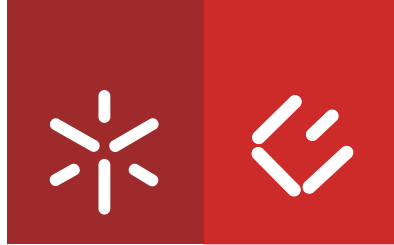




Universidade do Minho
Escola de Economia e Gestão

Rita Sofia Ribeiro Monteiro

**The impact of Securities Regulation in the
European Union on M&A: does it compensate
to go beyond borders?**



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Master in finance

Work conducted under the supervision of
Professor Sónia Silva

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Thank you.

STATEMENT OF INTEGRITY

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

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

O impacto da regulação dos valores mobiliários na União Europeia nas fusões e aquisições: compensa ir além-fronteiras?

RESUMO

Na União Europeia, as Fusões e Aquisições internacionais são bastante frequentes e representam cerca de um terço do número total de Fusões e Aquisições. Os adquirentes de empresas localizadas na União Europeia necessitam cumprir com a legislação referente à reestruturação de empresas de cada país, assim como com Diretivas do Conselho Europeu. A Diretiva mais relevante no que concerne ao controlo societário, e que será estudada ao longo desta Dissertação, é a Diretiva relativa às Ofertas Públicas de Aquisição. O objetivo desta é garantir tratamento igualitário a todas as empresas envolvidas em ofertas públicas de aquisição, fornecendo orientações mínimas de harmonização, de modo a fomentar as atividades de reestruturação.

Neste estudo é analisada a reação de curto prazo dos preços das ações das empresas envolvidas em Fusões e Aquisições na União Europeia, assim como a reação de longo prazo, de forma a avaliar se existem diferenças no desempenho de Fusões e Aquisições domésticas e internacionais. Seguidamente, é avaliado o impacto da transposição da Diretiva relativa às Ofertas Públicas de Aquisição no desempenho de curto prazo. São também analisados outros determinantes destas atividades de reestruturação na União Europeia. De forma a testar as hipóteses formuladas, são usadas as metodologias *event study*, *buy-and-hold abnormal returns*, *difference-in-differences*, assim como modelos probabilísticos.

Recorrendo a uma amostra de 2197 Fusões e Aquisições realizadas entre 2000 e 2015, não são encontradas diferenças significativas no que concerne ao desempenho de curto e longo-prazo entre Fusões e Aquisições domésticas e internacionais. Conclui-se também que a Diretiva relativa às Ofertas Públicas de Aquisição não teve um impacto significativo no desempenho de curto prazo, nem no fomento de um mercado de controlo societário na União Europeia. Todavia, conclui-se que empresas localizadas em países com menos proteção de investidores e com origem *civil law* são mais propensas a serem alvo de Aquisições internacionais.

Palavras-chave: Determinantes das Fusões e Aquisições; Diretiva relativa às Ofertas Públicas de Aquisição; Fusões e Aquisições internacionais; Regulação; União Europeia

The impact of Securities Regulation in the European Union on M&A: does it compensate to go beyond borders?

ABSTRACT

Cross-border Mergers and Acquisitions (M&As) in the European Union (EU) are rather frequent and represent around one third of the overall number of deals. Acquirers of targets located in the EU must comply with takeover rules set individually by member states, but also with European Council Directives. The most significant of these Directives in the context of M&As, and the one that will be further discussed in my research work, is the Takeover Bids Directive (TBD). The intent of the Directive is to ensure equal treatment for all companies launching takeover bids or that are subject to a change in control, providing minimum harmonization rules in view of creating a transparent environment for cross-border takeovers.

This study examines the short-term stock price reaction to M&A announcements and the long-term post-announcement returns of firms involved in M&As in the EU to test if there are differences in the performance of domestic and international deals. Then, I study the impact of the enactment of the TBD on announcement returns of cross-border M&As. I also examine other determinants of cross-border deals. To test my hypotheses, I use the event study methodology, buy-and-hold abnormal returns, difference-in-differences techniques and probabilistic models.

Using a sample of 2197 M&As conducted between 2000 and 2015, I do not find evidence that there are significant differences among domestic and international M&As in the short- or in the long-term. Furthermore, I conclude that the TBD did not have any significant impact on the short-term performance of M&As and that it also failed in the attempt to foster cross-border deals in the EU. Nevertheless, and consistent with previous literature, I do find that firms located in member states with lower investor protection and civil law origin are more likely to be targeted in cross-border deals.

Keywords: Cross-border Mergers and Acquisitions; European Union; M&A determinants; Regulation; Takeover Bids Directive

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List of Abbreviations

BHAR – Buy-and-hold Abnormal Return

CAR – Cumulative Abnormal Return

EU – European Union

FSAP – Financial Services Action Plan

GDP – Gross Domestic Product

IFRS – International Financial Reporting Standards

MAD – Market Abuse Directive

M&A – Mergers and Acquisitions

PD – Prospectus Directive

SEO – Seasoned Equity Offering

TBD – Takeover Bids Directive

TPD – Transparency Directive

UK – United Kingdom

U.S. – United States

USD – United States Dollar

1. Introduction

Mergers and Acquisitions (M&As) are a way to channel corporate assets towards their best use, allowing the reallocation of control over firms (Rossi & Volpin, 2004) and the generation of synergies that foster corporate growth, increase market power, boost profitability and improve shareholders' wealth (Alexandridis, Petmezas, & Travlos, 2010). Hence, M&A activity reflects competition and allocative efficiency through the transfer of assets from poorly-managed companies to those with superior capabilities to manage assets (Ellert, 1976). In comparison to internal growth, M&As present a faster form of expansion (Gaughan, 2017) and may occur because of industrial, economic, political or regulatory shocks, self-interested or irrational business decisions or overvaluation-related timing by management (Martynova & Renneboog, 2008).

Although M&As of extreme value creation or destruction are rare (Moeller, Schlingemann, & Stulz, 2005), some strategies are known for achieving superior performance, such as private firm acquisitions or cash payments in public firms' takeovers (Golubov, Yawson, & Zhang, 2014). Although the evidence is mixed, cross-border M&As do not seem to be a strategy with a straightforward superior performance. International M&As are associated with higher implementation, acculturation and regulatory costs (Desyllas & Hughes, 2010), as well as larger fixed costs (Chen, 2011). Research on the subject even reports a cross-border effect: bid announcement returns of the acquirer are lower for cross-border deals in comparison to domestic ones (Conn, Cosh, Guest, & Hughes, 2005; Eckbo & Thorburn, 2000; Francis, Hasan, & Sun, 2008; Mantecon & Chatfield, 2007; Martynova & Renneboog, 2006; Moeller et al., 2005). Nevertheless, cross-border M&As take a large part of the foreign direct investment of multinationals, especially in developed countries (Stiebale, 2016), such as most of those in the European Union (EU).

Furthermore, taking part in the EU may also have an impact on the returns of acquirer and target firms involved in cross-border deals, since companies are subject to Community Directives that require member states to achieve a certain result that may be related to, for instance, guaranteeing a certain level of protection to minority shareholders, as is the case of the Takeover Bids Directive (Clerc, Demarigny, Manuel, & Valiante, 2012).

Nevertheless, other factors are also at stake when EU companies enter into M&A deals with firms located in other countries. The existing literature on cross-border deals points to other factors as determinants of the gains provided by M&As. For instance, Rossi & Volpin (2004) found that the probability of a deal being cross-border rather than domestic is higher in countries with

lower investor protection and lower accounting standards, while civil law countries are associated with more cross-border deals.

Using a treatment sample of 550 Mergers and Acquisitions that occurred in the European Union from January 2000 to December 2015, as well as a control sample of 1647 deals by U.S. acquirers of targets outside the European Union, I analyze the differences among domestic and cross-border performances in the short- and in the long-term. I conclude that there are no significant differences in the announcement returns nor in the first year after the deal. Those results corroborate previous evidence provided by Ahern, Daminelli, & Fracassi (2015), Bris & Cabolis (2008), Danbolt (2004) and Martynova & Renneboog (2008).

I also find that the Takeover Bids Directive did not originate a significant impact on the average combined cumulative abnormal return of Mergers and Acquisitions, since the explanatory power of the enactment of the Directive on the synergistic gain provided by the M&A is not significant. One reasonable explanation lies in the fact that, besides being partial and having very limited scope, the Takeover Bids Directive is optional in some of its most significant provisions - the board neutrality rule, the break-through rule and the reciprocity principle (Enriques & Gatti, 2008). The optionality of the rules originated 16 different regimes that member states may opt for, precluding the possibility to standardize the processes by which corporate control transactions are executed across the EU. Furthermore, the literature points to the fact that regulatory law without any enforcement is ineffective (Bhattacharya & Daouk, 2002) and, although EU directives apply to all member states, the transposition, supervision and penalties for violations are left to each member state (Christensen, Hail, & Leuz, 2016).

Moreover, my results suggest that investor protection is the main factor determining whether deals are domestic or cross-border. According to my findings, companies located in countries with lower levels of shareholder protection, higher levels of openness and those whose origin of law is civil have the highest probability to be the targets in M&A deals, which is consistent with the evidence in previous literature (Manchin, 2004; Rossi & Volpin, 2004).

The relevance of this research lies in understanding if the so-called cross-border effect is also present in M&As in the EU, given that the relative number of cross-border deals has been increasing over time (Martynova & Renneboog, 2011). Unlike previous studies, instead of evaluating only the bidder or the target announcement returns, I compute the synergistic gain arising from the M&A to both acquirer and target' shareholders. Furthermore, I also examine whether the change in the regulatory environment caused by an exogenous shock – the enactment

of the Takeover Bids Directive – has had any impact on the combined gain from M&As and on the likelihood of cross-border deals post-regulation. To complement this analysis, other determinants of cross-border M&As such as shareholder protection are also analyzed.

The remaining of this study is organized as follows. Section 2 provides a review of the literature, exploring the most fundamental studies on Mergers and Acquisitions in Europe, securities regulation in the EU and the enactment of the Takeover Bids Directive, and the cross-country determinants of M&As. Section 3 presents the main objectives and research hypotheses. Section 4 describes all the aspects related to the methodology, such as the sample, data sources and the empirical methodologies. Section 5 presents the empirical analysis and the respective results. The sixth and last section covers the most relevant conclusions and limitations arising from this research.

2. Literature Review

2.1. The Mergers and Acquisitions market of the European Union

The European M&A market is fairly recent in comparison to the United States (U.S.) and reliable evidence is only available for more recent periods, such as the early 1960s for the United Kingdom (UK) and the beginning of the 1990s for Continental Europe (Martynova & Renneboog, 2008). Nevertheless, currently, even on a worldwide basis, the developed countries of the EU have been some of the largest acquirers and targets in M&A: from 2003 to 2005, EU15 countries¹ accounted for 47% of the 465 billion USD market, either as acquirer or target countries (Coerdacier, De Santis, & Aviat, 2009) and by 2007 the volume of M&As by European countries was superior to that of the U.S. (Moschieri & Campa, 2009).

The European market for M&A registered a pattern of strong growth since the 1980s, reaching American levels by the end of the 1990s, along with the increasing economic globalization, technological innovation, deregulation, privatization, and economic and financial markets' boom (Martynova, Oosting, & Renneboog, 2007). The development of the M&A market was even more pronounced in the case of the countries that belonged to the EU, since the political and economic union favored both horizontal and vertical M&A activity (Coerdacier et al., 2009).

The most active participants in this market in the 1990s were British, German and French firms, amounting to around 70% of domestic deals and to almost 50% of the cross-country deals as the bidding firms (Martynova & Renneboog, 2006). The UK firms represented about half of the domestic deals of the decade and around one fifth of the bidders of the cross-country deals, as well as most of the hostile bids, especially in the case of domestic ones (Martynova & Renneboog, 2006). Nevertheless, M&As conducted in the UK tend to be outperformed by M&As in other countries of Continental Europe (Martynova et al., 2007). During the 2000s, countries such as Belgium, Denmark, Italy, Luxembourg and the Netherlands also became important acquirers in M&As (Moschieri & Campa, 2009).

Although a substantial number of the M&As of the 1990s were cross-border (Martynova & Renneboog, 2008), by the end of the decade, most of the increase of the M&A market was due to domestic deals that increased the concentration of activity in certain sectors within national borders (Campa & Hernando, 2004). Reaching its peak in 1999, the average takeover deal achieved a record high of 1.7 billion USD (Martynova & Renneboog, 2006) but, by the beginning of the 2000s,

¹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom

merger activity significantly declined (Campa & Hernando, 2004), before recovering thereafter, in accordance to the cyclical developments of the world economy (Coeurdacier et al., 2009).

In the following years, the tendency to acquire within the same industry increased (Moschieri & Campa, 2009). From 2001 to 2007, most deals were friendly, which is a direct consequence of the concentrated ownership structure of most European companies, and the proportional value of transactions solely financed with cash increased. Furthermore, diversifying M&As yielded lower premia than intra-industry M&As (Moschieri & Campa, 2009).

2.1.1. Abnormal returns of M&A announcements

Abnormal returns arising from M&As are known to accrue mostly to the target, while the abnormal returns of the buyer are usually around zero (Bruner, 2004). In Europe, the cumulative abnormal returns by the end of the 1990s were positive for targets (Campa & Hernando, 2004; Goergen & Renneboog, 2004; Martynova & Renneboog, 2006) as well as for most bidders, albeit lower, and turned negative in the case of acquisitions of public targets financed with stock or with both stock and cash (Faccio, McConnell, & Stolin, 2004; Faccio & Stolin, 2006) and in case of hostile acquisitions (Goergen & Renneboog, 2004; Martynova & Renneboog, 2008). Still, the most frequent form of financing was a combination of cash, debt and stock, which accounted for about 75% of the deals (Martynova & Renneboog, 2006).

Furthermore, the European M&As of the 1990s yield substantially higher abnormal returns in conglomerate mergers than in industry-related mergers, which is the opposite of what happens in the U.S. (Martynova & Renneboog, 2008), and even though they only represent around 35% of the M&As of the decade (Martynova & Renneboog, 2006). In comparison to the U.S., acquirers in Continental Europe tend to be smaller, but the dollar value paid for listed targets is 56% higher (Alexandridis et al., 2010). More recently, the acquirer average abnormal returns in Continental Europe were at least non-negative, while in the United Kingdom were mostly negative, especially in the case of stock payments (Alexandridis et al., 2010).

Regarding the long-term performance, many previous studies (e.g., Agrawal, Jaffe, & Mandelker, 1992; Asquith, 1983; Rau & Vermaelen, 1998) document negative abnormal returns in the long-run for acquirers. As an example, Mitchell & Stafford (2000) examined a domestic U.S. sample of 2193 acquisitions over the 1958-1993 period and report that acquirers underperformed relative to the benchmark portfolios. Their findings point out to a decrease in shareholders' wealth

of about 0.6% when investing in acquirers comparing with similar book-to-market firms over a 3-year investment period.

2.1.2. Evidence on Cross-border M&As

In Europe, a substantial portion of the M&A deals of the 1990s, around one third, was cross-border (Martynova & Renneboog, 2006), and usually occurred within rather than across regions (Stiebale, 2016). The average deal value of cross-country M&As was about 4 times higher than domestic deals, with the UK representing around half of all cross-border deals acting as bidders (Martynova & Renneboog, 2006).

The research on the performance of cross-border M&As is much more scarce than on domestic deals (Erel, Liao, & Weisbach, 2012), and the existing evidence is mixed. Most of the literature reports a negative cross-border effect. Goergen & Renneboog (2004), Martynova & Renneboog (2006) and Mateev & Andonov (2016) found that the takeover announcement returns associated with cross-border M&As are significantly lower than those associated with domestic M&As. In addition, international M&As tend to have larger return differences between acquirers and targets, in comparison to domestic M&As (Erel et al., 2012). International deals are also associated with more uncertainty given the geographical distance and the differences in accounting standards, regulation, language and culture (e.g., Belcher & Nail, 2000; Eckbo, 2009; Moeller et al., 2005).

Nevertheless, International M&As lead to a substantial increase in innovation output, starting, on average, one year after the deal, and provide access to foreign markets for the acquirer or the target (Stiebale, 2016). Furthermore, international deals may have a positive impact on innovative performance because it might force a firm to rethink its strategy in a more international environment (Hoecklin, 1995). However, the debate about innovation that immerses around cross-border M&As is controversial. According to Stiebale (2016), it is unlikely that M&A deals introduce innovation if no innovative activity has been carried out before the acquisition.

Apart from innovation, some previous research has demonstrated that cross-border M&As yield better performance than domestic M&As (Ahern et al., 2015; Bris & Cabolis, 2008; Danbolt, 2004; Martynova & Renneboog, 2008). Nevertheless, Martynova & Renneboog (2011), do not find any statistical differences in bidder abnormal returns between domestic and cross-border deals in the UK and in Continental Europe when considering a [-5;5] event window and Mateev & Andonov (2016) reach the same results for [-2;2] and [-1;0] event windows.

