Shareholder wealth effects of mergers and acquisitions: An empirical investigation of short-term performance in the European market

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Abstract

This thesis looks at the value generated to target and bidder shareholders by the announcement of mergers and acquisitions (M&A) in the European Union over the period 2000-2008 in a sample of 288 deals. Cumulative abnormal shareholder returns, the difference between the expected return on a stock and the actual return that comes from the M&A announcement, reflect the expected value resulting from synergies. Target firms receive on average a statistically significant cumulative abnormal return of 14.92% in a five-day window around the announcement day. Bidders’ cumulative abnormal returns are on average zero. The evidence is consistent with previous empirical findings in the field. When distinguishing in terms of means of payment, the findings show that share price reaction is sensitive to means of payment for both targets and bidders, but there is not enough statistical evidence to document a significant difference between the types of payment. Likewise, it is not possible to find a significant difference between domestic and cross-border M&A announcements suggesting that the market neither compensate nor penalize for the obstacles that the target and bidder might face in cross-border M&A. The relatedness between the target and the bidder based on their SIC-codes is also examined, but no difference is detected. Finally, the study finds that UK targets on average receive larger cumulative abnormal return than their Continental European counterparts which is consistent with previous findings and theories of corporate governance regulations and shareholder protection.

Keywords: Mergers and acquisitions; Europe; event study; market model; means of payment; cross-border M&A; domestic M&A; bidders; targets; takeovers; parametric tests; non-parametric tests
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1. Introduction

Mergers & Acquisitions (M&A) continue to play a major role in shaping business activities. Once a phenomenon seen primarily in the US, M&A are now taking place in countries throughout the world. Continental Europe has experienced M&A bursts interspersed with relative inactivity both domestically and across national borders since the stock market bull run from the recession 1980-81, the deregulation of the financial services sector, and development of new financial instruments and markets, labeled the first European merger wave (Bishop & Kay: 1993, Hitt et al: 2001). The first real increase in M&A activity in the UK, on the other hand, can be traced back to the 1920’s when the development of mass production techniques created an increase in the vertical integration through scale of production, while the second merger wave came in the 1960s as a response to the internationalization of the world economy. There was a need for M&A to create larger firms that would be capable of being effective in international competition especially from countries like the US and Japan (Sundarsanam: 2003). Thus, while Continental Europe experienced their first great merger wave in the 1980s, this marked the beginning of the third merger wave in the UK.

A sharp increase in the number of European M&A deals appeared in the beginning of the 1990s by the introduction of the 1992 Single Market programme, the European Monetary Union, the development of new European stock exchanges and further deregulation, privatization, and growth in the technological industries (Weston et al: 2001). In 2001, the worldwide collapse of consumer confidence and aftermath of the dotcom bubble burst saw the pace of M&A transactions in Europe ease considerably like in the rest of the world. The decline lasted only until 2003 when European M&A activity started to gain momentum again, in what looked like the beginnings of a re-run of the M&A that defined the 1990s. In fact, M&A activity in Europe continued to grow significantly into the new millennium, exceeding the US M&A activity level in terms of both total volume and deal value in 2007. However, as the global economical crisis hit the world during 2008, it caused an abrupt reduction (41% decline from 2007 levels) in M&A activity in Europe that matched a similar global slump in volume¹. Appendix A provides graphical illustrations of the European M&A activity from 1981-2008 in terms of total transaction value and total number of deals.

¹ Based on own calculations from (see appendix A)
The recent increase in European M&A activity in the 21st century presented above raises an interesting question for companies and shareholders all over Europe: Do M&A announcements create value for the shareholder of European bidder and target firms in the short term? The central question is whether shareholders are better off compared to the return on a benchmark (the required return). The question is not only interesting but also highly relevant for a number of reasons: First of all, several short term studies has proved that on average target shareholders gain substantially wealth effect from M&A i.e. abnormal returns, but whether bidding firms shareholders experience a wealth effect from M&A is a matter of ongoing debate among academic researchers (e.g. Moeller et al: 2005). As the net effects of M&A activity remain unclear despite a number of studies, a need exists for continued research on this subject. Secondly, the problem with previous empirical evidence in the field is that the vast majority of studies focuses on observations and cases from the US, Canada, and to some extent the UK leaving little emphasis on M&A activity in the rest of Europe (Bruner: 2004, Brealey et al: 2008, Sudarsanam; 2003). Finally, because scientific evidence on shareholder wealth effects of M&A were published in the 80s and 90s using data from the first and the second European merger waves, a new investigation of shareholder wealth effects after the latest European merger wave is appropriate to sharpen and expand our understanding of M&A activity in Europe - from a modern perspective.

1.1. Problem statement
The arguments presented above are the main reasons and motivations for this thesis, and it is the ambition to conduct the analysis in line with previous academic evidence in the field of M&A. Therefore, this paper will focus on European M&A profitability from a quantitative perspective by examining the abnormal stock returns to shareholders in the period surrounding the announcement date using the event study methodology in a short term window to see whether the findings of the 80s and 90s merger waves are still applicable to European data from the 2000s. The following research question will be investigated:

Do M&A announcement in the European market create value for shareholders of European bidder and target firms in the short term window.

In order to ensure a solid answer, the overall research question is analyzed in connection with the following sub-questions:
(a) What are the effects of different means of payment on the abnormal return to shareholders of the acquiring and target firm?

(b) What are the effects of the target firm or the acquiring firm being involved in domestic versus cross-border M&A on the abnormal return to shareholders?

(c) What are the effects of the target or the acquiring firm being located in the UK versus being located in Continental Europe on the abnormal return to shareholders?

(d) What are the effects of the target and the acquirer firm being from the related or unrelated industries?

To answer these questions the author will test whether shareholders’ wealth gains are enough to compensate them for the risk they bear in being invested in the acquiring firm or the target firm following the acquisition announcement. In other words, the return they earn from investing in the acquirer’s stock or target’s stock is larger than what they could have earned in the market. Therefore, the report will be structured the following way: Section 1 examines relevant theories and motives behind M&A. Section 2 offers an extensive literature review, summarizes the main findings from previous studies on mergers and acquisitions, and establishes relevant hypothesis. Section 3 describes the event study methodology and the tests statistics used. Section 4 explains the data selection method and establishes the final sample. Section 5 provides the reader with descriptive statistic on the final sample. Section 6 presents and compares the results of the statistical analysis, its implications and validity. Finally, section 7 and section 8 conclude on the findings of the study.

1.2. Delimitation

Delimitation has been made due to the scope of the thesis. First of all, the paper will focus only on the short term approach that assumes stock market efficiency whereas the long-term performance assessment with the assumption that markets take time to evaluate the implications of acquisitions will be left out. Market efficiency will be discussed in more details in Section 3. Secondly, the data selection has been narrowed down to domestic and cross-border intra-European M&A deals for the period 2000-2008 where both the acquiring and target firm are member states of the EU. The decision to focus on intra-European deals and not European deals in general is not seen as a pitfall as the vast majority of M&A activity still takes place between to parties located in the Europe rather than transatlantic deals as figures in appendix B illustrates. A detailed explanation of
how the sample has been selected will be presented in Section 4. Thirdly, the thesis will use a single event window only, whereas a number studies on shareholder wealth effects in the short term uses different event windows to detect weather or not there the length of the event window has an impact on the results. This delimitation is not seen as critical weakness as longer windows are likely to capture noise that could overestimate the true impact of the M&A announcement that usually happens a few days prior and after the announcement. Finally, the thesis will not go into details with a full mathematical presentation of the models used, but more importantly focus on the application and consequences of these in relation to the problem statement.

1.4. Evaluation of sources
The sources used and cited are primarily academic articles published in journals. This choice has been made to ensure the use of well-documented theories and frameworks that have been through a critical review process before being release to the public. Also, if the study is carried out in the line with prior empirical investigation in the field of event studies of M&A announcements, it would make comparison more reliable and valid. It is the ambition to select and use a variety of sources in the analysis as we proceed to obtain different perspectives on the relevant issues discussed in the thesis.

2. Theory and literature review
The first part of the literature review will be compromised of a discussion of the possible motives for firms to engage in M&A. The main differences between the neoclassical theories and behavioral theories will be presented as they both are vital in the discussion and understanding of shareholder wealth effects of M&A to target and bidding firms. The second part develops the hypothesis that will be tested in order to answer the questions set forward in the problem statement.

2.1. M&A motives
2.1.1. Neoclassical theory
In modern finance theory (e.g. Manne: 1965), shareholder wealth maximization that are in line with a company’s business strategy is stated as the rational for investment and financing decisions made by managers. This means that firms should invest when the sum of the present values of future cash flows exceeds the initial project outlay. With M&A, the shareholder wealth maximization criterion is satisfied from the bidder’s perspective when the added value by the acquisition of a target
company exceeds the cost of acquisition i.e. the transaction costs and the acquisition premium. Likewise, managers of targets would engage in M&A activity only if it results in gains to the target shareholders. The result is synergy: positive gains to the bidder and the target (Berkovitch & Narayanan: 1993). However, Bruner (2004) notes that “true synergies create value for shareholders by harvesting benefits from mergers that they would be unable to gain on their own”. Therefore, managers as agents for shareholders should think like shareholders to create value and make a detailed analysis of possible synergy values. From an economic and operational perspective on mergers, synergies can be generated by combining the operational resources of two companies if a strategic fit is present. Costs reduction may be achieved through economies of scale, economies of scope, or reductions in assets (Porter: 1985). Revenue enhancements synergies are envisioned to arise from a sale and marketing point of view, while M&A also offers an alternative pathway to tangible, intangible and human resources and capabilities (Simmonds: 1990).

