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The Cross-border Effect in Acquisitions: A Study of Western European Target Firms

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ABSTRACT

The abnormal and cumulative abnormal returns to Western European target firms in cross-border and domestic acquisitions are studied to test for a target company cross-border effect in Western Europe. The analysis focused on a sample of 654 and 435 domestic and cross-border deals, respectively, from 1990 to 2018. In the month of the bid, an insignificant cross-border effect of, approximately, −6.8% is found, indicating that target firms in domestic deals outperform those in cross-border bids. The highest difference in cumulative abnormal returns between target firms in cross-border and domestic acquisitions is observed from day t0 to t-1 and t-1 to t+5, accounting to a highly significant positive cross-border effect of 5.7% and 3.3%, respectively. The Western European target company cross-border effect seems to be explained by the market access premium and differences in bid and firm specific characteristics, in particular, the payment method, percentage of stake acquired, and industry of the target firm. Once the payment method, percentage of shares acquired, and the target firms' industries are controlled for, the target company cross-border effect is found to be insignificant.

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1. Introduction

Cross-border bids have grown from 23% of the complete amount of mergers in 1998 to 45% in 2007 and decreased to 30% in 2010, globally (Erel, Liao, and Weisbach, 2012). In recent years, foreign direct investment (FDI) in mainland Europe, the United Kingdom, and the United States has been dominated by cross-border acquisitions, accounting for 80% of all (FDIs), rather than greenfield investments (Goergen, and Renneboog, 2004). Cross-border acquisitions seem to be motivated by the same domestic acquisition motives. The acquirer acquires a target that is expected to boost both firms' combined value.

Harris and Ravencraft (1991) asserted that if capital and corporate control markets are not segmented globally, the level of abnormal return to targets in cross-border and domestic deals should not differ. Kang (1993), however, argued that because of market imperfections, domestic firms have a competitive disadvantage over multinational corporations and domestic deals are, therefore, probable to generate less value than cross-border deals. He further elaborated that since targets reap more benefits from an acquisition, targets involved in cross-border deals, compared to those in domestic deals, will earn higher abnormal returns (Kang, 1993).

The cross-border effect is defined as the systematic difference in abnormal returns to target shareholders in cross-border and domestic bids. The relevance of this paper lies in examining the cross-border effect for target firms in Western Europe; in essence, I aspire to create the market of corporate control more efficient by decreasing the information asymmetry around this topic for market participants. In addition, target shareholders will be more informed for maximizing their wealth and identifying which deal, domestic or cross-border, is more beneficial. Although the topic of mergers and acquisitions is heavily discussed in the academic world, previous studies have been mixed on the magnitude and sign of the cross-border effect and what seems to drive it. Past papers, performed with a lower sample than the sample studied in this paper, are outdated and tend to be more focused on examining the effect in just one country, such as the US or UK, with little focus on various Western European countries. Therefore, this paper aims to verify the existence of the cross-border effect; hence, the research question in this paper is as follow:

Do Western European Target firms experience cross-border effect, and, if so, what drives the cross-border effect?

In this paper, I will investigate multiple hypotheses as to why it can be expected for the shareholders of target firms to reap a greater amount of abnormal returns in cross-border than domestic bids. These hypotheses will be tested on target firms from 10 different Western European countries for the 1990-2018 period on a total sample of 654 and 435 domestic and cross-border acquisitions, respectively. It was found that during the months prior to and of the announcement of the bid, the shareholders of target firms in cross-border and domestic deals gain, on average, highly positive and significant abnormal returns, amounting to 12.8% and 19.8% (12.95% and 19.96%), respectively, with the market model (capital asset pricing model) for targets in cross-border deals, and 18.8% and 26.95% (19% and 26.5%), respectively, for targets in domestic deals. For target firms in domestic acquisitions, the highest cumulative abnormal returns are reported for the period between day t-2 to t+1 and day t-8 to t+5, accounting for 20.96% and 26.18% (21% and 26.3%), respectively; while cross-border target firms generated the highest cumulative abnormal returns in the periods from day t-2 to t+1 and t-8 to t+5, accounting for 20.96% and 26.18% (21% and 26.31%), respectively. The cumulative abnormal returns to targets appear to be not related to the exchange rate effect nor international risk diversification hypothesis. An insignificant negative target company cross-border effect is observed in the months of t-5, t-4, t-1 to t+2, and t+4. For the periods from t0 to t-1 and t-1 to t+5 days, a significant cross-border effect of 5.7% and 3.3% (5.7% and 3.4%), respectively, is observed for the Western European target firms. The cross-border effect is found to be attributed to the market access premium and the differences in firm-specific and bid-specific characteristics, in particular, the payment method, percentage of shares acquired, target firm's industry.

The following is the organization of this paper. In chapter two, previous findings on the target firm cross-border effect will be presented and will continue with a review of the relevant literature as to what drives this cross-border effect. Following, chapters three and four will reflect on the data and methodology used. In chapter five the empirical results will be presented, which will include tests of the hypotheses developed in section two. Finally, the terminal chapter will include the conclusion, where the findings, limitations of the paper, and recommendations for future research will be discussed.

2. Theoretical Framework

2.1 The cross-border effect

Previous research on domestic merger and acquisitions conducted for several regions, such as the USA, and Europe, indicate that target shareholders reap significantly positive cumulative abnormal returns in the months around the announcement date (Franks and Harris, 1989; Limmack, 1991; Erel, Liao, and Weisbach, 2012; Bena and Li, 2014). One can argue that since targets reap positive abnormal returns in domestic acquisitions, it should also be expected that favorable abnormal returns will accrue to the shareholders of target firms in cross-border deals; however, unlike several arguments, targets in cross-border deals should not expect the negative cross-border effect.

A prominent argument is that foreign investors, compared to domestic ones, are at a cost disadvantage, as culture differences, geographical distance, and economic and regulatory barriers will add to the cost and complexity of the deal and reduce the likelihood the transaction will succeed. Consequently, bidders are willing to pay lower merger premiums in cross-border than in domestic transactions (Hymer, 1976; Dewenter, 1995). Although these factors can deter bidders from engaging in a cross-border deal, they are not expected to cause a negative cross-border effect to target companies. Under the assumption that takeovers markets are competitive, targets engaged in cross-border deals would demand foreign bidders to pay at least as high as domestic bidders pay, despite the additional expenses of the cross-border deals (Danbolt, 2004). Although it is not expected to observe a negative target company cross-border effect, the statistical significance of the target company cross-border effect will be tested using two-tailed tests, later in the analysis section (Danbolt, 2004).

Previous literature conducted in several regions and different markets have been mixed on which deal type, domestic or cross-border, will provide the target shareholders with a higher return. Harris and Ravenscraft (1991), Kang (1993), Swenson (1993), Cheng and Chan (1995), and Bena and Li (2014) have all found American and European target firms to gain more in cross-border than domestic acquisitions. However, Wansley et al. (1983) and Dewenter (1995) have found no significant differences in the level of cumulative abnormal returns to the shareholders of target firms in cross-border and domestic bids.

The existence of the target firm cross-border effect is still an open question. Previous studies have, also, been conflicted on what are the drivers of this effect. Factors suggested in previous studies to justify the cross-border effect falls into five main categories: international risk

diversification, market access, exchange rate effects, managerial factors, and the differences in firm and deal specific characteristics between cross-border and domestic acquisitions.

2.1.1 International Risk Diversification

A prominent reason for mergers and acquisitions is wealth creation to shareholders, who are, mostly, investors searching for opportunities to increase their wealth. Empirical observation has shown that covariance of returns in a single economy is higher than across different economies, indicating higher risk exposure for no higher returns (Vasconcellos and Kish, 1998). Solnik (1974) and Davis (1991) have found that international portfolio diversification can increase investors return with lower unsystematic-risk attributes; however, the benefits of international corporate diversification to investors is yet to be discussed.

  For corporate diversification to be beneficial for investors, it must provide them with a service they are unable to perform on their own. Markides and Ittner (1994) and Danbolt (2004) have argued that under some specific market inefficiencies, shareholders can benefit from cross-border acquisitions. In an inefficient market with barriers to global capital flow, such as distinct country-wide tax systems, distict accounting standards and security regulations, and various political and economic risks, investors are unable to optimally diversify their portfolios. Consequently, these investors can optimally diversify their portfolios, indirectly, by purchasing shares in multinational companies (Markides and Ittner, 1994). The fact that investors generally maintain more in local stocks than what is optimally required can be evidence that barriers to international capital flow exist (Lessard, 1976). Moreover, Danbolt (2004) has argued that in a market where information asymmetry exists, firms are better informed than investors; hence, firms can make better investment decisions to their shareholders. Corporate international diversification can, therefore, be beneficial to shareholders because it allows investors to, indirectly, diversify their portfolios in a better-informed way (Danbolt, 2004 Hence, one can argue that multinational companies are performing a valuable service to their investors, and international diversification will yield an extra form of financial synergy to the bidder's shareholders (Adler and Dutnas, 1983).

  If international diversification is a synergy to foreign bidders, then bidders will be or are constrained by target firms to transfer part of this synergy; hence, it can be expected for target firms to reap higher abnormal returns in cross-border than domestic bids (Danbolt, 2004). The

international diversification hypothesis will be examined in the cross-sectional inquiry; in essence, I will test if the bidder's location will influence the target's abnormal return.

2.1.2 Market Access

Cross-border acquisitions, which are an integral part of foreign direct investment (FDI), can, thus, be used by overseas bidders, trying to produce locally, to bypass trade barriers (Danbolt, 2004). This argument can be observed through the differences in the volume of acquisition of European firms before and after the formation of the Single European Act. Since the formation of that act in 1985, a flux of non-European firms was actively acquiring firms in Europe to access the single European market (Vasconcellos and Kish, 1998). This surge of acquiring firms in Europe demonstrates the need for foreign firms to become an insider in the single European market; consequently, from this surge of acquisitions, it is obvious that market access is a major operational synergy to the acquirer. Because market access is seen by the bidder as an operating synergy, operating locally to avoid trade barriers (Pringle, 1991, p.9), it can be anticipated that bidding companies are prepared to pay higher merger premium to targets in markets they have no access to (Geroski and Vlassopoulos, 1990).

Caves (1971), Hymer (1976), and Teece (1986) have intensively discussed in their works the operational benefits and transaction-cost economies involved in cross-border transactions. They asserted that firms invest in overseas transactions to exploit company-specific intangible assets. The market for intangible firm-specific assets, which includes government regulations that increase entry barriers for new firms, product differentiation, economies of scale, patent-protected technology, and superior marketing and managerial skills, is characterized by several imperfections, such as limited information, monopoly, and immobility, that will prevent a company from reaping financial benefits overseas in any other manner than by internalizing the market (Markides and Ittner, 1994). Therefore, one can argue that due to the imperfection in the market, cross-border transactions allow firms to exploit the benefits of intangible firm-specific assets, and once bidders reap these benefits, through cross-border transactions, it will be reflected in their market value. Consequently, foreign bidders are prepared to pay greater merger premiums to targets than what domestic bidders are willing to pay; hence, in cross-border acquisitions, target firms will have higher abnormal returns than those in domestic deals.

A cross-border acquisition can, also, be driven by the motivation of hindering opponents and allowing, engaging, bidders to seize emerging niches or opportunities (Markides and Ittner, 1994). In his main thesis, Caves (1990) rationally explained the strategic benefits from international acquisitions, which can be considered as a competition between oligopolistic firms for new opportunities. He also has argued that with the industrial changes and market progress, new configuration or opportunities emerge. Following, he argued that firms who acquire these configurations, or the right to these specific assets, can differentiate their products and seize the opportunity. Consequently, the competitor, who seizes this opportunity first, will enjoy higher profits; while, profits for rival firms are reduced (Caves, 1990). Therefore, an international acquisition is beneficial for the bidders because by acquiring a foreign competitor, foreign bidders will have a more diversified inventory of unique assets and can, therefore, take advantage of new opportunities and preempt competitors from new emerging niches or opportunities (Markides and Ittner, 1994).