In the long-term perspective, the evidence presented in the literature about the performance of European bidders is much more scarce, as pointed out by Jensen-Vinstrup, Rigamonti, & Wulff (2018). When it comes to cross-border M&As, the authors did find significant long-term underperformance when using a sample of 6566 Mergers and Acquisitions that occurred from 2002 to 2012. Nevertheless, when using a matching procedure to make cross-border and domestic deals groups more comparable, they also find that differences in abnormal returns between event and control firms arise from differences in firm characteristics not related to the event in question. Chakrabarti, Gupta-Mukherjee, & Jayaraman (2009) also found that, in general, cross-border acquisitions are associated with long-term underperformance when using a worldwide sample. Furthermore, Martynova et al. (2007) concluded, based on a sample of 155 European M&As over the 1997-2001 period, that the profitability of the combined firm decreases 1,8% following a cross-border deal.

2.2. The evidence on Securities Regulation

The evidence on the effects of securities regulation is ambiguous. Research findings point to higher market liquidity (Christensen et al., 2016) and lower cost of capital in the presence of regulation (Daske, Hail, Leuz, & Verdi, 2008). Nevertheless, regulation is also subject to information and competence problems (Stigler, 1971), hindering the possibility of making it socially beneficial. Christensen et al. (2016) found that regulation in the EU is beneficial, especially in countries with a history of high regulatory standards and quality of their institutions.

Building upon this evidence, other recent studies found similar findings. Fauver, Loureiro, & Taboada (2017) studied the effect of the Market Abuse Directive (MAD) and of the Prospectus Directive (PD) on Seasoned Equity Offerings (SEO) and found that the enactment of both directives lead to a decrease in earnings management, improved stock return performance post-SEO and a reduction in the adverse reaction to the SEO announcement. Watanabe, Imhof, & Tartaroglu (2019) studied the effect of the Transparency Directive (TPD) on stock price informativeness and found that it improved post-TPD, although the effect was more pronounced in countries with strong regulatory quality.

The Committee of Wise Men on the Regulation of European Securities Markets, set by the European Council to develop proposals to make EU regulation more flexible, concluded that regulation would improve the allocation of capital and the efficiency of intermediation of savings to

investment, and also strengthen the EU economy, making it more attractive for inward investment (Lamfalussy et al., 2000).

Nevertheless, there are also deterrents to merger activity that are associated with regulation, such as the diversity of takeover rules among member states, the common existence of anti-takeover strategies and the heavy Government control on merger activity through, e.g., golden shares (Campa & Hernando, 2004).

2.2.1. The Takeover Bids Directive (TBD)

The Directive 2004/25 of the European Parliament and of the European Council on Takeover Bids is a partial, minimal and optional² directive that sets rules governing corporate control transactions and tender offers of EU listed issuers (Enriques & Gatti, 2008). This Directive is part of the Financial Services Action Plan (FSAP) initiated in 1999 and focused on financial services, securities regulations and company law issues with the aim to provide the basis for EU financial markets' integration through uniform rules that would increase investor protection and lower the cost of cross-border transactions (Enriques & Gatti, 2008).

The TBD suffered many setbacks throughout the years. When the creation of the TBD was first considered, few EU countries had detailed rules regarding takeovers and the level of M&A activity varied substantially among member states (Clarke, 2009). Concerning cross-border deals, cooperation between securities regulators was only lightly covered in the EU legislative framework (Lamfalussy et al., 2000). The first draft was produced in 1974, but the European Parliament and Council rejected it (Jallai, 2012). The intention of the Directive was to create favorable conditions for the emergence of a European market for corporate control and to harmonize different national takeover laws through consistent takeover rules across the EU (Moschieri & Campa, 2014).

In 1989, the European Commission presented another proposal for a directive regulating takeover bids to the Council, calling for far-reaching harmonization but the proposal encountered significant opposition from EU member states, due to the mandatory bid rule and the limitation of takeover defense mechanisms (Clerc et al., 2012). The presented form of the draft was not

² Directives may be considered comprehensive or partial in scope, maximal or minimal with respect to their relationship with national law and optional or mandatory in nature. Directives are considered comprehensive if they cover the full scope of a subject and partial otherwise; maximal if there is no possibility to impose stricter rules and minimal otherwise; optional if it allows member states to choose among a set of rules or to opt-out of certain rules and mandatory otherwise (Enriques & Gatti, 2008).

accepted, and the amended proposal was presented in 1990, and discussions around it were carried out until 1991, when negotiations were suspended (Edwards, 2007).

The Commission presented a second proposal containing less detailed provisions to the European Council and the European Parliament in 1996 (Clerc et al., 2012). The Economic and Social Committee revised the proposal in 1997 but it was, once again, rejected (Johnston, 2009). The European Parliament rejected the proposal in July 2001, with a tied vote, mainly because of concerns related to the board neutrality rule and the insufficient protection of employees (Clerc et al., 2012). The Commission then set up a group of business law experts to settle the issues raised by the European Parliament. A third proposal was introduced on October 2nd, 2002, and a compromise was reached – member states could opt out of transposing the board neutrality rule or the breakthrough rule, or both, but they could not prevent individual companies from voluntarily opting into the rules (Clerc et al., 2012). The TBD was then approved in April 2004 and had to be implemented by member states until May 2006 (Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids, 2004)³.

The main objectives of the TBD are to protect minority shareholders' interests, decrease legal uncertainty, and to establish a regulatory framework across member states (Clerc et al., 2012). In order to do so, it sets the following provisions: i) the board neutrality and breakthrough rules, ii) the mandatory bid rule, and iii) the sell-out and squeeze-out provisions.

The TBD intends to prevent targets from using pre- and post-bid defense mechanisms through the breakthrough rule (Article 11) and the board neutrality rule (Article 9), respectively.

The breakthrough rule aims to eliminate pre-existing anti-takeover measures that may cause barriers to the emergence of an efficient takeover activity (McCahery & Vermeulen, 2010). To do so, it determines along Article 11 that any restrictions on the transfer of securities presented in contractual agreements between the target company and holders of its securities or between holders of its securities do not apply to the bidder during the time allowed for the acceptance of the bid⁴. Furthermore, restrictions on voting rights presented in contractual agreements between the target company and holders of its securities or between holders of its securities do not have effect at the general meeting of shareholders which decides on any defensive measures⁵. If the bidder holds 75% or more of the capital carrying voting rights following the bid, the restrictions

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32004L0025> (accessed in August 28, 2019)

⁴ Directive 2004/25/EC, Article 11, §2

⁵ Directive 2004/25/EC, Article 11, §3

previously mentioned or any other on extraordinary rights of shareholders concerning the appointment or removal of board members presented in the articles of association of the target company also do not apply⁶. Furthermore, multiple-vote securities represent only one vote each at the general meeting of shareholders which decides on any defensive measures⁵ which is also demonstrative of the Directive's aim to protect minority shareholders. Nevertheless, this provision might be problematic in Continental Europe because it may alter the ownership structure and concentration of voting rights of firms (Hertig & McCahery, 2003).

The board neutrality rule compels a target company's directors to obtain prior shareholders' authorization when engaging in defensive actions to preserve the company's independence (Enriques & Gatti, 2008), hence hindering the use of post-defense mechanisms. The board neutrality rule determines that at least during the period from the moment the target board receives the information that the bid is made public and the supervising authority is informed of the bid⁷ until the result of the bid is made public or the bid lapses, the board of the target company has to obtain prior authorization from the general meeting of shareholders before taking any action, besides seeking alternative bids, that may result in the frustration of the bid⁸. It is further reinforced that the authorization should be asked especially before issuing any shares that may result in a lasting impediment to the bidder to acquire control of the target – a common defense tactic to frustrate a bid.

Although the previous rules could effectively discourage any attempt by the target to frustrate the bid, member states may opt-out of both provisions, being only obliged to grant companies which have their registered offices within their territories the possibility, that should be reversible, to apply one or both rules⁹. Moreover, member states are also allowed to exempt companies that apply these from doing so if they become the subject of a bid by a company that does not apply the same Articles – the reciprocity rule¹⁰.

The mandatory bid rule (Article 5) requires any person who acquires control of an EU company which shares are listed on an EU regulated exchange to launch a bid for the remaining shares of the company at an equitable price (Enriques & Gatti, 2008). It provides the minority

⁶ Directive 2004/25/EC, Article 11, §4

⁷ Member states are able to require that such authorization could be obtained earlier, e.g., as soon as the board of the target company becomes aware that the bid is imminent.

⁸ Directive 2004/25/EC, Article 9, §2

⁹ Directive 2004/25/EC, Article 12, §1

¹⁰ Directive 2004/25/EC, Article 12, §3

shareholders an opportunity to exit the company at fair conditions, protecting them from the acquirer who may exploit its private benefits of control at the expense of minority investors (Goergen, Martynova, & Renneboog, 2005). The equitable price is defined as “the highest price paid for the same securities by the offeror, or by persons acting in concert with him/her, over a period, to be determined by member states, of not less than six months and not more than 12 before the bid (...)”¹¹. The main issue with this rule is the fact that, although it is mandatory, member states are the ones responsible for regulating its implementation (Jallai, 2012).

The Directive also contemplates the right of squeeze-out (Article 15) and the right of sell-out (Article 16). The squeeze-out provision sets that any bidder crossing a 90% to 95% threshold has the right to buy the remaining shares of minority investors (Enriques & Gatti, 2008). The sell-out provision sets that the holder of any remaining securities after a bid may sell his shares to the acquirer at a fair price if the latter crosses such threshold (Enriques & Gatti, 2008). Hence, the squeeze-out provision aims to incentivize the takeover activity (Winter et al., 2002), while the sell-out provision aims to protect minority investors by providing them an exit opportunity (Jallai, 2012).

To further protect minority shareholders, the Directive also establishes that “The authority competent to supervise a bid shall be that of the member state in which the offeree company has its registered office if that company’s securities are admitted to trading on a regulated market in that member state”¹².

The creation of this Directive to regulate takeover bids is further justified by the need to establish minimum guidelines for cross-border takeover bids, as it is stated in the preamble. According to Enriques & Gatti (2008), if there is no coordination among jurisdictions, multiple security law regimes apply to cross-border transactions and member states individually would not have been able to ensure the creation of rules governing corporate control when its companies are involved in deals with firms from other member states. Therefore, the rules had to be established at the Community level in order to be effective.

According to Christensen et al. (2016), who provide evidence of an increase in market liquidity after the enactment of the Transparency and Market Abuse Directives (TPD and MAD, respectively), one expects that the TBD contributes to increase market liquidity, especially if prior regulation is strong. Its main disadvantages are the limited scope, since it only covers offers for voting equity securities that are listed on a EU regulated market, and the optionality in some of its

¹¹ Directive 2004/25/EC, Article 5, §4

¹² Directive 2004/25/EC, Article 4, §2, a)

most significant rules (Enriques & Gatti, 2008). Indeed, most EU countries did not transfer the rules that would allow a liberalization of their national markets to foreign companies.

2.3. The TBD adoption and other determinants of cross-country M&As

The TBD primary objective is to curtail excessive anti-takeover provisions, leading to a more active market of mergers and acquisitions between member states, i.e., higher completion of international M&A deals. Based upon the European Council Treaty, the objective of the TBD rule is also to encourage acquirers to pursue the principle of freedom of establishment (Papadopoulos, 2008), aiming to create the conditions for the emergence of a European market for corporate control (Moschieri & Campa, 2014).

According to the evidence provided by Rossi & Volpin (2004), investor protection is also a determinant of cross-border deals. The authors argue that acquirers have, on average, higher investor protection than targets, since firms opt-out of a weak governance regime via cross-border deals while targets usually adopt the accounting standards, disclosure practices and governance structures of the acquiring firm (Bris, Brisley, & Cabolis, 2008). Moreover, the acquirer shareholders' rights usually apply to the combined company, replacing the target shareholders' rights (Wang & Xie, 2009).

Erel et al. (2012), who used a sample of 56 978 cross-border M&As that occurred between 1990 and 2007, also show that geographical proximity between the acquirer and the target and higher levels of trade between two countries are associated with more cross-border deals. The authors also found that acquirers are usually associated with higher economic development, better accounting quality and better stock market performance. Besides, firms located in countries whose currency tends to appreciate are usually bidders, while firms located in countries whose currency tends to depreciate are usually targets.

Manchin (2004), using a sample of EU targets and EU, Canadian, American, Norwegian and Swiss acquirers involved in public and private M&As from 1991 to 2001, found that as the distance between the acquirer and the target location increases, the lower will be the merger activity between them. Also, acquirers are associated with higher market capitalization, better investor protection and better quality of credit market regulation. On the other hand, targets are associated with more liberal trading regimes and more beneficial tax regimes.

Furthermore, differences between the political, economic and regulatory environments of the acquirer and target country increase the cost of cooperation, which decreases the probability

of success of a cross-border merger (Davidson & McFetridge, 1985). Nevertheless, the evidence on the effect of cultural differences on M&A is mixed. While Clodt, Hagedoorn, & Kranenburg (2006) report that cultural distance between the bidder and the target also has a positive effect on the post-M&A innovative performance of the bidder, other authors associate it with a lower probability of success since it increases the period of time of negotiation (Walsh, 1989) and the risk of employee exit, while it decreases operating and innovative performance (Reus & Lamont, 2009; Shane, 1993).

Overall, the European integration process has also contributed to the world development of cross-border M&As of the manufacturing sector, and the establishment of the European Monetary Union increased intra-euro area cross-border horizontal and vertical M&A activity in manufacturing by 200% and 140%, respectively (Coourdacier et al., 2009).

3. Research Hypotheses

Although the evidence on cross-border Mergers and Acquisitions is mixed, domestic deals are associated with better performance and lower costs. Goergen & Renneboog (2004), Martynova & Renneboog (2006) and Mateev & Andonov (2016) concluded that announcement returns associated with cross-border M&As are significantly lower than those associated with domestic M&As, while Martynova, Oosting, & Renneboog (2007) found that the profitability of the combined firm resulting from a cross-border deal decreases 1,8%, hence evidencing the superior performance of domestic M&As in both the short- and the long-term. Furthermore, Belcher & Nail (2000), Eckbo (2009) and Moeller et al. (2005) found that cross-border deals are associated with more uncertainty resulting from the geographical distance and the differences in accounting standards, regulation, language and culture. Therefore, the first set of hypotheses, concerning the comparison of the abnormal returns between domestic and cross-border deals, is the following:

Hypothesis 1a: Cross-border M&As yield lower abnormal returns in comparison to domestic M&As in the short-term.

Hypothesis 1b: Cross-border M&As yield lower abnormal returns in comparison to domestic M&As in the long-term.

During the sample period (2000-2015), the EU member states enacted the most significant EU Directive in terms of Mergers and Acquisitions – the Takeover Bids Directive, which focuses on protecting the shareholders' rights. The provisions of the Directive that may have the strongest impact on such performance of M&As in the EU are the breakthrough rule, that aims to eliminate pre-existing anti-takeover measures (McCahery & Vermeulen, 2010), and the board neutrality rule that compels a target company's directors to obtain prior shareholders' authorization when engaging in defensive actions (Enriques & Gatti, 2008). Therefore, the TBD aims to revoke pre- and post-bid defense mechanisms that are known for being harmful to shareholders (Ruback, 1987), since various studies report the negative effect of the adoption of takeover defenses on stock prices and shareholder wealth (Malatesta & Walkling, 1988; Ryngaert, 1988). Therefore, the Directive is expected to have a positive effect on the synergistic gain arising from Mergers and Acquisitions conducted in the European Union. Based upon those arguments, I formulate Hypothesis 2 as it follows:

Hypothesis 2: The enactment of the TBD results in higher synergistic gains arising from M&A activity in the European Union.

Besides the predicted positive effect of the TBD transposition on shareholders' wealth, it is also expected that its enactment enhances cross-border M&A deals between member states. Previous evidence (e.g., Rossi & Volpin, 2004) pointed out that investor protection is the main determinant of cross-border Mergers and Acquisitions. Rossi & Volpin (2004) concluded that a cross-border deal probability decreases with the investor protection degree of the target's country, while Manchin (2004) found that the acquirers are usually associated with better investor protection. Furthermore, Bris & Cabolis (2008) concluded that cross-border M&As may reflect shifts in shareholder protection. Therefore, based on those arguments, the final set of hypotheses is the following:

Hypothesis 3a: The level of international M&A deals increases between member states after the TBD enactment.

Hypothesis 3b: The level of investor protection determines the intensity of international M&A among member states.

4. Data and Methodology

4.1. Sample

The sample used in this study will comprise two subsets of events (i.e., M&A announcements): the treatment subsample and the control subsample. Nevertheless, both subsets were subject to the same selection criteria.

The treatment sample comprises all Mergers and Acquisitions announced from January 1st, 2000 to December 31st, 2015, which acquirers and targets originated from countries in the European Union¹³, while the control sample comprises all the Mergers and Acquisitions that occurred in the same period but whose acquirers were from the United States and targeted companies from any country, except those in the European Union¹⁴. Since the time lapse between the announcement of the M&A and the date in which it becomes effective may be several months long, the announcement date is the one considered, which is a common practice in the literature (e.g. Alexandridis et al., 2010; Fuller, Netter, & Stegemoller, 2002; Rossi & Volpin, 2004).

The information about the firms involved in the deal and the date announced were collected from Thomson Reuters' SDC Platinum, along with the deal-level control variables – deal size, SIC code, and percentage of cash and stock financing.