Financial synergies arise from value of leveraging M&A activities versus individual activities. This stands in sharp contrast to the early view of Miller & Modigliani (1958), who argued that in a well-functioning efficient market without taxes, informational asymmetries, and default costs no financial synergy can be found because the market value of company does not depend on its capital structure. However, a firm’s capital structure decision can matter if these assumptions are not true. Therefore, changes in the scope of the firm as a result of M&A, which affect the optimal capital structure, are likely to create financial synergy. For example Lewellen (1971) used the portfolio distribution theory to hypothesis the coinsurance hypothesis as a pure rational for M&A. He explained that a M&A between two or more firms whose cashflows are less than perfectly correlated would reduce the joint probability of financial distress and thereby increases a measure of debt capacity for the combined firm. Additional borrowing capacity for the combined firm would lead to greater optimal leverage and further exploitation of debt tax shields that would create value for shareholders. Likewise, Seth (1990) noted that synergy gains from coinsurance are likely to be lower for target and bidders facing the same market or demand because of a high correlation between their earning streams. Supporting empirical evidence of the coinsurance hypothesis for conglomerate mergers is found in Kim & McConnell (1976) and Higgins & Schall (1975) who reported that the merged firm value may increase due to lower risk. Another common cited reason for firms to be engaged in M&A is diversification, i.e. a reduction of risk. However, if the argument

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2 Interest expenses carry a tax subsidy.
presented above by Bruner (2004) is true, then diversification is less likely to qualify as a pure financial synergy, as investors in perfect capital markets can combine a personal portfolio with the similar risk characteristics. In fact, empirical studies such as Lang & Stulz (1994) and Berger & Ofek (1995) found evidence that in a imperfect market diversified firms has been worth less (measured by Tobin’s $q$) than a portfolio of specialized firms. Thus, shareholders do not seem to benefit exclusively from diversification from a financial perspective. In summary, although financial synergies seems to be present and the combination of synergy are likely to shift the optimal point cost of capital, the economical and operating synergies seems to be the most dominant value-maximization motives for firms engaged in M&A activity.

2.1.2. Behavioral theories
The hubris hypothesis formulated by Roll (1986) postulates that managers systematically commit error of optimism in evaluating merger opportunities due to their excessive self-confidence. The higher valuation of the bidders, compared to the true value of the target, would not have been made by rational bidders. Thus, managerial motives are important determinants for the outcome of the M&A as manager may act to maximize their own utility and engage in ‘empire building’ (Trautwein: 1990, Zalewski: 2001) instead of their shareholders’ value – the paramount goal of classical finance theory as discussed above. For example, Jensen (1986,1988) explains that managers may invest the free cash flow\(^3\) in projects such as acquisitions with negative NPV if that would lead to increased personal utility rather than maximize shareholder value. These free cash flows, which are generally found in the reserves, should rather be paid out as to shareholders in the form of dividends if the firm is to be effective and to maximize the stock price. (Jensen: 1986). Amihud & Lev (1981) and later Black (1989) argue that managers in conglomerate mergers face an “employment risk” because their future employment and earnings potential are highly correlated with the firm’s risk. As a result, risk averse managers may undertake M&A to reduce their employment risk, rather than benefit shareholders, because such risk cannot be diversified in their own portfolio (Weston, Siu, and Johnson: 2001). In addition, Mueller (1969) developed a growth maximization model of M&A based on the argument that managers’ bonuses, social status, salary, and promotions are related to the size of the firm. He argues that because of this relationship, managers a more likely to accept a return of the investment that is lower than shareholders

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\(^3\) Cash flow in excess of that required to fund all of a firm’s projects that have positive net present values when discounted at the relevant cost of capital.
requirements. Therefore, managerial hubris can be viewed as an agency problem that arises due to separation of ownership and control and the resulting divergence between the interest and motives of managers (the principles) and shareholders (the agents) (Alchian & Demsetz: 1972, Jensen and Meckling: 1976).

Whether managers act to maximize their own utility or shareholder’s wealth has been tested empirically in a small number of studies. Lewellen & Rosenfeld (1985) studied the stock returns of 191 acquiring firms during the period 1963-1981 and concluded that positive significant relationship between abnormal stock returns from M&A and the percentage of management ownership in the acquiring firm. He found that managers with large personal ownership in the firm were less like to be engaged in M&A that would reduce acquirer’s shareholder wealth. Similarly, Firth (1991) tested the relationship between executive reward and M&A and found if shareholder value is increased then so is executive rewards. Contrary, when shareholder wealth is destroyed then executives still seem to gain from M&A. These finding are interesting because they support the view that managers through M&A activities may seek to utilize their own utility at the expense of shareholders.

In sum, the three motives discussed in this section would lead to following expectations of the abnormal return to targets and bidders as pointed out by Berkovitch & Narayan (1993): Synergy motives would have a positive influence on the abnormal return to both bidders and targets, while agency motives and hubris motives would influence abnormal return to bidders in a negative way. On the contrary, targets would experience a positive influence on abnormal return if bidder’s M&A is based on agency and hubris motives. Therefore, it can be concluded that targets are likely to experience higher abnormal returns than bidders in the case of M&A announcements.

2.2. Development of Hypotheses

2.2.1 Target and bidders in European M&A

Numerous studies have estimated the effects of M&A on stock prices of acquirer and target firms around the time of announcement of an acquisition using daily stock prices. Evidence indicates that target shareholder earn significantly positive abnormal returns in the days around an M&A announcements. For example, for a sample of 1814 US takeovers in the period 1975-1991, Schwert (1996) found abnormal returns to shareholder of target firms of 10.1 %, whereas Jarrel &
Poulsen (1989), reported return to the target equal to 28.99% when examining a sample of 526 transactions of US companies between 1963 and 1986. A similar pattern is observed in Frank & Harri’s (1989) sample of 1898 UK targets in the period 1955-1985, with a significant return of 23.3%. More recently, Goergen & Renneboog (2004) supported those findings for European transactions, reporting a significant abnormal return of 9.01% to target shareholders. In fact, the findings of 17 major studies on short term performance on M&A announcements, summarized in appendix C, reveal returns that are significant to target shareholders despite variations in time period, sample size, and time period. The weighted abnormal market based return to target firms’ shareholders of the entire 17 studies is 19.81% whereas a slightly higher gain of 20.44% is apparent from the limited number of European M&A transactions. Thus, the results for the European studies seem to be in line with the evidence found in studies involving US based firms. These findings are consistent with other surveys provided by Jensen & Ruback (1983), who summarized 13 studies up to that date and report significant increases in targets stock prices ranging from 16.7% - 34.1% around the M&A announcement. Therefore, based on the previous empirical findings and theories discussed earlier the expectation must be that M&A announcements would lead to significant abnormal returns to shareholders of target firms in Europe.

The pattern of findings about shareholder return to the bidding party is more complex. Franks et al (1991) found for a sample covering 399 US takeovers consummated in the 1975-1984, a small insignificant negative return to shareholders of the acquiring firm of -1.02%. Supporting evidence are found in Mulherin & Boone’s (2000) sample of 138 US acquirers over a 9 year-period (1990-1999) and Kuiper et al (2003), covering 181 US acquiring companies in the period 1981-1991, who report negative returns of -0.37% and -0.92%, respectively. On the contrary, there are several studies that report small positive returns to acquirer shareholders including Bradley el al (1988), who found evidence of significant positive return of 0.97% in a US sample in the time period 1963-1984 of 161 tender offers. Dod & Ruback (1977) also provided empirical estimates of the stock market reaction to 169 tender offers. However, their research was split into successful and unsuccessful acquirers, finding evidence that only successful acquirers earn significant positive abnormal returns of 2.83% versus an insignificant return of 0.58% for unsuccessful acquirers. This was later confirmed by Asquith (1983) stating a 3.48% and 0.7% abnormal return to successful and unsuccessful acquirers, respectively. From Appendix C, which summarizes the findings of 22
studies including those already discussed, it is evident that 10 studies report small positive returns, whereas the cumulative abnormal return of the 12 remaining studies is small and negative. Therefore, although it cannot be concluded that there is strong support for either positive or negative cumulative abnormal returns, the very small weighted average cumulative abnormal return for all 22 studies combined with the fact that all four studies using data from European M&A show positive returns close to zero, the expectation must be that shareholders of acquiring firms on average face positive abnormal returns.