The market access hypothesis has been supported in numerous different studies, using different performance measures. Dunning (1973), Leftwich (1974), Errunza and Senbet (1981), and Grant (1987), have found multinationals to be more lucrative than national firms; therefore, one can argue that market access is valuable to foreign bidders; hence, overseas bidders will pay the target companies a higher consolidation premium than the domestic bidders pay. In the cross-sectional analysis, the market access hypothesis will be evaluated by evaluating the level of abnormal returns to target firms and whether it is affected by the overseas bidder having access to European markets before the announcement of the offer.

2.1.3 Exchange Rate Effect

Previous research has shed light on the influence the currency exchange rate has on the frequency of cross-border offers and abnormal returns of target firms. While some argue that the weaker the currency of the target compared to that of the overseas bidder the greater the level of abnormal returns to target firms' shareholders will be, others contend that the exchange rate does not affect the level of abnormal returns to targets in domestic and cross-border transactions. Because previous academic literature has reached different conclusions concurring the effect of the exchange rate, one can argue that the dominated effect of it is still an empirical question.

In their studies, Swenson (1993) and Vasconcellos and Kish (1998) noted that the amount of overseas bidders acquiring US companies rises when the dollar is relatively depreciated; indicating that a weaker dollar makes US target firms more attractive to foreign bidders. Froot and Stein (1991) also asserted that the currency exchange rate has an impact on the frequency of overseas acquisitions. They argued that due to information asymmetry, external financing is costly; hence, the entrepreneur's cost of capital will be lower the wealthier he is. Consequently, because foreign bidders will hold most of their wealth in their own currency, a depreciation of the target's currency relative to that of the bidder will increase the bidder's relative wealth, and, therefore, decreases the foreign bidder's cost of capital. Lower cost of capital means that foreign bidders can bid more aggressively for assets, thus increasing the number of cross-border deals (Froot and Stein, 1991). In addition, Erel, Liao, and Weisbach (2012) have found that in cross-border transactions targets tend to be from countries where the currency has recently depreciated, and the economy and stock market are underperforming.

Target's abnormal return, in overseas bids, can also be affected by the fluctuations in the rate of exchange (Danbolt, 2004). Previous studies done on US target firms have found that in cross-border acquisitions, shareholders of target companies will earn more if the currency of the overseas bidder appreciates relative to the US dollar (Harris and Ravenscraft, 1991; Kang, 1993; Swenson, 1993). However, Dewenter (1995) failed to determine a significant effect of the currency exchange rate on the rate of abnormal returns to the target firms; in addition, some have argued that a depreciated dollar means that the US is a cheaper place for any firm, domestic or foreign (Froot and Stein, 1991). Vasconcellos and Kish (1998) also argued that a low dollar exchange rate does not justify the elevated prices for U.S. target companies because, while a depreciated dollar could allow overseas bidders to obtain U.S. targets at a discount, the dollar produced investment returns will be lower, if transformed back to the currency of the bidder at the present rate.

The impact of the exchange rate on target shareholders ' level of abnormal returns remains an empirical mystery. In the cross-sectional analysis, it will be tested if the currency rate of exchange has an impact on the level of cumulative abnormal returns to European target firms.

2.1.4 Managerial Factors

Jensen and Meckling (1976) and Danbolt (2004) have asserted that shareholders wealth maximization could not be the only motive behind cross-border transactions. They claimed that

overseas bids might also be driven by managerial conflicts, such as empire building, where the management of the bidding firm is maximizing its own utility. Previous studies have observed that, whatever the shareholders of the bidding company benefit or lose from a transaction, the management of the bidder will always benefit from mergers and acquisitions by increasing its authority, salary, and status (Firth, 1991; Bliss and Rosen, 2001; Danbolt and Maciver, 2012;). Bidding firm's management with empire building motives may, therefore, find cross-border than domestic deals more advantageous; hence, it will be willing to overpay for foreign targets (Danbolt, 2004).

Roll (1986) stated in his hubris hypothesis that the management of the bidding firm tends to overestimate predicted synergies, leading to overvaluation of and higher bid price to target firms. Building on Roll's hubris hypothesis, Mork, Shleifer, and Vishny (1990) discovered that in cross-border acquisitions the magnitude of the valuation error, hence the degree of overpayment, was greater than in domestic transactions. Moreover, Danbolt (1995) and Conn *et al.* (2005) have observed that bidders, in cross-border bids, tend to have negative abnormal returns, which can be translated to overpayment by the bidders. Furthermore, Danbolt (1996) discovered that the performance of cross-border bidders is considerably worse compared to that of domestic bidders post the announcement of the bid. Therefore, one can argue that because the level of valuation error is higher foreign bids, targets in cross-border deals may be expected to be overvalued by their foreign bidders.

Building on the aforementioned arguments, one can argue that the cross-border effect for target firms could, thus, be attributed to foreign bidder's managers' overconfidence or to foreign bidder's management maximizing its own utility, regardless of shareholders' interests. In the cross-sectional analysis, the managerial factors will not be evaluated due to the lack of data.

2.1.5 Characteristics Factors

While previous trials have shown favorable cross-border effect for target shareholders, there is some evidence that this impact is due to variations in the features of the deal or the features of targeted companies by domestic and international bidders (Wansley *et al.*, 1983; Swenson, 1993; Dewenter 1995; Danbolt, 2004). In the cross-sectional analysis, the characteristics listed below are used as control variables.

(1) Payment: Cash payment in merger and acquisitions deals convey a positive signal to the market (Travlos, 1987); hence, the shareholder of target firms will earn more in cash-only than equity-only offers (Huang and Walkling, 1987; Franks *et al.*, 1988; Harris and Ravenscraft, 1991; Sudarsanam *et al.*, 1996).　In addition, in all-cash offers, targets shareholders are subjected to capital gains tax (CGT); therefore, target shareholders will demand compensation for that tax effect (Danbolt, 2004). In his work, Danbolt (2004) has observed that overseas bids tend to be cash offers. It can also be seen in table 1 that the proportion of 100% cash offers is significantly greater in cross-border than domestic transactions in the sample studied in this paper. Because of information asymmetry, cash bids may be forced by target shareholders who are unwilling to accept international equity (Davidson and Cheng, 1997). Because cash bids have a favorable signal to the market and are more likely in cross-border bids, the shareholders of target firms can gain more abnormal returns in cross-border than in domestic acquisitions (Fishman, 1989).

(2) Deal Attitude: Dewenter (1995) have found that international bidders to bid more aggressively than domestic bidders; in essence, they pay higher than domestic bidders do. In addition, in a hostile takeover, target shareholders will benefit more than in other kinds of agreement (Franks and Harris, 1989; Franks and Mayer, 1996).　Therefore, if hostile offers in cross-border acquisitions are more probable, then targets in international acquisitions will reap greater abnormal returns than those in domestic bids. However, it could also be seen in Table 1 that the percentage of hostile offers in cross-border than domestic deals in the sample studied in this paper is lower, but not statistically significant; therefore, it is not anticipated that the deal attitude will affect the level of abnormal returns of target firms in international deals.

(3) Industry effect:　Because industrial diversification can offset the positive effects of international diversification (Bodnar *et al.*, 1997), controlling for industry effects will be crucial to have a well-rounded analysis. Table 1 displays the main industry groups in the data analyzed. As seen in Table 1, there appears to be a significant difference in the distribution of target firms in different industries in cross-border and domestic acquisitions; hence, an impact on the rate of abnormal return can be anticipated for these variations.

(4) *Related:* Previous studies suggest that controlling whether the target and the bidder belong to the same or distinct industries will affect the cross-border effect; for example, Cakici *et al.* (1991) found that the target firm cross-border effect is higher in conglomerate deals. In the cross-sectional analysis a dummy variable, which takes a value of 1 if both the target and acquirer are from the same industry and 0 otherwise, will be used to control for this effect.

(5) *Financial multiplies:* Previous studies have found that the growth ratios of the target firm will have an influence on the level of cumulative abnormal returns around the announcement date of the deal. Goergen and Ranneboog (2004) have found that target's with high growth ratios will have higher abnormal returns around the announcement date of the deal. In this study, the growth rate of net assets, earnings-per-share (EPS) and earnings before interests and taxes and the one year, prior to the bid, average EPS and ratio of enterprise value to earnings before interest, tax, depreciation, and amortization will be used to indicate the growth of target firms. It can be seen in table 1 that the target firms' EPS in the sample studied is, on average, higher for target firms in cross-border deals than in domestic deals; therefore, EPS may be anticipated to affect the level of cumulative abnormal returns to target firms in overseas bids.

(6) *Size:* Previous studies have found bidders to be more generous with smaller targets; hence, a higher premium for small than larger target firms (Peterson and Peterson, 1991). As seen in table1, in the sample used, the average size of target firms in cross-border deals is significantly higher than the average of those in domestic deals; hence, it can be expected to have a negative effect on the cross-border effect. In the cross-sectional analysis, a size variable that will take the log of the pre-bid market value of the target will be added as a control variable (Danbolt, 2004)

2.2 Hypotheses

Several hypotheses will be generated to answer the research question, which is stated as follows:

Do Western European Target firms, acquired by foreign bidders, experience cross-border effect, and, if so, what drives the cross-border effect?

Previous research, discussed in section 2.1, have found target shareholders to gain more around in cross-border than in domestic acquisitions the days around the announcement of the deal. The following hypothesis is developed to test whether target shareholders in Western European countries reap higher levels of cumulative abnormal returns in cross-border than domestic deals.

Hypothesis 1: Target firms in cross-border deals will have significantly higher abnormal and cumulative abnormal returns, around the announcement date, than those in domestic deals.
H0: The level of abnormal and cumulative abnormal returns to target firms in cross-border acquisition is not significantly higher than those to target firms in domestic deals.

To test the first hypothesis, the abnormal returns of Western European target firms involved in cross-border and domestic deals will be measured in the days and month around the announcement day and month of the deal. The statistical significance of the difference between cross-border and domestic abnormal returns will, then, be tested with a two-sample difference in mean t-test. Moreover, in the cross-sectional analysis, the cumulative abnormal returns of the target firms will be regressed on a dummy variable that takes a value of 1 if the deal is cross-border and 0 otherwise. If this variable is found to have a significantly positive effect, then the null hypothesis will be rejected.

To test the different theories discussed in section 2.1.1 to 2.1.5 different hypotheses are developed. The international risk diversification hypothesis, discussed in section 2.1.1, implies that cross-border bidders' shareholders gain an extra form of synergy through international diversification benefits. If this hypothesis hold, then it can be expected cross-border target firms to higher returns when acquired by non-EU than EU bidders, leading to the second hypothesis:

Hypothesis 2: The level of cumulative abnormal returns that target shareholders reap in cross-border acquisitions is significantly higher when the bidder is listed in a non-EU than an EU country.
H0: Target firms, in cross-border deals, acquired by non-EU bidders do not gain significantly higher cumulative abnormal returns than those of target firms acquired by EU bidders.

To test the second hypothesis, the acquires will be divided into several regions and for each region, a dummy variable, which takes a value of 1 if the acquirer is from the corresponding region and 0 otherwise, will be created. These variables will be tested in the cross-sectional analysis, in chapter five; if Non-EU bidders are found to have a significant effect on target shareholders cumulative abnormal return, in cross-border acquisitions, the null hypothesis will be rejected, and the international risk diversification will be identified as a possible driver of the cross-border effect.

The hypothesis of the market access premium, discussed in section 2.1.2 implies that target firms cross-border effect is driven from the extra synergy bidders reap from accessing a new market. If this hypothesis is true then it can be hypothesized that bidders will pay a market access premium to target firms. Consequently, target firms will have higher abnormal returns acquired by bidders with no access to the European markets, leading to the third hypothesis:

Hypothesis 3: In a cross-border acquisition, the level of cumulative abnormal returns to target firms' shareholders is dependent on whether the bidder has access to the EU market or not.
H0: Target shareholders cumulative abnormal returns are not dependent on whether the cross-border bidder has prior European operations or not.