Following the literature (e.g., Lusyana & Sherif, 2016; Rossi & Volpin, 2004; Stiebale, 2016), the M&A was defined as going from owning less than 50% of the target company before the M&A to acquiring a majority interest, since transfers of minority stakes are likely to be affected by cross-country differences in disclosure requirements, as pointed out by Rossi & Volpin (2004).

Hence, for an M&A deal to be included in the sample, it had to comply with the following criteria:

- The M&A was announced between January 1st, 2000 and December 31st, 2015;
- The acquirers and targets are public listed companies;
- The acquirer and target countries took part in the EU during the period under analysis if the deal is included in the treatment subsample, while the acquirer is from the U.S. and the target is from any other country except those that are part of the EU if the deal is included in the control subsample;

¹³ Although Norway and Iceland also enacted the TBD, I decided to not include them in the sample since they are not part of the EU.

¹⁴ Targets located in the EU are excluded from the control sample since these would have been subject to the transposal of the TBD and would, therefore, be exposed to the treatment.

- The acquirers and targets are non-financial firms, given the regulation differences in comparison to other industries;
- Deals will only be considered if they are completed, involved only public firms and are above one million dollars;
- The bidder acquired at least 50% of the target, since transfers of minority stakes are likely to be affected by cross-country differences in disclosure requirements (Rossi & Volpin, 2004);
- Following previous studies (Alexandridis, Fuller, Terhaar, & Travlos, 2013; Bris et al., 2008; Erel et al., 2012), leveraged buy-outs, spin-offs, recapitalizations, self-tenders, exchange offers, repurchases, and privatizations were excluded from the sample.

The data collection process also imposes other constraints such as the availability of a company identifier, such as a SEDOL, for both targets and acquirers.

To mitigate the effect of outliers, acquirer, target and combined CAR were winsorized at the 1st percentile and at the 99th percentile.

After considering the previous criteria, the treatment group had 550 mergers and acquisitions by 470 acquirers and 539¹⁵ targets, while the control sample totals 1647 deals by 1026 acquirers and 1625¹⁶ targets. These numbers were further reduced in some of the empirical analysis performed given the limited data availability of some of the variables used, such as quarterly accounting data from WorldScope.

Table 1 provides the distribution of the treatment sample per 2-digit SIC code (Panel A), per year and M&A type (Panel B) and per country and date of transposal of the Takeover Bids Directive (Panel C).

¹⁵ The number of targets is less than the number of Mergers and Acquisitions since 9 targets were bought but not integrated into their acquirers and were later sold again, while one of the targets was sold twice in both domestic and cross-border deals.

¹⁶ The number of targets is less than the number of Mergers and Acquisitions since 22 targets were bought but not integrated into their acquirers and were later sold again, while one of the targets had the acquirer incorporated in itself and were later sold to another acquirer.

Table 1 - Distribution of the treatment sample

<i>Panel A - Sample distribution by SIC code</i>				
SIC code	Acquirers		Targets	
01-09 Agriculture, forestry and fishing	5	1.06%	3	0.56%
10-14 Mining	22	4.68%	23	4.27%
15-17 Construction	15	3.19%	22	4.08%
20-39 Manufacturing	169	35.96%	176	32.65%
40-49 Transportation, communications, electric, gas and sanitary services	54	11.49%	52	9.65%
50-51 Wholesale trade	13	2.77%	23	4.27%
52-59 Retail trade	32	6.81%	36	6.68%
60-67 Finance, insurance and real estate	0	0.00%	0	0.00%
70-89 Services	160	34.04%	203	37.66%
90-99 Public Administration	0	0.00%	1	0.19%
Total	470	100%	539	100%

<i>Panel B - Sample distribution by year</i>						
Year	Domestic M&A		International M&A		Total	
2000	56	10.18%	30	5.45%	86	15.64%
2001	36	6.55%	15	2.73%	51	9.27%
2002	26	4.73%	13	2.36%	39	7.09%
2003	25	4.55%	10	1.82%	35	6.36%
2004	32	5.82%	5	0.91%	37	6.73%
2005	34	6.18%	17	3.09%	51	9.27%
2006	35	6.36%	11	2.00%	46	8.36%
2007	32	5.82%	15	2.73%	47	8.55%
2008	16	2.91%	9	1.64%	25	4.55%
2009	18	3.27%	1	0.18%	19	3.45%
2010	17	3.09%	7	1.27%	24	4.36%
2011	21	3.82%	6	1.09%	27	4.91%
2012	11	2.00%	5	0.91%	16	2.91%
2013	12	2.18%	4	0.73%	16	2.91%
2014	13	2.36%	6	1.09%	19	3.45%
2015	8	1.45%	4	0.73%	12	2.18%
Total	392	71.27%	158	28.73%	550	100%

<i>Panel C - Sample distribution by country</i>					
Country	Acquirers		Targets		TBD date
Austria	5	1.06%	7	1.30%	May-06
Belgium	10	2.13%	10	1.86%	Sep-07
Bulgaria	0	0.00%	1	0.19%	Jun-07
Croatia	1	0.21%	2	0.37%	Jul-13
Czech Republic	0	0.00%	2	0.37%	Apr-08
Denmark	12	2.55%	16	2.97%	Jun-05

Finland	16	3.40%	14	2.60%	Jul-06
France	67	14.26%	77	14.29%	Apr-06
Germany	30	6.38%	36	6.68%	Jul-06
Greece	11	2.34%	13	2.41%	May-06
Hungary	0	0.00%	1	0.19%	Jul-06
Ireland	6	1.28%	4	0.74%	May-06
Italy	13	2.77%	11	2.04%	Dec-07
Luxembourg	1	0.21%	2	0.37%	May-06
Netherlands	25	5.32%	23	4.27%	Oct-07
Poland	11	2.34%	15	2.78%	Jan-09
Portugal	0	0.00%	2	0.37%	Nov-06
Romania	1	0.21%	2	0.37%	Jan-07
Slovakia	0	0.00%	1	0.19%	Jan-08
Slovenia	0	0.00%	1	0.19%	Aug-06
Spain	11	2.34%	16	2.97%	Aug-07
Sweden	46	9.79%	44	8.16%	Jul-06
United Kingdom	204	43.40%	239	44.34%	May-06
Total	470	100%	539	100%	

Distribution of the treatment sample of 550 M&As. Panel A shows the distribution by 2-digit SIC code. Panel B shows the distribution by year of the M&A announcements and distinguishes among domestic and cross-border deals. Panel C shows the distribution of acquirers and targets by country and by date of transposal in each country. Domestic M&A refers to deals where both the acquirer and the target have the same country of origin, while International M&A refers to deals where the acquirer and the target have different countries of origin. All variables are defined in Appendix A.

The most prominent sectors in the treatment sample are Manufacturing and Services since, for both acquirers and targets, each constitutes about one-third of the sample. Note that SIC codes from 6000 to 6999 are not present due to the above-mentioned regulation difference between Finance, Insurance and Real Estate and other industries. It is also worth noting that more than 70% of the mergers and acquisitions are domestic, which is similar to the distribution sample of Martynova & Renneboog (2006) for the 1990s decade, which means that the pattern remained throughout the 21st century.

It is also clear in the sample the reduction in the number of M&As from 2000 to 2003, meeting the results found in the literature (Campa & Hernando, 2004). Furthermore, there is also a decrease in the period from 2007 to 2009, coinciding with the Subprime Financial Crisis.

In terms of country of origin of targets and acquirers, the UK accounts for almost half in both cases, while France and Scandinavian countries that are part of the EU account for around 15% of the deals as acquirers or targets each. On the other hand, countries in Eastern (e.g., Bulgaria, Romania, Slovakia, Slovenia) and Southern Europe (e.g. Portugal) sum a very small proportion of the overall number of deals. This sample distribution is the one expected since most

firms in Continental Europe have concentrated ownership or control (Martynova & Renneboog, 2006).

Table 2 provides the distribution of the control sample per 2-digit SIC code (Panel A), per year and M&A type (Panel B) and per country (Panel C).

Table 2 - Distribution of the control sample

<i>Panel A - Sample distribution by SIC code</i>						
SIC code	Acquirers		Targets			
01-09 Agriculture, forestry and fishing	2	0.19%	3	0.18%		
10-14 Mining	92	8.97%	127	7.82%		
15-17 Construction	7	0.68%	8	0.49%		
20-39 Manufacturing	467	45.52%	759	46.71%		
40-49 Transportation, communications, electric, gas and sanitary services	96	9.36%	108	6.65%		
50-51 Wholesale trade	28	2.73%	40	2.46%		
52-59 Retail trade	42	4.09%	51	3.14%		
60-67 Finance, insurance and real estate	0	0.00%	0	0.00%		
70-89 Services	290	28.27%	529	32.55%		
90-99 Public Administration	2	0.19%	0	0.00%		
Total	1026	100%	1625	100%		
<i>Panel B - Sample distribution by year</i>						
Year	Domestic M&A		International M&A		Total	
2000	181	10.99%	12	0.73%	193	11.72%
2001	140	8.50%	13	0.79%	153	9.29%
2002	94	5.71%	13	0.79%	107	6.50%
2003	108	6.56%	10	0.61%	118	7.16%
2004	98	5.95%	17	1.03%	115	6.98%
2005	98	5.95%	14	0.85%	112	6.80%
2006	91	5.53%	22	1.34%	113	6.86%
2007	102	6.19%	15	0.91%	117	7.10%
2008	68	4.13%	9	0.55%	77	4.68%
2009	69	4.19%	9	0.55%	78	4.74%
2010	67	4.07%	15	0.91%	82	4.98%
2011	51	3.10%	12	0.73%	63	3.83%
2012	64	3.89%	15	0.91%	79	4.80%
2013	54	3.28%	8	0.49%	62	3.76%
2014	76	4.61%	8	0.49%	84	5.10%
2015	81	4.92%	13	0.79%	94	5.71%
Total	1442	87.55%	205	12.45%	1647	100.00%

Panel C - Sample distribution by country

Country	Acquirers		Targets	
Australia	0	0.00%	21	1.29%
Brasil	0	0.00%	2	0.12%
China	0	0.00%	1	0.06%
Chile	0	0.00%	1	0.06%
Canada	0	0.00%	106	6.52%
Egypt	0	0.00%	1	0.06%
Hong-Kong	0	0.00%	2	0.12%
India	0	0.00%	5	0.31%
Israel	0	0.00%	14	0.86%
Japan	0	0.00%	3	0.18%
Malasya	0	0.00%	1	0.06%
Mexico	0	0.00%	1	0.06%
New Zealand	0	0.00%	1	0.06%
Norway	0	0.00%	4	0.25%
Russia	0	0.00%	1	0.06%
Singapore	0	0.00%	2	0.12%
South Africa	0	0.00%	2	0.12%
South Korea	0	0.00%	1	0.06%
Switzerland	0	0.00%	4	0.25%
Taiwan	0	0.00%	10	0.62%
Thailand	0	0.00%	1	0.06%
United States	1026	100.00%	1441	88.68%
Total	1026	100.00%	1625	100.00%

Distribution of the control sample of 1647 M&As. Panel A shows the distribution by 2-digit SIC code. Panel B shows the distribution by year of the M&A announcements and distinguishes among domestic and cross-border deals. Panel C shows the distribution of acquirers and targets by country. Domestic M&A refers to deals where both the acquirer and the target have the same country of origin, while International M&A refers to deals where the acquirer and the target have different countries of origin. All variables are defined in Appendix A.

The most prominent sectors in the control sample are Manufacturing (45.52% of acquirers and 46.71% of targets) and Services (28.27% of acquirers and 32.55% of targets). The proportion of domestic deals is superior in comparison to EU deals: more than 87% of the deals are domestic¹⁷. Just as with the treatment sample, there is also a reduction in the number of deals from 2000 to 2003 and from 2007 to 2009. Nevertheless, the recovery afterwards was more prominent in the U.S. in comparison to the EU. In terms of country of origin of targets and acquirers, all the acquirers are from the U.S.

¹⁷ The percentage of domestic deals and of deals among acquirers and targets located in the United States is not equal since SDC Platinum considers a deal to be cross-border whenever the country of the target is different from the country of the acquiring ultimate company; nevertheless, the country presented as the acquirer country is the one where the immediate acquiring company is located.

The stock price information was retrieved from Thomson Reuters' Datastream. The data was retrieved in a daily form to perform the event study and on a monthly basis to calculate the buy-and-hold abnormal returns. The accounting information was downloaded from Thomson Reuters' Worldscope on a quarterly basis. The variables downloaded were the following: net income before preferred dividends, total assets, total liabilities, market capitalization and common equity. The Gross Domestic Product *per capita* at constant 2010 prices and the Gross Domestic Product growth rate were retrieved from the WorldBank's development indicators database. All the variables used in this study, as well as their sources, are described in Appendix A.

Those variables can be classified according to their level of analysis as country, firm, or deal-level. The country-level variables are broad indicators of macroeconomic conditions and proxy for the regulatory and economic environment. The second category of variables measures the financial characteristics of the firms involved in the M&A. The third set of variables is at the deal-level and includes data on the value of the deal, the means of payment, and the industry diversification of the M&A. These variables are used as control variables in the regressions to test the hypotheses formulated in Chapter 3.

4.2. Methodology

4.2.1. Domestic and cross-border M&As

In order to test Hypothesis 1a, i.e., to analyze if cross-border M&As yield lower abnormal returns in comparison to domestic M&As in the short-term, I use the event study methodology. Although event studies dominate the empirical research in corporate finance matters (MacKinlay, 1997), it is widely acknowledged that event study methodology presents concerns (e.g., Bruner, 2004), such as assuming market efficiency and rationality. Nevertheless, these assumptions are not unreasonable for most stocks on average and over time (Bruner, 2004).

To test hypothesis 1b, i.e., to understand if cross-border M&As yield lower abnormal returns in comparison to domestic M&As in the long-term, I computed the buy-and-hold abnormal returns (BHAR) proposed by Barber & Lyon (1997). According to the authors, the BHAR are closer to the actual investment experience because investors usually invest in assets and hold them for a certain period. Furthermore, several long-term event studies measuring negative abnormal returns over the three to five years following merger completion show that investors systematically fail to assess quickly the full impact of corporate announcements, implying that inferences based on announcement-period event windows are inaccurate (Andrade, Mitchell, & Stafford, 2001).

4.2.1.1. Short-term performance of M&As and the event study methodology

The event of interest is the announcement of M&A deals in the European Union from January 1st, 2000 to December 31st, 2015. The event date is the first public M&A announcement since it reveals information about the potential synergies of the deal (Hietala, Kaplan, & Robinson, 2003). The event window is [-5;5] because it is short enough to isolate the event and it is commonly used in previous literature (to cite only a few, Bradley, Desai, & Kim, 1988; Doukas, Travlos, & Holmen, 2001; Franks, Harris, & Titman, 1991; Holmen & Knopf, 2004; Kang, Shivdasani, & Yamada, 2000; Kaplan & Weisbach, 1992; Lang, Stulz, & Walkling, 1989; Wang & Xie, 2009).

The estimation window is [-255; -25] in order to include around one year of observations prior to the event. It does not include the event itself and the days prior to assure that the estimates of the normal performance model parameters are not influenced by any abnormal reaction to the event (MacKinlay, 1997). The returns will be computed as combined returns of both the acquirer and the target, so that the synergistic gain of the M&A is evaluated. The main goal is to estimate the average cumulative abnormal return (CAR) of the domestic and cross-border announcements, testing the respective significance of the difference in abnormal returns.

Hence, the main variable is the abnormal return that, according to MacKinlay (1997), can be defined as the *ex post* stock return minus the expected stock return (not affected, or better, not conditioned by that event), as shown in equation (1):

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}|X_{\tau}) \quad (1)$$

where $AR_{i\tau}$, $R_{i\tau}$, and $E(R_{i\tau}|X_{\tau})$ are the abnormal, actual, and normal returns, respectively, and X_{τ} is the conditioning information for the normal return model.

The normal returns are calculated using the market model:

$$R_{i\tau} = \alpha_i + \beta_i R_{m,c,t} + \varepsilon_{i,t} \quad (2)$$

$$E(\varepsilon_{it} = 0) ; \text{var}(\varepsilon_{it}) = \sigma^2 \varepsilon_i$$

where α , β , and $\sigma^2_{\varepsilon_i}$ are the parameters of the model, $R_{m,c,t}$ is the return of the market portfolio¹⁸, and $\varepsilon_{i,t}$ is the zero mean disturbance term. The CAR will consist of the aggregation of the abnormal returns through time and across securities:

$$CAR = \sum_{\tau=\tau_1}^{\tau_2} AR_{\tau} \quad (3)$$

I will denote the CAR of the acquirer as CARA and the CAR of the target as CART.

To compute the combined abnormal returns, I will follow Bradley, Desai, & Kim (1988). Hence, the combined CAR will be the value-weighted portfolio of the target and acquirer returns:

$$CARC = W_T * CART + W_A * CARA \quad (4)$$

where W_T is the market value of the target equity as of the end of six trading days prior to the first announcement made by the acquirer minus the value of the target shares held by the acquirer and W_A is the market value of the acquiring firm as of the end of six trading days prior to the first announcement made by the acquirer. Therefore, CARC will be the combined percentage of synergistic gain created by the M&A announcement.

