The Impact of the Takeover Bid Directive on the Probability of Deal Completion

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Abstract

The Takeover Bid Directive (TBD), implemented by the European Union in 2004, aims to protect minority shareholders and avoid managerial entrenchment. To achieve these goals, EU authorities outlined some measures to increase transparency and reduce antitakeover provisions.

There are already several studies regarding information asymmetries and securities regulation. In this dissertation, I aim to complement the literature by testing the effects that TBD had on M&A deals. I hypothesize impacts on probability of deal completion, deal efficiency and on probability of deals becoming auctions.

I found evidence that the implementation of the TBD increased deal efficiency and reduced the likelihood of deals becoming auctions. Regarding the impact on the probability of deal completion, unfortunately, I did not find statistically significant results.

Resumo

A *Takeover Bid Directive* (TBD), implementada pela EU em 2004, tem como objetivo proteger os acionistas minoritários e combater o entrincheiramento na gestão. Para alcançar estas metas, as autoridades europeias definiram uma série de medidas de forma aumentar transparência de informação e reduzir imposições legislativas contra as *Takeovers*.

Já existem alguns estudos na literatura acerca das assimetrias de informação e a regulação de *securities*. Nesta dissertação, procuro complementar esta vasta literatura testando os efeitos da TBD nos negócios de M&A. Elaborei uma série de hipóteses que envolvem o impacto da TBD na probabilidade dos *deals* ficarem completos, no número de dias entre a data de anúncio e a data de acordo, e na probabilidade de as negociações se converterem em leilão.

Encontrei evidências empíricas que comprovam que a TBD aumentou a eficiência de negociação e reduziu a probabilidade de as negociações passarem a leilão. Relativamente á probabilidade do negócio ser finalizado com sucesso, infelizmente não obtive resultados estatisticamente significativos.

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1. Introduction

In recent years, the European Union (EU) has been making efforts to increase the integration and harmonization of the capital markets among EU countries. Their goal is to create a more competitive and efficient market in solving opaqueness and illiquidity issues in the corporate environment. The process has been the issuing of several directives, for instance, the Transparency Directive (2004), EMIR (2012), MiFID II (2014), among others. In this dissertation, I intend to explore the impact of the adoption of the Takeover Bid Directive (TBD) on M&A deals.

The TBD, proposed in 2004, aims to protect minority shareholders and avoid managerial entrenchment, to extract higher value from takeovers and enhance synergies gains. Article 9 imposes obstacles on the target's board and executives to frustrate bids without shareholder permission. The minorities protection is also emphasized in Article 11 with the impossibility of adopting voting restrictions, and annulment of contractual clauses related to securities transmission.

We have evidence that the introduction of regulation has an economic impact. For instance, some authors argue that the SEC's imposition of disclosure regulation in the US decreased market volatility and increased abnormal returns (Ferrell, 2007 and Greenstone et al. 2006). Regarding TBD, Loureiro and Silva (2023) conclude that the directive increased synergies for deals whose acquirer is from a country with better corporate governance. Since one of the TBD main goals is to reduce managerial entrenchment, we can question what impacts it had in terms of information transparency on M&A deals.

The most common forms of deal types are auction and negotiation. French and McCormick (1984) showed evidence that negotiation is more likely than auctions when there's uncertainty regarding stock value due to expectations. In the specific case of TBD, the hypothesis that information efficiency increases the probability of auction could be reinforced. The directive not only enhances information transparency but also reduce anti-takeover provisions, which may positively impact the likelihood of firms becoming targets, as Loureiro and Silva (2023) noticed. Consequently, the probability of auction should increase since more bidders attempt their offers. With all this uncertainty and combination of factors it may be interesting to study the empirical effect of TBD on deal type.

The speed of negotiation is related to the length of period that it takes for the due diligence process and all the negotiation before a deal conclusion. This aspect of the deal is of particular interest because a long and costly due diligence may have severe consequences for business activities and financial performance of both target and acquirer (Lajoux and Elson, 2000). Since one of TBD's main goals is to combat managerial entrenchment, it could cause more transparent deals resulting in a faster and more efficient due diligence.

But the most relevant and important aspect of any M&A is the success of the operation. That is why it would be fundamental to study the impacts of TBD on the likelihood of deal competition. Marquardt and Zur (2015) concluded that the quality of information is positively related to deal success. In the case of the TBD, with its ambition to decrease entrenchment, we can assume that the target's true value will become easier to estimate. This is important to decrease the chance of new information rising during negotiation and produce a negative market reaction or reduce the likelihood of new bids to enter the deal. Protecting minority shareholders' rights could also result in more deal acceptance since many bids are offered with large premiums.

To study these questions, I used a sample of 4743 observations from deals announced in the years between 2000-2018 from several countries. I did not include more recent deals to avoid based results from the pandemic effects on markets in the 2020/2021 years. The conclusions were diversified across my different hypothesis.

Regarding the results, I found evidence, as expected, that the TBD increased deal efficiency by reducing the length of time in between deal announcement and deal completion. Furthermore, I discovered that TBD reduces the probability of a new bidder enter the deal, turning the negotiation into an auction. This result is not in line with previous literature, but it is coherent with my previous findings, that speed of negotiation is faster. This may difficult the possibility of new bidder enters the deal.

Regarding the first and main hypothesis, unfortunately the results were statistically insignificant, and so there is no evidence to prove that the TBD increased the probability of deal completion.

All these questions will be further developed. I start this dissertation with a literature review to have more deeper view from previous literature on M&A markets, its importance in today business environment, the conflict of interests between shareholders

and managers, and factors that may impact M&A performance. I also explored the role of authorities and empirical evidence on some regulations, especially the one related to information and transparency.

Then, based on the thoughts and inputs from past research, and its relevancy on the literature, I did my hypothesis development and decided to study the three mentioned hypothesis. In the following section, I presented a detailed description of all the methodology used including the models and variables employed. Then, in the Data section, I detailed all the important aspects and statistics regarding my dataset. In the following section, I presented the results of my estimations. In this part, I also confirmed or rejected the hypothesis developed and presented possible explanations to the empirical evidence. Finally, in the last section of my dissertation, I presented the most important conclusions and thoughts on the work as whole.

2. Literature Review

2.1 The Importance of M&A

M&A are corporate events of large-scale importance with large implications and effects on society, corporate performance, and efficiency (Kinateder et al., 2017). Nowadays, scholars in this field are dedicated to explaining/predicting the deal's success by relating M&A variables with post-acquisition performance (Renneboog and Vansteenkiste, 2019).

The pursuit of synergy gains is the overarching objective of all M&A. When the combined value of the two companies is greater than the sum of their respective stand-alone values, a synergy gain is achieved (Jensen and Ruback 1983, Bradley et al 1988). These "gains" could manifest as cost savings and optimal operational efficiency; increased revenue from the distribution network, for instance, through eliminating competitors; or a variety of financial benefits, such as leverage and tax avoidance (Seth, 1990a, 1990b).