In the cross-sectional analysis, the third hypothesis will be tested by adding a dummy variable, which takes a value of 1 if the bidder has no prior European operations and 0 otherwise. If target firms cumulative abnormal returns, in the days around the announcement of the deal, are found to be significantly dependent on this dummy variable, then the null hypothesis will be dismissed and the market access hypothesis will be adopted as a possible driving force for the target firm cross-border effect.

As argued in section, 2.1.3, a weak target firm currency relative to that of the bidder can create higher abnormal returns for target firms around the event date. Therefore the exchange rate hypothesis has led to the fourth hypothesis of this paper:

Hypothesis 4: European target shareholders, acquired by foreign bidders, will earn higher cumulative abnormal returns when the target's currency is relatively weak compared to the bidder's currency.

H0: The level of cumulative abnormal returns to European target shareholders, in cross-border deals, is not higher when the target's currency is relatively weak compared to that of the bidder.

To test the fourth hypothesis, the one-year average exchange rate of the acquirer's currency to the target's currency will be added as a continuous variable in the cross-section analysis. If the exchange rate is found to have a significant effect on the level of cumulative abnormal returns around the announcement of the bid, then the null hypothesis will be dismissed, and the exchange rate hypothesis will be adopted as a possible driver of target firms' cross-border effect.

As argued in section 2.1.5, the target firm cross-border effect can be driven by deal and company specific features that are more prevalent in cross-border than in domestic sales; hence, the fifth paper hypothesis is as follows:

Hypothesis 5: The target firm cross-border effect is affected by the differences in the deal and firm specific characteristics in domestic and cross-border deals.

H0: Deal and firm specific characteristics do not influence the target firm cross-border effect in domestic and cross-border acquisitions.

To test the fifth hypothesis, several firm and deal specific characteristics, discussed in detail in section 2.1.5, will be used as control variables. These control variables will be used in the cross-sectional analysis of target firms in domestic and cross-border deals. If these control variables are discovered to have a significant effect on the rate of cumulative abnormal returns, then the null hypothesis will be rejected, and the fifth hypothesis will be adopted as a driving force to the target firm cross-border effect.

3. Data

The sample used in this paper contains a total of 1089 acquisitions, in which 654 and 435 are domestic and cross-border deals, respectively, for target firms listed in 10 different Western European countries: Austria, Belgium, France, Germany, Greece, Italy, Luxemburg, the Netherlands, Spain, and the United Kingdom (UK). The acquirers are divided into three main regions: Europe (EU), United States (US), and Asia. Acquirers not listed in any of these three regions are categorized in the 'rest of the world' region. The acquisition sample is extracted from

Thomson One for a time period from January 1, 1990, to December 31, 2018, which meets the following criteria:

1. *The target firm is listed in one of the 10 countries mentioned above.*
2. *Both the target and acquirer are public listed firms.*
3. *The acquirer acquired at least 50% stake in the target firm.*
4. *Both target and acquirer are not financial or governmental institutions.*

The first three requirements are chosen for the sake of the study this paper is designed to conduct. The third requirement is, also, chosen to eliminate any disclosure biases, as acquisitions of minority interests, below 50%, can be affected by differences in disclosure requirements across countries (Erel, Liao, and Weisbach, 2012). The fourth requirement is chosen as these two industries can cause bias to the cross-border effect (Erel, Liao, and Weisbach, 2012). Deal information such as: the name, nationality, target industry, bidder industry, target firm's financial multiplies, the deal attitude and value, whether or not the bidder firm had operations in Europe prior to the bid, the stake percentage acquired, the payment method of the deal and target's firm enterprise value prior to the bid are all acquired from Thomson One, Bloomberg, and Financial Times. For each target firm, the monthly and daily returns and abnormal returns, around the deal announcement, are retrieved from Datastream, using the firm's Datastream code which is retrieved from Thomson One. The currency exchange rate of the acquirer's to target's currency is downloaded from Bloomberg. For each target firm, an equally weighted index of all the country's listed shares is used as a benchmark to calculate the normal returns.

The sample of European target firms is divided into two main subgroups; one for target firms acquired by cross-border acquirers and one for those acquired by domestic bidders. In each of the target subgroups, targets are divided based on the industry of their operations. After classifying the acquirers by their region, the acquirers were classified as to whether they have European operations prior to the bid or not. Target realized and normal returns are used to calculate the abnormal returns for the month and days around the announcement of the bid. The time frame is relative to the announcement of the bid, denoted as t0. For each month, starting 5 months before and 4 months after the bid announcement month, the average daily abnormal returns are calculated

using the data downloaded from Datastream. The abnormal daily returns around the announcement day are used to calculate the cumulative abnormal returns.

Several control variables where extracted and manipulated to be used in the cross-sectional analysis; a comprehensive overview of the variables used in this study as well as their sources are available in the appendix. The acquirer region and whether the acquirer had any European operations prior to the announcement of the bid will be used to test the international risk diversification and market access hypotheses. The exchange rate will be used to test for the exchange rate hypothesis, and finally, the financial multiplies, payment method, deal attitude, target pre-bid market value, percentage of stake acquired, and target different industries will be used to test if the cross-border effect is caused by the variations in deal characteristics and targeted firms by foreign bidders.

3.1 Descriptive statistics

Table 1 reports the descriptive statistics of the sample studied in this paper. In the sample studied, the number of target firms, involved cross-border acquisitions, is found to be significantly higher than that of target firms in domestic deals in these following countries: Austria, Belgium, Germany, Luxemburg, and the Netherlands, from which German target firms have the highest difference. Out of the cross-border deals, studied, 11.5% are German target firms, while they only account for 5.2% of the target firms in domestic deals. Target firms in Spain, Greece, and the UK were found to account for a lower percentage in the cross-border deals compared to the percentage they account for in domestic deals. The majority of the target firms in the sample are UK target firms, which account for 68.9% and 51% of the domestic and cross-border transactions, respectively. The acquirers are 51% European firms, 32% American firms and 7% Asian firms; in addition, 43% of acquirers had no prior European operations. On average, target firms in the cross-border deals subgroup have an EPS of $1.7 compared to $0.2 EPS for target firms in the domestic acquisitions subgroup. 46.4% of the cross-border deals were financed 100% in cash while only 32.2% of the domestic deals were financed 100% in cash. 46.5% of the domestic deals were financed 100% by stock offerings; while, 35.6% of the cross-border deals were financed 100% by stock offerings. The majority of target firms in overseas bids are in the high technology industry, accounting for 19.1% of the sample, and targets from the retail industry account for 2.3% of all the target firms in international bids. Targets from the industrial industry account for 18.8% of the

Table 1

Characteristics of the sample

The table presents a detailed description of the sample studied and the sub-groups in the sample. The data were divided between target firms in cross-border or domestic deals. The cross-border effect refers to the difference between cross-border and domestic characteristics. A two-sample difference in mean t-test is used to test for the statistical significance of the difference between cross-border and domestic characteristics. A comprehensive description of each variable in this table can be found in the appendix. The category EU refers to cross-border deals by bidders from continental Europe, US refers to offers by US bidders, Asia refers to deals by Asian bidders, and rest of the world refers to deal by bidders not based in Europe, United States or Asia. Market access category refers to whether the bidder had prior European operations before the announcement day. The average exchange rate of foreign currency to the Euro of the whole sample is 1.05. The region target displays the distribution of the target firms, in the sample studied, across 10 different Western European countries. UK target firms present the larger share of the sample, in which 51% and 68.9% of the domestic and cross-border deals, respectively, studied are UK target firms. The number of UK target firms in multinational bids is significantly lower, by 17.9%, than the number of UK target firms in domestic deals. A variety of different target firms' financial multiplies are used as control variables in the cross-sectional analysis. Average EPS refers to the average earnings-per-share of target companies in the sample. The average EV/EBITDA ratio reported in table 1 is the average for each subgroup. Average net assets, EBIT and EPS growth rates present the average growth rate for net assets, EBIT and EPS, respectively, for the whole sample. In the sample, there seems to be a significant difference of the average EPS of target firms in domestic and cross-border deals, where on average target firms engaged in cross-border deals have a $1.5 higher EPS than those in domestic deals. Log MV refers to the pre-bid target firm's market value, with a 0.2 significant mean difference between target firms in cross-border and domestic deals. Stake % refers to the percentage of stake acquired by the bidder, and a 2.6% significant mean difference between both subgroups is observed. The method payment is classified into: 100% Cash, 100% stock, and mixed; 46.4% of the cross-border deals are funded with 100% cash; while, only 32.2% of domestic deals are 100% cash. In addition, there is a significant mean variation, of 10.9%, for deals financed by 100% stock offering between both subgroups. Hostile is a dummy that takes a value of 1 if the deal attitude is hostile and 0 otherwise. The industry refers to the detail distribution of the target firms' different industries; the majority of target firms in cross-border transactions are part of the high technology industry, 19.1%, and minority are part of the retail industry, 2.3%.

		Total Sample	Cross-border	Domestic	Cross-border Effect
Sample		1089	435	654	
Acquirer's Region	EU		51.0%		
	US		32.0%		
	Rest of the World		10.0%		
	Asia		7.0%		
Market Access	Prior EU operation		57.0%		
	No Prior EU operation		43.0%		
Exchange Rate	Average exchange rate value		1.05		
Region Target	Austria		1.8%	0.5%	1.3%**
	Belgium		4.8%	0.6%	4.2%***
	France		16.1%	14.5%	1.7%

Table 1

Continued.

		Total Sample	Cross-border	Domestic	Cross-border Effect
	Germany			11.5%	5.2%	6.3%***
	Greece			0.9%	2.1%	−1.2%
	Italy			2.3%	2.0%	0.3%
	Luxemburg			1.4%	0.2%	1.2%**
	Netherlands			7.6%	3.1%	4.5%***
	Spain			2.5%	2.9%	−0.4%
	UK			51.0%	68.9%	−17.9%***
Multiplies	Average EPS			$1.7	$0.2	$1.5**
	Average EV/EBITDA ratio			18.7	19.2	−0.5
	Average Net Assets growth rate			27.0%	19.3%	7.7
	Average EBIT growth rate			13.0%	14.2%	1.4
	Average EPS growth rate			12.0%	15.5%	3.6
Log MV	Average pre-bid market value (log)			2.6	2.2	0.4***
Stake %	Average stake percentage acquired			89.0%	92.0%	−3%**
Payment	Cash only			46.4%	32.2%	14.2%***
	Stock only			35.6%	46.5%	−10.9%***
	Mixed			17.9%	21.3%	3.3%
Hostile	Hostile bid			21.3%	23.1%	−1.8%
Industry	High Technology			19.1%	13.6%	5.3%**
	Materials			17.0%	8.3%	8.8%***
	Industrials			15.6%	18.8%	−3.2%
	Consumer Product & Services			11%	8.7%	2.3%
	Health Care			8.3%	5.4%	2.9%*
	Media & Entertainment			7.4%	9.6%	−2.3%
	Consumer Staples			7.1%	8.7%	−1.6%
	Energy & Power			4.8%	7.5%	−2.7%
	Telecommunication			4.4%	2.5%	1.9%*
	Real Estate			3.0%	10.0%	−7.0%***
	Retail			2.3%	6.9%	−4.6%***
Related	Same Industry			69.0%	67.4%	1.5%

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.

total target firms in domestic deals; while, targets in the telecommunication industry account for only 2.5% of the total target firms in domestic deals. In 69% of the cross-border deals and 67.4% of domestic deals, the target and acquirer are from the same industry.

4. Methodology

An event study will be performed to examine the difference in effect between domestic and cross-border acquisitions on the wealth of target firms ' shareholders. The standard event study methodology of Brown and Warner (1985) will be followed to first calculate the cumulative abnormal returns (CAR) for target companies for various time periods. The analysis will, also, focus on longer time periods, from month t-5 to t+4, where announcement month is t0, because previous research has shown that target firms stocks prices tend to increase several months before the deal announcement day (Frank et al., 1977; Limmack, 1991). The long analysis period will also allow testing whether stock price fluctuations before the deal differ if the target firm is in the domestic or overseas bids.

