conclude that Eurozone cross-border acquirers have, on average positive announcement returns and that these returns became higher since the beginning of the crisis. While this is true when the whole sample is considered, analysing each of the countries individually showed that there were countries in which the impact of the crisis was relatively more positive than in others and countries in which the impact of the crisis was relatively more negative.

Despite the considerable size of the sample used, this dissertation focuses on only eight Eurozone countries which were chosen so that we end up with a sample representative of both the North and the South of the Eurozone. It would be interesting to extend the analysis in order to cover the totality of the countries which make the Eurozone. Also, this dissertation focuses on the short-term value creation achieved by companies when they announce CBAs. Our results could be complemented by analysing the post-acquisition performance of the bidder firms.

7. References

- Abadie, A. (2005), "Semiparametric difference-in-differences estimators", *The Review of Economic Studies*, Vol. 72, N° 1, pp. 1-19.
- Acharya, V. V., H. S. Shin, and T. Yorulmazer (2011), "Crisis Resolution and Bank Liquidity", *The Review of Financial Studies*, Vol. 24, N° 6, pp. 2166-2205.
- Aw, M. S. B., and R. A. Chatterjee (2004), "The performance of UK firms acquiring large cross-border and domestic takeover targets", *Applied Financial Economics*, Vol. 14, N° 5, pp. 337-349.
- Aybar, B., and A. Ficici (2009), "Cross-border acquisitions and firm value: An analysis of emerging-market multinationals", *Journal of International Business Studies*, Vol. 40, N° 8, pp. 1317-1338.
- Bayoumi, T., and B. Eichengreen. (1993), *Shocking aspects of European monetary integration*. Cambridge: Cambridge Univ Press.
- Bayoumi, T., and B. Eichengreen (1993), "One Money or Many? On Analyzing the Prospects for Monetary Unification in Various Parts of the World", *Princeton Studies in International Finance*, no.76.
- Beltratti, A., and G. Paladino (2013), "Is M&A different during a crisis? Evidence from the European banking sector", *Journal of Banking & Finance*, Vol. 37, N° 12, pp. 5394-5405.
- Bertrand, O., and H. Zitouna (2008), "Domestic versus cross-border acquisitions: which impact on the target firms' performance?", *Applied Economics*, Vol. 40, N° 17, pp. 2221-2238.
- Bhagat, S., S. Malhotra, and P. Zhu (2011), "Emerging country cross-border acquisitions: Characteristics, acquirer returns and cross-sectional determinants", *Emerging Markets Review*, Vol. 12, N° 3, pp. 250-271.
- Bris, A., and C. Cabolis (2008), "The Value of Investor Protection: Firm Evidence from Cross-Border Mergers", *The Review of Financial Studies*, Vol. 21, N° 2, pp. 605-648.
- Cakici, N., C. Hessel, and K. Tandon (1996), "Foreign acquisitions in the United States: Effect on shareholder wealth of foreign acquiring firms", *Journal of Banking & Finance*, Vol. 20, N° 2, pp. 307-329.
- Campa, J. M., and I. Hernando (2006), "M&As performance in the European financial industry", *Journal of Banking & Finance*, Vol. 30, N° 12, pp. 3367-3392.