The impact of cross-border deals on the average cumulative abnormal return of acquirers, targets and combined are estimated following the insights of previous studies (e.g., Alexandridis et al., 2010; Mateev & Andonov, 2016; Wang & Xie, 2009) using equation (5):

$$\begin{aligned} CAAR_{i,t} = & \alpha_0 + \alpha_1 cross_i + \alpha_2 dealsize_i + \alpha_3 DCash_i + \alpha_4 sameind2_i + \\ & \alpha_5 \ln GDPpc_{c,t-1} + \alpha_6 GDPgrowth_{c,t-1} + \alpha_7 ROA_{i,t-1} + \alpha_8 MTB_{i,t-1} + \\ & \alpha_9 leverage_{i,t-1} + \lambda_c + \eta_j + \gamma_t + \varepsilon_{i,c,t} \end{aligned} \quad (5)$$

Where, for deal i , $cross_i$ is a dummy variable that equals one if the deal is cross-border and zero otherwise, so as to disentangle the short-term performance differences based on the geographical scope of the M&A; $dealsize_i$ is a variable that consists in the logarithm of the transaction value of the M&A¹⁹; $DCash_i$ is a dummy variable that equals 1 if the deal was completely financed with

¹⁸ Datastream daily domestic market index return for country c .

¹⁹ Unlike previous studies that usually consider the value of transaction scaled by total assets as a measure of deal size, I used the logarithm of deal size (see, e.g., Hoving, 2017 and Olivares, 2017) in order to avoid further loss of observations given the availability of data on total assets.

cash, and zero otherwise; $sameind2_i$ is a dummy variable that equals one if the acquirer and target companies share the same two-digit SIC code (this variable is used in order to identify if the M&A deal makes part of a diversification strategy), and zero otherwise. At the country-level, $\ln GDPpc_{c,t-1}$ is the one-quarter lagged logarithm of the GDP per capita of the country of the acquirer at constant 2010 prices²⁰, while $GDPgrowth_{c,t-1}$ is the one-quarter lagged GDP growth rate of the country of the acquirer. $ROA_{i,t-1}$ is the return on assets and it is the ratio of net income before preferred dividends over total assets; $MTB_{i,t-1}$ stands for market-to-book and it is the ratio of the value of market capitalization over common equity; $leverage_{i,t-1}$ is the leverage ratio and equals total liabilities divided by common equity. All variables are defined in Appendix A. All the country and firm-level variables are lagged one quarter. Standard errors are clustered by country. Fixed effects per country (λ_c), industry (η_j), and quarter (γ_t) are also included to control for unobservable attributes.

4.2.1.2. Long-term performance of M&As and the buy-and-hold abnormal returns

Following the technique proposed by Barber & Lyon (1997), I will adopt buy-and-hold abnormal returns (BHAR) as a measure of long-term stock return performance. The stock prices for the sample and for the market were gathered from Datastream on a monthly basis. The BHAR will be estimated as the difference between the expected return on a buy-and-hold strategy on the stocks of the firms of the treatment sample of domestic and cross-border M&As from one week after the M&A to one, two and three years after it, and the return on a buy-and-hold investment in an equally weighted market index of each EU member state market²¹:

$$BHAR_{i,t} = \prod_{t=1}^T (1 + R_{i,t}) - \prod_{t=1}^T (1 + R_{benchmark,t}) \quad (6)$$

The analysis over different time periods is used in order to produce more robust conclusions (Mitchell & Stafford, 2000).

Then, I reply the analysis in the above subsection and estimate the cross-border effect on long-term abnormal returns, as shown in equation (7).

²⁰ The data on GDP per capita is only available on an annual basis. Therefore, in my analysis, each quarter assumes the annual value.

²¹ Datastream monthly domestic market index return for country c .

$$\begin{aligned}
BHAR_{i,t} = & \alpha_0 + \alpha_1 cross_i + \alpha_2 dealsize_i + \alpha_3 DCash_i + \alpha_4 sameind2_i + \\
& \alpha_5 \ln GDPpc_{c,t-1} + \alpha_6 GDPgrowth_{c,t-1} + \alpha_7 ROA_{i,t-1} + \alpha_8 MTB_{i,t-1} + \\
& \alpha_9 leverage_{i,t-1} + \lambda_c + \eta_j + \gamma_t + \varepsilon_{i,c,t}
\end{aligned} \tag{7}$$

where the variables are defined as in equation (5). All variables are defined in Appendix A. All the country and firm-level variables are lagged one quarter. Standard errors are clustered by country. Fixed effects per country (λ_c), industry (η_j), and quarter (γ_t) are also included to control for unobservable attributes.

4.2.2. The enactment of the TBD and the Difference-in-differences methodology

To test Hypothesis 2, i.e., to analyze the impact of the enactment of the TBD on the synergistic gain resulting from M&As in the EU, I modeled a difference-in-differences equation including M&A deals between member states as the treatment group and M&A deals conducted by the U.S. targeting firms outside the EU as the control group. The dependent variable is the combined CAR defined as the synergistic gain arising from the deal. Hence, the first difference compares the combined CAR before and after the transposal of the TBD into the legislation of the target country since, according to Article 4 of the Directive on Takeover Bids, the authority competent to supervise the bid is the one of the member state where the target is located. The second difference yields the comparison between the combined CAR of the M&As in the EU with those of the control group. Thus, the following model estimates the effect of the TBD transposal on M&A deals' combined CAR:

$$\begin{aligned}
CARC_{i,t} = & \beta_0 + \beta_1 TBD_{c,t} + \beta_2 treatment_c + \beta_3 dealsize_i + \beta_4 DCCash_i + \\
& \beta_5 sameind2_i + \beta_6 \ln GDPpc_{c,t-1} + \beta_7 GDPgrowth_{c,t-1} + \beta_8 ROA_{i,t-1} + \\
& \beta_9 MTB_{i,t-1} + \beta_{10} leverage_{i,t-1} + \lambda_c + \eta_j + \gamma_t + \varepsilon_{i,c,t}
\end{aligned} \tag{8}$$

Hence, $TBD_{c,t}$ is a dummy variable that equals one if the deal was announced after the transposal of the directive in the target's country, and zero otherwise; $treatment_i$ is a dummy variable that equals one if the deal involved an acquirer and a target located in the EU and, therefore, is part of the treatment group, and zero otherwise. The interaction variable $TBD_i *$

$treatment_i$ is omitted from the model since it is collinear with $TBD_{c,t}$ ²². The model includes control variables at the deal, firm and country-level, defined just as in the previous model. Standard errors are clustered by country since there are different pre- and post-periods for the enactment of the TBD. Country (λ_c), industry (η_j), and quarter (γ_t) fixed effects are also used in order to improve precision. The TBD transposal dates are different in each member state, thus, the country and firm-level control variables are considered on a quarterly basis in order to disentangle the effects of confounding events, such as the transposal of other directives or the adoption of the International Financial Reporting Standards (IFRS).

As explained in the literature review, one of the main objectives of the TBD is to facilitate and enhance cross-border deals, allowing for a common legal framework across member states, which would not have been possible if takeover bids were regulated at the country-level. Therefore, I modeled equation (9) in order to include a third difference to distinguish the effects of the TBD among domestic *versus* international deals. The treatment and control groups are as described before. The model is the following:

$$\begin{aligned}
 CARC_{i,t} = & \beta_0 + \beta_1 TBD_{c,t} + \beta_2 treatment_c + \beta_3 cross_i + \beta_4 treatment_c * cross_i + \\
 & \beta_5 TBD_c * treatment_c * cross_i + \beta_6 dealsize_i + \beta_7 DCash_i + \\
 & \beta_8 sameind2_i + \beta_9 \ln GDPpc_{c,t-1} + \beta_{10} GDPgrowth_{c,t-1} + \beta_{11} ROA_{i,t-1} + \\
 & \beta_{12} MTB_{i,t-1} + \beta_{13} leverage_{i,t-1} + \lambda_c + \eta_j + \gamma_t + \varepsilon_{i,c,t} \quad (9)
 \end{aligned}$$

The variable $cross_i$ is a dummy that equals one if the acquirer and target are from different countries and zero otherwise. The coefficient of the interaction variable $treatment_c * cross_i$ captures the average change of the combined CAR of international deals in the treatment group relative to the change in the combined CAR of international deals in the control group. The interaction variable $TBD_c * cross_i$ is also not presented since it is collinear with the variable $TBD_c * treatment_c * cross_i$ ²³. The coefficient of the interaction variable $TBD_c * treatment_c * cross_i$ captures the average change, before and after the transposal, of the

²² The variables $TBD * treatment$ and TBD would only yield different results if TBD equaled one and $treatment$ equaled zero. Considering the construction of the sample, this will never happen since whenever a country is not part of the treatment group, it did not transpose the TBD.

²³ The variables $TBD * treatment * cross$ and $TBD * cross$ would only yield different results if TBD equaled one, $Cross$ equaled one and $treatment$ equaled zero. Considering the construction of the sample, this will never happen since whenever a country is not part of the treatment group, it did not transpose the TBD.

combined CAR of cross-country deals in the EU relative to the change in the combined CAR of cross-country deals in the control group, and it corresponds to the triple difference estimate. Therefore, the coefficient of this variable allows the measurement of the post-regulation effects on acquisition synergy of cross-border deals. The model also includes control variables at the deal, firm, and country-level, just as in the previous model, as well as country (λ_c), industry (η_j), and quarter (γ_t) fixed effects. Standard errors are also clustered by country. Again, country and firm-level variables are considered on a quarterly basis.

4.2.3 Determinants of cross-border M&As post-Regulation

To test Hypothesis 3a and 3b, which postulate that the TBD enactment and the level of investor protection increase the likelihood of cross-border M&As, respectively, I followed an approach similar to the one proposed by Rossi & Volpin (2004). The authors regressed the cross-border ratio by targets' country against proxies for investor protection using a sample of 49 countries. The EU comprises only 28 countries and, for some of them, investor protection information is not available, which would make the sample too small for the results to be reliable. Therefore, I adopt the following probabilistic model, namely a probit model, where the dependent variable is a binary variable that equals one if the deal is cross-border and zero otherwise:

$$\begin{aligned}
 \text{prob}(\text{cross}_i = 1) = & \delta_0 + \delta_1 \text{TBD}_{c,t} + \delta_2 \text{Accounting_standards}_c + \\
 & \delta_3 \text{Shareholder_protection}_c + \delta_4 \text{Institutional_quality}_{c,t} + \\
 & \delta_5 \text{Common_law}_c + \delta_6 \ln \text{GDPpc}_{c,t-1} + \delta_7 \text{GDPgrowth}_{c,t-1} + \\
 & \eta_j + \gamma_t + \varepsilon_{i,c,t}
 \end{aligned} \tag{10}$$

In this analysis, I only use the treatment sample, which comprises acquirers and targets from EU member states.

To measure the quality of the disclosure of accounting information, I followed La Porta, Lopez-De-Silanes, Shleifer, & Vishny (1998) and use the Accounting Standards quality index of the Center for International Financial Analysis and Research that rates the 1990 annual reports of at least three firms in every country on their inclusion or omission of 90 items of the categories general information, income statements, balance sheets, funds flow statement, accounting standards, stock data, and special items.

To evaluate the level of shareholder protection, I use the Rule of Law index produced by the risk-rating agency International Country Risk Group and the Anti-director Rights index by La Porta et al. (1998). The Rule of Law index relies on the following criteria to come up with a measure from 0 to 10 that evaluates the quality of law enforcement: efficiency of the judicial system, rule of law, corruption, risk of expropriation, and risk of contract repudiation. Anti-director rights are computed by adding one if the country allows shareholders to mail their proxy vote to the firm, shareholders are not required to deposit their shares prior to the general shareholders' meeting, cumulative voting or proportional representation of minorities in the board of directors is allowed, an oppressed minorities mechanism is in place, the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent and shareholders have preemptive rights that can be waived only by a shareholders' vote. As in Rossi & Volpin (2004), Anti-Director Rights and Rule of Law are considered concurrently; I followed the authors and combine both indexes by multiplying them and dividing the result by ten. Although both indexes are highly correlated, they capture different institutional attributes (see Rossi & Volpin, 2004).

Institutional Quality measures were taken from Kaufmann, Kraay, & Mastruzzi (2009). These measures can be broadly defined as the traditions and institutions by which authority in a country is exercised. It includes the following six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption. I then calculate the mean of the six indicators in order to create the institutional quality measure.

La Porta et al. (1998) found evidence that common law countries provide better investor protection than civil law countries. In order to distinguish the origin of law of each country, a dummy variable is also considered and equals 1 if the legal origin of the company is common law and zero otherwise.

Out of the control variables used by Rossi & Volpin (2004), Openness, measured as the response to the survey question "Foreign investors are free to acquire control of a domestic company" by the Global Competitiveness Report of 1996, was the only that had a significant impact on the results. Therefore, I also use it in this study as a robustness check and it is proxied by the trade-to-GDP ratio.

4.3 Descriptive statistics

Table 3 presents an overview of the characteristics of the treatment subsample of 550 M&As. Panel A presents the descriptive statistics for domestic deals, while Panel B presents the descriptive statistics for international M&As.

Table 3 - Descriptive statistics of the treatment sample

<i>Panel A - Descriptive statistics of domestic deals</i>				
	Obs	Mean	Median	Standard deviation
Number of M&A	392			
Deal size (millions \$)	392	4.421	4.311	1.935
% of shares acquired	392	92.297	100.000	14.462
% of shares owned after transaction	392	95.622	100.000	11.541
Total assets	80	4,525,540	380,345	11,782,700
Market-to-book	60	3.067	2.070	2.874
Leverage ratio	79	1.838	1.333	2.188
Return on assets	79	0.009	0.015	0.044
Ln GDP per capita (millions \$)	339	10.563	10.590	0.247
GDP growth (%)	339	2.373	2.607	2.038
Same industry (2-digit SIC code)	218	55.61		
Same-industry (3-digit SIC code)	173	44.13		
Cash-financed	140	35.71		
Stock-financed	144	36.73		
<i>Panel B - Descriptive statistics of international deals</i>				
	Obs	Mean	Median	Standard deviation
Number of M&A	158			
Deal size (millions \$)	158	5.485	5.470	1.982
% of shares acquired	158	86.998	100.000	17.566
% of shares owned after transaction	158	89.922	100.000	16.182
Total assets	26	13,321,100	2,661,010	25,940,000
Market-to-book	26	2.439	2.021	2.151
Leverage ratio	26	1.972	1.358	1.451
Return on assets	25	0.012	0.013	0.020
Ln GDP per capita (millions \$)	131	10.618	10.633	0.289
GDP growth (%)	131	2.517	2.431	1.942
Same industry (2-digit SIC code)	104	65.82		
Same-industry (3-digit SIC code)	91	57.59		
Cash-financed	69	43.67		
Stock-financed	27	17.09		

Descriptive statistics of the treatment subsample of 550 M&As divided into domestic M&As (Panel A) and cross-border M&As (Panel B). Number of M&As is the total number of observations for domestic or international M&As. Deal Size is the logarithm of the value of the transaction. The % of shares acquired is the proportion of the target obtained by the acquirer in the transaction. The % owned after transaction is the percentage that the acquirer owns after the deal is completed. Total Assets are in USD. MTB is the Market to Book ratio (Market Value / Book Value Equity). Leverage is the leverage ratio (Total Debt / Common Equity). ROA is the Return on Assets (Net Income / Total Assets). Ln GDP per capita is the logarithm of

the GDP per capita of the country of the acquirer. GDP growth is the rate of growth of the GDP of the country of the acquirer. Same-industry is an M&A that is made between firms that operate in the same industry (2-Digit identifies the major group and 3-Digit identifies the industry group). Cash-financed equals one if the M&A is 100% financed with cash. Stock-financed equals one if the M&A is 100% financed with shares of the acquirer. All variables are defined in Appendix A.

By looking at the number of observations, it is clear the constraint that the availability of data imposes on the sample: only around one-fifth of the observations have firm-specific data available on Worldscope.

The value of the cross-border transactions, presented as the logarithm of the value of the transaction in millions of dollars, is higher and slightly more disperse, in comparison to domestic deals. The median of the observations for the percentage of shares acquired and the percentage owned after the transaction is 100%, which means that most acquirers aim to gain total control of the target. The acquirers involved in the international deals are, on average, bigger than those involved in the domestic deals, as measured by the total assets of the acquirers (see Appendix B). The higher mean, in comparison to the median, suggests a positive skewness, meaning that the sample includes a few big acquirers, which further justifies the process of winsorizing the variables when preparing data for the empirical analysis. Furthermore, cross-border deals are more frequently in the same industry and cash-financed in comparison to domestic deals (see Appendix B), which is a positive relationship already documented in the literature (Martynova & Renneboog, 2009).

Table 4 presents the descriptive statistics of the control subsample of 1647 M&A. Panel A presents the descriptive statistics for the domestic deals, while Panel B presents the descriptive statistics for the international M&A.