Two-tailed tests will be implemented to evaluate the statistical significance of the cross-border effect and the generated abnormal returns. Following, the cross-sectional analysis will be conducted to test the theory-driven hypotheses, mentioned in section 2.2. Finally, a couple of robustness checks will be used to ensure the results are robust. In addition to controlling for industry, target country and acquirer region effects, UK target firms will be removed from the sample to ensure that the sample majority is not driving the results. The abnormal returns will be calculated with the market model and capital asset pricing model to ensure the results are robust.

4.1 Event study

The event study, displayed in figure 1 below, is used to calculate the abnormal returns for each target firm in the sample studied. Abnormal returns are defined as the difference between realized returns and 'normal' returns, which is estimated using a benchmark. The following points are estimated to calculate the abnormal returns:

> *Event date*
> *Event Window (time frame)*
> *Estimation period (time frame)*
> *Normal Return*

The first step in identifying the abnormal returns to target firms' shareholders is determining the event date. Because an acquisition deal is usually announced publicly a few months prior to

the event date, the event date will be chosen as the day or month the deal became public knowledge (Bowman, 1983). The event date will be denoted as t0, and the abnormal returns will be studied around the event date to examine the impact of the takeover on the wealth of the shareholders of the target companies.

For this paper, the abnormal returns ($AR_{i,t}$) are estimated over two different event windows. The first is the ten months period around the event date, from the month t-5 to t+4, where the announcement month is denoted as t0, and the second is the 14 days around the event date, from day t-8 to t+5, where the announcement day is denoted as t0. These two event windows are chosen to capture potential rumors or delay of new information realized in the deal announcement date.

The estimation period is a control period that is used to estimate the normal return of each target firm in the absence of the announcement of the deal. The estimation period used in this research is the 270 days until the 30 days prior to the event date, [-270,-30]. The 30 days prior to the announcement day are excluded to exclude any effect that may result from potential rumors or any spillover of new information prior to the deal.
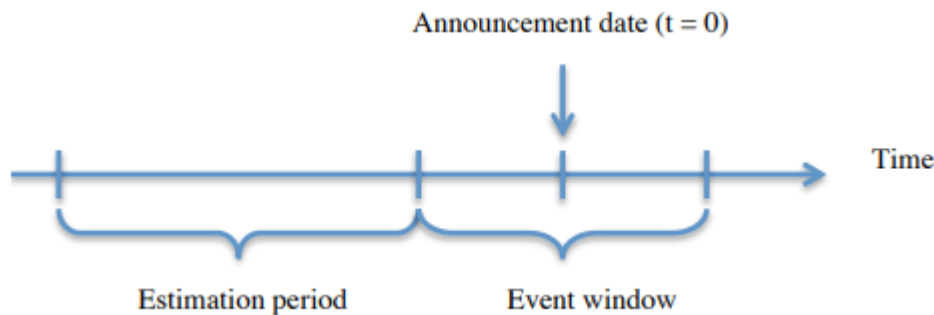
Figure 1: event study time line

4.1.1 Calculating the normal returns

Using the estimation period, the normal returns for each target company are estimated using the market model (MM) and capital asset pricing model (CAPM); in essence, the normal returns (r_{it}) are the hypothesized return to target firms' shareholders without the occurrence of the acquisition deal. Although the market model is the most commonly used model for the event study, the CAPM is also used, as the market model tends to have problems in setting a suitable benchmark (Connell and Conn, 1993; Danbolt, 2004). Both models are specified as follow:

$$CAPM: \qquad r_{i,t} = R_{f,t} + \beta_i(R_{m,t} - R_{f,t}) + \epsilon_{i,t}$$

$$MM: \qquad r_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t}$$

$$Where, \qquad R_{m,t} = \frac{P_{m,t} - P_{m,t-1}}{P_{m,t-1}}$$

Where, R_{ft} is the risk-free return at time t; for each target firm, the corresponding risk-free rate is equivalent to the interest rate of a one-year treasury bond in the target's nation. The variable $R_{m,t}$ is the return on the index that the target's firm listed on at time, t, and $P_{m,t}$ is the index price at time, t. Strong (1992) has elaborated that the theoretically correct market index for the CAPM model is a value-weighted index of the entire universe of capital assets; however, Roll (1977) concluded that such index cannot be measured. Therefore, the standard procedure for selecting a market index will be applied, and for each target firm, an equally weighted index of all the country's listed shares will be used as the market benchmark in both models (Dimson and Marsh, 1986). The regression coefficients, β_i and α_i, represent the slope and intercept, respectively, of the regression line of firm, i. β_i refers to the systematic risk of target firm, i, in comparison to the unsystematic risk of the entire market (Investopedia, 2019). The error term $\epsilon_{i,t}$ is the estimated abnormal returns during the estimation period. Therefore, $r_{i,t}$ is the target firm, i, normal return on its share calculated at time, t, based on the estimation period.

4.1.2 Calculating the cumulative abnormal returns

The abnormal returns are defined as the difference between the realized or actual returns, $R_{i,t}$ and the expected or normal returns, $r_{i,t}$ at time, t, for firm, i, and it can be specified as follow:

$$Abnormal\ Return: \qquad AR_{i,t} = R_{i,t} - E(r_{i,t}|X_t)$$

Where the expected normal return, $E(r_{it}|X_t)$, can be replaced by the return generated from the MM or CAPM, given firm, i, at time, t. $R_{i,t}$ is the realized stock return of firm, i, at time, t, and $AR_{i,t}$ is the abnormal return for firm, i, at time, t. The realized return on a share is calculated, as presented below, where $P_{i,t}$ is the price of the share at time t and D is the dividends.

Stock Return: $R_{it} = \frac{(P_{i,t} + D_{i,t})}{P_{i,t-1}}$

The average abnormal return for target companies in domestic and cross-border deals is calculated for each month in the first event window, as shown below. For the second event window, the cumulative abnormal returns, which is the summation of abnormal returns for the time period T1 to T2, is be calculated as follow for firm, i, for the time period T1 to T2:

Average Abnormal Return: $AAR_{s,t} = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$

Cumulative Abnormal Return: $CAR_{i(T1,T2)} = \sum_{T1}^{T2} AR_{i,t}$

Where, $AAR_{s,t}$ is the average abnormal return for target firms in sub-sample, s, at time, t. N is the number of total observations at sub-sample, s, and AR_{it} is the abnormal return of firm, i, at sub-sample, s, at time, t. $CAR_{i(T1,T2)}$ is cumulative abnormal returns for the time period between T1 to T2 for firm, i. For this study the following CARs will be estimated: (-8,-3), (-2,-1), (0,+1), (-2,+1), (-1,+5), and (-8,+5), where the announcement day is denoted as t0. While shorter time periods are used because they are insensitive to the model selected for calculating the normal returns, longer periods are also used to factor in the effects of competition and revisions of the deal (Conn *et al.*, 2005).

4.2 Significance Test

Blattberg and Gonedes (1974) have observed that stocks daily returns are normally distributed. Because daily returns are independent and identically distributed observations from a finite variance distribution, then the Central Limit Theorem guarantees that the distribution of the sample will converge to normality as the number of observations increases (Brown and Warner, 1985). Under these two assumptions, a standard two-tailed t-test can be applied; however, because cross-sectional dependencies can cause spurious inferences if not accounted for, the cross-sectional t-test, which accounts for cross-sectional dependencies, is used to test the statistical significance level of the ARs and CARs (Strong, 1992). A two-sample difference in mean t-test is used to test the statistical significance of the cross-border effect in the mean abnormal and cumulative abnormal returns of the target firms.

4.3 Cross-sectional analysis

To test the various hypotheses discussed in section 2.1 and if target firms' shareholders' abnormal returns experience cross-border effect, two ordinary least squares (OLS) regressions, adjusted for heteroskedasticity, are used. The CAR of target firms in cross-border bids is the dependent variable in the first regression, equation 1. In addition, to test for the cross-border effect, the CAR of target firms in the whole sample will be the dependent variable, as seen in equation 2. Several independent variables are used to test the hypotheses developed in section 2.2. The independent and control variables, discussed in the appendix, are used to explain what drives the abnormal returns of target firms around the event date. The following two equations represent the two general OLS regressions used:

Equation 1:

$$
\begin{aligned}
CAR_{s(T1,T2)} = \beta_0 &+ \beta_1 PriorEUoperations_s + \beta_2 i.DummyAcquirerRegion_s \\
&+ \beta_3 ExchangeRate_s + \beta_4 \%ofCash_s + \beta_5 CASH_s + \beta_6 STOCK_s \\
&+ \beta_7 \%ofStake_s + \beta_8 LogMV_s + \beta_9 StockRunUp_s \\
&+ \beta_{10} EVtoEBITDA_s + \beta_{11} EPS_s + \beta_{12} AssetGrowthRate_s \\
&+ \beta_{13} EBITgrowthRate_s + \beta_{14} EPSgrowthRate_s + \beta_{15} Related_s \\
&+ \beta_{16} Hostile_s + \beta_{17} i.DummyTargetrIndustry_s \\
&+ \beta_{18} i.DummyTargetCountry_s + \epsilon_i
\end{aligned}
$$

Equation 2:

$$
\begin{aligned}
CAR_{i(T1,T2)} = \beta_0 &+ \beta_1 CROSS_i + \beta_2 \%ofCash_i + \beta_3 CASH_i + \beta_4 STOCK_i \\
&+ \beta_5 \%ofStake_i + \beta_6 LogMV_i + \beta_7 StockRunUp_i \\
&+ \beta_8 EVtoEBITDA_i + \beta_9 EPS_i + \beta_{10} AssetGrowthRate_i \\
&+ \beta_{11} EBITgrowthRate_i + \beta_{12} EPSgrowthRate_i + \beta_{13} Related_i \\
&+ \beta_{14} Hostile_i + \beta_{15} i.DummyAcquirerRegion_i \\
&+ \beta_{16} i.DummyTargetrIndustry_i + \epsilon_i
\end{aligned}
$$

4.3.1 Dependent variable

In equation 1, only target companies in the sub-sample cross-border deals are used in this analysis. The dependent variable $CAR_{s(T1,T2)}$ represents the cumulative abnormal returns of target firm, s, which is involved in a cross-border deal. In equation 2, the dependent variable $CAR_{i(T1,T2)}$ represents the cumulative abnormal returns of target firm, i, for the time period T1 to T2. The continuous dependent variables in both equations represent the summation of the percentage of abnormal returns for target firm, i or s, in a time period from T1 to T2. CARs from day t0 to t+1 and day t-1 to t+5, relative to the event date, are each used once as the dependent variable in both equations.

4.3.2 Independent variables

In equation 1, several independent variables are chosen to test the different hypotheses of the paper. To test the market access hypothesis, the dummy variable *"Prior EU Operations"* which takes a value of 1 if the acquirer had operations in Europe prior to bid and 0 otherwise. The acquirer region dummy variables, which are explained in the appendix, are used to test for the international risk diversification hypothesis; these variables take a value of 1 if the acquirer is from the corresponding region and 0 otherwise. The continuous variable *"Exchange Rate"* represents the foreign bidder's currency to that target's currency; it is used to test the exchange rate hypothesis. In equation 2, above, *"CROSS"* is the independent variable, which is a dummy variable that takes a value of 1 if the target company is involved in a cross-border deal and 0 otherwise. It is designed to capture if the cumulative abnormal returns are significantly distinct to target firms in cross-border than domestic acquisitions.

4.3.3 Control variables

The remaining variables are control variables that are used to control for the differences in the deal and firm-specific characteristics, target industry, target country, and acquirer region effects. All details of the variables' definition, type, calculation, and source are discussed in the appendix, section "A".