The main drivers for these possible economic achievements are economies of scale and scope, the elimination of redundant facilities or alternatives, and strengthened negotiating power with suppliers or dealers (Fatima and Shehzad, 2014). But there are other theories, for instance, the diversification theory that claim mergers are driven by the ambition to expand its product and service offerings (Doukas and Travlos, 1988) and the agency theory, which shows M&A deals as resulting from the managers' interests (Amihud and Lev, 1981).

Blonigen and Pierce (2016) conclude that even non-horizontal deals could increase productivity. In contrast, Rozen-Bakher (2018a) did not find significant value gains related to synergies or increasing productivity. Despite all this debate about the M&A effects, all scholars agree on the importance and relevancy of the issue being studied, to explain, predict or even make regulatory decisions in the case of policymakers.

2.2 Shareholder/Management Agency Problems

To obtain the synergies and value gains it is necessary that, firstly, targets accept the deal proposal. According to Easterbrook and Fischel (1981), managers tend to frustrate bids, even when they seem beneficial, with the argument that the premium is too low and possibly harmful to management. When management's resistance causes the

failure of the deal, the outcome may not be the most desirable for shareholders, depending on the offer details. More recently, Wongsinhirun et al. (2022) found evidence that more protective takeover managers are typically associated with bad corporate social responsibility indicators. In the same line, Stewart (2023)'s findings support the managerial entrenchment perspective. The authors claim that target managers tend to hide good news according to the state regulatory conditions about minority shareholder protection. In an environment where shareholders' appraisal rights are more exhaustive, managers are typically willing to withhold good news.

Delis et al. (2023) state that management has a crucial role in M&A decisions and is mainly responsible for value-enhancing or value-decreasing results. These conclusions imply that shareholders should only monitor the quality and efficiency of management and in this way, it is not necessary to interfere in the decisions. The authors also claim that management quality has a positive effect on deal probability. Chatjuthamard et al. (2023) advocate that a hostile threatening environment tends to enhance managerial myopia and so decrease asset employment.

Nogueira and Castro (2020), using a sample of Brazilian firms, found that most companies in that country have a very concentrated ownership, and this characteristic is not optimal for the takeover environment. Furthermore, the authors claim that minority shareholders have little or no opinion at all in deciding about takeover bids. This is similar to Andriosopoulos and Yang's (2015) conclusions that institutional investors have fewer motives to accept any takeover proposal with the fear of losing governance participation and influence in the decision process, with, minority shareholders not able to fight for their interests.

Maas et al. (2019) conclude that the authorities' action to solve agency conflicts has a negative outcome in terms of M&A prevalence and performance. In a different perspective, Cao et al. (2019) studied the impact of investor protection in a cross-country analysis and claimed the importance of the legal and institutional environment for M&A value creation. With this reasoning, Marquardt and Zur (2015) studied the impact of the target firm's accounting quality on the probability of deal completion. They justify their hypothesis with the idea that more relevant and accurate information will emerge during the negotiation and due diligence period. The authors found evidence that confirms their hypothesis.

Overall, most of the studies tend to advocate the idea that managerial entrenchment jeopardizes post-deal performance not only financially but also in terms of its social impact. And in some cases, their behavior may induce informational asymmetries. These problems can be solved with regulatory reforms (for instance, the TBD and its mandatory disclosure requirements). With a more transparent environment and minority protections, we can question what the directive impacts on the likelihood of deal competition.

2.3 M&A Financial Performance

A huge variety of studies examining performance before, during, and post-acquisition demonstrate that bidder shareholders receive very small returns, or, even face losses, at the time of deal announcements and this conclusion is particularly relevant in the case of public firms. (Andrade, Mitchell, and Stafford, 2001; Agrawal et al. 1992; Loughran and Vijh 1997).

Other authors, in the same line, provide evidence that shareholders of the acquirer firm receive insignificant returns when examining the share price variation of the merged firm over a long-term period of two years or plus post-transaction (Moeller et al 2004). Furthermore, the prediction of value creation in M&A deals, manifested by positive abnormal returns in the post-acquisition announcement tends to fade away in the long term which suggests the presence of behavioral biases and market inefficiency (Agrawal and Jaffe, 2000; Malmendier, Moretti, and Peters, 2018). In their review of the variety of studies regarding this subject, Renneboog and Vansteenkiste (2019) also conclude that short-term returns are not sustainable in the long term and address the problem of different performance measures and sample heterogeneity to justify the lack of consensus and unambiguous results.

More recently, Reddy et al. (2018)'s study validated the hypothesis of insignificant financial gains around deal announcements. The authors examined takeovers in the emergent economies of China and India, and their results show insignificant value creation. Mehrotra and Sahay (2022) studied the financial performance in the first three years of acquirers using a sample from India. Their evidence is in line with previous studies that do not find significant gains in the first years of the deal. Despite being widely subscribed, these conclusions cannot explain the fact that M&A activity is still dynamic

in recent past with more and more deals of important dimensions and managers keep actively pursuing these operations and negotiations.

But there is also some recent research in the field that presents a positive image of M&A activity especially when evaluating operational performance. Yadong et al (2019) also studied the performance of Chinese acquirers in the period between 2012 and 2016 and found evidence of value gains and synergy dispersed, for horizontal mergers and conglomerates. This variety of conclusions and issues present in the literature raises the question of what are the real differences that enhance value creation and value destruction and influence overall performance in M&A.

2.4 What Impacts M&A Financial Performance

When trying to explain this empirical evidence, some authors point some deal variables, as are the cases of, deal type, size, and means of payment to have the most explanatory power. For instance, Franks and Harris (1989), defend that returns for both acquirer and target are typically higher in a tender offer. That may be explained by the fact that in a tender offer, a bidder must be confident in its success to attempt such a risky move (Offenberg and Pirinsky, 2015).

Regarding means of payment, cash bids are typically related to higher announcement returns for both the target and the acquirer in comparison to equity bids (Loughran and Vijh, 1997; Bhagat et al., 2005; Savor and Lu, 2009). The common explanation here is that acquirer management prefers offers in cash when they believe the acquiring firm's stock price is undervalued. After that, the market adjusts based on the management's implied expectations.

Recently, some studies contradicted this idea. Kanungo (2021), for instance, studied the relation between choice of payment and financial performance, in an environment of financial crisis, and the results dispute the idea that cash bids earn significantly more returns for acquirers. His evidence shows a better performance from bidders who opt for stock payments in several variables, for instance, market-to-book value and growth. But among all-cash offers, we can also distinguish between equity-financed and debt-financed deals.

Chen et al. (2020) explored this issue using a sample from China. In a framework of emerging economies, the authors argue that in the equity scenario, deals perform

significantly well, which may raise the question if all-cash equity financed bids perform better than stock bids empirically. Also, in the context of developing markets, but this time, using a sample from North Africa, Flah (2022) claims equity bids perform significantly better than cash bids even when acquiring managers prefer cash as a means of payment. Despite all these contradictory results, means of payment are an important aspect when trying to explain M&A performance (Renneboog and Vansteenkiste, 2019), and so it would be relevant to see how authorities affect this variable in regulatory reforms.