In the light of the above review of previous empirical literature, the following hypothesis is posited:

\[ H_{1a} : \text{M&A announcement by European firms will generate positive abnormal returns for target shareholders in the short term} \]

\[ H_{1b} : \text{M&A announcement by European firms will generate positive abnormal returns for bidding shareholders in the short term} \]

2.2.2. Means of payment in M&A

When one firm acquires another it can pay for the acquisition with cash (cash in exchange for shares), equity (a specified number of the bidder’s shares for each target share), or some combination (loan notes, deferred payment, share and equity). The method of payment in takeovers has been suggested to be important for a number of reasons. From a theoretical point of view Jensen (1986) discusses agency costs of free cash flow and argues that acquisitions financed with cash and debt will generate larger benefits than those accomplished through exchange of stocks because “stock acquisitions do nothing to take up the organizations’ financial slack and are therefore unlikely to motivate managers to use resources more efficiently (Jensen: 1986, p. 36). Thus, firms that have large amount of cash, or a high cash flow are more likely to make cash offers. This theory is in line with the signalling hypothesis of information asymmetry presented in Myers & Majluf (1984), suggesting that because the board of the bidder company holds superior information about the value of the company and want to act in interest of their current shareholders, they will use stock as medium of exchange if they believe their shares are overvalued (low private valuation bidders). Contrary to that, boards who believe that their stocks are undervalued (high private valuation bidders) will fund the takeover by other means such as
cash, debt or abandon the acquisition. Since target shareholders know this, and are insufficiently informed to determine the “true” value of the acquiring firm, an adverse selection arises, and they reduce their estimate of the acquirer’s value. The result is that target shareholders are not inclined to accept a stock offer\(^4\). Fishman (1989) expands on this theory assuming both two-sided information asymmetry\(^5\) and more than one bidder in the market. He argues that when the initial bidder identifies a target, other potential bidders will study the offer and only incur costs to obtain information concerning the profitability of the offer, if the initial bidder’s valuation of the target is below a certain threshold. By offering all-cash, the initial bidder, pays a relative high overpayment costs, because the target only accepts cash offers that exceeds its private valuation, but at the same time signals a high valuation of the target to the market that indicate that the bidder will be able to exploit the investment opportunities by the target. This will discourage potential bidders to enter into competition\(^6\) and hence lead to a higher abnormal return for the bidder. In addition, Hansen (1987) argues that bidders, in the case of uncertainty in target valuation, make stock offers as they have a “contingency pricing effect” i.e. reduce overpayments because target shareholders share part of the risk if the bidder overpays when evaluating a stock offer (Hansen: 1997, p. 76). Eckbo et al (1990), on the other hand, suggest that two-sided information asymmetries between the bidder and the target can lead to an optimal mix of cash and stocks as payment method. The authors show that the amount of cash in the composition of the mixed offer to the target, reveal the true post acquisition value of the bidding firm, and that high private valuation bidder offers more cash. In addition, and contrary to Fishman (1989) and Myers & Majluf (1984), the authors claim that abnormal returns will consist of two components: synergy revaluation (expected synergy gain independent of the method of payment) and signalling (the true bidder/synergy value gain dependent of the method of payment). Only the synergy revaluation component is present in all-cash offers, whereas all-equity offers are linked to the signalling component. Mixed offer captures both a signal component and a synergy revaluation component, and thus are assumed to offer higher abnormal returns to the bidder, than the other two payment methods.

Finally, it is worth considering the taxation aspect of the different types of payment. Cash acquisitions are considered as immediately taxable for the target firm shareholder held by individuals. However, when the shareholder is a capital gains tax-exempt fund, such as a pension

\(^4\) This phenomena is coined "lemons problem" by Akerlof (1979)
\(^5\) Bidder and target each have private information about their own value
\(^6\) Demonstrated in Fishman (1988)
fund or investment trust, this problem does not arise. Stock acquisitions in general are tax deferrable until the shares are sold. Consequently, in cash offers a larger premium is required to compensate for the additional tax burden for the target firm (Gordon & Yagil: 1981). However, Blackburn (1997) notes, the amortization of this goodwill will artificially bring down the earnings of the bidding firm. Thus, reconciling the benefits of all-cash and all-equity acquisitions for tax purposes is complicated as the benefits to taxation of a given payment method correspond to a drawback for the other one.

Empirical research supports the ideas presented above. For example, Wansley et al (1983) tested for differences in return for the target firm after controlling for payment, and find that targets in cash acquisitions, on average, gain a 33.54 % abnormal return around the announcement, which is almost twice the corresponding number (17.47 %) for targets engaged in stock acquisitions. Their explanation of this difference is the tax effect, discussed above, and the regulatory requirements that favour cash as means of payment. Likewise, Huang & Walking (1987) reported an average target abnormal return for cash offers of 29.3 % compared with 14.4% for stock offers, while the number for mixed payment equalled 23.3%. The difference is statistically significant. Consequently, it can be conclude that targets are likely to gain more from all-cash offers, than all-equity or mixed offers.

From the bidder perspective, Travlos (1987) found significant differences between cash acquisitions and stock acquisitions announcements, for 60 bidding firms. Bidding firms that use stock offers had a significant negative influence on the cumulative abnormal return of -1.47 percent, whereas bidders using cash offers gained an insignificant cumulative abnormal return of 0.24 percent. Brown & Ryngaert (1991) support these finding using a larger sample of 268, reporting a 0.06% abnormal return to cash offers, -2.74 % abnormal return to stock offers, while mixed offers (cash and equity) results in an abnormal return of 2.48% (the latter two statistically significant). Therefore, as was the case for target shareholders, the expectation is that bidder shareholders are likely to gain the most abnormal return from all-cash offers.

Based on the evidence presented above the following hypothesis is formulated:

\[ H_{2b} \text{ Average abnormal returns to target shareholders in M&A announcements of all-cash offers are significantly higher than for all-equity offers and mixed offers.} \]
Average abnormal returns to bidder shareholders in M&A announcements of all-cash offers are significantly higher than for all-equity offers and mixed offers.

2.2.3. Domestic versus cross-border M&A
The number of firms engaged in merging with or acquiring companies outside their home country has continued to increase in the 21st century, to the point that it has become a major strategic tool for corporate growth (Delios & Beamish: 2004). Viewed originally as primarily an activity of US firms, cross-border M&A are now becoming more prominent among European companies. The integration of national economies in the EU, deregulation and privatization of large industries has decreased the cost of making acquisitions and transactions across European borders, which, in particular has been facilitated by the introduction of the single currency (Campa & Hernando: 2004). Driving forces behind cross-border M&A, besides growth, are imperfections in product markets (Caves: 1971), imperfections and asymmetries in capital markets (Chan et al: 1992, Cooke & Author: 1988), differences in taxation (Weston et al: 2001), and to capture rents resulting from market inefficiencies (Serveas & Zenner: 1994). These motives will briefly be discussed. The theory of market imperfections and failures suggests that buyers will recognize profitable opportunities to take advantage of cheap labour, latent consumer demand, deregulations, trade, and country integration of capital and product markets into global markets. Asymmetries in capital markets allow firms to exploit favourable exchange rates movements as variations in exchange rates can make one country’s firm cheaper or more expensive to buyers from another country. For example, Froot and Stein (1991) examined the relationship between exchange rate and foreign direct investments (FDI) and found that the relative wealth of countries because of strong currencies have a systematic effect on FDI. Likewise, Harris and Ravenscraft (1991) found a relationship between exchange rate movements and announcement of cross-border M&A. On the other hand, global tax arbitrage theory suggests that because marginal tax rates vary across the world permits global companies to move part of the value chain to counties with lower taxes. However, Dewenter (1995) found no empirical evidence that the US corporate tax changes is related to the level of M&A activities and Harris and Ravenscraft (1991) found no relationship between changes in US tax law and cross-border M&A return. Therefore, empirical evidence does not give full support for this motive. Finally, cross-border acquisitions can reduce risk through geographical diversification under the assumption that economic activity across countries is less than perfectly correlated (Adler & Dumas: 1975). For example, Fatemi (1984) compared the share
prices of multinational companies (MNC’s) to that of firms only involved in domestic business and concluded that the beta of the MNC’s were more stable than domestic firms and that the risk adjusted abnormal return to MNC’s are similar to that of domestic firms. The problem with this motive is, as discussed in section 2.1, that such argument must be based on the assumption that certain restrictions in the capital market make it difficult to replicate such diversification in their own portfolio.

A firm’s decision to make acquisitions cross-border is based on the theory that if the firm poses a resource or a unique advantage specific to the firm, then it provides the firm with the competitive edge required to undertake and sustain FDI activity (Dunning: 1981, Barney: 1991). The sources of such advantages include intangible assets, technology, management skills, and common governance that arise from the organization of ownership advantage with complementary assets that could lead to economies of scale and scope (Cartwright & Cooper: 1993). Alternatively, cross-border M&A provide opportunities to obtain and internalize valuable and unique resources such as marketing skills, production skills, patents etc. that complement and strengthen a firm’s own resource base (Hitt et al; Bartlett & Ghoshal,1989; Barney 1991). The complications of cross-border M&A from the bidder’s perspective is liability of foreignness (Zeheer: 1995) i.e. lack of country and firm specific knowledge of the foreign target firm that potentially would lead to unsuccessful acquisitions and wrong valuation of foreign targets especially in the situations where the foreign target has high levels of intangible assets (Reuer et al: 2004). The result of information asymmetry would be greater acquisitions costs and bid premiums that would benefit foreign target shareholders in the short term, but lead to zero or negative shareholder wealth effects for bidders (Datta & Puia, 1995, Reuer et al: 2004).