5. Results

5.1 The abnormal and cumulative abnormal returns to target firms in domestic deals

The sample contains 654 target companies, listed in ten different Western European countries, involved in domestic acquisitions from 1990 to 2018. The average abnormal and cumulative abnormal returns for the whole sub-sample are presented in the second and third columns of table 2. As seen in table 2, target firms in domestic acquisitions earn highly significant, at a statistical significance level of 1% or 5%, abnormal returns in the pre-bid period in each of the following months: t-4, t-1, and t0; in addition, they earn highly significant cumulative abnormal returns around the event date. The highest pre-bid average abnormal return is reported for the month prior to and of the bid, in which the average abnormal return of the whole sub-sample is 18.8% and 26.69% (19% and 26.5%), respectively, with the market model (capital asset pricing model). Target firms in domestic acquisitions seem to earn low insignificant abnormal returns in the months post to the bid month, from t+1 to t+4, accounting for 1.4%, 1%, 0.15% and 0.33% (1.3%, 0.92%, -0.12%, and 0.1%), respectively. In the days around the event day, target companies in domestic acquisitions generate extremely significant cumulative abnormal returns. The highest cumulative abnormal returns are generated from day t-2 to t+1 and from day t-8 to t+5, amounting to highly significant 21.79% and 24.83% (21.82% and 24.92%), respectively.

5.2 The abnormal and cumulative abnormal returns to target firms in cross-border deals

The sample contains 435 target companies, listed in ten different Western European countries, in cross-border acquisitions from 1990 to 2018. The average abnormal and cumulative abnormal returns for the whole sub-sample are presented in the fourth and fifth columns of table 2. Target firms in overseas bids earn, on average, significantly positive abnormal returns in the months prior and post the announcement month. As with the case of target companies in domestic deals, target firms in cross-border deals earn significant, a statistical significance level of 1% or 5%, abnormal returns from month t-2 to t+3, where the announcement month is t0. The highest pre-bid average abnormal return for the sub-sample is reported for the month prior to and of the bid, in which the average abnormal returns of the whole sub-sample is 12.83% and 19.80% (12.95% and 19.96%), respectively, with the market model (capital asset pricing model). On average, target companies in cross-border deals will earn lower abnormal returns in the months following the announcement

Table 2

Target company abnormal returns

Table 1, reports the average and cumulative abnormal returns to shareholders of Western European target companies acquired in domestic and cross-border deals, respectively. The average abnormal returns for each month, with the announcement month denoted as t0, and the cumulative abnormal returns for the days around the event day, which is denoted as t0, are both calculated with the market model (MM) and capital asset pricing model (CAPM). Both models are specified in section 4.1.2 in the methodology chapter. The time periods refer to months or days relative to the acquisition deal's announcement month or day. In both cross-border and domestic deals, the CAR around the announcement day, calculated by the MM and CAPM, are found to be significantly different from zero, at 1% and 5% statistical significance level. The highest level of abnormal returns are accumulated from day t-8 to t+5 for both sub-groups with a reported CAR of 24.8% and 26.2% for target shareholders involved in domestic and cross-border deals, respectively. The cross-border effect is defined as the difference in the level of average abnormal and cumulative abnormal returns to target firms in cross-border and domestic deals. A two-sample difference in mean t-test is used to test for the statistical significance level of the cross-border effect. A two-tailed cross-sectional t-test is used to test the statistical significance level of the abnormal and cumulative abnormal returns (Strong, 1992). The highest cross-border effect is generated in days of 0 to +1 and -1 to +5 with cross-border deals generating 5.7% and 3.3% higher cumulative abnormal returns in these two time periods, respectively.

Model Sample Month:	Domestic Acquisitions		Cross-border Acquisitions		Cross-border Effect	
	MM 654	CAPM 654	MM 435	CAPM 435	MM	CAPM
−5	−0.0088*	−0.0095*	−0.0170	−0.0166	−0.0082	−0.0072
−4	0.0058***	0.0059	0.0002	0.0002	−0.0020	−0.0044
−3	0.0022	0.0046	0.0107	0.0090	0.0049	0.0031
−2	0.0196	0.0195	0.0215**	0.0217*	0.0018	0.0022
−1	0.1880***	0.1900**	0.1283***	0.1295**	−0.0597	−0.0605
0	0.2669***	0.2653***	0.1980***	0.1996***	−0.0689	−0.0657
+1	0.0141	0.0132*	0.0020*	−0.0002*	−0.0120	−0.0134
+2	0.0100	0.0092	0.0017**	−0.0010*	−0.0083	−0.0134
+3	0.0015	−0.0012	0.0355**	0.0336	0.0340	0.0348
+4	0.0033	0.0010	−0.0066*	−0.0054	−0.0098	−0.0063
Cumulative Abnormal Return (in days):						
−8, −3	0.0266***	0.0269**	0.0308***	0.0349**	0.0043	0.0080
−2, −1	0.0966***	0.0969**	0.0317***	0.0316**	−0.0649	−0.0654
0, +1	0.01213***	0.1213***	0.1779***	0.178***	0.0566***	0.0572***
−2, +1	0.2179***	0.2182***	0.2096***	0.2100***	−0.0083	−0.0082
−1, +5	0.0180***	0.0180**	0.0510**	0.0519*	0.0330***	0.0339***
−8, +5	0.2483***	0.2492*	0.2618***	0.2631***	0.0135	0.0139

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.

of the offer compared to those earned in the months before the announcement. As seen in table 2, target firms in cross-border acquisition underperform in the fourth month after the announcement of the deal with −0.6% (−0.54%) abnormal return; however, these abnormal returns are only statistically significant at a 10% significance level. Target firms in cross-border acquisitions, also, earn highly significant, a statistical significance level of 1% or 5%, cumulative abnormal returns around the announcement day, where the highest CARs are reported for the periods between day t-2 to t+1 and day t-8 to t+5, accounting for 20.96% and 26.18% (21% and 26.31%), respectively. The lowest CAR generated from the market model (capital asset pricing model) is from the day t-8 to t-3 (t-2 to t1), accounting for 3.08% (3.16%).

5.3 The cross-border effect

The difference in the average abnormal and cumulative abnormal returns to shareholders in domestic and cross-border deals is presented in the last two columns in table 2. From the month of t-5 to t+4, where the announcement month is t0, the difference in abnormal returns is small and insignificant. In the months of t-5, t-4, t-1 to t+2, and t+4, target firms in cross-border deals underperform, compared to those in domestic deals; however, the difference is small and not statistically significant. In the month of the bid, target firms in domestic deals performed better than those in cross-border deals, with a cross-border effect of −6.9%, with MM, and −6.6%, with CAPM.

The highest difference in cumulative abnormal returns between target firms in cross-border and domestic deals is observed from day t0 to t-1 and t-1 to t+5. The cross-border effect for CAR (0, +1) and CAR (-1, +5) is positive and significant, at a 1% statistical significance level, accounting for 5.7% and 3.3%, respectively, with the market model and 5.7% and 3.4%, respectively, with the capital asset pricing model. Although a negative cross-border effect is found from day t-2 to t-1 and t-2 to t+1, it is statistically insignificant.

For the cross-sectional analysis CAR (0, +1) and CAR (-1, +5) are chosen as the dependent variables, as they yield the highest significant difference in cumulative abnormal returns between target firms in cross-border and domestic bids. While a smaller window may not capture the transaction's complete impact, a longer time period may introduce noise and has been criticized in previous studies (Danbolt, 2004). In addition to longer time windows producing noise to the analysis, the months' average abnormal returns are not chosen, as the cross-border effect is statistically insignificant. Given that the levels of CARs are similar between the market model and

capital asset pricing model, the ones generated from the market model will be used in the cross-sectional regressions, as it is the most widely used model in previous studies.

5.4 Cross-border target firms' cross-sectional analysis

Four of the five hypotheses on what drives the cumulative abnormal returns of target companies ' shareholders in cross-border acquisitions are evaluated in this section: the international risk diversification hypothesis, market access hypothesis, exchange rate hypothesis, and the difference in characteristics hypothesis. To test these theories, CARs of target firms in international bids for the event windows t0 to t+1 and t-1 to t+5, where the announcement of the deal is t0, are regressed on independent and control variables, using OLS regressions, adjusted for heteroskedasticity, and the results are reported in table 3, below. Variables of different bid and target firm-specific characteristics are used as control variables. The overall explanatory power of the regressions are low, with the adjusted R^2 ranging from 3% to 5.9%, but all of the regressions are statistically significant at either 1% or 5% statistical significance levels. Table 5 in the appendix reports the results after UK target firms are removed from the analysis.

5.4.1 International risk diversification hypothesis

The second hypothesis of this paper is inspired by the international risk diversification hypothesis, discussed in section 2.1.1. Based on the international risk diversification hypothesis, it can be hypothesized that the further, geographically, the foreign bidder is from the target, the higher the international diversification benefits will be. Since foreign bidders are willing to pay a higher premium for target firms because of international diversification benefits, target firms acquired by bidders from outside Europe will gain more in acquisitions than those acquired by European bidders (Danbolt, 2004). To test this hypothesis, the acquirers were divided and grouped by their region; following, the CAR of target firms in cross-border bids are regressed on the different locations of the acquirer.

The coefficients for the dummy variables 'EU', 'US', 'Asia', and 'Rest of the World' are all reported, in table 3. As can be seen in table 3, the cumulative abnormal returns (in the second event window) of target firms in cross-border deals are significantly, at a 5% statistical significance level, 17.1% higher when acquired by EU bidders. After controlling for target nation and industry effect the coefficient for they are found to earn significantly, at a 1% statistical significance level,

5.2% higher cumulative abnormal returns. Non-EU bidders are not found to have a significant effect on the level of cumulative abnormal returns to target firms' shareholders in cross-border bids. Although they are statistically insignificant, the coefficients for 'Asia' and 'US' ('rest of the world') are positive (negative) for both event windows, indicating that target firms' cumulative abnormal returns are higher (lower) in takeovers by bidders from the US, Asia, (or rest of the world). The results observed are contradicting to the international risk diversification hypothesis; therefore, the international risk diversification hypothesis and the second hypothesis of this paper are rejected, as Non-EU bidders have no significant impact on the rate of CAR to target firms' shareholders in international acquisitions.

Robustness Checks. Besides controlling for industry and target nation industry effects, the cross-sectional analysis is performed with the exclusion of UK target firms, and the results are displayed in table 5 in the appendix. When UK target firms are removed from the data, the dummy variable 'Rest of the World' is removed as there are no acquirers from that region. The coefficient for 'US' and 'Asia' are still insignificant but changed to positive, implying that non-EU bidders have no impact on the rate of CAR to target firms in cross-border bids. The coefficient for 'EU' (in the second event window) is not found to be significant, but still positive, after controlling for target nation and industry effects. Although the positive results are aligned with the international risk diversification hypothesis, there is limited support to accept the hypothesis.

5.4.2 Market access hypothesis

The third hypothesis of this paper is inspired by the market access hypothesis, discussed in section 2.1.2. Based on the market access hypothesis, it can be expected that the CAR of target firms in international bids are affected by whether the bidder had prior European activities or not before the announcement of the bid. In the cross-sectional analysis, the dummy variable 'No prior EU operations' is used to assess whether target firms, in cross-border deals, will earn higher cumulative abnormal returns, around the announcement day of the bid, if the bidder had no access to the European market. The dummy variable is expected to be positive as foreign acquirers with no access to the European market are willing to pay a higher premium for market access.

As shown in table 3, the coefficient for the dummy variable 'No prior EU operations' is positive and significant, at 5% statistical significance levels, for the CAR between day t0 and t+1; however,

it is positive but insignificant for the second event window. The output suggests that Western European target companies, in cross-border deals, will reap 15.10% higher CAR, in the day of and post to the bid announcement, when acquired by bidders with no than with prior EU operations. After controlling for industry and target nation effects (in the first event window), the coefficient is significant not at a 5% but at a 10% statistical significance level and slightly lower in magnitude, 14.5%. Based on the output in table 3, the null hypothesis of the third hypothesis is rejected, and the regression output implies that the market access hypothesis is a possible driver for the target firm cross-border effect.

Robustness checks. Table 5 in the appendix reports the output when UK target firms are extracted from the data. As can be seen, the coefficient for 'No prior EU operation' is insignificant yet still positive; however, for the first event window, it decreased significantly from 15.1% to 2.3%. Possible explanations are either that only UK target firms gain a market access premium or the sample is too small, 213 observations, to draw any significant results from. A possible explanation for the insignificance and lower magnitude of the coefficient is that UK target firms are the driving force for the market access hypothesis. Another possible explanation is that the remaining sample, which is just 213 target firms, is too small to draw a significant conclusion.