Some authors also studied the effect of deal method (auction vs negotiation) on performance and pointed out serious difficulties in the analysis (Boone and Mulherin, 2007). Some of those studies provided evidence for the winner's curse hypothesis. Fidrmuc and Xia (2017) studied the effects of auctions in M&A short-term performance both for the cases of target-initiated and bidder-initiated deals. The results were inconclusive for the second case, but in the first one, they concluded that negotiations earned significantly lower premiums. This would mean that increasing the quality of accounting information will negatively impact the performance of bidder-initiated deals since, according to Marquardt and Zur (2015), the quality of information is more related to the negotiation method.

When accounting for the performance in a larger period, means of payment, deal attitude, and the public status of the target firm are, in general, the most influential variables. Bradley and Sundaram (2004) found a positive relationship between listed (public) companies and long-run bidder returns. Mitchell and Stafford (2000) discover that cash bidders earn higher profits in the long run (just like in the short term). According to Myers and Majluf (1984), this finding explains the fact that an equity offer may be a signal of an overvalued bidder and why it tends to revert to the mean in the long term. Regarding deal attitude, results are not consensual, in the long-term. Some authors advocate for better performance in the case of a hostile takeover, while others defend the exact opposite (Franks et al., 1991; Cosh and Guest, 2001).

Finally, negotiation efficiency and the length of the period between the deal's announcement date and the date of completion are also factors that gained attention in the literature. Meglio et. al. (2017) suggests that longer and deeper due diligence is crucial for post-deal success which implies a longer period for the deal to be complete. However, once again, other studies have a contradictory view. These authors claim that as longer

the due diligence and higher the information costs, the higher the probability of another competitor entering the market or responding, (King & Schriber, 2016) which may jeopardize the deal conditions, especially for the acquirer.

The Thompson and Kim (2020) study may have reconciled these two apparently contradictory views. These authors conclude that neither too small nor too large due diligence is the most optimal scenario. They found that negotiations have an optimal point in time where due diligence positively contributes to the deal's performance. When deals take longer periods before competition, deal performance tends to be jeopardized in line with King and Schriber (2016) findings. This efficient period length is also developed by Kumar et al. (2023) who found evidence that this point is associated with the maximum likelihood of deal completion. They claim that this bi-partied effect is a result of the contrasting impacts of ownership and advisors.

In short, some variables like means of payment, deal method, and deal "efficiency" have proven effects on M&A performance. And so, it would be helpful if authorities impact these variables to increase the economic efficiency of M&A deals. Once again, according to Marquardt and Zu (2015), we may predict that the TBD with its more restrictive disclosure requirements may increase information quality and so influence these variables. It could be pertinent to hypothesize that target accounting quality can benefit the deal terms for the acquirer due to lesser information costs, since the mentioned article provides evidence of a negative relation between target accounting quality and the length of the deal process period. But first, we must assess what the literature explored about securities regulation's impact on the market.

2.5 The Impacts of Mandatory Disclosure Regulation

Sometimes when new regulations are implemented, the desired output is not achieved. That is why scholars spend so much effort on this issue and the literature regarding securities regulation is so well-developed (Leuz and Wysocki, 2016). Ferrell (2007) found evidence that the SEC's imposition of disclosure regulations in the US has helped decrease volatility in securities markets. The author justifies his view with the argument that more information disclosure is beneficial for market efficiency. Greenstone et al. (2006) also finds positive impacts in the market, this time in terms of abnormal stock returns relative to the market post-Securities Act Amendments of 1964.

In contrast to this view, Battalio et al. (2011) raise concerns about whether the disclosure mandates have a significant impact on firm value after estimating the announcement of abnormal returns. Bushee and Leuz (2005) are also skeptical about SEC requirements. According to the authors, following the SEC disclosure implementation, some companies moved to other less efficient markets which produced negative externalities. This cost increase undermined the possible benefits hypothesized above. Regarding the adoption of International Financial ´Reporting Standards from several countries around the world in 2005, Li and Yang (2015) found positive results. Their study provides evidence of possible catching-up effects from firms with lack of quality disclosure habits and practices before IFRS. The authors also point to better earnings management and an increase of market demand due to credibility issues as the main drivers for this performance.

The Regulation Fair Disclosure (Reg FD) adopted by the SEC in August 2000 is another natural experiment that helped scholars to study the effects of regulatory reforms. Eleswarapu et al. (2004) and Chiyachantana et al. (2004) provide evidence of positive effects on bid-ask spreads of NYSE firms post-Reg FD. This reduction is explained by the decrease in terms of information asymmetries. Sidhu et al. (2008) have a different opinion. Their study suggests that this reform increased adverse selection. Their argument relies on the limitation of selective disclosure, which contributes to a decrease on the amount of information available to these firms. This contradictory conclusion may be explained by sample differences.

Alvarez and Barlevy (2021) explore mandatory financial disclosure in the banking sector. The authors argue that, on average, these requirements can be beneficial due to the contagion effect. That is explained by the fact that banks typically fail to acknowledge the positive externalities for the sector as a whole and tend to choose to keep information private.

Other studies use a cross-sectional country-level methodology to instigate regulatory effects. For instance, Aggarwal et al. (2005) find that countries with more liberal disclosure regulations have more propensity to obtain foreign investment when firms are more transparent. In this line, Daske et al. (2008) find that in countries with more disclosure requirements, external investors are more confident to invest in less transparent firms. These studies suggest that disclosure policy may impact firm financials. La Porta et al. (2006) with a sample of 45 countries, examined how strong are securities

regulation by each country's authorities and its relation with market efficiency adjusted by its dimension and IPO frequency. Their results support the efficacy and necessity of mandatory requirements.

However, scholars have been changing attention from financial to Non-Financial mandatory disclosure requirements and its impacts on the corporate environment. Jackson et al. (2020) studied the impact of mandatory non-financial disclosure (NFD) on Corporate Social Responsibility (CSR) using a country-level analysis. The authors conclude that firms from more restrictive regulatory countries are more concerned with CSR issues. However, the concerns are not sufficient to produce real effects on the issue. In the same way, Cichiello et al (2023) argue that regulatory reforms aiming to improve non-financial transparency are succeeding in their goals and improving green consciousness among firms and managers. In contrast, to this idea, Cupertino et al. (2022) findings show a negative portrait of NFD regulatory impacts in a financial context. They conclude that this mandatory disclosure is associated with lower profitability ratios and lower shareholder returns.

Moving to the specific case, of takeovers regulation, Wang and Lahr (2017), study the impact of mandatory shareholder protection on M&A efficiency and found a positive impact driven by higher synergy gains. The authors also conclude that regulatory reforms reduce the time before deal completion. The idea of positive impacts from regulation is also attested by Marshall and Anderson (2009). In their article, the authors studied the impacts of the New Zealand implementation on several laws aiming to reduce acquirer bargaining power. Evidence shows that target firms were able to obtain higher premiums as well as higher announcement returns. The specific case of the banking sector was explored by Carletti et al. (2021). According to their article, the announcement returns increased for mergers post-regulation, and this effect could be explained by the lower probability of M&A in the banking sector that may have enhanced higher competition.