A number of studies have examined the wealth impact of shareholders involved cross-border acquisitions. Doukas et al (1988) presented evidence on the effect of international acquisitions on stock prices of 301 US acquirers engaged in M&A activity for the period 1973-19. The total sample did not show any abnormal performance of US acquirers relative to the pre- and post-announcement day. However, after dividing the original sample into three homogeneous subsamples; US firms expanding internationally for the first time, US firms not operating in the target firm’s country, US firms already in the target firm’s country), the sample of 99 US firms not operating in the target firm’s country were associated with a small but positive significant
abnormal return of 0.31 percent to acquirers. The other two samples showed very small and insignificant abnormal returns of 0.74 and -0.08 respectively. The authors argue that their findings show that the abnormal returns are larger when firms expand into new industry and geographical markets, and most pronounced when the entry is into an emerging market country (Doukas et al.: 1988). Likewise, Datta & Puia (1995) report no abnormal returns to shareholders of the acquiring firm in their study of 112 large cross-border acquisitions between 1978 and 1990, and Fatemi & Furtato (1998), documents small insignificant negative returns when investigating a sample of 117 US acquirers for the period from 1974 to 1979. Harris & Ravenscraft (1991), on the other hand, studied shareholder wealth gains for 1273 US targets acquired during the period 1970-1987, and demonstrated that target wealth gains were significantly higher in cross-border takeovers than in domestic acquisitions. Eun et al (1996) investigated a sample of foreign acquisitions of US targets during the period 1979-90 and reported a significantly positive abnormal return for US targets of 37.02%, but significantly negative abnormal return for the overall sample of acquirers of -1.2%, however, with different returns across countries of acquirers. In a more recent study, Corhay & Rad (2000) tested wealth effects of international acquisitions using a sample of foreign acquisitions by Dutch firms during the period 1990-1996. Their results shows small insignificant negative abnormal returns to Dutch firms engaged in takeovers of firms located in Europe, whereas M&A involving targets in the US showed significant abnormal returns to the Dutch shareholders of 4.83% at the time of announcement. Moeller & Schlingemann (2005) found in a comparison of UK and US acquirer, domestic announcements generating more wealth than cross-border announcements. Likewise, Campa & Hernando (2004) reached a similar conclusion for bidders in a sample of 262 European M&A announcements over the period 1998-2000, while targets gained substantially more from cross-border mergers.

This overview illustrates that there are no clear empirical results confirming the shareholder wealth effects of the bidding firm due to domestic or cross-border takeover announcements, whereas target shareholders seems to gain in both domestic and cross-border M&A, however it is expected that target’s shareholder gain is higher for cross-border announcements. Thus, the following hypotheses are posited:

\[ H_{34} : \text{Average abnormal returns to target shareholder in cross-border M&A announcements are significantly higher than for domestic M&A announcements.} \]
$H_{3b}$: Average abnormal returns to bidder shareholder in cross-border M&A announcements are significantly higher than for domestic M&A announcements.

2.2.4. UK versus Continental Europe M&A

The UK and Continental Europe corporate governance arrangements originate from two different commercial law systems; the common law system and the civil law system, respectively\(^7\) (La Porta et al: 1998). Legal traditions are important due to major differences in ownership structure, shareholder protection, and the capital market. Franks & Mayer (2001) used the terms “outsider” and “insider” systems to differentiate between the two systems of the Anglo-Saxon countries and Continental Europe, respectively. In the “outsider system” there is large equity markets and dispersed ownership of corporate equity among a large number of outside investors that tend not to hold major shareholdings in any given company. As a consequence, shareholders exert little direct control over companies, and the separation between ownership and control is high. Therefore, the principal agency problem that relates to the existence of a general conflict between managers and all shareholders, as described in section 2, are assumed to be more frequent in common law countries such as the UK. Likewise, because voting power is dispersed, free-rider problems\(^8\) of corporate control that affects stocks markets are more likely to occur in this system (Shleifer & Vishney: 1997, Renneborg: 2006). In an “insider system”, like that of many Continental European countries, the numbers of listed companies as a percentage of the total number of companies is lower than in the UK, companies are on average smaller in size, and ownership tends to be highly concentrated, with shares often being owned either by holding companies, families or the state (Vincke: 1998, Franks & Mayer: 2001). Figure 1 in appendix D supports this idea by comparing the percentage of listed companied with block holders owing more than 85% of voting shares\(^9\). The percentage in the UK is less than 16%, while the number for countries located in Continental Europe range between 93.6 and 64.2 %. Likewise, from figure 2 in appendix D it is evident that the percentage of listed companies under majority control is remarkably higher on the Continent in comparison with UK.

\(^7\) Although no two nations’ laws are exactly a like, scholars agree that countries can be divided into one of the two legal traditions based on the historical background, the legal institutions, and the development of the legal systems (Glendon et al: 1994)

\(^8\) Individual investors will bear the costs of control, but will only benefit from it in the percentage of his stake in the firm.

\(^9\) Block holder is defined as individual shareholders, groups of shareholders or organizations.
The difference in shareholder concentration between the UK and Continental Europe may have an influential impact on the market reaction to M&A announcements. Some scholars argue that the presence of a large blockholders in the bidding firms guarantee that the acquisition is driven by shareholder wealth maximization and synergy effects, because the blockholder is able to control and monitor corporate decisions (Barclay & Holderness: 1992, Agrawal & Mandelker: 1990). This would result in positive markets reactions for bidder of Continental Europe in the case of an M&A announcement. The opposing, and more widely held view, is that blockholders are motivated to use their voting power to expropriate private benefits from minority shareholders (Faccio & Lang, 2002; Bae, Kang, & Kim 2002). The result is that large blockholders in Continental Europe may control decisions in directions that may exceed the level that would maximize minority shareholder value (Faccio & Stolin: 2006). Thus, the central problem in the “insider system” is that large agency costs may occur between blockholders and minority shareholders. As consequence, it would be expected that the market would react less positively to M&A announcements of target or bidder companies located in Continental Europe compared to firms in the UK.

The number empirical evidence on the market reaction to M&A announcements by legal origin of the firm is limited. However, Goergen & Renneborg (2004) reported that the M&A announcement effect for a sample of 158 deals covering the period 1993-2003 is substantially larger for UK target firms (12.3%) than for firms located in Continental Europe (6%). Likewise, UK bidders obtain a cumulative abnormal return of 1.5% whereas the bid premium is only 0.9% for Continental European bidders. Martynova & Renneborg (2006) supported these findings in a large sample of 2419 deals involving firms from 28 European countries in the period 1993-2001, stating that UK target firms experience abnormal returns of 17.64 % that are significantly higher than the 10.19 % abnormal return to their Continental European peers. Contrary, UK bidding firms only experience a 0.5 % abnormal return which is less than a 0.94 % announcement bid premium for firms in Continental Europe. Thus, the evidence is unambiguous when it comes to effects on abnormal return of the target being located in the UK compared to target firms based in Continental Europe, whereas the findings from an acquirer perspective are more uncertain. Consequently, the fourth hypothesis can be formulated as follows:

\[ H_{44}: \text{Average abnormal returns to UK targets are significantly higher than for targets in Continental Europe} \]
\( H_{4b}: \text{Average abnormal returns to UK bidders are significantly higher than for targets in Continental Europe} \)

2.2.5 Focus versus diversification M&A

The final hypothesis deals with the relatedness between the bidder and the target; a deal is considered a related or focus-oriented strategy if the bidder and the target are from the same industry measured by the two first digits of the four-digit Standard Industrial Classification (SIC) codes. All other M&A are classified as unrelated or diversification strategies (Morgan et al: 2004)\(^{10}\). The question of abnormal return based on relatedness is important because of the relative high volume of European M&A transactions motivated in part by a theory of need to focus or diversify. For example, Rondi et al (1996) and Sudarsanam (2003) show that focus-oriented and diversification firms have increased at the expense of single business firms in France, Germany and the UK, from the 1950 and up until now. Diversification may be explained in terms of different perspectives (economic, strategy-based, finance theoretic) that has already been discussed. However, theory also suggests that diversification may create value as a result of increase market power i.e. the ability to affect the prices of goods hence hold down entrants and current single business rivals in the market (Pindyck & Rubinfeld: 2005). This could be achieved through mutual forbearance, cross-subsidizing, and reciprocal buying strategies that a single-business competitor will not enjoy and may be driven out of the market (Chevalier: 2004). The problem is that a curvilinear relationship seems to exist between the extent of diversification and market power which suggests that as diversification increases, the firm initially enjoy greater market power, but beyond a certain level of diversification, market power starts to decrease (Palich et al: 2000). Likewise, empirical evidence on market power of conglomerates is mixed at its best (Sundarsanam: 2003). Thus there is not much support of the market power proposition in the discussion of focus versus diversification strategies. Secondly, advocates of diversification such as Williamson (1975) and Stein (1997) argue that in the case of capital market failure diversified firms can benefit from the creation of an internal capital market as the cash flow generated internally can be pooled and may allow a more efficient capital allocation of risk capital. However, because of the greater diversity and complexity of diversified firms and a lack of control to monitor and evaluate a firm’s investment decisions, opponents argue that this reduce the

\(^{10}\) Rumlet (1982) uses a different typology based on sale in the main business. For convenience Morgan et al (2004)’s definition is used.
attractiveness of internal capital markets relative to external markets (Stulz: 1990, Matsusaka & Nanda, 1997; Rajan et al, 2000). Also, because investors require more information to value diversified compared to focused firms, but in general are not provided more information by the diversified firms, asymmetry of information arises that might cause diversified firms to be traded at a discount relative to focused firms (Scharfstein & Stein: 2000). Thus, unrelated diversification is inefficient and a result of agency costs that will not benefit shareholders of the firm.