5.4.3 Exchange rate hypothesis

 The fourth hypothesis of this paper is inspired by the exchange rate hypothesis, which implies that target firms in international bids will reap higher CAR the lower their currency is relative to that of the acquirer. It can be expected that Western European target firms will reap higher returns the lower the Euro (Sterling for UK target firms) relative to acquirer's currency; to test this hypothesis a continuous variable 'Exchange Rate', which reports the two-year, prior to the bid, average exchange rate of bidder's currency to target's currency, is adopted to explain the cumulative abnormal returns target firms reap around the announcement day. The coefficient for the variable ' Exchange Rate ' is somewhat puzzling, as displayed in table 3. It is found to be positive for CAR (0, +1) but negative for CAR (-1, +5); in addition, it is only statistically significant, at a 10% statistical significance level, for CAR (0, +1); however, after controlling for target industry and nation effects, it is no longer statistically significant from zero. The positive (negative) coefficient implies that Western European target firms will gain slightly higher (lower) cumulative abnormal

Table 3

Cross-border target firms' cross-sectional analysis

This table presents the results of the regressions for the cumulative abnormal returns to the shareholders of target firms in cross-border deals in ten distinct European countries. OLS regressions, adjusted for heteroskedasticity, are used to generate the following output. All details of the variables' definition, type, calculation, and source are described in the appendix, section "A". The constant of the regressions is removed to adjust for collinearity. The cumulative abnormal returns are positively depended on whether the acquirer has prior EU operations or not. Target firms in cross-border acquisitions are found to earn a significant 17.1% higher CAR (in the second event window) when acquired by bidders from EU. The CARs of target firms in multinational acquisitions are not observed to be dependent on whether the bidder is from the US, Asia, or rest of the world. From days t0 to t+1, the coefficients on 'STOCK' and 'CASH' are found to be significantly negative and positive, at 1% and 5% statistical significance level, respectively. For the event window from day t-1 to t+5, the coefficients on 'CASH' and 'STOCK' are no longer significant. The coefficient for 'EV to EBITDA' was found to be significant, at 10% statistical significance level (for the first event window). The coefficient for 'Target EPS' is significant at 5% statistical significance level; however, after controlling for target nation and industry effects, it is only significant at 10% statistical significance level; it parades that if the one-year, prior to the bid, average EPS of target firm increase by $1, the cumulative abnormal returns will increase by 0.24% during the corresponding event window. None of the coefficients for the different target firms' industries and nations are found to be significant. After controlling for industry effect in the first event window (second event window), the adjusted R^2 increased (decreased) from 4.5% (3.1%) to 5.9% (3%); however, after controlling for industry and target nation effects it decreased (increased) to 5.7% (5.2%). The overall regressions are significant at 5% statistical significance level; however, after controlling for just the industry effect, the overall regression is only significant at 10% statistical significance level.

Event window	CAR 0, +1	CAR 0, +1	CAR 0, +1	CAR -1, +5	CAR -1,+5	CAR -1,+5
	(1)	(2)	(3)	(1)	(2)	(3)
No prior EU operation	0.1510**	0.1390*	0.1450*	0.0330	0.0427	0.0724
EU	0.0798	0.0702*	0.0699*	0.171**	0.0524***	0.0524***
US	0.0270	0.0045	0.0046	0.1540	0.0210	0.00248
Asia	0.0811	0.0535	0.0413	0.1270	0.0180	0.0189
Rest of the world	-0.0852	-0.0702	-0.0699	-0.0398	-0.0524	-0.0524
Exchange Rate	0.0382*	0.0285	0.0283	-0.0155	-0.0201	0.0037
Percentage of Cash	-0.0013	-0.0013	-0.0012	0.0001	0.0000	-0.0002
CASH	0.0954**	0.0925**	0.0963**	0.0214	0.0275	0.0322
STOCK	-0.1230***	-0.1180**	-0.1050**	-0.0021	-0.0106	-0.014
Percentage of Stake	0.0011	0.0012	0.0006	-0.0020	-0.0011	-0.0003
Log Market-Value	-0.0080	0.0016	-0.0005	-0.0114	-0.0066	-0.0049
Stock run-up	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EV to EBITDA	-0.0002*	-0.0003*	-0.0003*	0.0000	0.0000	0.0000
Target EPS	-0.0004	-0.0003	-0.0006	0.0024**	0.0024**	0.0019*
Assets growth rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EBIT growth rate	-0.0001	-0.0001	-0.0001	0.0000	0.0001	0.0000
EBIT growth rate	-0.0001	-0.0001	-0.0001	0.0000	0.0000	0.0000

Table 3

Continued.

Event window	CAR 0, +1	CAR 0, +1	CAR 0, +1	CAR -1, +5	CAR -1,+5	CAR -1,+5
	(1)	(2)	(3)	(1)	(2)	(3)
EPS growth rate	0.0001	0.0001	0.0000	-0.0002***	-0.0002***	-0.0002**
Related	0.0368	0.0350	0.03070	-0.0178	-0.0274	-0.0340
Hostile	0.0458	0.0450	0.0405	0.0175	0.0278	0.0348
Consumer Products		0.0153	0.0257		-0.0158	0.0286
High-Tech		0.0815	0.0904		0.0384	0.0715
Industrial		0.0161	0.0212		0.0193	0.0698
Materials		0.0200	0.0319		0.0373	0.0732
M&E		0.0299	0.0288		0.0136	0.0584
Retail		-0.1090	-0.0880		0.0378	0.0757
Telecommunications		-0.0063	0.0068		-0.0286	0.0121
Austria			-0.0024			-0.0402
Belgium			0.0102			0.1370
France			-0.0795			0.0549
Germany			-0.0766			-0.0148
Greece			-0.0808			-0.0173
Italy			-0.1010			-0.0875
Netherlands			0.0401			-0.0176
Luxembourg			0.0808			0.0173
Spain			0.0686			0.0356
UK			0.0508			-0.0194
Constant	Nocons	Nocons	Nocons	Nocons	Nocons	Nocons
Observations	435	435	435	435	435	435
Adjusted R^2	4.5%	5.9%	5.7%	3.1%	3%	5.2%
F-value	2.22***	2.01***	1.73**	1.83**	1.5**	1.66**
P-value	0.004	0.002	0.050	0.023	0.050	0.012
Industry Effect		YES	YES		YES	YES
Target Nation Effect			YES			YES

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.

returns when the bidder's currency is stronger than that of the target. Therefore, the exchange rate hypothesis and the fourth hypothesis of this paper are not accepted, as the coefficient of the variable yields mixed insignificant results.

Robustness checks. UK target firms are removed from the sample to ensure that the results are not affected by UK target firms, which account for 51% of the sample. After removing UK target

firms, the coefficient for 'Exchange Rate' (reported in table 5 in the appendix) remained insignificant and positive (negative) for the first and (second) event windows.

5.4.4 Difference in characteristics

Previous literature, mentioned in section 2.1.5, observed that the cumulative abnormal returns received by the shareholders of firms in cross-border transactions are due to variations in the deal features or features of targeted firms by national and international bidders (Wansley et al., 1983; Swenson, 1993; Dewenter 1995; Danbolt, 2004). Several control variables are used to analyze if the level of cumulative abnormal returns is dependent on different deal or target firm characteristics.

The difference in deal characteristics is tested by the variables for payment method, percentage of stake acquired, deal attitude, and relatedness of the bidder and target industries. As seen in table 3, the coefficient for 'Cash' is significant, at 5% statistical significance level, and positive for CAR (0, +1); while, for CAR (-1, +5) the coefficient becomes insignificant yet still positive. The positive significant coefficient implies that cash-only deals, in comparison to those paid with cash and stock offerings, will generate 9.54% higher cumulative abnormal returns to target firms' shareholders in cross-border acquisitions, in the day of and post to the announcement of the bid. The coefficient for 'Stock' is significant, at a 1% statistical significance level, only for the first event window and negative for both event windows. Compared to deals financed by cash and stock offerings, stock-only deals will generate 12.3% lower cumulative abnormal returns to target firms' shareholders in cross-border acquisitions in the day of and post to the bid announcement. None of the regression coefficients for deal attitude, the percentage of stake acquired, and relatedness of bidder and target industries are found to be significant.

Differences in target firms' characteristics are assessed based on their growth rates of net assets, EBIT, and EPS, market size, enterprise value to EBITDA ratio, size, and the one-year average EPS. The coefficient for 'target EPS' (in the second event window) is found to be significant, at a 5% statistical significance level, and positive, which implies that a $1 increase in the average EPS will increase the CAR, of target firms in cross-border acquisitions, by 0.24%. As seen in table 1, target companies in cross-border and domestic deals have an average EPS of $1.7 and $0.2, respectively; therefore, given that the average EPS has as a positive effect on the rate of CAR to the shareholders of target firms in international bids, target firm's EPS can be assumed to have an

effect on the cross-border effect. The coefficient for 'EPS growth rate' (in the second event window), reported in table 3, is found to be negative and significant, at a 1% statistical significance level, even after controlling for target industry and nation effects. The significant negative coefficient implies that when the three-year, prior to the bid, average growth rate of EPS increase by 1%, the cumulative abnormal returns, from day t-1 to t+5, of target firms in cross-border acquisitions will decrease by 0.02%. Coefficients for the remaining financial multiplies, size and industry of the target firm are not found to significantly different from zero, and they have no effect on the CAR to target firms in cross-border bids, around the announcement day.

Robustness Checks. As shown in table 5, in the appendix, the coefficients for 'Cash' and 'Stock' are insignificant after removing UK target firms. The coefficient for 'Target EPS' has not changed in sign nor significance but increased slightly; while, the coefficient for 'EPS growth rate' is still negative but insignificant. The coefficient for 'related' is observed to be positive and significant, at a 5% statistical significance level, for the first event window, from day t0 to t+1. The positive coefficient implies that if the acquirer and target are from the same industry, target firms will earn 7.5% higher CAR in the day of and post to the announcement of the bid. The coefficient for 'Assets growth rate' is observed to be positive and significant, at a 5% statistical significance level, implying that if the three-year average growth of net assets increases by 1%, target firms will earn 0.05% higher CAR around the announcement day. Cross-border target firms in consumer staples, health care, high-tech, industrial, materials, media and entertainment, and telecomm inactions are found to earn significantly higher cumulative abnormal returns in the second event window.

5.5 Analysis of the cross-border effect

In section 5.4, some variables appeared to influence the rate of cumulative abnormal returns generated to the shareholders of target firms in cross-border acquisitions. These variables and a dummy variable 'Cross', which takes a value of 1 for cross-border acquisitions and 0 otherwise, are used to test whether these variables account for the variations in target firms' cumulative abnormal returns. The results are presented in table 4, below. The regressions' overall explanatory powers are marginal, with the adjusted R^2 ranging from 3.3% to 5.1%, but all of the regressions are highly significant at a 1% statistical significance levels. For the days t0 to t+1 and t-1 to t+5, a significant, at a 10% statistical significance level, cross-border effect of, approximately, 2.6% and

1.4%, respectively, is found for Western European target; however, once the target industry and acquirer region are controlled for, it decrease to an insignificant 2.27% and 1.28%, respectively. Due to the lack of significance, the first hypothesis is rejected. There are no enough evidence to support that a cross-border premium for Western European target firms. The cross-border effect is likely to be driven by other factors, and once these factors are controlled for, there is no evidence of a target firm cross-border effect.

The coefficient for 'No prior EU operation' is still found to be positive and highly significant, at 1% statistical significance level, for t0 to t+1 event window and only significant at 10% statistical significance level for t-1 to t+5 event window. After controlling for target industry and acquirer region effects, the coefficient is significant, at a 5% and 1% statistical significance level, for the first and second event windows, respectively. For the t0 to t+1 and t-1 to t+5 event windows, Western European target firms will earn, approximately, 6% higher cumulative abnormal returns if the bidder had no previous European operations, indicating that acquirers with no European operations paid higher prices for Western European target firms than did bidders with EU presence. Therefore, it can be implied that market access is a driving force for the cross-border effect.