Table 4 - Descriptive statistics of the control sample

<i>Panel A - Descriptive statistics of domestic deals</i>				
	Obs	Mean	Median	Standard deviation
Number of M&A	1442			
Deal size (millions \$)	1142	5.610	5.694	1.991
% of shares acquired	1142	98.696	100.000	6.806
% of shares owned after transaction	1142	99.239	100.000	5.074
Total assets	608	4,986,160	1,037,180	21,340,000
Market-to-book	599	2.219	2.740	35.950
Leverage ratio	608	-0.385	0.803	33.107
Return on assets	603	-0.010	0.011	0.149
In GDP per capita (millions \$)	902	10.764	10.764	0.050

GDP growth (%)	902	2.375	2.564	1.533
Same-industry (2-digit SIC code)	913	63.31		
Same-industry (3-digit SIC code)	790	54.09		
Cash-financed	548	38.00		
Stock-financed	381	26.42		

Panel B - Descriptive statistics of international deals

	Obs	Mean	Median	Standard deviation
Number of M&A	205			
Deal size (millions \$)	205	5.236	5.242	1.660
% of shares acquired	205	94.161	100.000	15.238
% of shares owned after transaction	205	95.575	100.000	12.825
Total assets	83	5,140,290	997,462	13,514,800
Market-to-book	81	3.724	2.866	2.973
Leverage ratio	83	1.232	0.859	1.337
Return on assets	82	-0.009	0.010	0.119
Ln GDP per capita (millions \$)	124	10.77749	10.78864	0.04616
GDP growth (%)	124	2.4108	2.56377	1.42898
Same-industry (2-digit SIC code)	124	60.49		
Same-industry (3-digit SIC code)	108	52.68		
Cash-financed	95	46.34		
Stock-financed	33	16.1		

Descriptive statistics of the control subsample of 1647 M&As divided into domestic M&As (panel A) and cross-border M&As (panel B). Number of M&As is the total number of observations for domestic or international M&A. Deal Size is the logarithm of the value of the transaction. The % of shares acquired is the proportion of the target obtained by the acquirer in the transaction. The % owned after transaction is the percentage that the acquirer owns after the deal is completed. Total Assets are in USD. MTB is the Market to Book (Market Value / Book Value Equity). Leverage is the leverage ratio (Total Debt / Common Equity). ROA is the Return on Assets (Net Income / Total Assets). Ln GDP per capita is the logarithm of the GDP per capita of the country of the acquirer. GDP growth is the rate of growth of the GDP of the country of the acquirer. Same-industry is an M&A that is made between firms that operate in the same industry (2-Digit identifies the major group and 3-Digit identifies the industry group). Cash-financed equals one if the M&A is 100% financed with cash. Stock-financed equals one if the M&A is 100% financed with shares of the acquirer. All variables are defined in Appendix A.

As opposed to the treatment sample, the value of transaction is higher in the case of domestic deals. Nevertheless, and as in the treatment sample, most deals are aimed to acquire full control of the target, as observed in the % of shares acquired, and acquirers involved in international deals are bigger than those involved in domestic deals (see Appendix B), as shown by Total Assets mean value.

5. Empirical Results

5.1 Domestic and cross-border M&As

As described in Chapter 4, the set of Hypotheses 1a²⁴ and 1b²⁵ are tested to compare the performance of domestic *versus* international Mergers and Acquisitions on a short-term basis using the event-study methodology, and on a long-term basis adopting the buy-and-hold abnormal returns technique as proposed by Barber & Lyon (1997), respectively. The event studies are computed using an event window from 5 days before the event to 5 days after it. The buy-and-hold abnormal returns are computed for one year, two years, and three years after the M&A announcement.

5.1.1 Short-term performance of M&As

This subsection presents the results of the analysis of the short-term performance of M&As, as measured by the event study methodology.

The event study for domestic M&As was computed considering a treatment sample of 255 deals since the initial sample was subject to information availability constraints, mainly related to the availability of quarterly data on market capitalization. To examine if the means of abnormal returns of domestic and international M&As and the differences among them are significant, I use a parametric t-statistics test.

As observed in Table 5, the average CAR of acquirers is -1.54%, with a standard deviation of 11.34%. In the case of target companies, the average CAR is 15.92%, with a standard deviation of 25.11%. In order to evaluate the total synergistic gain from the M&A, the average combined CAR was computed based on the CARs of the acquirers and the targets, weighted by the market value of each and net of any minority interest the acquirer may have held in the target prior to the M&A announcement. Hence, the sample average combined CAR is 0.96%, though not statistically significant, with a standard deviation of 9.84%. Since the market value of the acquirer tends to be higher than the target (Hannah, 1980), the average combined CAR is closer to the acquirers' CAR. As already described, to mitigate the effect of outliers, acquirer, target, and combined CAR were winsorized at the top and bottom percentiles.

In the case of the international M&A event study, the sample comprises 92 deals. Once again, the main reason why the number of events decreased in comparison to the initial sample is related to the availability of information about the market value of the companies involved.

²⁴ Hypothesis 1a: Cross-border M&As yield lower abnormal returns in comparison to domestic M&A in the short-term.

²⁵ Hypothesis 1b: Cross-border M&As yield lower abnormal returns in comparison to domestic M&A in the long-term.

According to research conducted by Bartholdy, Olson, & Peare (2007), a minimum of 25 events is necessary so that statistical tests provide acceptable size and power. This evidence supports the confidence in the sample size used in this study, and therefore, in the results provided by different tests.

The acquirers' average CAR equals -1.44%, but this result is not statistically different from zero. The targets' average CAR is 20.22% and it is statistically different from zero, displaying the 1% significance level. The combined average CAR is 1.20%, but also not statistically significant. In terms of dispersion, the results are slightly more scattered in comparison to domestic ones.

Table 5 - Cumulative Average Abnormal Return of domestic and international M&As

<i>Panel A - Descriptive statistics for the domestic event study</i>				
	N	Mean	Median	Standard Deviation
Acquirers CAR (-5,+5)	255	-0.0154** (-2.1646)	-0.0153	0.1134
Targets CAR (-5,+5)	255	0.1592*** (10.1238)	0.1149	0.2511
Combined CAR (-5,+5)	255	0.0096 (0.1561)	0.0088	0.0984
<i>Panel B - Descriptive statistics for the international event study</i>				
	N	Mean	Median	Standard Deviation
Acquirers CAR (-5,+5)	92	-0.0144 (-1.2624)	-0.0010	0.1090
Targets CAR (-5,+5)	92	0.2022*** (6.4805)	0.1249	0.2993
Combined CAR (-5,+5)	92	0.0120 (1.1249)	0.0194	0.1027

Descriptive statistics of the results of the event study. Panel A presents the results for domestic deals and Panel B presents the results for international deals. Cumulative average abnormal returns are winsorized at the 1st and 99th percentiles. Robust t-statistics $((m-\mu)/(s/N^{1/2}))$ in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively, as to whether the values are different from zero. All variables are defined in Appendix A.

The conclusions drawn from the event studies are consistent with those found in the literature. First, the synergistic gain from the M&A accrues mostly to the target, just as in previous studies that analyzed shareholder value in Europe or in the EU such as Campa & Hernando (2004), Goergen & Renneboog (2004) and Martynova & Renneboog (2006). Furthermore, in the case of the international M&A, bidders' abnormal returns are not statistically significant, just as in Campa

& Hernando (2004). Also consistent with the evidence from Erel et al. (2012), the difference between acquirer and target returns is higher in the case of cross-border deals.

In Table 6, I use parametric t-statistics to test the difference in means. However, the use of a non-parametric test is advised in prior literature because it is not based on means but on medians, which are not so influenced by extreme observations, and does not rely on the normality assumption of the distribution to draw conclusions (Bartholdy et al., 2007; Chavan & Kulkarni, 2017). Hence, I also perform a Wilcoxon-Mann-Whitney test to examine if there are significant differences among the medians of the sample.

Therefore, Table 6 shows that the t-test applied over a sample of 347 Mergers and Acquisitions (255 domestic M&As and 92 international M&As) does not show statistically significant differences between average CAR of domestic and international M&As for either acquirer, target or both combined. The Wilcoxon-Mann-Whitney test also did not show statistically significant differences among the median of the domestic and international subsamples.

Table 6 - Differences in means and medians of Cumulative Average Abnormal Returns of domestic and international M&As

<i>Panel A - Tests of means (t-statistics)</i>		
	Differences in means	t-statistic
<u>Domestic CARA vs international CARA</u>	-0.0010	-0.0758
<u>Domestic CART vs international CART</u>	-0.0430	-1.2312
<u>Domestic CARC vs international CARC</u>	-0.0024	-0.1965
<i>Panel B - Tests of medians (z-statistics)</i>		
	Differences in medians	z-statistic
<u>Domestic CARA vs international CARA</u>	-0.0143	-1.451
<u>Domestic CART vs international CART</u>	-0.0100	-0.932
<u>Domestic CARC vs international CARC</u>	-0.0105	-0.983

Panel A presents the results of a t-test $((m_1 - m_2) / ((S_1^2 / N_1 + S_2^2 / N_2)^{1/2}))$ to assess if the differences in the means of the acquirer, target and combined cumulative average abnormal returns of the domestic and cross-border deals subsamples are statistically different from zero. Panel B presents the results of a Wilcoxon rank-sum test of differences in medians of cumulative average abnormal returns of the acquirer, target and combined M&A deals. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

To investigate the impact of cross-border M&A deals on short-term performance, I estimate different specifications of equation (5), using several control variables. Table 7 reports the results. Panel A presents the results using as dependent variable the cumulative average abnormal returns for the acquirers, Panel B presents the same results for the targets, while Panel C presents the combined results. In each panel, results are reported considering three different models: i) using only deal-level variables; ii) using deal- and country-level variables; and iii) using deal-, country- and

firm-level variables. Including firm-level variables leads to a significant drop in the number of observations originated by the lack of quarterly data availability in the Worldscope database. Either way, the results of models (5) and (6) are presented since firm characteristics might be important to control the impact on cumulative average abnormal returns.

Table 7 - The Impact of Cross-Border M&A deals on Cumulative Average Abnormal Returns of acquirers, targets and combined

<i>Panel A - Regressions of Acquirers' Cumulative Average Abnormal Returns</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Cross	-0.0027 (-0.20)	-0.0100 (-0.75)	-0.0037 (-0.27)	-0.0100 (-0.79)	0.0041 (0.32)	0.0164 (0.47)
Deal_size	0.0023 (1.05)	0.0000 (0.02)	0.0021 (0.93)	-0.0003 (-0.15)	0.0002 (0.08)	0.0023 (0.50)
DCash	0.0135 (0.83)	0.0264 (1.02)	0.0135 (0.81)	0.0267 (1.01)	-0.0017 (-0.11)	0.0251* (1.93)
Sameind2	-0.0097 (-0.48)	0.0060 (0.40)	-0.0079 (-0.43)	0.0055 (0.36)	-0.0224 (-0.81)	0.0036 (0.07)
lnGDPpc _{t-1}			0.0016 (0.06)	0.0059 (0.02)	-0.0047 (-0.37)	-0.0338 (-0.08)
GDPg _{t-1}			0.3708 (1.28)	0.7478* (1.90)	0.5900 (1.77)	1.2701 (0.69)
ROA _{t-1}					0.1266 (0.70)	0.2320* (1.97)
MTB _{t-1}					-0.0018 (-0.63)	0.0008 (0.10)
Leverage _{t-1}					0.0040 (0.85)	-0.0055 (-0.82)
Constant	-0.0244 (-1.33)	0.1722** (2.85)	-0.0502 (-0.17)	0.0721 (0.02)	0.0387 (0.29)	0.3797 (0.09)
Observations	347	347	347	347	146	146
R-squared	0.007	0.410	0.011	0.413	0.043	0.677
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Panel B - Regressions of Targets' Cumulative Average Abnormal Returns

	(1)	(2)	(3)	(4)	(5)	(6)
Cross	0.0214 (0.65)	0.0419 (1.32)	0.0250 (0.70)	0.0424 (1.29)	0.0751 (1.17)	0.1850 (1.05)
Deal_size	0.0061* (2.07)	0.0037 (0.59)	0.0071*** (3.46)	0.0043 (0.66)	0.0100* (2.02)	0.0045 (0.26)
DCash	0.1137*** (3.69)	0.0986*** (3.49)	0.1140*** (3.86)	0.0976*** (3.30)	0.0331 (0.60)	0.0395 (0.71)
Sameind2	0.0263 (0.95)	0.0295 (0.72)	0.0216 (0.81)	0.0303 (0.76)	0.0342 (0.71)	-0.0114 (-0.16)
lnGDPpc _{t-1}			-0.0311 (-0.55)	0.0854 (0.09)	-0.1299* (-1.91)	2.6990*** (3.08)
GDPg _{t-1}			-1.2686 (-0.90)	-1.4114 (-1.15)	-1.5387 (-0.93)	2.3377 (0.83)
ROA _{t-1}					0.3828 (0.68)	0.6600 (0.68)
MTB _{t-1}					-0.0076 (-0.83)	-0.0231 (-1.00)
Leverage _{t-1}					-0.0171 (-1.15)	0.0137 (0.24)
Constant	0.0808** (2.76)	0.1396 (1.11)	0.4365 (0.72)	-0.6868 (-0.07)	1.5404* (2.01)	-28.3962*** (-3.13)
Observations	347	347	347	347	146	146
R-squared	0.049	0.461	0.059	0.463	0.092	0.746
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Panel C - Regressions of Combined Cumulative Average Abnormal Returns

	(1)	(2)	(3)	(4)	(5)	(6)
Cross	-0.0066 (-0.52)	-0.0116 (-0.94)	-0.0071 (-0.56)	-0.0122 (-1.04)	0.0046 (0.35)	0.0232 (0.62)
Deal_size	0.0067** (2.79)	0.0061*** (3.35)	0.0066** (2.64)	0.0057*** (3.39)	0.0062* (1.85)	0.0062 (0.73)
DCash	0.0141 (1.01)	0.0241 (1.10)	0.0141 (0.99)	0.0249 (1.12)	-0.0059 (-0.35)	0.0216 (1.60)
Sameind2	-0.0020 (-0.13)	0.0060 (0.59)	-0.0012 (-0.08)	0.0056 (0.53)	0.0026 (0.09)	0.0115 (0.22)
lnGDPpc _{t-1}			0.0032 (0.14)	-0.1182 (-0.70)	-0.0165 (-1.54)	-0.2334 (-0.51)
GDPg _{t-1}			0.1953 (1.18)	0.8332* (1.85)	0.5103* (1.80)	1.2674 (0.79)
ROA _{t-1}					0.3029** (2.36)	0.4299*** (3.19)
MTB _{t-1}					-0.0051* (-2.03)	-0.0071 (-0.77)
Leverage _{t-1}					0.0006 (0.14)	0.0042 (0.43)
Constant	-0.0239** (-2.23)	0.1328** (2.48)	-0.0625 (-0.24)	1.3345 (0.75)	0.1622 (1.47)	2.4230 (0.50)
Observations	347	347	347	347	146	146
R-squared	0.021	0.435	0.022	0.439	0.077	0.600
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Table 7 reports the results of the impact of cross-border M&A deals on short-term returns performance regressions (CAR), as explained in section 4.2.1.1. Panel A reports the results for acquirers, Panel B reports the results for targets and Panel C reports the combined results. Cross is a dummy variable that equals one if the country of origin of the acquirer and target differs and zero otherwise. Deal_size is the logarithm of the transaction value. DCash is a dummy variable that equals one if the deal is 100% cash financed and zero otherwise. Sameind2 is a dummy variable that equals one if the acquirer and target come from the same 2-digit SIC code industry and zero otherwise. lnGDPpc_{t-1} is the one quarter lagged logarithm of the GDP per capita of the country of the acquirer. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the acquirer. ROA_{t-1} is the Return on Assets (Net Income_{t-1} / Total Assets_{t-1}). MTB_{t-1} is the market-to-book ratio (Market Capitalization_{t-1} / Common Equity_{t-1}). Leverage_{t-1} is the leverage ratio (Total Debt_{t-1} / Common Equity_{t-1}). I use fixed effects (year, country and industry) to control for any unobservable or omitted factors that may influence the M&As in models (2), (4) and (6) and cluster the results by country in all models. The cumulative average abnormal returns were winsorized at 1st and 99th percentile. Robust t-statistics in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

The evidence corroborates the results of the statistical tests since the dummy variable *cross* is never significant across models, which mirrors the fact that none of the results are affected

by whether the deal is domestic or cross-border. Nonetheless, in the case of targets (Panel B), the deals seem to be affected by whether the deal is completely financed with cash since these firms tend to have, on average, a 10% superior average CAR when comparing to other combinations of financing, which is consistent with the evidence found in the literature (e.g., Martynova & Renneboog, 2006). The combined CAR is influenced by the deal size in a way that higher transaction values are associated with higher combined CAR. Nevertheless, the coefficients display a very small economic magnitude, not even amounting to 1% across specifications.

Thereby, although the literature reports the existence of a cross-border effect (Conn et al., 2005; Eckbo & Thorburn, 2000; Francis et al., 2008; Mantecon & Chatfield, 2007; Martynova & Renneboog, 2006; Moeller et al., 2005), meaning that announcement returns of cross-border M&As are lower in comparison to domestic M&As, I do not find any cross-sectional evidence that there are differences in the short-term performance of these deals in the EU; overall, the results do not support Hypothesis 1a.