- Capron, L., P. Dussauge, and W. Mitchell (1998), "Resource Redeployment Following Horizontal Acquisitions in Europe and North America, 1988-1992", *Strategic Management Journal*, Vol. 19, N° 7, pp. 631-661.
- Chakrabarti, R., S. Gupta-Mukherjee, and N. Jayaraman (2009), "Mars–Venus marriages: Culture and cross-border M&A", *Journal of International Business Studies*, Vol. 40, N° 2, pp. 216-236.
- Child, J., and S. B. Rodrigues (2005), "The Internationalization of Chinese Firms: A Case for Theoretical Extension?[1]", *Management and Organization Review*, Vol. 1, N° 3, pp. 381-410.
- Coerdacier, N., R. A. De Santis, A. Aviat, G. Ottaviano, and M. Ravn (2009), "Cross-Border Mergers and Acquisitions and European Integration [with Discussion]", *Economic Policy*, Vol. 24, N° 57, pp. 55-106.
- Coff, R. W. (1999), "How Buyers Cope with Uncertainty when Acquiring Firms in Knowledge-Intensive Industries: Caveat Emptor", *Organization Science*, Vol. 10, N° 2, pp. 144-161.
- Collins, J. D., and M. A. Hitt (2006), "Leveraging tacit knowledge in alliances: The importance of using relational capabilities to build and leverage relational capital", *Journal of Engineering and Technology Management*, Vol. 23, N° 3, pp. 147-167.
- Danbolt, J. (2004), "Target Company Cross-border Effects in Acquisitions into the UK", *European Financial Management*, Vol. 10, N° 1, pp. 83-108.
- Datta, D. K., G. E. Pinches, and V. K. Narayanan (1992), "Factors influencing wealth creation from mergers and acquisitions: A meta-analysis", *Strategic Management Journal*, Vol. 13, N° 1, pp. 67-84.
- Datta, D. K., and G. Puia (1995), "Cross-Border Acquisitions: An Examination of the Influence of Relatedness and Cultural Fit on Shareholder Value Creation in U.S. Acquiring Firms", *MIR: Management International Review*, Vol. 35, N° 4, pp. 337-359.
- Deng, P. (2009), "Why do Chinese firms tend to acquire strategic assets in international expansion?", *Journal of World Business*, Vol. 44, N° 1, pp. 74-84.
- DePamphilis, D. (2005). *Mergers, Acquisitions, and Other Restructuring Activities*: Elsevier Academic Press.
- DeYoung, R., D. D. Evanoff, and P. Molyneux (2009), "Mergers and acquisitions of financial institutions: a review of the post-2000 literature", *Journal of Financial services research*, Vol. 36, N° 2-3, pp. 87-110.

- Doukas, J., and N. G. Travlos (1988), "The Effect of Corporate Multinationalism on Shareholders' Wealth: Evidence from International Acquisitions", *The Journal of Finance*, Vol. 43, N° 5, pp. 1161-1175.
- Eckbo, B. E., and K. S. Thorburn (2009), "Gains to Bidder Firms Revisited: Domestic and Foreign Acquisitions in Canada", *Journal of Financial and Quantitative Analysis*, Vol. 35, N° 1, pp. 1-25.
- Errunza, V. R., and L. W. Senbet (1981), "The Effects of International Operations on the Market Value of the Firm: Theory and Evidence", *The Journal of Finance*, Vol. 36, N° 2, pp. 401-417.
- Eun, C. S., R. Kolodny, and C. Scheraga (1996), "Cross-border acquisitions and shareholder wealth: Tests of the synergy and internalization hypotheses", *Journal of Banking & Finance*, Vol. 20, N° 9, pp. 1559-1582.
- Fama, E. F., L. Fisher, M. C. Jensen, and R. Roll (1969), "The Adjustment of Stock Prices to New Information", *International Economic Review*, Vol. 10, N° 1, pp. 1-21.
- Goergen, M., and L. Renneboog (2004), "Shareholder Wealth Effects of European Domestic and Cross-border Takeover Bids", *European Financial Management*, Vol. 10, N° 1, pp. 9-45.
- Gubbi, S. R., P. S. Aulakh, S. Ray, M. B. Sarkar, and R. Chittoor (2010), "Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms", *Journal of International Business Studies*, Vol. 41, N° 3, pp. 397-418.
- Harris, R. S., and D. Ravenscraft (1991), "The Role of Acquisitions in Foreign Direct Investment: Evidence from the U.S. Stock Market", *The Journal of Finance*, Vol. 46, N° 3, pp. 825-844.
- Hitt, M. A., R. E. Hoskisson, and H. Kim (1997), "International diversification: Effects on innovation and firm performance in product-diversified firms", *Academy of Management Journal*, Vol. 40, N° 4, pp. 767-798.
- Hodson, D., and L. Quaglia (2009), "European Perspectives on the Global Financial Crisis: Introduction", *JCMS: Journal of Common Market Studies*, Vol. 47, N° 5, pp. 939-953.
- James, C. M., and P. Wier (1987), "Returns to Acquirers and Competition in the Acquisition Market: The Case of Banking", *Journal of Political Economy*, Vol. 95, N° 2, pp. 355-370.
- Javidan, M., G. K. Stahl, F. Brodbeck, and C. P. M. Wilderom (2005), "Cross-border transfer of knowledge: Cultural lessons from project GLOBE", *Academy of Management Executive*, Vol. 19, N° 2, pp. 59-76.