In contrast, Deshpande et al. (2016), present a negative portrait of the M&A regulation in the EU. The authors claim that the European Commission's economic nationalist intervention has caused negative wealth effects on US domestic deals.

Finally, Loureiro and Silva (2023) studied the wealth effects of the Takeover Bid Directive on EU deals. They concluded that the directive helped bidders to obtain higher value results, and it also increased the probability of a company from EU becoming a

target. These results are particularly evident in the case of countries that already have a robust regulatory framework on acquirer minority shareholders protection. These conclusions may also raise questions for future research, for instance, whether the increase in the probability of companies becoming targets may have also increased the probability of deals becoming auctions, since more acquirers may be competing for the same target.

3. Hypothesis Development

As we previously noticed, not every deal proposal is accepted. In fact, in most cases, managers are not comfortable with the possibility of losing controlling power and executive roles and this leads them to avoid takeovers and engage in managerial entrenchment (Stewart, 2023). This concentration of power could be harmful for takeovers, and consequently, for the whole society since valuable deals could be denied.

To prevent this issue, authorities create mechanisms to increase information transparency and avoid concentration of power in a small number of individuals, preserving other shareholders' interests.

In this way, the adoption of TBD, and its aim to prevent information asymmetries, may have positive externalities. For instance, Article 9 aims to increase information efficiency by combating managerial entrenchment in the process of negotiation. That is important because bidders only have access to publicly available information before the deal. Marquardt and Zur (2015) findings relate the effects of information efficiency on the likelihood of deal completion. The Directive also aims to prohibit the use of pre-bid takeover defenses. For instance, Article 11 not allows the adoption of contractual voting restrictions related to securities transmissions.

Furthermore, since minority shareholders have more decision-power following TBD's implementation and since acquirer firms tend to overbid (De Bodt et al., 2018) we can assume that in some cases, minority shareholders have more interest in selling its stake than managers, depending on premium and on its expectations towards the firm. This means that, if they were the ones deciding, they would accept the offer. By restricting managerial entrenchment, it is reasonable to believe that more deal offers will be accepted.

This reasoning leads to the first hypothesis developed in my dissertation:

H1: *The TBD adoption has a positive impact on the probability of a deal being completed after the bid announcement.*

Marquardt and Zur (2015) also conclude that the quality of information has impacts on deal efficiency. Higher transparency requirements have an important role in negotiation and duo diligence. As in my first hypothesis we can infer that by combating

managerial entrenchment, the TBD will contribute to a more transparent takeover market preventing managers to hide information (including accounting information) during due diligence process.

This possible increase of efficiency is of particular interest since, as Lajoux et al (2000) suggest, a faster due diligence has economic benefits for both acquirer and target due to out-of-pocket costs. In this sense, it is reasonable to believe that a longer due diligence is related to a slower process of negotiations. That is why my second hypothesis is stated in the following manner:

H2: *The TBD adoption has positive impact on the deal efficiency by reducing the number of days between the announcement and officialization.*

Regarding my last hypothesis, Loureiro and Silva (2023) conclude that the authorities' purpose with implementation of the TBD, to decrease excessive antitakeover provisions, increased the probability of firms becoming targets. This evidence suggests that more firms will propose deal offerings, which may also affect firms already being targeted by other firms. The authors also found that this evidence is stronger in firms from countries with weaker institutions and regulations. This may be explained by the fact that, in this type of country, firms tend to be undervalued, and so, more desirable for possible acquisitions (Moeller & Schlingemann, 2005).

In the past, other authors drew this conclusion. For instance, Cuñat et al. (2020) also defended the idea that a more liberal takeover regulation system increases the likelihood of bidders engaging in new proposals. These conclusions are in same line with Karpoff et al (2017)'s evidence, which also claim that this kind of politics increases market competition.

For this reason, and, in accordance with the literature, my third hypothesis is stated in the following way:

H3: *The TBD adoption has a positive impact on the probability of the deal becoming an auction.*

4. Methodology

To test my hypotheses, I used a differences-in-difference model following prior literature (Loureiro and Silva, 2023). The differences-in-difference model (Wooldridge, 2010) is useful because it divides the sample in a treatment and control group to identify and isolate the effect of the TBD from geographical effects. To control my model, I employed some deal variables and financials also used in previous studies (Marquardt and Zur, 2015), with the respective adaptations. I will also control the model for country-level variables due to the influence of the macroeconomic contexts (Loureiro and Silva, 2023).

Equation 1 presents the first model of this dissertation used to test the effect of the TBD's implementation on the Probability of deal success:

Prob(Comp) = f(Treatment, PostTBD, Stock Only, Deal Value, Premium, Target Size, BookToMarket, DebtToAssets, ROA, LogGDPpc, GDP growth) $\bigg|$ *Eq1*

The dependent variable *Comp* is an indicator variable that equals 1 if the deal ends successfully and 0 when the negotiation is frustrated. To assess my first hypothesis, I employed a *Treatment* variable that separates the treatment group from the control group. The treatment group represents all deals whose target firm is from an EU country and the control group includes the remaining deals. Among the treatment group, the *PostTBD* variable is used to identify if the deal was performed after TBD implementation. Despite TBD being officially announced in 2004, it was not implemented at the same time in each country. The *PostTBD* is our main variable since its coefficient and respective significance are essential aspects to take conclusions regarding TBD' effects.

To control my model and increase the explanatory power of the main variables, it was employed a set of control variables based on previous literature (Marquardt and Zur, 2015 and Loureiro and Silva, 2023). The *Stock Only* is an indicator variable that equals 1 if the method of payment is 100% stock and 0 otherwise. According to Bates and Lemmon (2003), when method of payment is all-stock, the deal is more likely to be completed. Heron and Lie (2006) controlled their model with *Deal Value* and its respective *Premium*. This last variable was calculated dividing the deal value with shareholder funds and it is

predicted to have a positive impact on the dependent variable and the opposite effect for the first. Regarding the variables *BookToMarket*, *DebtToAsset* and *ROA* were also employed by Marquardt and Zur (2015), but the authors do not find significant impacts on dependent variable.

To control my model for the different geographical and economical contexts, I used a group of country-level variables, that included *LogGDPpc*, defined as the logarithm of GDP per capita, and *GDPgrowth*, defined as the annual growth rate of real GDP (Loureiro and Silva, 2023). All the variables are detailed on Annex 1.

The second model was meant to test the second hypothesis of this dissertation: the impact of the TBD's implementation on the period between the date of the announcement and the date of completion. *Equation 2* presents the model used to test this model.