Empirical evidence on the stock markets reaction to focused versus diversification strategies is scarce, especially in terms of evidence from Europe. Morck et al (1990) compared abnormal return to focus-oriented deals and diversification US deals during the 1975-1987 based on the SIC code categorization described above. The authors found no significant difference between the abnormal return in focus-oriented deals (within the same two-digit industry) and diversification deals (outside the two-digit industry) to target and acquirers around the M&A announcement. Walker (2000) also documented that related acquisitions did not generate higher value than unrelated acquisitions for both targets and acquirers in a sample of 278 US M&A announcements in the time period 1980-1996. These findings are in line with a UK study by Sundarsanam et al (1996) who found no difference between the gains to shareholders in related and unrelated M&A announcement for sample of 429 deals during 1980-1990. On the contrary, Sicherman and Pettway (1987) reported in a sample of 147 US M&A announcements, that related firms enhances the shareholder wealth of acquiring firms whereas the opposite is true for unrelated firms. The difference between the two is significant. Finally, in a recent European study, Martynova & Renneboog (2004) found that irrespective of the corporate strategy, target shareholders earned abnormal return. However, the abnormal returns were significantly larger for unrelated M&A announcements compared to unrelated M&A announcements. Bidders, on the other hand, experienced significantly higher short-run wealth effect around the announcement in takeovers of related firms.

In the light of the above review that showed mixed results, the following hypothesis is posited:

$$H_{4b}: \text{Average abnormal returns to targets in diversification M&A announcements are significantly higher than for focused M&A announcements.}$$
Average abnormal returns to bidders in focused M&A announcements are significantly higher than for diversification M&A announcements.

Now that all of the hypotheses have been established, the next part will present the reader to the methodology used in the thesis to detect abnormal return for European target and bidding firms.

3. Methodology

The event study methodology widely is used to measure the impact of a particular event on value of the firm such as earnings announcement (Ball & Brown: 1968), stock splits (James Dolley: 1933, Fama et al: 1969), dividend announcements (Asquith & Mullins: 1983), and M&A announcements (Jarrel & Poulsen: 1989) etc. While the applications possible with event studies are numerous, the general flow and approach of the analysis is the same (Campell & MacKinlay: 1997). First, the event of interest is identified and the event window is defined. Secondly, the sample set of firms to include in the analysis is selected. Thirdly, the “normal” return during the event window in the absence of the event is predicted, and the abnormal return within the event window is calculated, where the abnormal return is the difference between the actual and the predicted returns. Finally, it is tested whether the abnormal return is statistically different from zero. However, it is only appropriate to use event study method when an assumption of market efficiency is made (McWilliams & Siegel: 1997). The assumption will briefly be discussed below.

3.1. Market efficiency

An efficient market is defined as one in which a stock price fully incorporates all available information on that stock (Samuelson: 1965, Fama: 1998). If this is true, then any financial relevant information that is newly revealed to investors will be instantaneously incorporated into stock prices, because as soon as there is any information indicating that a stock is underpriced, investors will buy the stock and immediately bid up its price to fair value (Fama: 1965). This will rule out arbitrage opportunities, and investor will only earn a fair return (Bodie et al: 1989). Fama (1970) introduced three versions of the efficient market hypothesis (EMH) that differ by their notions of what is meant by the term “all available information”: the weak, semi-strong, and strong forms of the hypothesis. The weak form of the EMH suggests that stock prices already reflect all historical information, which implies that prices follow a “random walk” i.e. changes in stock prices are independent of each other and have the same probability distribution (Kendall: 1953). Scholars agree that this form of the EHM is a rather weak test because it fails to control for other
factors that are unrelated to the acquisition such as systematic effects and other firm specific events (Bodie et al: 1989). The *semi-strong form* asserts that all public available information is already incorporated into the stock prices. Contrary to the weak test, it controls for factors in the industry or the entire economy by introducing one or more benchmarks. The problem with the semi-strong form is that benchmarks are imperfect in the sense that noise and confounding effects might still influence the results, but by selecting relevant benchmarks and using a large sample size, the complications can be minimized (Bruner: 2004). Finally, the *strong form*, which generally is acknowledge to be extreme (e.g. Seyhun: 1986, Dreman & Berry: 1995), states that stock prices reflect all information relevant to the firm, both public as well as private. Thus, as no real market inefficiencies exist, it is theoretically impossible for anyone to earn abnormal returns from the stock market. Although, a number of scholars disagree on the general validity of EHM (e.g. La Porta et al: 1997), the semi-strong form of EHM seems to have formed the basis for most empirical research. Therefore, the notion of semi-strong informationally-efficient markets leads to the conclusion that one should be able to measure the importance of unanticipated M&A announcement by examining the difference between the actual post-event return and the return expected in the absence of the event.

### 3.2. Estimation period, event day and event window

First the period over which the stock price of the firms involved in M&A announcement will be examined. Let \( T_i - T_0 \) denote the estimation period, \( T_i + 1 \) to \( T_2 \) the event window, and 0 the announcement day of the M&A (see figure 1). The estimation period denoted \( T_i - T_0 \) of the present study encompasses 250 days immediately prior to the start of the event window. This length is based on Peterson (1989) and Armitage (1995), who argue that when dealing with daily studies an estimation period of 100-300 days are sufficient for satisfactory assessment of the parameters in statistical pricing models. Furthermore, consistent with MacKinley (1997), the event window is excluded from the estimation period to avoid that the event itself influences the estimation of the parameters.

**Figure 1: Timeline**

![Timeline](image)
Determination and correctly identification of the event date is critical. Brown & Warner (1980) emphasize this point because misidentification of an event can easily obscure the results of the event study method. To deal with this issue, the event date of this thesis is defined as the official announcement day of the M&A deal, as suggested by Dodd & Ruback (1977). Also, to minimize the problem of misidentification of the official event day, extensive cross-checking will be performed during the sample selection in section 4.

In a perfectly efficient market it would be sufficient to restrain the window only to include the event day. In practice, the event window is often expanded to a couple of days. This is done to capture market reactions of announcements where it is unclear whether the market has the information during trading hours or whether information is available after the stock market closes (Masulis: 1980). Furthermore, the pattern of return for the days preceding the official M&A announcement day suggests that information leakage is a problem at a significant level up to 12 trading days prior to the announcement (Keown & Pinkerton 1981). For that reasons, it is common to detect abnormal returns on both sides of the event day which rejects the strong form of the EMH. Based on this evidence, a short five day event window spanning from 2 days prior to the announcement to 2 days after the announcement [-2;+2] is found to be appropriate for this thesis to maintain the statistical power of the event study methodology.

3.3. Models for measuring “normal” and abnormal performance

A number of statistical models are available to calculate the “normal” return that would be expected if the M&A announcement did not take place. These include the risk-adjusted model, the constant mean return model, the market model, and multi-factor models such as that presented by Fama and French (1993). To discuss all these statistical models would go beyond the scope of this paper. However, as the market model encompasses the other two models and the fact that this model is used in the vast majority of previous studies of shareholder wealth effects of M&A announcements serve as the main justification for the use of the market model to assess the expected normal return i.e. the market return\(^\text{11}\). Sharp (1963) and Fama et al (1969) state that for any given stock \(i\) the following ordinary least square (OLS) regression can be applied:

\[
R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}, \tau = -252, \ldots, -3
\]

\(^{11}\) The advantage of the mean adjusted return model and the market adjusted return model is their simplicity and minimum requirements of computing capacity.
where $R_{ix}$ and $R_{mx}$ are the return of stock $i$ and the return of the benchmark market index (the expected return on the stock) at time $\tau$ respectively. $\epsilon_{ix}$ is the random zero-mean disturbance term i.e. forecast error and the coefficients $\alpha$ and $\beta$ are firm specific parameters of the market model to be estimated. The abnormal return $AR_i$ for a given stock $i$ is then the difference between the observed return and the expected predicted return:

$$AR_{ix} = R_{ix} - (\hat{\alpha}_i + \hat{\beta}_i R_{mx}) = \epsilon_{ix}, \; \tau = -2, ..., +2$$

(2)

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are estimated by the OLS regression in (1) using data from the estimation period presented in section 3.3. From equation (2) it is also evident that abnormal return and the forecast error $\epsilon_{ix}$ in the market model is the same because this coefficient is the part of a stock’s return resulting from the M&A announcement. To capture the total firm-specific effect stock movements for the entire event window [-2, +2] in which the market might respond to new information, the cumulative abnormal return (CAR) is calculated by summing all abnormal return for the window:

$$CAR = \sum_{\tau=-2}^{+2} AR_{ix}$$

(3)

The benchmark used in the OLS regression is important as it represents the return investors could have earned on other investment opportunities of similar risk. There is considerable evidence that the choice of benchmark can have an important impact on abnormal return (e.g. Fama & French: 1996). Typically, the benchmark is estimated by the capital asset pricing model (CAPM) or represents the return on a broad index at either the international, regional, or industrial level. Because this thesis deals with M&A announcement of firms in several European countries a benchmark of the market performance in each of countries is relevant. Therefore, the author will use the free-float adjusted equity index provided by Morgan Stanley Capital International (MSCI) which represents approximately 85% of the total market capitalization in each industry group in the respective European countries. A complete list of the indices and mnemonics is available from appendix E.
3.4 Parametric and non-parametric test statistics

Test statistics to infer whether to attribute observed abnormal returns to chance or the M&A announcements can be conducted by means of parametric and non-parametric tests. The two categories of test statistics are briefly discussed below and a battery of test statistics are selected\(^\text{12}\).