These results are similar to those found by Campa & Hernando (2004). The authors studied Mergers and Acquisitions in the EU from 1998 to 2000 using a sample of 262 deals and found no significant differences in the average CAR of acquirers, targets, or combined when using most event windows. In the same study, Campa & Hernando (2004) show that for acquirers, there is only a 10% significant result when considering a long pre-announcement event window. Regarding the total value creation of the M&A, only when considering an event window from [-1;1] did the results become significant and only at the 10% statistical significance level. The lack of any abnormal performance by acquirers involved in Mergers and Acquisitions is further corroborated by Mateev & Andonov (2016) and Martynova & Renneboog (2011).

5.1.2 Long-term performance of M&As

This subsection aims to test Hypothesis 1b that postulates that cross-border M&As yield lower abnormal returns than domestic M&As in the long-term. Therefore, I evaluate the long-term performance of M&As by comparing acquirers' buy-and-hold abnormal returns to its countries' benchmark from the announcement of the M&A to one year, two years and three years after it.

Andrade et al. (2001) point out that investors systematically fail to assess quickly the full impact of corporate announcements, making inferences based on announcement-period event windows faulty. Therefore, to fully understand if there are any differences in the synergy generated by the M&A based on the geographical scope, it is imperative to study both the short-term and the

long-term effects of the M&A activity. The use of BHAR is justified by the fact that it measures the investor experience with more precision, as pointed out by Barber & Lyon (1997).

Based on previous evidence, I expect cross-border acquisitions to experience a worse performance in the long-term. As an example, Martynova et al. (2007) document a 1.8% decrease in profitability for a sample of European firms involved in M&As from 1997 to 2001.

Table 8 presents the descriptive statistics of acquirers' BHAR involved in domestic and international M&As. The BHAR from the M&A announcement (t) to one year after it ($t+1$) of the acquirers of domestic targets averaged -11.49% (statistically significant at the 1% level). Furthermore, the median is systematically higher than the mean, which means that, even after winsorizing the acquirer buy-and-hold abnormal return, there are some acquirers with significant poor performance. Acquirers of international M&As show an average BHAR of 0.99% (not statistically significant). According to this analysis, on average, acquirers of domestic companies performed worse in the long-term. On the other hand, the acquisition of foreign targets did not add or destroy value. Furthermore, in the case of domestic M&As, the BHARs are much more disperse, when comparing to international M&As.

To further examine the long-term performance of the acquirers of domestic and international firms, I replicate the previous analysis for a period stretching from the announcement to two ($t+2$) and three ($t+3$) years after it. The mean BHAR of domestic acquirers becomes more negative as the analysis period is expanded to three years, meaning it tends to deteriorate as more time goes by after the announcement. Nevertheless, this result must be taken with caution since, as more time goes by after the deal, other factors come into play that may not be related to it.

Nevertheless, although the mean BHAR of foreign acquirers remains insignificant in the period from t to $t+1$ and t to $t+3$, it reaches a 10% significance level in the period from t to $t+2$, with a positive BHAR of 5.18%.

Table 8 - Acquirers' Buy-and-hold Abnormal Returns of domestic and international M&As

<i>Panel A - Descriptive statistics for acquirer buy-and-hold abnormal returns of domestic M&A</i>				
<i>t to t+1</i>				
	N	Mean	Median	Standard Deviation
Acquirers	331	-0.1149***	-0.0010	0.7470
Buy-and-hold abnormal returns		(-2.7975)		
<i>t to t+2</i>				
	N	Mean	Median	Standard Deviation
Acquirers	332	-0.3495***	-0.0091	1.4003
Buy-and-hold abnormal returns		(-4.5481)		
<i>t to t+3</i>				
	N	Mean	Median	Standard Deviation
Acquirers	332	-2.8825***	-0.0353	11.6022
Buy-and-hold abnormal returns		(-4.5269)		
<i>Panel B - Descriptive statistics for acquirer buy-and-hold abnormal returns of international M&A</i>				
<i>t to t+1</i>				
	N	Mean	Median	Standard Deviation
Acquirers	130	0.0099	0.0376	0.2927
Buy-and-hold abnormal returns		(0.3857)		
<i>t to t+2</i>				
	N	Mean	Median	Standard Deviation
Acquirers	131	0.0518*	0.0433	0.3560
Buy-and-hold abnormal returns		(1.6660)		
<i>t to t+3</i>				
	N	Mean	Median	Standard Deviation
Acquirers	132	-0.0337	0.0160	0.4168
Buy-and-hold abnormal returns		(-0.9281)		

Descriptive statistics of the acquirer buy-and-hold abnormal returns. Panel A presents the results for domestic deals from year t to t+1, t+2 and t+3. Panel B presents the results for cross-border deals from year t to t+1, t+2 and t+3. Buy-and-hold abnormal returns are winsorized at 1st and 99th percentiles. Robust t-statistics $((m-\mu)/(s/N^{1/2}))$ in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively, as to whether the values are different from zero. All variables are defined in Appendix A.

Table 9 displays the differences in means using a parametric t-test and differences in medians using the non-parametric Wilcoxon-Mann-Whitney test. As observed in Panel A, the differences in means of domestic and international acquirers are statistically significant across different periods of time.

The differences in medians are presented in Panel B. As mentioned in the previous section, the use of a non-parametric test is advised since it is robust to whether the distribution follows a normal distribution or not (Bartholdy et al., 2007; Chavan & Kulkarni, 2017). According to the Wilcoxon-Mann-Whitney test, the differences in medians are not statistically significant, except for the period stretching from the announcement to two years after it.

Table 9 - Differences in means and medians of acquirers' Buy-and-hold Abnormal Returns of domestic and international M&As

<i>Panel A - Tests of means (t-statistics)</i>			
	<i>t to t+1</i>	<i>t to t+2</i>	<i>t to t+3</i>
Acquirer involved in domestic M&A vs Acquirer involved in international M&A	-0.1248** (-2.5766)	-0.4013*** (-4.8409)	-2.8488*** (-4.4668)
<i>Panel B - Tests of medians (z-statistics)</i>			
	<i>t to t+1</i>	<i>t to t+2</i>	<i>t to t+3</i>
Acquirer involved in domestic M&A vs Acquirer involved in international M&A	-0.0386 (-0.751)	-0.0524* (-1.885)	-0.0513 (-1.063)

Panel A presents the results of a t-test $((m_c - m_a) / ((S_c^2 / N_c + S_a^2 / N_a)^{1/2}))$ to assess if the differences in the means of the acquirer buy-and-hold abnormal returns of the domestic and cross-border subsamples are statistically different from zero. Panel B presents the results of a Wilcoxon rank-sum test to examine if the medians of the acquirer buy-and-hold abnormal returns of the domestic and cross-border subsamples are statistically different from zero. t-statistics in parenthesis. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

Hence, the evidence presented in both Panels of Table 9 is inconsistent. Such inconsistency may undermine my ability to take robust conclusions concerning the long-term performance of Mergers and Acquisitions. Therefore, I will proceed with the regression analysis to investigate the impact of cross-border M&A deals on the long-term abnormal returns, as described in subsection 4.2.1.2.

Table 10 presents the results in a multivariate setting. Again, I estimate different specifications of equation (7) to test the impact of cross-border deals on long-term performance. The table is divided into three panels that report, respectively, the BHAR from t to t+1, t+2 and t+3. The main objective is to analyze the relation between the BHAR and cross-border deals. Cross-border is an indicator variable that equals one if the acquirer was involved in a deal with a foreign target and zero if the acquirer was involved in a deal with a domestic target. To control for non-observable factors that can impact such relation (and that are not captured by control variables included in different models), I use different schemes of quarter, country and industry fixed effects, and cluster the standards errors at the country level.

In Panel A (t to t+1) one can observe that cross-border M&As do not seem to affect the BHAR, since the coefficient is not statistically different from zero and this result holds across models. Indeed, the results point out that the cash dummy variable (that distinguishes 100% cash-financed acquisitions from the rest) impacts positively the BHAR in models (2) and (4). According to these results, buy-and-hold abnormal returns of the deals that are totally cash-financed seem to be around 9% higher than those that combine other forms of financing.

When BHAR is extended up to two and three years, the coefficients' estimates associated with the cross-border dummy are significant but only when fixed effects are removed from the models. Whenever fixed effects are included, those coefficients estimates are no longer significant.

Table 10 - The Impact of Cross-Border M&A deals on acquirers' Buy-and-hold Abnormal Returns from t to t+1, t+2 and t+3

<i>Panel A - Buy-and-hold abnormal returns; t to t+1</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Cross	0.1209 (1.12)	0.0997 (1.25)	0.1178 (1.10)	0.0997 (1.25)	0.0332 (0.39)	-0.0295 (-0.40)
Deal_size	-0.0027 (-0.22)	0.0058 (1.03)	-0.0027 (-0.22)	0.0060 (1.11)	0.0064 (0.83)	0.0257 (1.02)
DCash	0.0410 (1.38)	0.0887** (2.48)	0.0442 (1.54)	0.0893** (2.61)	-0.0493 (-1.14)	-0.1078 (-0.88)
Sameind2	0.0348 (1.67)	0.0478 (1.13)	0.0257 (1.30)	0.0468 (1.07)	0.0641* (1.88)	0.2086 (1.76)
lnGDPpc _{t-1}			0.1030 (0.66)	0.1056 (0.15)	0.1669 (1.64)	-2.4948* (-2.11)
GDPg _{t-1}			-2.2932** (-2.30)	-1.5615 (-0.91)	-0.6375 (-1.18)	-12.2837** (-2.91)
ROA _{t-1}					0.3444 (1.55)	-0.0646 (-0.07)
MTB _{t-1}					-0.0205 (-1.58)	-0.0384 (-1.66)
Leverage _{t-1}					0.0148 (1.24)	0.0159 (0.62)
Constant	-0.1374* (-1.79)	-0.1547 (-0.27)	-1.1678 (-0.71)	-1.2275 (-0.17)	-1.7663 (-1.68)	26.3610* (2.13)
Observations	461	461	461	461	142	142
R-squared	0.009	0.353	0.017	0.353	0.060	0.786
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Panel B - Buy-and-hold abnormal returns; t to t+2

	(1)	(2)	(3)	(4)	(5)	(6)
Cross	0.3787*	0.2820	0.3879*	0.2723	0.2457**	0.1996
	(2.04)	(0.96)	(2.04)	(0.92)	(2.71)	(0.94)
Deal_size	0.0063	0.0236	0.0086	0.0229	-0.0188	0.0040
	(0.41)	(0.61)	(0.60)	(0.61)	(-1.77)	(0.11)
DCash	0.0628**	0.0525	0.0649**	0.0564	0.0569	-0.0055
	(2.36)	(0.90)	(2.27)	(0.95)	(0.98)	(-0.03)
Sameind2	0.0941	0.1600	0.0944	0.1571	-0.2126*	-0.0958
	(1.45)	(1.18)	(1.57)	(1.12)	(-2.04)	(-0.42)
lnGDPpc _{t-1}			-0.1588	-1.9168	-0.0252	-3.2392
			(-0.65)	(-1.59)	(-0.28)	(-0.98)
GDPg _{t-1}			-0.5727	4.4176*	1.5245	13.9917*
			(-0.22)	(1.93)	(0.94)	(2.16)
ROA _{t-1}					-0.0095	2.1235*
					(-0.02)	(1.83)
MTB _{t-1}					-0.0329*	-0.0670
					(-1.92)	(-1.44)
Leverage _{t-1}					0.0193	0.0412
					(1.57)	(1.23)
Constant	-0.4522*	-1.9036***	1.2276	18.0503	0.4075	32.2716
	(-1.90)	(-3.10)	(0.48)	(1.45)	(0.42)	(0.91)
Observations	463	463	463	463	147	147
R-squared	0.024	0.473	0.025	0.474	0.071	0.660
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Panel C - Buy-and-hold abnormal returns; t to t+3

	(1)	(2)	(3)	(4)	(5)	(6)
Cross	3.0569*	2.3063	3.1298*	2.3011	2.8789	4.3383
	(1.85)	(1.67)	(1.82)	(1.64)	(1.28)	(1.09)
Deal_size	-0.1305	0.0418	-0.1167	0.0390	0.0537	-0.2839
	(-0.95)	(0.26)	(-0.93)	(0.23)	(0.48)	(-0.42)
DCash	-1.0707*	0.0328	-1.0076*	-0.0348	0.2946	-0.0052
	(-1.85)	(0.06)	(-1.80)	(-0.06)	(0.76)	(-0.00)
Sameind2	0.1306	-0.5842	0.0832	-0.6104	-2.7946	-5.0036
	(0.75)	(-0.99)	(0.49)	(-1.04)	(-1.45)	(-0.97)
lnGDPpc _{t-1}			-0.1052	-13.0879	-1.8337	-64.4244
			(-0.07)	(-0.74)	(-0.95)	(-0.73)
GDPg _{t-1}			-29.7670	103.4200*	-12.3876	93.7618
			(-1.26)	(2.08)	(-0.69)	(1.05)
ROA _{t-1}					-0.0312	-2.0818
					(-0.01)	(-0.24)
MTB _{t-1}					-0.4832***	-0.2139
					(-3.23)	(-0.29)
Leverage _{t-1}					-0.5046	-0.6265
					(-1.72)	(-1.29)
Constant	-2.0150**	2.8093	-0.2937	137.4714	20.4310	649.8623
	(-2.36)	(1.57)	(-0.02)	(0.75)	(0.99)	(0.70)
Observations	464	464	464	464	147	147
R-squared	0.020	0.367	0.024	0.375	0.057	0.569
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Table 10 reports the results of the impact of cross-border M&A deals on long-term performance regressions (BHAR), as explained in section 4.2.1.2. Panel A reports the results from t to t+1, Panel B reports the results from t to t+2 and Panel C reports the results from t to t+3. Cross is a dummy variable that equals one if the country of origin of the acquirer and target differs and zero otherwise. Deal_size is the logarithm of the transaction value. DCash is a dummy variable that equals one if the deal is 100% cash financed and zero otherwise. Sameind2 is a dummy variable that equals one if the acquirer and target come from the same 2-digit SIC code industry and zero otherwise. lnGDPpc_{t-1} is the one-quarter lagged logarithm of the GDP per capita of the country of the acquirer. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the acquirer. ROA_{t-1} is the Return on Assets (Net Income_{t-1} / Total Assets_{t-1}). MTB_{t-1} is the market-to-book ratio (Market Capitalization_{t-1} / Common Equity_{t-1}). Leverage_{t-1} is the leverage ratio (Total Debt_{t-1} / Common Equity_{t-1}). I use fixed effects (year, country and industry) to control for any unobservable or omitted factors that may influence the M&As in models (2), (4) and (6) and cluster the results by country in all models. The buy-and-hold abnormal returns were winsorized at 1st and 99th percentile. Robust t-statistics in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

On average, the results provided in Table 10 are consistent with the ones of the Wilcoxon Mann-Whitney test presented in Table 9, since there are no significant differences in the period from t to $t+1$, although displaying statistical significance from t to $t+2$. Nevertheless, it is also useful to keep in mind that, as the period under analysis is increased, the higher is the probability that other events not related to the M&A may have an impact on the return performance of the firms.

As mentioned in the literature review, evidence on the long-term performance of the bidders involved in cross-border M&As in the EU is scarce. One of the few studies is Jensen-Vinstrup et al. (2018), who found evidence of significant abnormal long-term performance in European deals that occurred from 2002 to 2012; the authors also conclude that these differences are due to differences in firm characteristics not related to the event in question.

Hence, although I do not find conclusive evidence in support of Hypothesis 1b, my results are consistent with a branch of previous literature. Although the evidence is not consistent across regression models, univariate and regression results converge, on average, to the same conclusion that there are no significant differences in long-term performance between domestic and international acquirers' returns.

5.2 Cross-border M&As in the European Union and the enactment of the TBD

In the previous analysis, my findings reveal no significant differences in announcement returns based on the geographical scope of the M&A. The purpose of this section is to test Hypothesis 2²⁶, i.e., to investigate whether the enactment and the enforcement of the TBD had an impact on combined abnormal returns of M&A deals. Furthermore, my aim is also to examine if there are any differences in returns among domestic and cross-border deals post regulation. To do so, I first estimated the difference-in-difference model presented in equation (8).

I expect the combined CAR to increase after the transposal of the directive since the TBD intends to prevent the targets' management from taking operations that may frustrate a bid through the breakthrough rule (Article 11) and the board neutrality rule (Article 9), fostering an efficient takeover market and facilitating M&A deals. Nevertheless, and as explained in subsection 2.2.1, it is useful to keep in mind that these provisions are optional.

Equation (8) includes two main variables: i) TBD that equals 1 starting in the quarter following the transposal of the TBD in the country of the target and zero otherwise, since it is the

²⁶ *Hypothesis 2: The enactment of the TBD results in higher synergistic gains arising from M&A activity in the European Union.*

authority located in the target's country of origin that is responsible for supervising the bid²⁷; and ii) treatment, a dummy variable that equals one if the deal involves an acquirer and a target located in the EU and zero otherwise. In this analysis, I also include the control sample of U.S. acquirers. The results are presented in Table 11.