LogDays = f(Treatment, PostTBD, Stock Only, Deal Value, Premium, Target Size, BookToMarket, DebtToAssets, ROA, LogGDPpc, GDPgrowth) | *Eq2*

The dependent variable *LogDays* represents the logarithm of the difference between the completion date and announcement date (due diligence period) plus one. I also employed the differences-in-difference methodology, and so included a *Treatment* variable and a *PostTBD* variable as my variables of interest. I decided to employ the same control variables from my first model.

In their study, Marquardt and Zur (2015) predict that deals whose method of payment is *Stock Only,* tendentially decrease the due diligence period. The authors also expected the percentage of cash to have positive impacts on the dependent variable, which means that cash deals are typically less efficient. For the remaining control variables that I used (*Deal Value*, *Premium*, *Target Size*, *BookToMarket*, *DebtToAssets*, *ROA* and country level variables), defined in Annex 1, we have no predictions on their possible impacts from previous literature.

The third and final model of this dissertation was used to test its last hypothesis: the effect of the TBD's implementation on the Probability of deals becoming auctions. *Equation 3* presents the model used to test this hypothesis.

$$Prob(Auction) = f(Treatment,\ PostTBD,\ Stock\ Only,\ Deal\ Value,\ Premium,\ Target\ Size,\ BookToMarket,\ DebtToAssets,\ ROA,\ LogGDPpc,\ GDPgrowth\ ) \qquad Eq3$$

As in my first model, I estimated a logit model, using the variable *Auction* as my dependent variable. This variable equals 1 when the deal had more than one bidder and 0 otherwise.

Regarding the control variables, I also decided to use the same variables as in my first model. Based on prior literature findings (Boone and Mulherin, 2007), I predict negative coefficients on *Target Size* and deals whose method of payment is *Stock Only*. Marquardt and Zur (2015)'s model also confirmed the prediction that the payment in cash has a positive influence on the probability of deal become an auction. For the remaining variables (*Deal Value*, *Premium*, *BookToMarket*, *DebtToAssets*, *ROA* and country level variables) defined in Annex 1, we have no relevant predictions of their impacts on the dependent variable from previous literature.

All the variables were obtained using pre-deal last available information of the target firm from Orbis M&A, as we will see in detail in the following section.

5. Data

5.1 Sample

To test my hypotheses, I used a sample of M&A deals that occurred between the years 2000-2018 from different EU and non-EU countries. This data was obtained from two sources. Firstly, regarding M&A activity and financials, my source was Orbis M&A dataset of Bureau van Dijk. Finally, data related to country-level macroeconomic measures was obtained from World Bank.

In order to avoid constrains and obtain a more uniform dataset, I decide to apply the following criteria to my research: (1) Financial industry, including financial institutions and insurance companies must not be included; (2) observations with missing values must be dropped; (3) only deals of majority interest (mergers and acquisitions); (4) only deals whose last deal status is either announced, withdrawn, unconditional and completed; (5) only deals whose value is superior than 1 000 000 dollars; (6) only deals whose security type is ordinary/common shares.

Finally, I also excluded some non-sense values and extreme outliers in each variable to avoid biased estimations. It included deals whose target's debt is negative, deals whose target's assets are 0, deals whose *Premium* was more than 125, deals whose *BookToMarket* was more than 900, and deals whose *ROA* is less than -900. This resulted in a total of 24 excluded observations. The final dataset was left with 4743 observations that included target firms from 26 EU countries and 53 non-EU countries. Table 1 and 2 show the number of deals for each country in the treatment and control sample, respectively.

Table 1: Number of operations whose target is an EU country

Target Country	Deals	Percent	TBD Adoption Year
Austria	18	2.19	2006
Belgium	24	2.92	2006
Bulgaria	11	1.34	2007
Croatia	6	0.73	2013
Cyprus	2	0.24	2007
Czechia	3	0.36	2008
Denmark	8	0.97	2005
Finland	18	2.19	2006
France	132	16.04	2006

Germany	87	10.57	2006
Greece	19	2.31	2006
Hungary	3	0.36	2006
Ireland	8	0.97	2006
Italy	60	7.29	2007
Lithuania	8	0.97	2007
Luxembourg	4	0.49	2006
Malta	2	0.24	2006
Netherlands	27	3.28	2007
Norway	34	4.13	2008
Poland	91	11.06	2009
Portugal	13	1.58	2006
Romania	8	0.97	2007
Slovenia	7	0.85	2006
Spain	44	5.35	2007
Sweden	59	7.17	2006
United Kingdom	127	15.43	2006
Total	823	100.00	

TBD adoption year taken from Loureiro and Silva (2023)

Table 2: Number of operations whose target is a non-EU countries

Target Country	Deals	Percent	Target Country	Deals	Percent
Argentina	4	0,1	Latvia	2	0,05
Australia	303	7,73	Malaysia	88	2,24
Bahamas	2	0,05	Marshall Islands	8	0,20
Bangladesh	1	0,03	Mauritius	5	0,13
Barbados	2	0,05	Mexico	4	0,10
Bermuda	33	0,84	Morocco	3	0,08
Bosnia	1	0,03	New Zealand	34	0,87
Brazil	17	0,43	North Macedo.	2	0,05
Canada	754	19,23	Oman	1	0,03
Cayman Islands	158	4,03	Pakistan	3	0,08
Chile	3	0,08	Panama	1	0,03
China	29	0,74	Papua New Gui.	3	0,08
Colombia	4	0,1	Peru	1	0,03
Costa Rica	1	0,03	Philippines	15	0,38
Egypt	4	0,1	Russia	47	1,20
Georgia	1	0,03	Saudi Arabia	1	0,03
Ghana	1	0,03	Serbia	1	0,03
Hong Kong	5	0,13	Singapore	17	0,43
India	165	4,21	South Africa	5	0,13

Indonesia	29	0,74	Sri Lanka	14	0,36
Israel	6	0,15	Switzerland	8	0,20
Jamaica	2	0,05	Thailand	46	1,17
Japan	356	9,08	Trinidad and T.	1	0,03
Jordan	1	0,03	USA	1610	41,07
Kenya	2	0,05	Viet Nam	37	0,94
Korea	59	1,51	Virgin Islands	17	0,43
Kuwait	3	0,08	**Total**	3920	100,00

Regarding the treatment group, the most represented country is France with 132 target firms followed by UK with 127 and Poland with 91. Germany, Italy and Sweden also have a considerable number of firms in the sample with 87, 60 and 59 respectively. The average number of operations is 31,65 per country. There are 11 countries with less than 11 targets. The treatment group registered a total of 823 deals.

In most countries, TBD was implemented in 2006. In this list, the first country to implement the directive, was Denmark (2005) and the latest country was Croatia (2013). This information was obtained from Loureiro and Silva (2023)'s article.

The control group is significantly larger than the treatment group with 3920 deals. The USA is by far the most represented country of the dataset with 1610 target firms which reflect the dimension of the American economy. Following the US, Canada is also clearly above the rest with 754. Japan and Australia also have a significant number of deals with 356 and 303, respectively. And closing the top-5 we have India, a large emerging economy, with 165. Cayman Islands, Malaysia and Korea also registered an important number of deals: 158, 88 and 59 respectively. But, as in the treatment group, the great majority of countries are only represented by few deals. In this case, we have 27 countries with less than 5. The average number of operations is 73,96 per country. The control group registered a total of 3920.