3.4.1. Parametric tests

Parametric test statistics for abnormal performance during the event window are based on a standard \(t\) test to infer if the cumulative abnormal returns are significantly different from zero. Thus, under the null hypothesis of no abnormal performance no difference between the means should be detected. The numerator of the \(t\)-test measures the impact for the M&A announcement relative to the “normal” return that would be expected in the absence of the announcement based on the market model (as discussed above), whereas the denominator takes care of scaling the number using an estimated variance. The \(t\)-test makes four assumptions about the population parameters i.e. measures computed from all the observations in the population that cannot be violated in order to rely on the outcome of the test: the observations must be drawn from a normally distributed population, the observations must be independent, the populations must have a constant variances (homoscedasticity), and an expected value of the abnormal return of zero. Especially, the assumption of the underlying population being normally distributed is seen as incontrovertible for the robustness of the parametric test in event studies (Keller; 2005). Bartholdy et al (2007) emphasize that skewness and kurtosis should both be zero under the null hypothesis as positive kurtosis would lead to false rejection frequencies, while skewness different from zero would lead to rejection frequencies that differ for positive and negative events. Therefore, the assumption of normality will be discussed in section 5, which present the reader to descriptive statistics of the data.

Bartholdy et al. (2007) analysed the efficiency of event study method on thin, medium and thickly traded stocks using data from Copenhagen Stock Exchange. The analysis involved a test on the performance of three different parametric test statistics, that adjust for different problems in the data; (a) \(t\) -test with adjusted cross sectional independence (Brown & Warner, 1985; Patell, 1976), (b) \(t\) -test with standardized abnormal return (Brown & Warner, 1985), (c) \(t\) -test with adjusted standardized abnormal return (Brown & Warner, 1985; Patell, 1976). They concluded that (c)

\(^{12}\) A full presentation mathematical presentation of the tests is beyond the scope of this thesis.
performed best when compared with (a) and (b), and (a) better when compared to (b). Therefore, in line with these findings, this thesis will use (a) $t$-test with adjusted cross sectional independence and (c) $t$-test with adjusted standardized abnormal return\textsuperscript{13}.

### 3.4.2 Non-parametric tests

The disadvantage of parametric test statistics is the advantage of the non-parametric test statistics; they do not embody detailed assumptions about the probability distribution of return. Campell and Wansley (1993) argue that thinly traded stocks are more likely to be characterized by a high frequency of zero that would result in non-normal distribution and distort the variance estimates that are required for the parametric tests. The result is that the parametric $t$-test rejects a true null hypothesis too often (Type 1 error) in their sample of stocks traded at NASDAQ. Maynes & Rumsey (1993) found a similar misspecification of the test in a study of thinly traded stocks at the Toronto Stock Exchange. A solution to this problem is to use variations of the conventional parametric $t$-test as presented above to secure a more robust result or to use non-parametric tests. Corrado (1989)\textsuperscript{14} proposed, through simulations using daily stock data from New York Stock Exchange and American Stock Exchange, a rank test that does not require symmetry in cross-sectional abnormal return distributions for correct specification. His findings suggest that rank test is resistant to misspecification caused by an event-date abnormal return variance increase, and is generally more powerful than its parametric counterparts (Corrado: 1989). Campell and Wansley (1993) found supporting evidence of this view and demonstrated the rank test to be superior to the traditional $t$-test and robust to increases in variance of abnormal returns on event days, autocorrelation, and overlapping sample periods. In the application of the rank test, each sample firm’s series of abnormal return is converted into ranks which transform each abnormal return distribution into a uniform distribution (Corrado 1989; Corrado & Zivney, 1992). After a standardization procedure, the rank test statistics is the ratio of the mean standard deviation of the stock’s event window rank to the estimated standard deviation of the total portfolio mean abnormal rank return.

Corrado and Zivney (1992) introduced a sign test that contrary prior non-parametric sign tests used a sample abnormal return median to calculate the sign of an event day abnormal return instead of the assumption of an abnormal median of zero. The result would be a sign test resistant to

\textsuperscript{13} For a mathematical presentation see Bartholdy et al. (2007)

\textsuperscript{14} The rank test was later modified in Corrado Zivney (1992)
skewness in the distribution (Corrado and Zivney: 1992). By comparing the sign test to a parametric \( t \)-test and the nonparametric rank test described above, their simulations with daily stock data showed that the sign test performed better under the null hypothesis of zero abnormal return than the \( t \)-test and often more powerful under the alternative hypothesis. However, Corrado and Zivney (1992) concluded that Corrado’s (1989) rank test still performed better than both the sign test and the traditional \( t \)-test. The objective of the sign test is to test that the abnormal return is zero in the event window and it an equal number of negative abnormal returns and positive abnormal returns in this event window would be expected. If a small number of either plus or minus can be observed then it would to a rejection of the null hypothesis. The sign of each abnormal return is calculated as the difference between the abnormal return and the median of the firm’s series of abnormal return transformed into a sign (+1,0,-1) depending on whether the difference is positive, negative or zero. The test statistic of zero abnormal return on the event day is calculated by means of the signs across the sample on the event day divided by the estimated standard deviation of the total portfolio mean abnormal return sign (Corrado and Zivney: 1992).

It is important to stress that non-parametric tests are not perfect. The major disadvantages are that they are not as powerful as the parametric tests when the assumptions related to test are fulfilled. Bartholdy et al (2007) also conclude that no individual test (parametric or non-parametric) is superior to the others for different portfolio sizes and trading frequencies. Therefore, this thesis will use a battery of four tests statistics (two parametric, two non parametric) to increase the validity of the conclusions.

3.5 Test of difference between average CAR

In order to test whether a difference exists between the cumulative average abnormal return values of all-equity sample, all-cash sample, and mixed payment sample the traditional one-way analysis of variance (ANOVA) or F-test is applied. The reason for this choice is that multiple \( t \)-test increases the probability of making Type I errors i.e. rejecting a true null hypothesis. The test statistic is computed in accordance with the following rationale. If the null hypothesis is true, the sample means would all be equal (the sample means would be closer to one another), whereas if the alternative hypothesis is true there would be large difference between some of the sample means. From the F-test it can be concluded whether or not at least two treatments means differ, but it does not indicate which treatment means are responsible for these differences. To deal with this
problem, there are several statistical inferences procedures such as Fisher’s Least Significant Difference (LSD), Bonferroni’s adjustment to LSD, and Turkey’s multiple comparison method.

To draw inferences about the difference between the cumulative average abnormal return of two samples such as the domestic sample and the cross-border sample, a simple parametric $t$-test is applied. The F-test could be used instead of the $t$-test as the relationship between the two tests statistics is that $F = t^2$ so exactly the same conclusion would be reached, but as the F-test requires that the population variances are equal and does not tells us whether one sample mean exceeds the other, the $t$-test of equal or unequal variance is found more convenient.

The assumptions related to the ANOVA and the $t$-test of independence between samples, normality, independent errors, and variance homogeneity will be discussed and tested as the empirical findings are presented in section 6. Now follows a detailed description on how the sample was constructed

4. Data selection
The sample of European M&A deals announced between 2000 and 2008 were collected from the Bureau van Dijk’s ZEPHYR database which contains detailed financial historical data on M&A Activity, IPO’s, joint ventures and private equity deals dating back to 1997. Each M&A in the sample satisfies the following selection criteria: (a) To be included in the sample, either the bidder or the target must be listed on a stock exchange in the 2007 enlarged European Union as the focal point is domestic and cross-border intra-European M&A announcements. (b) Information, such as the names and location of the firms involved in the M&A, the transaction value (in EUR), the stake obtained (minority/majority control), means of payment (all cash, all equity, or a combination of cash, equity or loan notes), SIC codes, and type of deal (merger or acquisition) must be available to test the hypothesis presented in 2.1. (c) To further restrict the sample, only bidders who acquired a controlling stake in the target (set to be greater than 50% of the equity), are included in the sample. (d) Financial institutions such as banks and funds are also eliminated due to accounting and regulatory differences from those of traditional firms (e) Finally, the deal must be completed (successful) and the transaction value must be at least EUR. 20 mil. The resulting list from the ZEPHYR database compromised 1554 European M&A announcements.
Next, a manual review of the specifications of each deal was carried out to verify that the selection criteria required in (a) - (e) in fact was fulfilled from the initial ZEPHYR output: From Thompson Datastream it was checked whether or not daily historical stock data was available, and in cases were this was not fulfilled, the deal was eliminated from the sample. In situations were the firm issued two classes of common stocks, one bearing the right to vote, the other not, only stocks with voting rights classified as ordinary shares or class-A shares were considered to satisfy the condition in (c). In accordance with the assumptions of the EHM presented in 3.1, deals with unequal rumour and official announcement date were excluded as the rumours would be likely to cause a jump in the stock price prior to the official announcement day which could obscure the results. Likewise, deals where the bidding party was the management, subsidiary, employees, or parent company were removed from the sample as it could influence the deal value, price premium paid and hence stock prices movements. Furthermore, to avoid confounding events, M&A announcements made by the same bidder within less than 300 trading days since the previous official M&A announcement was removed from the sample. Also, in order to reduce the problem related to non-normal return distributions of thinly traded stocks, as identified by Maynes and Rumsey (1993) and Cowan & Sergeant (1996), a stock needs to be traded at least 150 days of the 250 days estimation period in order to be included in the sample. The trading period is in line with Bartholdy et al. (2007) who classify thinly traded stocks on the Copenhagen Stock Exchange as stocks trading less than 40% of all trading days\textsuperscript{15}. These filters reduced the sample to 318 M&A deals.