- Kogut, B., and U. Zander (1992), "Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology", *Organization Science*, Vol. 3, N° 3, pp. 383-397.
- Lama, R., and P. Rabanal (2014), "Deciding to enter a monetary union: The role of trade and financial linkages", *European Economic Review*, Vol. 72, N° , pp. 138-165.
- Luo, Y. (2005), "Corporate governance and accountability in multinational enterprises: Concepts and agenda", *Journal of International Management*, Vol. 11, N° 1, pp. 1-18.
- Luo, Y., and R. L. Tung (2007), "International expansion of emerging market enterprises: A springboard perspective", *Journal of International Business Studies*, Vol. 38, N° 4, pp. 481-498.
- Makino, S., C.-M. Lau, and R.-S. Yeh (2002), "Asset-Exploitation Versus Asset-Seeking: Implications for Location Choice of Foreign Direct Investment from Newly Industrialized Economies", *Journal of International Business Studies*, Vol. 33, N° 3, pp. 403-421.
- Malmendier, U., and G. Tate (2008), "Who makes acquisitions? CEO overconfidence and the market's reaction", *Journal of Financial Economics*, Vol. 89, N° 1, pp. 20-43.
- Markides, C., and D. Oyon (1998), "International acquisitions", *European Management Journal*, Vol. 16, N° 2, pp. 125-135.
- Markides, C. C., and C. D. Ittner (1994), "Shareholder Benefits from Corporate International Diversification: Evidence from U.S. International Acquisitions", *Journal of International Business Studies*, Vol. 25, N° 2, pp. 343-366.
- Martynova, M., and L. Renneboog (2011), "The performance of the European market for corporate control: Evidence from the fifth takeover wave", *European Financial Management*, Vol. 17, N° 2, pp. 208-259.
- Mazier, J., and P. Petit (2013), "In search of sustainable paths for the eurozone in the troubled post-2008 world", *Cambridge Journal of Economics*, Vol. 37, N° 3, pp. 513-532.
- Meyer, B. D. (1995), "Natural and Quasi-Experiments in Economics", *Journal of Business & Economic Statistics*, Vol. 13, N° 2, pp. 151-161.
- Moeller, S. B., and F. P. Schlingemann (2005), "Global diversification and bidder gains: A comparison between cross-border and domestic acquisitions", *Journal of Banking & Finance*, Vol. 29, N° 3, pp. 533-564.
- Mundell, R. A. (1961), "A Theory of Optimum Currency Areas", *The American Economic Review*, Vol. 51, N° 4, pp. 657-665.
- Neary, J. P. (2007), "Cross-border mergers as instruments of comparative advantage", *Review of Economic Studies*, Vol. 74, N° 4, pp. 1229-1257.

- Rui, H., and G. S. Yip (2008), "Foreign acquisitions by Chinese firms: A strategic intent perspective", *Journal of World Business*, Vol. 43, N° 2, pp. 213-226.
- Seth, A., K. P. Song, and R. Pettit (2000), "Synergy, Managerialism or Hubris? An Empirical Examination of Motives for Foreign Acquisitions of U.S. Firms", *Journal of International Business Studies*, Vol. 31, N° 3, pp. 387-405.
- Sharpe, W. F. (1963), "A Simplified Model for Portfolio Analysis", *Management Science*, Vol. 9, N° 2, pp. 277-293.
- Silva, J. M. C. S., and S. Tenreyro (2010), "Currency Unions in Prospect and Retrospect", *Annual Review of Economics*, Vol. 2, N° 1, pp. 51-74.
- Spyrou, S., and G. Siougle (2010), "Stock price reaction to M&A announcements: Evidence from the London Stock Exchange", *Journal of Money, Investment and Banking*, Vol. 16, N° 1, pp. 29-45.
- Storm, S., and C. W. M. Naastepad (2015), "NAIRU economics and the Eurozone crisis", *International Review of Applied Economics*, Vol. 29, N° 6, pp. 843-877.
- Sung, H. M. (1993), "The effects of overpayment and form of financing on bidder returns in mergers and tender offers ", *Journal of Financial Research*, Vol. 16, N° 4, pp. 351-365.
- Teece, D. J., G. Pisano, and A. Shuen (1997), "Dynamic Capabilities and Strategic Management", *Strategic Management Journal*, Vol. 18, N° 7, pp. 509-533.
- Weitzel, U., G. Kling, and D. Gerritsen (2014), "Testing the fire-sale FDI hypothesis for the European financial crisis", *Journal of International Money and Finance*, Vol. 49, N°, pp. 211-234.
- Wilcoxon, F. (1945), "Individual Comparisons by Ranking Methods", *Biometrics Bulletin*, Vol. 1, N° 6, pp. 80-83.