5.2 Descriptive Statistics

Moving on, table 3 shows the descriptive statistics for the full sample, while table 4 divided the statistics into treatment group, control group and differences. The statistics presented are number of observations, mean, standard deviation, maximum and minimum and mean differences.

Table 3: Full Sample Descriptive Statistics

Full Sample					
Variables	**Obs**	**Mean**	**Std. dev.**	**Min**	**Max**
Auction	4743	0,036	0,185	0	1
Comp	4743	0,813	0,39	0	1
DealValue	4743	1791,854	6992,049	1	141948,7
Premium	4743	1,696	3,832	0	106,621
LogDays	4743	1,547	0,827	0	3,372
TargetSize	4743	1696,862	6167,398	0,036	130334,1
BookToMarket	4743	1,072	3,099	-62,717	81,688
DebtAssets	4743	0,489	0,51	0	13,277
ROA	4743	-0,068	0,549	-14,995	5,834
StockOnly	4743	0,195	0,396	0	1
PostTBD	4743	0,17	0,376	0	1
Treatment	4743	0,174	0,379	0	1
LogGDPpc	4743	4,557	0,384	2,904	5,092
GDPgrowth	4743	2,316	2,007	-14,813	13,544

Table 4: Control and Treatment Divided Sample Descriptive Statistics

Variables	Control Group					Treatment Group					Difference	
	Obs	Mean	Std. dev.	Min	Max	Obs	Mean	Std. dev.	Min	Max	Mean Dif	p-value
Auction	3920	0,036	0,187	0	1	823	0,033	0,178	0	1	0,003	0,631
Comp	3920	0,821	0,384	0	1	823	0,775	0,418	0	1	0,045	0,002
DealValue	3920	1742,987	6117,708	1	141948,7	823	2024,613	10175,03	1	129364	-281,626	0,294
Premium	3920	1,763	3,671	0	87,449	823	1,373	4,508	0	106,621	0,39	0,008
LogDays	3920	1,573	0,808	0	3,204	823	1,426	0,902	0	3,372	0,147	0,000
TargetSize	3920	1611,288	5493,094	0,036	84601	823	2104,461	8681,499	0,2	130334,1	-493,173	0,037
BookToMarket	3920	0,999	2,41	-62,717	66,753	823	1,42	5,25	-4,112	81,688	-0,42	0,000
DebtToAssets	3920	0,495	0,525	0	13,277	823	0,462	0,428	0	8,377	0,033	0,094
ROA	3920	-0,077	0,584	-14,995	5,834	823	-0,023	0,333	-8,104	0,937	-0,054	0,01
StockOnly	3920	0,2166	0,412	0	1	823	0,092	0,29	0	1	0,124	0,000
LogGDPpc	3920	4,559	0,41	2,904	5,053	823	4,548	0,224	3,871	5,092	0,011	0,449
GDPgrowth	3920	2,419	2,009	-14,813	13,544	823	1,824	1,923	-7,087	9,608	0,595	0,000

First, we notice that in most variables, the mean of the control group is very similar with the mean of the full sample, due to the relatively small size of the control group. which reflects the large difference of observations between the treatment and control group.

When comparing the values of the treatment with control group, we can observe some differences in terms of deal efficiency and economic growth. The treatment group is comprised of EU countries which are mainly developed countries, while the treatment is a more heterogeneous group with both developed and emerging economies. This difference is reflected, for instance, in the mean of *LogDays,* which is an indicator of speed and deal efficiency. The treatment group has a mean of 1,43 while the control registered 1,57, and this difference is significant at 1% level, meaning we tend to have a less efficient duo diligence outside the EU. However, when the question is probability completion, the treatment is slightly below the control with the means 0,78 and 0,82 respectively, and this difference is significant at 1% level. This may be resulting from the impact of the American economy and its dimension in the sample.

Regarding the financial variables, we can also observe the European stability against the emerging situation in the rest of the world. The EU target companies tend to have larger size than in other countries, with an average of size of about 2104,5 and 1611,3 respectively. When noticing the maximum value, the control is also clearly below the treatment, with values of 84601 and 130334,1 million of US dollars, respectively. The same thing happens with the minimum value, with values of 0,2 and 0,04 million of US dollars.

The statistics also show other interesting aspects, for instance, targets from non-EU countries tend to have lower *ROA* than EU, since its pre-deal average values are -0,07 and -0,02 respectively, and this difference is significant at 1% level. Targets from EU countries also tend to have lower debt ratios than non-EU, since its pre-deal average values for *DebtToAssets* ratio are 0,46 and 0,49 respectively, and this difference is significant at 10% level. These results reflect the difference between the business environment in a developed economy against an emerging economy.

The country variables also reflect this reality, since the countries from the control group tend to have lower size but higher growth than countries from treatment group. If we look only at the mean, we can see that the control group have higher Logarithm of

GDP per capita and higher *GDPgrowth* (4,56 and 2,24 respectively) than treatment group (4,55 and 1,82). These results are a clear reflection of the weight of US and Canada in the treatment group. Looking at standard deviations, with control group registering 0,41 and 2 and the treatment group registering 0,22 and 1,9 on *LogGDPpc* and *GDPgrowth* rate, respectively we can conclude that the first group's country variables are more disperse.

Finally, regarding the *Auction* variable, the results are very similar in both groups. The treatment group registered an average and a standard deviation of 0,033, and 1,8 respectively, while the control registered 0,036 and 1,9. In the case of the *Premium*, the statistics show a higher difference, with the control group having a higher average premium of 1,76 against 1,37 for the treatment group, and this difference is significant at 1% level. The standard deviations were 3,67 and 4,5 respectively.

5.3 Correlation

Overall, the variables show low levels of correlation. The great majority of correlation coefficients are between [-0,1; 0,1] but there are some exceptions. For instance, the most correlated variables are Treatment with *PostTBD*, registering a correlation coefficient of 0,989, and *PostTBD* with *LogDays* registering a correlation coefficient of 0,898.

Regarding the country-level variables, the table shows a negative correlation between the logarithm of GDP per capita and *GDPgrowth* rate of -0,54 since in normal situations, developed economies have lower growth rate than emerging economies.

Moving to the financial variables, the table shows a significant correlation of 0,73 between *Target Size* and *Deal Value*, and a positive correlation between *BooktoMarket* and *Premium* of 0,265. This indicates that targets with lower market values tend to be receipt offers with relatively higher premiums.