Finally, all event dates were cross-checked using Dow Jones Factiva, and any published information in the database indicating confounding events within the estimation period or the event window, such as signing of a major contract or announcement of a new product, was excluded in line with (Nayak & Prabhala: 2001). Also, in cases where the event date differed from that indentified by ZEPHYR and Dow Jones Factiva, the event date mentioned in the M&A section of the Thompson One Banker, was used to decide on the final event date, and no match was found the deal was eliminated.

\textsuperscript{15} Bartholdy et al. (2007) also states that a medium traded stock trade between 40% to 80% of all trading days, whereas thickly traded stocks trade more than 80% of all trading days.
The resulting non-biased sample consists of 288 M&A deals involving firms from 12 EU countries. In the following section a presentation and description of the data serving as the empirical framework for the thesis is presented, before proceeding to the empirical findings.

5. Descriptive statistics
The sample of 288 European M&A announcements covering the time can be divided into a subsample of 159 listed bidders and a subsample of 129 listed targets. Table 1 in appendix F shows descriptive statistics of stock returns and abnormal returns in the estimation period and the event window for each of the two subsamples, while the table 2 shows the descriptive statistics for the event window only. It is evident that the average coefficient of skewness on both the return and the abnormal return in the sample of targets and the bidder sample are right skewed and excess kurtosis is high for both samples. Thus, the data shows that stock return and abnormal return deviate from normality. The consequence is the interpretations of the parametric tests could be misspecified and lead to doubtful conclusions. As mentioned in section 3, to deal with this problem a battery of two parametric test and two non-parametric tests is applied to the sample to check for the robustness of the results. Detailed descriptive statistics and graphical illustrations for all subsamples are available from appendix G.

The composition of the two samples is provided in appendix H. The distribution of the two samples across the EU member states is shown in panel A. UK accounts for the largest proportion in both samples, followed at some distance by the France, and Spain. The proportion of mergers in which the target or the bidder belongs to one of the five largest EU countries is around 78%. Furthermore, the sample is composed of firms from 12 EU member states only, which in total make up the EU member states as of the 1995 enlargement with exception of Luxemburg, Austria, and Greece. It is of no surprise that 12 newest Central and Eastern European members states of EU are not represented in the sample as the M&A activity in these countries are still relatively low compared to that of Western Europe (Bruner: 2004). Comparing the samples with the total intra-European M&A population from 2000-2008 of the 12 EU member states extracted from the ZEPHYR database (see appendix I), both samples seems to be fairly representative with a few exceptions. Finnish and Spanish deals seem to be underrepresented in the target sample whereas UK deals in particular are slightly overrepresented. The same is true for Finnish and UK deals in the bidder sample, while Spanish, German and Dutch deals are underrepresented. However,
because no extreme deviation is present in the composition of the samples compared to the total M&A population the sample is acceptable in terms of geographical coverage. Over time, the composition of both samples reflects the growth from 2003 until 2007 and the following downturn in the M&A activity in 2008 as a consequence of the global economical crisis (panel F). The number of deals in 2001 and 2002 are, however, clearly underrepresented in the target sample which means that the sample does not fully capture the M&A announcements in these years. For the subsamples of method of payment (panel C) and domestic versus cross-border M&A announcements (panel D) the ZEPHYR database does not provide any clear overview and segmentation on the total population. However, from the breakdown by means of payment in panel C around half of all the deals are paid by cash which are in line with related studies (e.g. Goergen & Renneboog: 2004). It is also evident from panel C that the number of observations in the all-equity subsample for both the target and bidder sample and the mixed payment subsample in the target sample is small. According to the central limit theorem, when the same size is sufficiently large, the sampling distribution of the mean tends to approximate the normal distribution. Thus, the combination of stock returns that deviate from normality and small sample sizes below approximately 30 could potentially lead to a large breach of the normality assumption. Bartholdy (2007), on the other hand, points out that a minimum of 25 events is necessary to obtain acceptable size and power in statistical tests, which is fulfilled for all subsamples except for the all-equity subsample in the bidder sample. The number of cross-border deals relative to the number of domestic deals is relatively low for both samples, especially for targets According to a publication by the European Commission (2001), the total number of cross-border acquisitions in the EU in 2001 constituted 46% but as this number does not only confirm to intra-European deals this could explain some of the difference. Interestingly, as theory international business theory would suggest (e.g. Hofstede: 1980), the sample shows that cross-border mergers are typically between geographically and cultural contiguous countries, so when a German acquisition crosses a border it most frequently does so to Holland, while e.g. the Scandinavian countries form another group. In panel E the sample has been divided into focus and diversification based on the industrial relationship between the target and the bidder based on the two first digits of their primary SIC codes. Focus-oriented M&A deals account for over 70% of the target and bidder sample compared to M&A deals driven by diversification, and it confirms the fact that most deals are intra-industry created to capture potential synergy effects. In relation to SIC code, Panel B shows the distribution of the deals across 11 industries based on the bidder firms two digits Standard Industrial
Classification (SIC) code. Most deals are found in the energy and technology sector, while the industrial and goods sector also constitute to the samples with a number of deals. Finally, a striking difference between the two samples is that in the target sample 67.5% of the deals lead to full equity of the target firm, while the remainder the bidders acquired absolute control (more than 50% of the voting rights). In the sample of listed bidders takeovers accounted for 94% of the deals. This difference however, is assumed not to have an influential impact on the abnormal return.

In sum, although the sample is not fully representative, it is still regarded as an acceptable sample that well captures the intra-European M&A announcements. It must however be stressed that the number of deals in the subsamples are relative low which could potentially make it difficult to detect any difference between the strategies applied in the deals. Having established the sample leads us to the empirical evidence.

6. Empirical evidence
This section presents the reader to the empirical findings. First, the overall results of the abnormal performance of bidders and targets are presented and discussed in relation to other empirical findings in the field. Secondly, the results and effects of means of payment, domestic versus cross-border M&A, UK versus Continental Europe, and focus versus diversification are presented. Thirdly, an analysis to detect whether or not a difference between the average samples CAR is presented.

6.1 Target versus bidding firms
As a bidding firm are expected to create additional corporate value when it acquires a target firm, the target shareholder will only be enticed to sell their share stakes if they are offered a substantial premium, which should be immediately reflected in the target firm’s share price. Figure 1 in appendix J depicts the abnormal return to target firms throughout the 250 days estimation period which is relative stable with small insignificant returns in both directions. The result is approximately a zero-sum game. However, as we approach the event window and especially the event day, abnormal return increases significantly as illustrated by figure 2 in the appendix J.
Table 1. Target abnormal return around the M&A announcement day

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>0.61%</td>
<td>2.38*</td>
<td>2.39*</td>
<td>2.01</td>
<td>2.54</td>
</tr>
<tr>
<td>-1</td>
<td>1.39%</td>
<td>5.39*</td>
<td>5.43*</td>
<td>2.67*</td>
<td>2.62*</td>
</tr>
<tr>
<td>0</td>
<td>10.12%</td>
<td>39.31*</td>
<td>44.61*</td>
<td>10.56*</td>
<td>7.69*</td>
</tr>
<tr>
<td>1</td>
<td>2.78%</td>
<td>10.81*</td>
<td>12.80*</td>
<td>2.95*</td>
<td>1.75</td>
</tr>
<tr>
<td>2</td>
<td>0.02%</td>
<td>0.08</td>
<td>0.63</td>
<td>-0.23</td>
<td>-0.71</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>14.92%</td>
<td>25.92*</td>
<td>29.45*</td>
<td>8.03*</td>
<td>6.21*</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

Table 1 shows the daily gain to target shareholders and the average cumulative market model abnormal returns over five-day period in the event window. Two days prior to the announcement, target firms realise small significant gains of 0.61%, while the abnormal return the following day is increase to 1.39%. These numbers were expected to be higher as a consequence of rumours and potential information leakage in the market that could have caused investors to buy up shares in the market. The main effect of the M&A announcement is, however, isolated to the event day that causes substantial positive abnormal returns for the target shareholders: on the event day, an abnormal return of 10.12% is realised. On the day following the announcement, the target shareholders on average still experience a small significant gain, while the abnormal return on the last day in the event window is reduced to approximately zero. The result in the event window is an average CAR to European target shareholders of 14.92%. The battery of four test statistic all indicates that the number is statistically significant from zero and combined with that fact that figure 3 in the appendix J does not reveal any extreme values (outliers) that could potential bias or distort e.g. the estimates of mean, variance and p-value the conclusion reached on gains to target shareholders is valid

The expectation to the abnormal return realised by the sample of 159 European listed bidders involved in M&A activities is modest as prior investigations in the field have showed mixed results; approximately half of all studies show small negative gains while the other half show small positive gains. Figure 1 in the appendix K shows the trend in the abnormal return to bidder shareholders prior to the announcement. As expected, abnormal returns fluctuate randomly about zero percent in the period leading up to the announcement whereas a small increase is observed on the event day. Table 2 below shows the abnormal return to bidder shareholders in the event window while figure 2 in appendix K gives a graphical illustration.