 In section 5.4.4 it was established that bid-specific and firm-specific variables explain some of the variations in target firms' cumulative abnormal returns in cross-border deals. The analysis is repeated for the whole sample, and it appears that payment method (in the shorter event window) still has an impact on the percentage of cumulative abnormal returns to target firms, which are significantly higher (lower) in cash-only (stock-only) offers, increasing (decreasing) target firms' CAR by, approximately, 6% (12%). As seen in table 1, the proportion of cash-only (stock-only) offers is significantly higher (lower) in cross-border than domestic deals. Therefore, if the market has a better reaction to cash-only than equity-only offers and the proportion of cash-only (stock-only) offers is significantly higher (lower) in cross-border than domestic deals, then the payment method appears to be a driving force for the cross-border effect. The percentage of stake acquired is also observed to influence the levels of target firms' cumulative abnormal returns. The coefficient for 'stake %'(in both event windows) is found to be negative and highly significant, at a 1% statistical significance level, and it shows that acquiring an extra 1% of the target firm will generate, approximately, 0.1% lower cumulative abnormal returns to the shareholders of target firms, around the announcement day. In table 1, it is observed that the average stake acquired is

Table 4

Target firms' cross-sectional analysis

This table presents the results of the regressions for the cumulative abnormal returns to the shareholders of target firms in domestic and cross-border deals in ten distinct European countries. OLS regressions, adjusted for heteroskedasticity, are used to generate the following output. All details on the definition, type, calculation, and source of the variables are explained in section "A" in the appendix. All details of the variables' definition, type, calculation, and source are described in the appendix, section "A". Cross is a dummy variable that takes a value of 1in cross-border acquisitions and 0 otherwise. The coefficient for 'Cross' is positive and significant, at a 10% statistical significance level; however, after controlling for the target industry effect, it is no longer significant. The coefficient for 'Stake %' (in both event windows) is negative and significant, at a 1% statistical significance level. From days t-1 to t+5, the coefficient for 'Cross' decrease from 5.6% to 2.6% and the coefficient for 'No prior EU operations' decreased in significance and magnitude from 6%, at a 1% statistical significance level, to 2.6%, at a 10% statistical significance level. After controlling for target industry effect in the second event window, the coefficient for 'No prior EU operations' is found to be positive and highly significant at, a 1% statistical significance level, with a magnitude of 6.56%. Although the regressions' overall explanatory powers are low, the regressions are highly significant at a 1% statistical significance level.

Event window	CAR 0, +1	CAR 0, +1	CAR 0, +1	CAR -1, +5	CAR -1,+5	CAR -1,+5
	(1)	(2)	(3)	(1)	(2)	(3)
No prior EU Operation	0.0604***	0.0661**	0.0641**	0.0257*	0.0669***	0.0656***
Cross	0.0259*	0.0267*	0.0227	0.0137	0.0141	0.0128
CASH	0.0632**	0.0632**	0.0642**	0.0066	0.00845	0.00627
STOCK	-0.115***	-0.117***	-0.118***	0.0022	0.00166	0.00657
Stake %	-0.0013***	-0.0013***	-0.0013***	-0.0011***	-0.0011***	-0.0011***
Log Market-Value	-0.0042	-0.0025	0.0015	-0.0018	-0.0010	0.0009
Stock run-up	0.0001	0.0000	0.0000	0.0001	0.0001	0.0001
EVtoEBIT	-0.0001	-0.0001	-0.0001	0.0000	0.0000	0.0000
Target EPS	-0.0002	-0.0001	-0.0001	0.0007	0.0008	0.0008
Assets growth rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EBIT growth rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EPS growth rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Related	0.0109	0.0148	0.0191	-0.0158	-0.0157	-0.0167
Hostile	0.0065	0.0054	0.0045	0.0089	0.0078	0.0045
EU		0.0822	-0.0415		0.122***	0.123***
US		0.0751	-0.0564		0.0840	-0.0399
Asia		0.0408	0.103		0.00963	0.00249
Rest of World		-0.0462	-0.0694		-0.0647	-0.0512
Consumer Products			0.117			0.0949**
Consumer Staples			0.101			0.1200**
Energy & Power			0.0998			0.1020**
Health Care			0.1620			0.1510**
High-Tech			0.1360			0.1320***
Industrial			0.1020			0.1170**
Materials			0.0965			0.1070**
M&E			0.1120			0.1100**
Retail			0.0638			0.1000**
Telecommunications			0.0604			0.0897**

Table 4

Continued.

Event window	CAR 0, +1	CAR 0, +1	CAR 0, +1	CAR -1, +5	CAR -1,+5	CAR -1,+5
	(1)	(2)	(3)	(1)	(2)	(3)
Real estate			0.0638			0.1000***
Constant	Nocons	Nocons	Nocons	Nocons	Nocons	Nocons
Observations	1,089	1,089	1,089	1,089	1,089	1,089
Adjusted R^2	5.1%	5.1%	3.3%	4.1%	3.9%	4%
F-value	5.19***	4.43***	3.3***	4.31***	3.61**	2.68***
P-value	0.000	0.000	0.000	0.000	0.000	0.000
Region Effect		YES	YES		YES	YES
Industry Effect			YES			YES

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.

significantly lower for target firms in cross-border than domestic acquisitions. Therefore, it appears that bid characteristics, in particular, the percentage of stake acquired and payment method are, also, driving the cross-border effect.

None of financial multiplies are found to be statistically significant, indicating no influence on the rate of cumulative abnormal return to the shareholders of target firms, in both event windows. In the second event window, Targets acquired by EU bidders are found to earn significantly, at a 1% statistical significance level, 12%, approximately, higher cumulative abnormal returns. Target company industry effect is found to be positive and significant, at a 5% statistical significance level, for all the different industries found in the sample. Health care and High-tech industries are found to produce the highest difference in the level of target cumulative abnormal returns. Targets in these two industries will earn, approximately, 15% and 13%, approximately, higher cumulative abnormal returns. Thus, the cross-border effect seems to be driven by differences in firm and deal specific characteristics and the market access premium.

Robustness check: Table 6 in the appendix presents the cross-sectional analysis of the whole sample, excluding UK target firms. UK target firms are removed from the sample to ensure that the results are not driven by a specific country. As seen in the table, the coefficient for 'Cross' is positive and significant at, a 5% statistical significance level; after controlling for the target

industry effect, the coefficient is still significant at a 10% statistical significance level, indicating a cross-border premium of, approximately, 4% and 3.7%, after controlling for target industry effect. The coefficient for 'No prior EU operations' is significant, at a 5% statistical significance level; however, after controlling for acquirer region and target industry effects, it's not significant anymore. None of the coefficients for the payment method, percentage of stake acquired and target firms' industries are found to be significant. The robust results imply that Western European, excluding UK, target firms cross-border effect is present, and is not driven by differences in bid and firm specific characteristics nor market access premium. Since Danbolt (2004) found that UK target firm cross-border effect is only attributed to the differences in deal characteristics, it appears that the insignificance of the cross-border effect is driven by UK target firms.

6. Conclusions and limitations

This paper analyzes the cumulative abnormal returns, in 654 domestic and 435 cross-border deals between 1990 and 2018, to Western European target firms' shareholders. During the month of and prior to the announcement of the bid, the shareholders of target firms in cross-border and domestic deals gain, on average, copious and extremely significant abnormal returns, amounting to 12.8% and 19.8% (12.95% and 19.96%), respectively, with the market model (capital asset pricing model) for targets in cross-border deals, and 18.8% and 26.95% (19% and 26.5%), respectively, for targets in domestic deals.

A negative target company cross-border effect is observed in the months of t-5, t-4, t-1 to t+2, and t+4 (where the announcement month is t0). In the month of the bid, target firms in domestic deals performed better than those in cross-border deals, with a cross-border effect of −6.9%, with MM, and −6.6%, with CAPM; however, the difference of abnormal returns to target firms in domestic and cross-border deals is small and statistically insignificant. Target firms' shareholders in both deals obtained, on average, highly significant cumulative abnormal returns in the days around the bid announcement. For target firms in domestic deals, the highest CARs are reported for the period between day t-2 to t+1 and day t-8 to t+5, accounting for 20.96% and 26.18% (21% and 26.3%), respectively; while target firms in cross-border deals generated the highest CARs in the periods from day t-2 to t+1 and t-8 to t+5, accounting for 20.96% and 26.18% (21% and 26.31%), respectively. The highest difference in cumulative abnormal returns between both sub-

samples is observed from day t0 to t-1 and t-1 to t+5, accounting to a highly significant positive cross-border effect of 5.7% and 3.3% (5.7% and 3.4%), respectively.

Contrary to the international risk diversification hypothesis, target firms' shareholders, in cross-border acquisitions, are found to earn higher cumulative abnormal returns when acquired by bidders from Europe. None EU Acquirers are not found to have a significant impact on the level of cumulative abnormal returns target firms earned in international bids; therefore, the second hypothesis of this paper is rejected, as there is insufficient support for a premium for the international diversification benefits. Target firms' shareholders, in cross-border deals, are found to earn 15.1% (14.5%, after controlling for target nation and industry effects) higher cumulative abnormal returns when acquired by bidders with no prior EU activities. There is, therefore, proof to support a market access premium in Western Europe; hence, the third hypothesis is accepted. The target cumulative abnormal returns in international bids do not seem to be affected by the exchange rate of acquirer's to target's currency; evidence to support the exchange rate hypothesis are mixed and statistically insignificant; hence, the fourth hypothesis of this paper is rejected.

Bid characteristics are found to have a significant effect on the rate of cumulative abnormal returns earned by the shareholders of target firms in cross-border deals, around the announcement day. It is found that cash-only (stock-only) offers will generate 9.5% (12.3%) higher (lower) cumulative abnormal returns to target firms' shareholders in the day of and post to the bid announcement. Other bid characteristics, such as the deal attitude, percentage of stake acquired, and relatedness of target and acquirer industries, are not found influence the percentage of cumulative abnormal returns to target firms in cross-border acquisitions. Firms financial multiplies, EPS and EPS growth rate, and target firms' industries are found to have a significant impact on the level of cumulative abnormal returns to target shareholder's in cross-border acquisitions in the days from t-1 to t+5; however, the remaining target firm's financial multiplies and size are to found to have an insignificant impact.

Western European target firm cross-border effect is found to be attributed to the differences in firms and bid specific characteristics and the market access premium. There is, therefore, no proof to reinforce a cross-border premium for target firms in Western Europe; hence, the first hypothesis is rejected. Although a significant cross-border effect of 2.6% and 1.4% are found for the event periods from t0 to t-1 and t-1 to t+5 days, respectively, once the industry effect is controlled for, the cross-border effect is found to be insignificant. However, when UK target firms are removed

from the sample, a Western European (excluding the UK) target firm's cross-border premium, of approximately 4%, is present, and is not found to be attributed to differences in bid and firm specific characteristics nor market access premium.

Target firms are found to gain an extra 6% of cumulative abnormal returns in acquisitions by bidders with no prior EU operation; hence, there is evidence to support market access premium to target companies in Western Europe. It was, also, found that shareholders of target firms will gain more (less) in cash-only (stock-only) offers, and since the proportion of cash-only (stock-only) offers is significantly higher (lower) in cross-border than domestic deals, then the payment method seems to elucidate the target firm cross-border effect. Moreover, the percentage of stake acquired appears to have a significant negative impact on the level of cumulative abnormal returns to target firms; in addition, the average of stake acquired is significantly lower for target firms in cross-border than domestic acquisitions. Target firms' industries are, also, found to elucidate the cross-section variation in the level of target cumulative abnormal returns. Thus, the Western European target company cross-border effect seems to be explained by the market access premium and differences in bid and firm specific characteristics, in particular, the payment method, percentage of stake acquired, and industry of the target firm. Once the payment method, percentage of shares acquired, and the target firms' industries are controlled for, the target company cross-border effect is found to be insignificant.