Table 5: Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Auction (1)	1,000														
Comp (2)	-0,030	1,000													
Year (3)	0,004	0,006	1,000												
DealValue (4)	-0,002	-0,061	0,004	1,000											
Premium (5)	-0,033	0,009	0,001	0,013	1,000										
LogDays (6)	-0,034	0,898	-0,023	0,000	0,021	1,000									
TargetSize (7)	0,015	-0,053	0,005	0,730	-0,009	-0,003	1,000								
BookToMarket (8)	0,008	-0,018	0,019	-0,046	0,265	-0,022	-0,011	1,000							
DebtAssets (9)	-0,007	-0,002	0,007	0,054	0,059	0,006	0,071	-0,144	1,000						
ROA (10)	0,033	0,021	-0,013	0,060	-0,066	0,043	0,057	0,040	-0,363	1,000					
StockOnly (11)	-0,083	0,052	-0,031	-0,045	0,009	0,113	0,012	0,030	-0,024	-0,089	1,000				
PostTBD (12)	-0,015	-0,040	0,126	0,001	-0,037	-0,066	0,021	0,052	-0,025	0,036	-0,120	1,000			
Treatment (13)	-0,007	-0,044	0,107	0,015	-0,039	-0,067	0,030	0,051	-0,024	0,037	-0,119	0,989	1,000		
GDPgrowth (14)	-0,191	-0,002	-0,016	0,084	0,075	-0,036	0,062	-0,031	0,006	-0,080	-0,103	-0,009	-0,011	1,000	
LogGDPpc (15)	0,108	-0,018	0,210	-0,020	-0,021	-0,015	-0,030	-0,011	-0,004	0,060	-0,001	-0,111	-0,112	-0,539	1,000

6. Results

Table 4 presents the results for the first hypothesis. The model 1 shows the results of the logit regression using only the control variables. Model 2 shows the logit model with the *Treatment* and *PostTBD* variable to test their effect on the dependent variable and to study the impact of TBD on the probability of deal completion.

Table 6: Logit regression of the probability of deal completion

Variables	M1	M2
Treatment		-0,948
		(0,5189)
PostTBD		0,712
		(0,524)
DealValue	0,000	0,000
	(0,000)	(0,000)
Premium	0,013	0,012
	(0,008)	(0,008)
TargetSize	0,000	0,000
	(0,000)	(0,000)
BookToMarket	-0,020	-0,018
	(0,011)	(0,011)
DebtAssets	0,070	0,067
	(0,082)	(0,081)
ROA	0,156*	0,159*
	(0,064)	(0,065)
StockOnly	0,381**	0,350**
	(0,104)	(0,105)
LogGDPpc	-0,033	-0,067
	(0,125)	(0,127)
GDPgrowth	-0,031	-0,041
	(0,025)	(0,025)
Constant	1,644**	1,873**
	(0,612)	(0,627)
Obs	4743	4743
Pseudo-R2	0,008	0,010

Notes: ** $p<0.01$, * $p<0.05$; Robust Standard Errors in Parentheses; The sample is composed by 4743 M&A deals from several countries. Source: Orbis M&A and World Bank; All the variables' definition are reported in Annex 1.

Regarding model 2, we can observe that the coefficient of the *PostTBD* is positive but statistically insignificant at 5% level. This indicates that the relevant coefficient despite being in accordance with my prediction, is not statistically significant which means that the adoption of the TBD does not have an impact on the probability of a deal being completed. The *Treatment* variable is also statistically insignificant despite having a negative coefficient.

Furthermore, regarding the control variables, we can observe that model 1 and model 2 present identical results. Beyond the intercept, we have only 2 statistically significant variables: *ROA* and *Stock Only*. The *ROA*, significant at 5% level, has a positive coefficient. From this, we can conclude that target firms with higher pre-deal *ROA* have a higher probability of deal success. One possible explanation is that the acquirer tends to be more receptible to target firm requirements to conclude the deal, since they predict it to be profitable. The *Stock Only* variable, significant at 1% level, also have a positive coefficient. This result is in accordance with Bates and Lemmon (2003) research. Target firm' shareholder tend to prefer stock over cash payment to accept deal since it permits them to share the profit from the deal, especially, when it enhances synergies and other productive or market efficiencies. The positive sign of the intercept reflects the tendency for announced deals to be completed, regarding other factors that could impact in the outcome.

Table 5 presents the results for the second hypothesis. Model 1 shows the results of a linear regression using only the control variables. Model 2 shows the same regression but this time including the *Treatment* and *PostTBD* variable to test their effect on the dependent variable and to study the impact of TBD on deal efficiency.

Table 7: Log-linear regression of the number of days between announcement and completion date

Variables	M1	M2
Treatment		0,231*
		(0,116)
PostTBD		-0,294*
		(0,118)
DealValue	0,000**	0,000**
	(0,000)	(0,000)
Premium	0,004*	0,004*
	(0,002)	(0,002)
TargetSize	0,000	0,000
	(0,000)	(0,000)
BookToMarket	-0,004	-0,003
	(0,004)	(0,004)
DebtAssets	0,022	0,021
	(0,024)	(0,024)
ROA	0,059**	0,059**
	(0,013)	(0,013)
StockOnly	0,165**	0,157**
	(0,015)	(0,015)
LogGDPpc	-0,113**	-0,118**
	(0,023)	(0,024)
GDPgrowth	-0,011**	-0,013**
	(0,004)	(0,004)
Constant	2,379**	2,421**
	(0,114)	(0,115)
Obs	3855	3855
R-squared	0,0721	0,076

Notes: ** p<0.01, * p<0.05; Robust Standard Errors in Parentheses; The sample is composed by 3855 completed M&A deals from several countries. Source: Orbis M&A and World Bank; All the variables' definition are reported in Annex 1.

PostTBD, our variable of interest is statistically significant at 5% level and has a negative coefficient. This result indicates that I should not reject my hypothesis. On the one hand, the implementation of TBD has impacts on deal efficiency by reducing diligence period due to the transparency impositions of the directive. On the other hand, the *Treatment's* coefficient, which is also significant at 5%, has a positive coefficient. This indicates that deals that involve EU target firm used to be less efficient than the rest of the world, but after TBD implementation, this reality changed. When considering the value of the coefficients, we can obtain other interesting conclusions. The *PostTBD's*

coefficient is approximately -0,29, and the treatment's coefficient is 0,23. By adding the coefficients, we can conclude that deals whose target firm is under TBD impositions have a period of diligence and negotiation shorter than other deals which is beneficial for both participants in terms of economic efficiency and resource spending.

Regarding the control variables, we can observe that model 1 and model 2 present identical results. Beyond the intercept, we have 6 statistically significant variables: *Deal Value*, *Premium*, *ROA*, *Stock Only*, Logarithm of GDP per capita and GDP growth rate. The *Deal Value*, statistically significant at 1% level, has a coefficient of 0,000012, which indicates that an increase of 1 million dollars in the *Deal Value* has a residual but positive effect on duo diligence time period. The *Premium*, significant at 5% level, has a coefficient of 0,005 which means that an increase of 1 million dollars in the premium of an deal also have a residual effect on the length of the duo diligence period. The *ROA*, significant at 1% level, has a positive coefficient of 0,06 meaning that an increase in the *ROA* increases the duo diligence period. The *Stock Only* variable, significant at 1% level, has a positive coefficient of 0,16 meaning that deals whose method of payment is 100% acquirer stock have a longer duo diligence period, on average. The logarithm of GDP per capita, significant at 1% level, has a negative coefficient of -0,12 meaning that an increase in the GDP per capita decreases the length of the duo diligence period. The *GDPgrowth* rate, significant at 1% level, has a negative coefficient of -0,013 meaning that an increase in the GDP growth of the target country decreases the length of the duo diligence period.