The coefficient of the variable of interest – TBD – is only significant when considering only deal-specific or deal-specific and country-level control variables and there is no significance once quarter, country and industry fixed effects are included. Therefore, it is not possible to conclude that the enactment of the TBD impacts the combined CAR resulting from the M&A deals in the European Union.

Equation (8) also includes several control variables that allow drawing conclusions surrounding other aspects of M&As in the EU. Thus, the only variable that presents statistically significant estimates over regressions is DCash; 100% cash-financed M&As display a combined CAR that is around 1% to 2% higher than other combinations of financing.

²⁷ Directive 2004/25/EC, Article 11, §4

Table 11 - The impact of the transposal of the TBD on M&A synergy

	(1)	(2)	(3)	(4)	(5)	(6)
TBD	0.0241*	0.0088	0.0250**	0.0103	-0.0037	-0.0153
	(2.08)	(0.78)	(2.15)	(0.91)	(-0.33)	(-1.07)
Treatment	-0.0243**	-0.0217***	-0.0201*	-0.0619	0.0046	-0.0171
	(-2.36)	(-3.05)	(-2.02)	(-1.64)	(0.59)	(-0.29)
Deal_size	0.0010	-0.0009	0.0007	-0.0010	0.0021*	-0.0004
	(0.49)	(-0.47)	(0.32)	(-0.49)	(2.02)	(-0.31)
DCash	0.0175***	0.0114**	0.0172***	0.0115**	0.0159***	0.0089**
	(4.80)	(2.49)	(4.71)	(2.51)	(3.91)	(2.51)
Sameind2	-0.0117	-0.0070	-0.0116	-0.0066	-0.0064	-0.0020
	(-1.75)	(-1.29)	(-1.69)	(-1.22)	(-1.12)	(-0.29)
lnGDPpc _{t-1}			0.0259	-0.2503	0.0305	-0.2169
			(1.17)	(-1.15)	(1.34)	(-0.67)
GDPg _{t-1}			0.2047*	0.3307	0.2432**	0.5314
			(1.96)	(1.57)	(2.83)	(1.16)
ROA _{t-1}					0.0078	0.0824
					(0.11)	(0.90)
MTB _{t-1}					-0.0005***	-0.0006***
					(-21.39)	(-16.57)
Leverage _{t-1}					0.0005***	0.0007***
					(10.92)	(13.61)
Constant	0.0207	0.0969***	-0.2609	2.7565	-0.3218	2.3785
	(1.58)	(6.72)	(-1.14)	(1.19)	(-1.33)	(0.69)
Observations	1,112	1,112	1,112	1,112	822	822
R-squared	0.013	0.148	0.015	0.149	0.013	0.185
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Table 11 reports the results of the difference-in-differences model shown in equation (8) and explained in section 4.2.2. TBD is a dummy variable that equals one if the deal is announced after the transposal of the TBD in the country of the target and zero otherwise. Treatment is a dummy variable that equals one if the deal occurred in the EU and zero otherwise. Deal_size is the logarithm of the transaction value. DCash is a dummy variable that equals one if the deal is 100% cash financed and zero otherwise. Sameind2 is a dummy variable that equals one if the acquirer and target come from the same 2-digit SIC code industry and zero otherwise. lnGDPpc_{t-1} is the one-quarter lagged logarithm of the GDP per capita of the country of the acquirer. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the acquirer. ROA_{t-1} is the Return on Assets (Net Income_{t-1} / Total Assets_{t-1}). MTB_{t-1} is the market-to-book ratio (Market Capitalization_{t-1} / Common Equity_{t-1}). Leverage_{t-1} is the leverage ratio (Total Debt_{t-1} / Common Equity_{t-1}). I use fixed effects (year, country and industry) to control for any unobservable or omitted factors that may influence M&As in models (2), (4) and (6). I use cluster by country to compute robust standard errors. The combined CAR was winsorized at 1st and 99th percentile. Robust t-statistics in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

The need to create a Community Directive to regulate takeover bids was closely related to the existence of cross-border deals, as it is explained in the literature review in Chapter 2. The aim

of the TBD is also to establish minimum guidelines for cross-border takeover bids, since if there is no coordination among jurisdictions, multiple security law regimes apply to cross-border transactions (Enriques & Gatti, 2008). Therefore, for the rules to be effective, they would have to be applied on a Community level, instead of each country establishing a legal framework that would have to be subjected to the target country's legal framework.

Hence, even if the optionality of the main provisions of the Directive determined its failure in eliminating takeover defenses and, consequently, its failure to have any major impact on the performance of M&As in general, the aim to establish a common legislative body to regulate corporate control takeovers across borders may have determined that the Directive had a deeper effect on the performance of cross-border M&As.

In order to test this assumption, I use a triple difference model, as it is displayed in equation (9), using the same control variables as in equation (8). In comparison to the previous equation, the triple difference will also consider a third difference between domestic and cross-border M&A. Table 12 presents the results.

The variable of interest is `TBD_European_cross` that captures the change in combined CAR for cross-border M&A deals in the EU after the transposal of the TBD. The coefficient of this variable is not significant across models. Hence, these results do not provide evidence that the transposal of the Directive impacted the combined CAR of the cross-border deals announced after the enactment of the TBD. Regarding the other variables in equation (9), the estimates of the variable `cross` are always positive and significant, which suggests that abnormal returns are higher, on average, for the cross-border M&A deals for the full sample. And once again, 100% cash-financed M&As are associated with a combined CAR that is around 1% higher, which is expected given the evidence in the previous literature.

Table 12 - The impact of the transposal of the TBD on M&A synergy of cross-border deals

	(1)	(2)	(3)	(4)	(5)	(6)
TBD	0.0178 (1.49)	0.0041 (0.36)	0.0197 (1.66)	0.0058 (0.48)	-0.0121 (-0.89)	-0.0199 (-0.91)
Treatment	-0.0199** (-2.44)	-0.0167*** (-2.98)	-0.0159* (-2.04)	-0.0592 (-1.53)	0.0096 (1.11)	-0.0117 (-0.21)
Cross	0.0134*** (11.44)	0.0130*** (5.03)	0.0138*** (9.46)	0.0122*** (5.88)	0.0154*** (11.17)	0.0155*** (3.74)
European_cross	-0.0242 (-1.44)	-0.0329 (-1.54)	-0.0248 (-1.46)	-0.0338 (-1.64)	-0.0282 (-1.68)	-0.0165 (-0.57)
TBD_European_cross	0.0237 (1.08)	0.0210 (0.93)	0.0211 (0.96)	0.0206 (0.89)	0.0295 (1.42)	0.0111 (0.28)
Deal_size	0.0011 (0.54)	-0.0007 (-0.37)	0.0008 (0.39)	-0.0007 (-0.38)	0.0021** (2.37)	-0.0003 (-0.24)
DCash	0.0172*** (4.23)	0.0113** (2.17)	0.0170*** (4.19)	0.0115** (2.20)	0.0153*** (3.67)	0.0079* (2.11)
Sameind2	-0.0115 (-1.69)	-0.0065 (-1.17)	-0.0113 (-1.63)	-0.0061 (-1.11)	-0.0061 (-1.07)	-0.0014 (-0.21)
lnGDPpc _{t-1}			0.0243 (1.08)	-0.2660 (-1.19)	0.0279 (1.22)	-0.1904 (-0.61)
GDPg _{t-1}			0.2130* (2.03)	0.3047 (1.46)	0.2564** (2.95)	0.4789 (1.01)
ROA _{t-1}					0.0122 (0.16)	0.0831 (0.90)
MTB _{t-1}					-0.0005*** (-21.24)	-0.0006*** (-16.52)
Leverage _{t-1}					0.0005*** (11.77)	0.0007*** (14.06)
Constant	0.0186 (1.37)	0.0970*** (6.38)	-0.2463 (-1.06)	2.9268 (1.23)	-0.2966 (-1.21)	2.0983 (0.63)
Observations	1,112	1,112	1,112	1,112	822	822
R-squared	0.015	0.149	0.016	0.150	0.016	0.187
Quarter FE	No	Yes	No	Yes	No	Yes
Country FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes	Yes

Table 12 reports the results of a triple difference model displayed in equation (9) and explained in section 4.2.2. TBD is a dummy variable that equals one if the deal is announced after the transposal of the TBD in the country of the target and zero otherwise. Treatment is a dummy variable that equals one if the deal occurred in the European Union and zero otherwise. Cross is a dummy variable that equals one if the country of origin of the acquirer and target differs and zero otherwise. European_cross is an interaction variable between treatment and Cross. TBD_European_cross is an interaction variable between TBD and European_Cross. Deal_size is the logarithm of the Transaction value. DCash is a dummy variable that equals one if the deal is 100% cash-financed and zero otherwise. Sameind2 is a dummy variable that equals one if the acquirer and target come from the same 2-digit SIC code industry and zero otherwise. lnGDPpc_{t-1} is the one-quarter lagged logarithm of the GDP per capita of the country of the acquirer. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the acquirer. ROA_{t-1} is the Return on Assets (Net Income_{t-1} / Total Assets_{t-1}). MTB_{t-1} is the market-to-book ratio (Market Capitalization_{t-1} / Common Equity_{t-1}). Leverage_{t-1} is the leverage ratio (Total Debt_{t-1} / Common Equity_{t-1}). I use fixed effects (year, country and industry) to control for any unobservable or omitted factors

that may influence the acquisitions in models (2), (4) and (6). I clustered standard errors by country. The combined CAR was winsorized at 1st and 99th percentile. Robust t-statistics in parentheses. ***, ** and * indicate statistical significance at the 1%, 5% and 10% level, respectively. All variables are defined in Appendix A.

Thereby, it is now important to examine the possible reasons that explain that the Takeover Bids Directive did not have the intended effect on M&A announcement returns, even when only considering cross-border transactions. Enriques & Gatti (2008) point out that effective uniformity can only be achieved through harmonization measures that are comprehensive, maximal, and mandatory. According to the same authors, and as mentioned in the literature review, the TBD is an example of partial, minimal and optional harmonization. It is partial since it does not cover all exchange-traded securities²⁸ and most rules related to tender offers are left for member states. It is also minimal in the sense that it allows member states to apply more stringent rules than those adopted by the Directive. But, most of all, it is optional because it allows member states to opt-out of the board neutrality and breakthrough rules, as long as the general principles are respected.

Since the board neutrality rule and the breakthrough rule are the provisions that could have a major impact on abnormal returns given that they are aimed at revoking pre- and post-bid defense mechanisms which, according to the literature, are harmful to shareholders (Malatesta & Walking, 1988; Ryngaert, 1988), the optionality of these rules may be instrumental in explaining why there is no effect on abnormal returns.

Thereby, Article 12 of the Directive allows member states to opt-out of both rules, which represents a political compromise in order to overcome resistance by some member states. According to the Commission's Report of 2007 (*Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Application of Directive 2004/25/EC on takeover bids*, 2012), only 19 member states have transposed the board neutrality rule²⁹ and only 3 transposed the breakthrough rule³⁰. Furthermore, and according to the same report, about half of the member states allow companies who are subject to the board neutrality rule and/or the breakthrough rule to not apply it if the acquirer is not subject to that same rule³¹ - the reciprocity rule -, further allowing the main principles of the Directive to not be enacted. Therefore, although countries like France, Greece, Italy, Slovenia

²⁸ Such as debt securities, non-listed equity securities and listed but non-voting equity securities.

²⁹ Austria, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia, Slovak Republic, Spain, and the United Kingdom.

³⁰ Estonia, Latvia, and Lithuania.

³¹ Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, and Spain.

and Spain did opt-in the board neutrality rule, they also allowed companies to opt-out of this provision if the bidder is not subject to the same rules.

The optionality of the rules and the subsequent differences in terms of transposal across countries also frustrate the aim to harmonize the legal frameworks that apply to takeovers across member states, since there are 16 different frameworks that may be applied by member states (Gatti, 2005), hence creating even more disruption in the post-rule period. Moreover, the regimes adopted in the three biggest markets - U.K., France, and Germany – that account for almost two-thirds of the acquirers and targets of my sample and have been the most active participants in the market for corporate control in Europe (Martynova & Renneboog, 2006) - are different from each other (Enriques & Gatti, 2008)³².

To further explain why the optional nature of the TBD may be behind its failure to have a significant impact on M&A deals in general and cross-border deals in particular, it may be useful to analyze whether mandatory or less optional EU Directives obtained the intended effect. For instance, Fauver et al. (2017) studied the impact of the MAD and the PD on information quality and performance around SEOs. The MAD is mandatory and imposes sanctions on market abuses, including insider trading, while the PD is mainly mandatory and establishes the initial disclosure obligations for issuers of securities that are offered to the public or are admitted to trading on the EU regulated market. Fauver et al. (2017) documented a significant reduction in earnings management, improved post-SEO stock return performance and a decline in the adverse reaction to SEO announcements after the enactment of the MAD and similar but lower results after the enactment of the PD, hence demonstrating the effect that mandatory compliance has on the outcome of the Directives.

Adding to the optionality of the main rules of the directive, the effect of the TBD, just as with any other EU Directive, depends on how it is enforced by member states, since although directives take precedence over member state laws, each country chooses the means by which it ensures that the ends of the directive are met (Lannoo & Levin, 2004). According to Enriques & Gatti (2008), in terms of enforcement of the Directives of the Financial Services Action Plan, even if the European Commission provides local authorities with enforcing powers, the enforcement of the rules ultimately depends on member states. The authors point out that detecting violations to

³² The U.K. adopted the board-neutrality rule, but not the breakthrough rule, nor the reciprocity rule; France has adopted the board neutrality rule and the reciprocity rule, but not the breakthrough rule, and Germany adopted the reciprocity rule, but not the board neutrality nor the breakthrough rule.

the Directive is costly in terms of the budget allocated for this purpose but also in terms of political capital that must be spent to build an effective enforcement infrastructure. Therefore, the success of the FSAP depends on whether member states provide authorities with adequate funding and support. In the absence of such conditions, the effect of the Directives may be non-existent, since regulatory efforts without enforcement are ineffective (Bhattacharya & Daouk, 2002). Therefore, Enriques & Gatti (2008) consider that harmonization is only attainable if enforcement is centralized and securities regulation comes under the exclusive domain of European Council institutions.

This stance may be particularly problematic in the case of the Takeover Bids Directive, taking into account its rough patch until approval and the disagreement it garnered from some member states in what comes to the prohibition of defensive measures, the breakthrough rule and employee protection provision (Johnston, 2009).

Furthermore, when studying the effects of the MAD and the TPD, Christensen et al. (2016) found evidence in support of the “hysteresis hypothesis”, meaning that when a Directive is enacted, institutional, market, and political forces and constraints that limited the scope and effectiveness of regulation in the past will also affect the outcome of the new Directive, while Djankov, Glaeser, La Porta, Lopez-de-Silanes, & Shleifer (2003) state that the effect of regulation does not depend only on the rules being implemented but also on the state of prior regulation. Therefore, countries with weaker regulatory quality do not catch up with countries with stronger regulatory quality, making countries diverge more upon harmonization. Since countries in the European Union have major differences in terms of regulatory quality³³, the failure of the Takeover Bids Directive may also be linked to the “hysteresis hypothesis”.

In short, unlike the other Directives of the FSAP, namely the Prospectus Directive, the Market Abuse Directive and the Transparency Directive, the Takeover Bids Directive was not able to establish a common regulatory framework across member states. The optionality of some of its most significant rules, along with the disparity in the regulatory quality and enforcement across member states might explain the lack of evidence supporting Hypothesis 2.

³³ According to the measure *Regulatory Quality* by Kaufmann et al. (2009), Greece has a score of only 68.46 and Italy reaches 75.33, while countries such as the UK or the Netherlands score 97.69 and 98.27, respectively.

5.3 Cross-country determinants of M&As

So far, my results do not provide evidence supporting that the enactment of the Takeover Bids Directive impacts the performance of Mergers and Acquisitions around the announcement, not even when considering only cross-border transactions which were the ones that the Directive intended to facilitate.

It is also important to evaluate whether the TBD had any impact on the probability of a deal being cross-border, since it intended to establish a common framework across member states. Therefore, I test hypothesis 3a³⁴ aiming to extend the previous analysis by estimating the probit model presented in equation (10). The dependent variable is the cross-border dummy that equals one if the countries of origin of the acquirer and the target are not the same and zero otherwise. In this analysis, the variable of interest is the dependent variable TBD that assumes 1 in the quarter following the enactment of the TBD and zero otherwise.

Nevertheless, and according to the evidence found in the literature, there are other determinants that influence the probability of a deal being cross-border; companies located in countries with better investor protection are less likely to be the target in international M&As, and acquirers have, on average, higher investor protection than targets, since cross-border deals allow companies to opt-out of a weak governance regime (Manchin, 2004; Rossi & Volpin, 2004). Targets are also associated with lower economic development, worse accounting quality and worse stock market performance (Erel et al, 2012).