6.1 Limitations and future research

A possible limitation in this paper may be in the model used to calculate the abnormal returns to target firms. Danbolt (2004) has indicated that the model chosen to calculate the abnormal returns might influence the results; he said that controlling for the target firm's size is important to ensure robust results (Danbolt, 2004); however, since the analysis is focused on short event windows, the model chosen to calculate the normal returns is not expected to cause relevant changes on the results. For future research, it can be recommended to use the size-deciles control model to calculate the abnormal returns. The size-deciles control model is a model that calculates the abnormal returns of a firm based on a benchmark, which is a portfolio of companies with similar firm size to the company being tested. When the UK target firms were removed from the data, the cross-border effect was significant, even after controlling for the different bid and firm characteristics, market access of acquirer, and target industry effect. Thus, it can, also, be

recommended for future research to focus on Wester European target firms, excluding the UK, and to test if target firm cross-border effect exist in Western Europe, without the UK.

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Appendix

A.   Description of the variables used in the analysis and their sources

Region Acquirer   The acquirer in this sample are divided to three main regions: Europe (EU), United States (US), and Asia. Rest of the world refers to acquirers which are listed in countries not in EU, US, or Asia. EU is a dummy variable that takes the value 1 if the acquirer is listed in a European country, including the UK, and 0 otherwise. US is a dummy variable that takes a value 1 if the acquirer is listed in the US and 0 otherwise. Asia is a dummy variable that takes the value 1 if the acquirer is listed in Asia and 0 otherwise. Rest of the world is a dummy variable that takes the value of 1 if the acquirer in a country not listed in EU, US, or Asia and 0 otherwise. The Acquirer nations were downloaded from Thomson One.

EU Entry   Prior EU operations is dummy variables that takes the value of 1 if the acquirer had EU operations, including the UK, prior to the bid and 0 otherwise. No prior EU operations is a dummy variable that takes the value of 1 if the acquirer had no EU operations, including the UK, prior to the bid and 0 otherwise. Information about whether the acquirer had prior European operations or not were downloaded from Thomson One, Bloomberg, and Financial Times.

Exchange Rate   The exchange is defined as the exchange rate of the acquirer's currency to target's currency. The exchange rate was downloaded from Bloomberg, and exchange rate was calculated as the mean exchange rate over the two year period prior to the announcement day of the bid.

Region Target   Austria, Belgium, France, Germany, Greece, Italy, Luxemburg, the Netherlands, Spain, and the UK are all dummy variables that take a value of 1 if the target is listed in the corresponding country and 0 otherwise. Targets nations were gathered from Thomson One.

Multiplies   Target's Earnings per share (EPS) is a continuous variable that reports the one year, prior to the bid, average EPS in US dollars for each target company. EV/EBITDA is a continuous variable that the reports the one year, prior to the bid, average ratio of the target's enterprise value (EV) to target's earnings before interest, tax amortization and depreciation (EBITDA). Average Net Assets growth rate is a continuous variable which reports the average growth in target's net assets three years prior to the bid. Average EPS growth rate is a continuous variable which reports the average growth in target's net assets three years prior to the bid. Average earnings before interest and tax (EBIT) growth rate is a continuous variable which

	reports the average growth in target's net assets three years prior to the bid. All these multiplies were downloaded from Thomson One.

Log MV

Log MV is a continuous variable that reports log of the average target's market value (MV) one year prior to the bid. Targets' average market value were downloaded from Thomson One and then transformed using the natural logarithm.

Stake %

Stake percentage is a continuous variable that reports the percentage of stake acquired in the deal, and it was downloaded from Thomson One.

Stock Run up

Stock run up a continuous variable that reports target's average stock prices in the four weeks prior to the announcement of the deal.

Payment

Cash is a dummy variable that takes a value of 1 if the deal is 100% financed in cash and 0 otherwise. Stock is dummy variable that takes a value of 1 if the deal is financed 100% through stock offering and 0 otherwise. Mixed is a dummy variable that takes a value of 1 if the deal is finance by cash and stock offering and 0 otherwise. The payment method of the deal was extracted from Thomson One.

Hostile

Hostile is a dummy variable that takes a value of 1 if the deal attitude is hostile and 0 otherwise. Information regarding the deal attitude was extracted from Thomson One.

Industry

High technology, materials, industrials, consumer product and services, energy and power, health care, media and entertainments (M&E), consumer staples, telecommunication, real estate, and retail are dummy variables that takes a value of 1 if the target firm's industry is considered to be one of the corresponding industry and 0 otherwise. Information about the target's industry was extracted from Thomson One.

Related

Related is dummy variable that take a value of 1 if the both the target and acquirer are from the same industry and 0 otherwise. Information about the target and acquirer industries was extracted from Thomson One.

B.   Tables for robustness checks

Table 5

Cross-border target firms' cross-sectional analysis

(Excluding UK target firms)

This table presents the results of the regressions for the cumulative abnormal returns to the shareholders of target firms in cross-border deals in nine distinct European countries. OLS regressions, adjusted for heteroskedasticity, are used to generate the following output. All information about the variables' definition, type, calculation, and source are described in the appendix, section "A". The constant of the regressions is removed to adjust for collinearity. This regression is a robustness check for the output of table 3, and the table reports the changes observed in the variables when UK target firms are removed. The dummy variable 'Rest of the world' is dropped as there are no acquirers that fit into this category.

Event window	CAR 0, +1 (1)	CAR 0, +1 (2)	CAR 0, +1 (3)	CAR -1, +5 (1)	CAR -1,+5 (2)	CAR -1,+5 (3)
No prior EU operation	0.0230	0.0031	0.0276	0.0355	0.0394	0.0383
EU	0.0010	-0.0204	-0.0276	0.221**	0.0245	0.0383
US	0.0170	0.0164	0.00681	0.108*	0.103*	0.116**
Asia	0.162	0.135	0.0965	0.0859	0.0416	0.0348
Exchange Rate	0.0333	0.0109	0.0138	-0.0077	-0.0271	-0.0087
CASH	-0.0258	-0.0293	-0.0193	0.0554	0.0549	0.0558
STOCK	-0.0282	-0.0320	0.0088	-0.0733	-0.0811	-0.0795
Percentage of Stake	0.0003	0.0002	-0.0006	-0.0004	-0.0012	-0.0004
Log Market-Value	0.0025	0.0190	0.0110	-0.0307	-0.0233	-0.0172
Stock run-up	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EV to EBITDA	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0003
Target EPS	-0.0005	-0.0007	-0.0010	0.0027**	0.0026**	0.0020
Assets growth rate	0.0005**	0.0006**	0.0006**	0.0005**	0.0006**	0.0005*
EBIT growth rate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EPS growth rate	-0.0002	0.0000	-0.0001	-0.0002	-0.0002	-0.000174
Related	0.0750**	0.0684**	0.0575*	-0.0041	-0.0245	-0.0300
Hostile	0.0408	0.0405	0.0398	0.0172	0.0274	0.0334
Consumer Products		-0.00550	0.0711		0.186	0.0587
Consumer Staples		0.0195	0.115		0.299**	0.188
Energy & Power		-0.0182	0.0537		0.164	-0.00466

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Table 5

Continued.

Event window	CAR 0, +1 (1)	CAR 0, +1 (2)	CAR 0, +1 (3)	CAR -1, +5 (1)	CAR -1,+5 (2)	CAR -1,+5 (3)
Health Care		0.100	0.175		0.389*	0.248
High-Tech		0.0224	0.0969		0.260**	0.112
Industrial		-0.00296	0.0576		0.254**	0.139
Materials		0.0166	0.101		0.317**	0.167
M&E		-0.0824	-0.0349		0.266**	0.121
Telecommunications		-0.115	-0.0377		0.187	0.0481
Retail		-0.00785	0.0722		0.306**	0.0748
Austria			-0.1100			-0.0267
Belgium			-0.0324			-0.0399
France			-0.0805			0.0317
Germany			-0.0881			-0.0235
Greece			-0.0539			-0.0260
Italy			-0.1110			-0.1090
Netherlands			0.0566			-0.0381
Spain			-0.0930			0.0138
Constant	Nocons	Nocons	Nocons	Nocons	Nocons	Nocons
Observations	213	213	213	213	213	213
Adjusted R^2	4.8%	4.9%	5.6%	5.4%	6.4%	6.7%
F-value	1.67*	1.42*	1.37	1.76**	1.55**	1.45*
P-value	0.056	0.094	0.207	0.039	0.050	0.065
Industry Effect		YES	YES		YES	YES
Target Nation Effect			YES			YES

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.

Table 6

Target firms' cross-sectional analysis

(Excluding UK target firms)

This table presents the results of the regressions for the cumulative abnormal returns to the shareholders of target firms in domestic and cross-border deals in nine distinct European countries. OLS regressions, adjusted for heteroskedasticity, are used to generate the following output. All information about the variables' definition, type, calculation, and source are described in the appendix, section "A". Cross is a dummy that takes a value of 1 for cross-border acquisitions and 0 otherwise. The constants of the regressions are removed to adjust for collinearity. This regression is a robustness check for the output of table 4, and the table reports the changes observed in the variables when UK target firms are removed. Although the regressions' explanatory powers are low, the regressions are highly significant at 1% statistical significance level. The cross-border is found to be significant for Wester European target firms, excluding UK target firms, even after controlling for acquirer region and target industry effects. After excluding UK target firms, none of the coefficients for the payment method, percentage of stake acquired and target firms' industries are found to be significant.

Event window	CAR 0, +1 (1)	CAR 0, +1 (2)	CAR 0, +1 (3)	CAR -1, +5 (1)	CAR -1,+5 (2)	CAR -1,+5 (3)
No prior EU Operation	0.0519**	0.0090*	0.0007	0.0480	-0.0300	-0.0290
Cross	0.0443**	0.0438**	0.0368*	0.0096	0.0094	0.0026
CASH	-0.0262	-0.0389	-0.0452	0.0233	0.0273	0.0062
STOCK	-0.0687	-0.0648	-0.0554	0.0114	0.0116	0.0273
Stake %	-0.0004	-0.0004	-0.0004	-0.0007	-0.0006	-0.0007
Log Market-Value	-0.0007	-0.0013	0.0068	-0.0182	-0.0182	-0.0158
Stock run-up	0.0000	0.0000	0.0000	0.0001*	0.0001*	0.0001*
EVtoEBIT	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
Target EPS	-0.0002	-0.0002	-0.0001	0.0008	0.0008	0.0009
Assets growth rate	9.73e-05	0.0001	8.92e-05	-0.0002*	-0.0002*	-0.0002*
EBIT growth rate	0.000	0.000	0.000	0.000	0.000	0.000
EPS growth rate	0.000	0.000	0.000	0.000	0.000	0.000
Related	0.0294	0.0330	0.0361	-0.0146	-0.0138	-0.0181
Hostile		0.0330	0.0205		0.0978	0.0909
EU		0.0573	-0.0161		0.124	0.1520
US		0.0916	0.00490		0.191*	0.0907*
Asia		0.212*	0.107		0.174	0.0541
Rest of the World		0.0591	-0.0156		0.0923	0.0854
Consumer Products			0.0417			-0.0249
Consumer Staples			0.0442			0.0435
Energy & Power			0.0508			0.0203
Health Care			0.156**			0.206
High-Tech			0.0881**			0.124
Industrial			0.0370			0.0313
Materials			0.0386			0.0662
M&E			0.0118			0.0447

Table 6

Continued.

Event window	CAR 0, +1 (1)	CAR 0, +1 (2)	CAR 0, +1 (3)	CAR -1, +5 (1)	CAR -1,+5 (2)	CAR -1,+5 (3)
Retail			-0.0071			0.0094
Telecommunications			-0.0224			-0.0058
Real estate			0.0548			0.0254
Constant	Nocons	Nocons	Nocons	Nocons	Nocons	Nocons
Observations	416	416	416	416	416	416
Adjusted R^2	6.3%	6.98%	8.9%	4.17%	4.23%	4.91%
F-value	3***	2.95***	2.56***	2.29***	2.14***	1.82***
p-value	0.000	0.000	0.000	0.005	0.006	0.008
Region Effect		YES	YES		YES	YES
Industry Effect			YES			YES

*, **, and *** indicate a statistical significance level of 10%, 5%, and 1% (using two-tailed tests), respectively.