These conclusions are not in line with Marquardt and Zur (2015)'s research, whose results showed that deals, whose method of payment is stock only, have positive contribution to deal efficiency and speed of negotiation. All the other control variables are not statistically significant and so we can draw conclusions about them.

Table 6 presents the results for the third hypothesis. Model 1 shows the results of a logit regression using only the control variables. Model 2 shows the logit model with the *Treatment* and *PostTBD* variable to test their effect on the dependent variable and to study the impact of TBD on the probability of deals becoming auctions. The fourth and last column shows the marginal effects of my variables of interest.

Table 8: Logit regression of the probability of deals becoming auctions

Variables	M1	M2
Treatment		1,766*
		(0,700)
PostTBD		-2,057**
		(0,724)
DealValue	0,000	0,000
	(0,000)	(0,000)
Premium	-0,088	-0,092
	(0,080)	(0,084)
TargetSize	0,000	0,000
	(0,000)	(0,000)
BookToMarket	0,022	0,023
	(0,022)	(0,023)
DebtAssets	-0,102	-0,119
	(0,228)	(0,236)
ROA	0,469	0,472
	(0,397)	(0,393)
StockOnly	-2,711**	-2,731**
	(0,518)	(0,518)
LogGDPpc	-1,731**	-1,702**
	(0,218)	(0,218)
GDPgrowth	-0,020	-0,021
	(0,047)	(0,047)
Constant	4,730**	4,660**
	(1,030)	(1,026)
Obs	4743	4743
Pseudo-R2	0,132	0,136

Notes: ** p<0.01, * p<0.05; Robust Standard Errors in Parentheses; The sample is composed by 4743 M&A deals from several countries. Source: Orbis M&A and World Bank; All the variables' definition are reported in Annex 1.

PostTBD, our variable of interest is statistically significant at 1% level and has negative coefficient. This result indicates that we should reject our third hypothesis. We have hypothesized that the TBD implementation has increased the probability of deals becoming auction, with the reason that Loureiro and Silva (2023) found evidence that it increases the probability of firms becoming targets. But with this result, one possible conclusion that we can draw is that, due to the increase of efficiency and shorter negotiation period, less acquirers are able to present their offers and so enter in the deal.

King & Schriber, 2016 also studied this idea that a longer period of due diligence is related to a higher probability of a new competitor entering the market, and how it impacts deal conditions. By contrast, the *Treatment* variable, significant at 5% level presents a positive coefficient. Which reinforces the theory that TBD contributed to decrease auction deals. The value of the *Treatment* coefficient is 1,77, while the value of the *PostTBD* coefficient is -2,06. This means that deals whose target firm is under TBD have a lower probability of becoming auctions.

Regarding the control variables, we can observe that model 1 and model 2 present identical results. Beyond the intercept, we have 6 statistically significant variables: *Stock Only* and Logarithm of the GDP per capita. The *Stock Only* variable, significant at 1% level, have a negative coefficient. This result is in line with previous literature that found a negative relation between stock only deals and auctions (Boone and Mulherin, 2007). One possible explanation for this issue is that stock-only deals are desirable and more likely to be accept from target firm shareholders and so it is more difficult for other acquirers to enter the deal with a better offer. The logarithm of GDP per capita, significant at 1% level, also has a negative coefficient meaning that an increase in the GDP per capita decreases the probability of deals becoming auctions.

7. Conclusion

This dissertation aims to study the impact of the Takeover Bid Directive in three different aspects of extreme importance for the Takeover Market. This directive was intent to protect minority shareholders and avoid entrenchment which is beneficial in terms of transparency during negotiation. It also undermines exhaustive takeover law and promotes free markets. Based on previous literature, I expect this new regulation will have influence on some variables like deal completion, deal type of negotiation and time effective negotiation. There are other studies, like Loureiro and Silva (2023), that study the impact of this Directive but in different variables and with different perspectives.

The results show that deals whose target firm was under TBD impositions have shorter periods between announcement and completion. This conclusion is important in the way it confirms previous literature and the benefits from information transparency on speed of negotiation (Marquardt and Zur, 2015). Due to the lower expenditure of resources and savings from costs we can infer that this Directive, globally, has massive financial impact for the companies an economic agent. It would be a relevant topic for future research to measure the economic gain of TBD from costs saving. We also conclude that TBD reduced the probability of deals becoming auctions. This conclusion was not in line with my predictions. But if we take account the above mentioned result, this conclusion sounds more reasonable since, if deals have faster negotiation period, it is less likely for other firms to have time to present their bids.

Unfortunately, we cannot draw any conclusion regarding the effects of TBD on the probability of deal completion since the results did not show any statistical significance. Therefore, the results only prove that the implementation of TBD reduces the number of days between date of announcement and date of completion, which is valuable for both acquirer and target. This fact may also have contributed to difficult other acquirers to present their bids and enter in the deal during the negotiation process, converting the deal into an auction.

Overall, I was able to draw some interesting conclusions from this dissertation despite facing some limitations. Some coefficients couldn't be proven following the significance tests. Some topics like quantification of the acquirer profit due to the increase of efficiency and decrease of auction probability could be left for future research.

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9. Annexes

Annex 1: Detailed description of the variables

Variables	Description	Source
Comp	Indicator variable that equals 1 if the deal ends successfully and 0 when the negotiation is frustrated	Orbis M&A
Treatment	Indicator variable that equals 1 if target's country is a EU country or UK	Orbis M&A
PostTBD	Indicator variable that equals 1 when the deal is performed after TBD implementation in target's country	Orbis M&A
DealValue	Value of the Transaction in millions of US dollars	Orbis M&A
Premium	Deal value divided by target market capitalization	Orbis M&A
TargetSize	Pre-deal Target Total Assets in millions of US dollars (last available year)	Orbis M&A
BookToMarket	Pre-deal target shareholder funds divided by Market capitalization (last available years)	Orbis M&A
DebtToAssets	Pre-deal target total assets less pre-deal target shareholder funds divided by pre-deal target total assets (last available years)	Orbis M&A
ROA	Pre-deal target EBIT by pre-deal target total assets (last available years)	Orbis M&A
LogDays	The common logarithm of difference between deal completion date and deal announcement date plus 1	Orbis M&A
StockOnly	Indicator variable that equals 1 when the deal's method of payment is 100% stock and 0 otherwise	Orbis M&A
Auction	Indicator variable that equals 1 when deal have more than one acquirer and 0 otherwise	Orbis M&A
LogGDPpc	The common logarithm of GDP per capita in current US dollars	WorldBank
GDPgrowth	Annual GDP growth rate	WorldBank