Therefore, I also formulated Hypothesis 3b³⁵ in order to test if the determinants further influence the probability of the companies located in a certain country to be the targets of M&A deals. To do so, I also include in the probit model presented in equation (10) the following dependent variables: the quality of accounting standards, the level of shareholder protection, institutional quality, and the origin of law of the target (Civil *versus* Common). According to prior evidence, I expect that countries with lower levels of accounting standards, shareholder protection, institutional quality, and civil origin of law to be associated with more cross-border deals.

Table 13 reports the marginal effects of the probit model displayed in equation (10). I use different specifications and consider quarter and industry dummies in order to account for any unobservable or omitted factors that may influence the probability of M&A deals to be cross-border. The control variables are based on the target country, as opposed to the previous analysis.

³⁴ Hypothesis 3a: The level of international M&A deals increases between member states after the TBD enactment.

³⁵ Hypothesis 3b: The level of investor protection determines the intensity of international M&A among member states.

Table 13 - Determinants of cross-border M&As in the European Union

	(1)	(2)	(3)	(4)	(5)
TBD	-0.0152 (-0.09)	0.0479 (0.30)	-0.0842 (-0.58)	0.0574 (0.34)	0.1745 (0.98)
Accounting_standards	-0.0240*** (-6.72)			-0.0091 (-1.63)	
Shareholder_protection		-0.1621*** (-7.11)		-0.1194*** (-3.42)	
Institutional_quality		0.0080 (1.10)		0.0101 (1.37)	
Common_law			-0.3804*** (-6.79)		-0.2810*** (-4.46)
Trade_to_GDP					0.0071*** (4.62)
lnGDPpc _{t-1}	0.6230*** (3.36)	-0.1240 (-0.39)	0.0685 (0.42)	-0.0408 (-0.12)	-0.4608** (-2.27)
GDPg _{t-1}	-2.8520 (-1.16)	-2.2910 (-0.93)	-4.3927* (-1.76)	-2.0301 (-0.83)	-3.4850 (-1.30)
Observations	434	434	436	434	434
Quarter FE	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No
Industry FE	Yes	Yes	Yes	Yes	Yes
Cluster country	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.264	0.282	0.267	0.287	0.305
Actual Prob.	0.316	0.316	0.314	0.316	0.316

Table 13 presents the marginal effects of the probit model set in equation (10) to analyze the determinants of cross-border M&A. z-statistics (between parentheses) are computed using robust standard errors. The dependent variable is Cross that equals one for international deals and zero otherwise. TBD is a dummy variable that equals one following one quarter after the transposal of the TBD in the country of the target and zero otherwise. Accounting_standards consists of an index created based on the inclusion or omission of 90 items of the categories general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items. Shareholder_protection is computed as the product of rule of law (International Country Risk Group) and anti-director rights (La Porta et al, 1998), divided by ten. Institutional_quality is computed as the average of the regulatory quality measures accountability standard, corruption, government efficiency, political stability, regulatory quality and rule of law proposed by Kaufmann et al. (2009). Common_law is a dummy variable that equals one if the origin of the company law is the English origin of Law and zero otherwise. Trade_to_GDP equals the sum of exports and imports of goods and services measured as a share of gross domestic product. lnGDPpc_{t-1} is the one-quarter lagged logarithm of the GDP per capita of the country of the target. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the target. All models include quarter and industry dummies, the latter based on the target's two-digit SIC code obtained from SDC. Robust t-statistics in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. All variables are described in Appendix A.

The results in Table 13 show that the transposal of the TBD does not have a significant impact on the probability of a deal being cross-border. Therefore, not only the Directive fails to curb takeover defenses that may be harmful to shareholders, but it also fails to incentivize a cross-border

market for corporate control transactions in the EU. Thus, I do not find evidence in support of Hypothesis 3a.

Model (1) of Table 13 suggests that a 1% decrease in accounting standards leads to around a 2.40% increase in the probability of a deal being cross-border, *ceteris paribus*. Nevertheless, when other variables are included in the model, Accounting Standards are no longer significant.

Shareholder protection also establishes a negative and significant relation with the probability of a deal being cross-border. Model (2) and (4) suggest that a 1% decrease in the level of shareholder protection of the target country leads to an increase of more than 10% in the probability of a deal being cross-border, significant at the 1% level. This evidence supports Hypothesis 3b and it is also consistent with Rossi & Volpin (2004).

I also use Institutional Quality of the target country as a measure of the level of investor protection. Nevertheless, the results are not significant.

The probability of a deal being cross-border is also 38% higher in countries with a Civil law regime, as presented in model (3). Therefore, companies located in countries such as the UK or Ireland are less prone to become a cross-border target in comparison to countries such as France or Germany. Once again, this result is consistent with the evidence found in the literature (Rossi & Volpin, 2004).

As a robustness check, I augment the specification of model (3) with the control variable Openness, which was the only control variable used by Rossi & Volpin (2004) that had a significant impact on the results. It is proxied by the trade-to-GDP ratio. I expect that countries with more developed commercial relationships with foreign countries are more prone to establishing cross-border deals. The coefficient of trade-to-GDP is positive and significant, just as expected, while the estimate of the common law variable remains significant.

In short, I find statistically significant evidence at the 1% significance level and robust to different specifications that companies in countries with lower levels of shareholder protection and civil law countries have the highest probability to be the targets of M&As, which is consistent with the prior literature. My findings also reinforce those of Rossi & Volpin (2004) in what comes to the importance of Openness to foster a market for corporate control. Although I used a different proxy, I also find that the more open a country is, the higher is the probability that its companies will be the target of takeovers. Hence, I find evidence supporting Hypothesis 3b.

6. Conclusion

Throughout this study, I examine the dynamics of cross-border Mergers and Acquisitions in the European Union. Using a sample of 550 deals that occurred in the EU and a control sample of 1647 deals by U.S. acquirers that targeted firms outside the EU, from January 1st, 2000 to December 31st, 2015, I was able to conclude that domestic and cross-border M&As do not differ in terms of short-performance. I also report that the Takeover Bids Directive did not have a significant impact on the short-term performance of M&As. Furthermore, I also find evidence that companies located in countries with lower shareholder protection and civil law regimes are more often the targets of M&A deals.

Consistent with previous studies such as Campa & Hernando (2004), I did not find any statistically significant differences between domestic and cross-border M&As in terms of short-term performance, either for acquirers, targets or combined. Nevertheless, I did find that cumulative abnormal returns in the European Union accrue mostly to the target, just as reported by, e.g., Campa & Hernando (2004), Goergen & Renneboog (2004) and Martynova & Renneboog (2006), and that bidders' abnormal returns tend to not be statistically different from zero, just as in Campa & Hernando (2004).

Since there is evidence in the literature that investors systematically fail to assess quickly the full impact of corporate announcements (Andrade et al., 2001), I also studied the long-term performance of Mergers and Acquisitions. I conclude that acquirers' buy-and-hold abnormal returns do not present significant differences based on the geographical scope of the deal.

Despite all the side findings, the main goal of this study is to evaluate the effects of the Takeover Bids Directive on the performance of M&As in the European Union. Since the most significant rules of the Directive, namely the breakthrough rule and the board neutrality rule, aimed to cancel pre- and post-takeover defense mechanisms, I expected that after the transposal of the Directive, the synergistic gain arising from the M&As would increase. Nevertheless, the effect of the transposal on the combined cumulative average abnormal return is negligible.

Although the TBD focuses on improving the informational environment by bringing more disclosure and dissemination of information, hence reducing information asymmetry, the optionality associated with the breakthrough rule and board neutrality rule, which are the provisions more likely to affect the performance of M&As, may be behind its failure to influence the synergistic gain arising from these deals. According to the literature, effective uniformity can only be achieved through harmonization measures that are comprehensive, maximal, and mandatory, while the TBD

is an example of partial, minimal and optional harmonization (Enriques & Gatti, 2008). Furthermore, according to other studies, the Directives that did fulfil the previous criteria were associated with more effective results (see e.g., Fauver et al., 2017).

In the absence of any effect of the transposal on M&As, I also studied other determinants of cross-border deals. I find evidence that companies located in countries with lower shareholder protection and civil law origin are associated with more cross-border deals, which is consistent with Manchin (2004) and Rossi & Volpin (2004). A 1% increase in shareholder protection causes a 16.21% decrease in the probability that a deal is cross-border. In the case of the origin of law, the results are even more pronounced; companies in common law countries are 38% less likely to be the target in a cross-border deal. In a robustness check, I also find evidence that the openness of a country, measured by the ratio Trade-to-GDP, is associated with more cross-border deals.

In short, I find that there are no significant differences between domestic and cross-border M&As in the European Union and that the Takeover Bids Directive was not able to change this reality. Nevertheless, I do find that shareholder protection and civil law origin are still important factors in determining which countries are more likely to be targets.

My recommendations for future research work are to further analyze if there are differences in the long-term performance of Mergers and Acquisitions since my results were not consistent across statistical tests and coefficients of regressions. I would also advise the use of more updated measures of Accounting Standards when studying the determinants of cross-border M&As since the measure I use is already from 1998 but with the introduction of the IFRS to all EU publicly-listed companies from 2005 onwards (Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards, 2002) these standards may be more harmonized in comparison to those in La Porta et al. (1998).

This work contributes to the existing literature mainly by evaluating through statistical techniques the effectiveness of the Takeover Bids Directive since the evidence in the literature is mainly theoretical. My study supports the stance that EU Directives can only be effective if they are comprehensive, maximal and, most of all, mandatory. Furthermore, my findings also add to the literature since I examine the long-term performance of acquirers involved in both domestic and cross-border deals in the European Union and evidence about this topic is almost inexistent.

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Appendices

Appendix A – Definitions and sources of the variables

Variable	Definition	Source
<i>Country-level</i>		
Logarithm of GDP per capita	Logarithm of Gross Domestic Product (GDP) <i>per capita</i> , measured at constant 2010 U.S. dollars.	Worldbank (World Development Indicators)
GDP growth	Annual percentage growth rate of GDP at market prices based on constant local currency.	Worldbank (World Development Indicators)
Accounting Standards	Index created based on the inclusion or omission of 90 items of the categories general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items.	La Porta et al., (1998)
Shareholder Protection	Proxy for the effective rights of minority shareholders based on Rossi & Volpin (2004) computed as the product of rule of law (International Country Risk Group) and anti-director rights (La Porta et al, 1998), divided by ten. Rule of law is a measure produced by the risk-rating International Country Risk Group and consists in the average of the months of April and October of the monthly index between 1982 and 1995, ranging between zero and ten. Anti-director rights is an index proposed by La Porta et al. (1998) that measures shareholder rights and ranges from zero to six.	La Porta et al. (1998) International Country Risk Group
Common Law	Dummy variable that equals one if the origin of the company law is the English Law and zero otherwise	La Porta et al. (1998)
Institutional Quality	Proxy for institutional quality and enforcement, based on the six regulatory quality measures proposed by Kaufmann et al. (2009)	Kaufmann et al. (2009) Worldbank (Worldwide Governance Indicators)
Trade-to-GDP	Proxy for Openness that equals the sum of exports and imports of goods and services measured as a share of GDP.	Worldbank (World Development Indicators)

Firm-level

Cumulative Abnormal Return (CAR)	Cumulative abnormal return over an eleven-day window (-5,+5).	Datastream
Buy-and-hold Abnormal Return (BHAR)	Expected return on a buy-and-hold strategy 1, 2 or 3 years after the M&A, minus the return on a buy-and-hold investment in a market index.	Datastream
Net Income before preferred dividends	Income after all operating and non-operating income and expense, reserves, income taxes, minority interest and extraordinary items (Worldscope Code: WC01651A).	Worldscope
Market Capitalization	Product of the market price by the number of common shares outstanding (Worldscope Code: WC08001A).	Worldscope
Total Liabilities	Short- and long-term obligations expected to be satisfied by the company (Worldscope Code: WC03351A).	Worldscope
Total Assets	Sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets (Worldscope Code: WC02999A).	Worldscope
Common Equity	Common shareholders' investment in a company (Worldscope Code: WC03501A).	Worldscope
Return on Assets (ROA)	Net Income before preferred dividends divided by Total Assets.	Worldscope
Leverage	Total Liabilities divided by Common Equity.	Worldscope
Market-to-book Ratio (MTB)	Market Capitalization divided by Common Equity.	Worldscope

Deal-level

Deal Size	The logarithm of the M&A deal value divided by the acquirer total assets measured in the quarter when acquisition announcement occurred.	SDC Platinum
Method of Payment (Dcash)	Dummy variabe that equals one if the deal was 100% cash-financed.	SDC Platinum
Industry Diversification (Sameind2)	Dummy variable that equals one if the acquirer and target belong to the same industry, as measured by the first two digits of their SIC code, and zero otherwise.	SDC Platinum

Appendix B – Correlation Matrix

Id.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	CARC	1																			
2	BHAR	0.15*	1																		
3	Cross	0.02	0.05	1																	
4	TBD	0.01	0.15*	0.12*	1																
5	TBD_European_cross	0.03	0.03	0.43*	0.50*	1															
6	European_cross	-0.02	0.05	0.68*	0.27*	0.63*	1														
7	DCash	0.07*	0.05	0.07*	0.00	0.04	0.05	1													
8	sameind2	-0.05	0.06	-0.01	-0.05	-0.02	0.00	-0.08*	1												
9	Deal_size	0.01	0.00	0.02	-0.10*	0.04	0.07	-0.05	0.09*	1											
10	lnGDPpc _{t-1}	0.06	0.10	-0.05	-0.20*	-0.02	-0.17*	0.05	0.08*	0.15*	1										
11	GDPg _{t-1}	0.02	-0.07	-0.01	-0.17*	-0.06	0.04	-0.03	-0.07*	0.06	-0.08*	1									
12	Total_assets	-0.03	-0.07	0.12*	0.00	0.06	0.09*	0.09*	-0.06	0.18*	0.02	0.00	1								
13	ROA _t	-0.02	0.10	0.01	0.02	0.01	0.01	-0.03	-0.03	0.08*	0.00	-0.04	0.01	1							
14	MTB _t	-0.02	-0.04	-0.01	-0.02	-0.01	-0.01	0.01	0.01	0.08*	0.02	0.01	0.02	0.03	1						
15	Leverage _t	-0.015	0.07	-0.04	0.00	0.00	0.00	0.00	0.00	0.11*	0.02	-0.02	0.05	0.01	0.81*	1					
16	Accounting_standards	0.013	-0.12	-0.13*	0.08*	-0.14*	-0.23*	0.00	-0.02	-0.09*	0.06	0.06	-0.01	0.00	0.00	-0.01	1				
17	Shareholder_protection	0.042	-0.16*	-0.34*	-0.34*	-0.31*	-0.49*	0.00	0.03	0.03	0.33*	0.06	-0.04	-0.02	0.01	0.00	0.56*	1			
18	Institutional_quality	-0.001	-0.06	0.13*	-0.01	-0.01	0.04	-0.01	0.00	0.00	0.32*	0.04	-0.03	0.00	-0.01	-0.01	0.46*	0.15*	1		
19	Common_law	0.026	-0.20*	-0.28*	-0.39*	-0.31*	-0.47*	0.00	0.05	0.03	0.32*	0.04	-0.02	-0.02	0.02	0.00	0.41*	0.92*	0.05	1	
20	Trade_to_GDP	-0.030	0.05	0.50*	0.37*	0.28*	0.49*	0.02	-0.04	-0.06	-0.26*	-0.01	0.01	0.03	-0.01	0.00	-0.11*	-0.73*	0.29*	-0.71*	1

CARC is the combined cumulative abnormal return. BHAR is the buy-and-hold abnormal return from t to t+1. Cross is a dummy variable that equals one for international deals and zero otherwise. TBD is a dummy variable that equals one if the deal is announced after the transposal of the TBD in the country of the target and zero otherwise. TBD_European_cross is an interaction variable between TBD and European_Cross. European_Cross is an interaction variable between treatment and Cross. DCash is a dummy variable that equals one if the deal is 100% cash-financed and zero otherwise. Sameind2 is a dummy variable that equals one if the acquirer and target come from the same 2-digit SIC code industry and zero otherwise. Deal_size is the logarithm of the transaction value. lnGDPpc_{t-1} is the one-quarter lagged logarithm of the GDP per capita of the acquirers' country. GDPg_{t-1} is the one-quarter lagged rate of growth of the GDP of the country of the acquirer. Total assets are the total assets of the acquirer. ROA_t is the Return on Assets (Net Income_t / Total Assets_t). MTB_t is the market-to-book ratio (Market Capitalization_t / Common Equity_t). Leverage_t is the leverage ratio (Total Debt_t / Common Equity_t). Accounting_standards consists of an index created based on the inclusion or omission of 90 items of the categories general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items. Shareholder_protection is computed as the product of rule of law (International Country Risk Group) and anti-director rights (La Porta et al, 1998), divided by ten. Institutional_quality is computed as the average of the regulatory quality measures accountability standard, corruption, government efficiency, political stability, regulatory quality and rule of law proposed by Kaufmann et al. (2009). Common_law is a dummy variable that equals one if the origin of the company law is the English origin of Law and zero otherwise. Trade-to-GDP equals the sum of exports and imports of goods and services measured as a share of gross domestic product. All variables are described in Appendix A.