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16 The author notes that some values deviate somewhat from the main cluster of CAR’s, but no sound reason is found to remove these values.
Table 2. Bidder abnormal return around the M&A announcement day

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>0.08%</td>
<td>0.52</td>
<td>0.69</td>
<td>1.30</td>
<td>1.68</td>
</tr>
<tr>
<td>-1</td>
<td>-0.02%</td>
<td>-0.12</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.42</td>
</tr>
<tr>
<td>0</td>
<td>0.43%</td>
<td>2.81*</td>
<td>3.56*</td>
<td>3.42*</td>
<td>2.78*</td>
</tr>
<tr>
<td>1</td>
<td>0.27%</td>
<td>1.73</td>
<td>2.30*</td>
<td>1.35</td>
<td>1.18</td>
</tr>
<tr>
<td>2</td>
<td>-0.14%</td>
<td>-0.93</td>
<td>-0.87</td>
<td>-1.86</td>
<td>-1.35</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>0.62%</td>
<td>1.79</td>
<td>2.53*</td>
<td>1.86</td>
<td>1.73</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

Shareholders of the bidding firms do experience small gains on the event day (all tests show significant values for the 0.43% gain) and the day following the announcement while no significant gains are present in the two-day period leading up to the announcement. The average CAR in the event window is 0.62% (96% lower than the average CAR for targets) which indicates a small positive market reaction towards the M&A announcement. The average CAR value is significant at the 5% level for one of the parametric tests whereas the two non-parametric tests indicate that the CAR is indistinguishable from zero. As it has been proved in the descriptive statistics section that the daily stock data deviate from normality, which indicate that most emphasis must be placed on the outcome of the non-parametric tests, combined with the fact that one of the parametric tests do not reject the null hypothesis, leads to the conclusion that the CAR to bidders is indistinguishable from zero. Thus, at the best the results in table 2 show that M&A announcement does not destroy value for the shareholders of the bidding firm. From figure 3 in appendix K no observations in the sample is so far separated in value from the remainder as to suggest that they are able to alter the calculated statistics or possible introduce a bias in the results.

The empirical results for both the target and the bidder sample are analogous with those found in previous studies of shareholder wealth effects in the short term based on data from the 1980s and 90s. Apart from the studies already mentioned in section 2.1.1, more recent studies of Campa & Hernando (2004) found for a sample of 262 deals in 15 European countries in the time period 1998-2000 abnormal return of 8.90% and 0.56% to target and bidders respectively, whereas Martynova & Renneborg (2006) in a larger sample of 2419 deals in 28 European M&A reports a 14.73 % gain to target shareholders compared to a significant 0.74% abnormal return to bidder.

17 However, if the alpha level is raised to the 10% the t-test with adjusted cross-sectional independence and the nonparametric tests becomes significant.
shareholders. Interestingly, all previous studies reviewed for this thesis involving more than one country from Europe show small positive abnormal returns (significant and insignificant) to bidder shareholders, indicating a non-negative attitude towards European M&A announcements in the short term, while US studies and UK studies show mixed (both negative and positive) results for bidders. Thus the results confirms this pattern in average CAR for intra-European target and bidder companies involved in M&A activities settled in the time period between 2000-2008 in terms of both the direction and level.

6.2 Means of payment in M&A

It is expected that all-cash deal announcement would generate higher target and bidder returns than all-equity acquisitions because the signalling effect may be that the use of cash by the bidders will be able to exploit the investment opportunities represented by the target; if so, the target is worth more and a higher premium may be paid. Moreover, cash transactions are taxable to target shareholders so the higher premiums paid compensate for the taxes paid. In contrast, the announcement that an all-equity bid is made may signal that: (1) the bidder intend to keep the target involved in the merged company and (2) that the bidding firm believe that their shares are overpriced and the market would then adjust the bidder’s shares downwards. Thus, asymmetric information may influence the choice of the means of payment in the M&A and the following market reaction to the announcement of the payment method.

Table 1 in the appendix L shows the results for the target samples of 74 all-cash acquisitions, 27 all-equity acquisitions, and 28 mixed acquisitions. The table reports strong evidence that the target’s share price reaction is sensitive to means of payment in M&A transactions. All-cash offers yields an average significant CAR of 16.67% which is almost two percentage point higher than the average CAR for the entire target sample presented in section 6.1 The catch-all category, mixed offers (combinations of cash, equity, loan notes), trigger a 13.56 % significant abnormal return in the event window, whereas the corresponding significant return for all-equity bids is 11.52%. Higher abnormal to targets engaged in cash-acquisitions could be attributed to tax effects or a result of bidders wanting to forestall or pre-empt potential competitive bidders in the markets that increases premium paid. In terms of level and direction of the CAR to shareholders, the findings support previous empirical evidence presented in section 2.2.2; all payment methods offers significant abnormal return to target shareholders.
A negative price correction was expected for all-equity bids and a positive one for cash bids in the bidder sample. Table 2 in appendix L only confirms the latter: The bidder’s shareholders greet offers all-cash payments more favourably (0.86%) than all-equity (of which the abnormal returns are indistinguishable from zero). Thus, contrary to US studies from Asquith et al (1990), Franks et al (1998), Wansley et al (1983, 1987) it is not possible to document that returns to bidders tend to be negative and significant in all-equity acquisitions, but at the best conclude that stock acquisitions do not destroy value for European shareholders in the short-term. Strikingly, mixed offers do not lead to positive gains that are different from zero. This could indicate that the proportion of cash in the mixed offers are relative low compared to shares and loan notes and that this relationship has an influential signalling effect in the market that cause mixed offers to lead to no statistically significant abnormal return.

6.3 Domestic versus Cross-border M&A

One of the goals of the paper is to find out whether the degree of internationalization in the M&A deal has an impact on the abnormal return to shareholders, and to see if there are significant barriers to M&A activities within the EU. In the absence of these barriers, it would be expected that the announcement of a cross-border M&A would, on average, generate abnormal returns at least as large as domestic deals. On the other hand, if these barriers are high, it would be expected that cross-border M&A announcements would generate less value than domestic deals. Empirical evidence suggest that both domestic and cross-border M&A leads to statistically significant abnormal return to bidders, whereas expected abnormal returns to bidders are unclear as previous studies have found mixed results.

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic</td>
<td>Cross-border</td>
<td>Domestic</td>
<td>Cross-border</td>
<td>Domestic</td>
</tr>
<tr>
<td>-2</td>
<td>0.66%</td>
<td>0.41%</td>
<td>2.16*</td>
<td>0.97</td>
<td>2.20*</td>
</tr>
<tr>
<td>-1</td>
<td>1.73%</td>
<td>-0.03%</td>
<td>5.67*</td>
<td>-0.08</td>
<td>6.17*</td>
</tr>
<tr>
<td>0</td>
<td>10.17%</td>
<td>9.90%</td>
<td>33.36*</td>
<td>23.18*</td>
<td>19.10*</td>
</tr>
<tr>
<td>1</td>
<td>2.73%</td>
<td>3.01%</td>
<td>8.94*</td>
<td>7.01*</td>
<td>11.28*</td>
</tr>
<tr>
<td>2</td>
<td>-0.13%</td>
<td>0.66%</td>
<td>-0.44</td>
<td>1.55</td>
<td>0.29</td>
</tr>
</tbody>
</table>

CAR [-2;2]: 15.15% 13.95% 22.22% 14.61% 36.57% 12.70% 7.41% 4.91% 5.64% 2.61%

* Significance at the 5% level
Table 3 above shows the results for target firms involved in domestic and cross-border M&A. Strikingly on average premiums are slightly higher for domestic targets (15.15%) than for cross-border targets (13.95%) - both statistically significant different from zero. The results suggest (before reviewing whether a significant difference is present) that the market favors domestic deals over cross-border deals potentially because more risk and uncertainty are involved when crossing national borders compared to that of domestic M&A. However, a closer examination reveals that the sample of domestic M&A includes a higher proportion of UK deals (40.5%) than the sample of cross-border deals (16%) which drives up abnormal return in the domestic sample (see section 6.4). Another potential explanation is that the sample size of the cross-border sample (25 deals) is relative low and hence sensitive to small deviations from the sample mean which could have an influential impact on the results. Nevertheless, the results show that both cross-border and domestic both have positive effect on shareholder wealth in the short-term.

Table 4. Abnormal return domestic and cross-border M&A, bidders

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic</td>
<td>Cross-border</td>
<td>Domestic</td>
<td>Cross-border</td>
<td>Domestic</td>
</tr>
<tr>
<td>-2</td>
<td>0.11%</td>
<td>0.03%</td>
<td>0.55</td>
<td>0.22</td>
<td>0.41</td>
</tr>
<tr>
<td>-1</td>
<td>0.12%</td>
<td>-0.22%</td>
<td>0.60</td>
<td>-1.40</td>
<td>0.74</td>
</tr>
<tr>
<td>0</td>
<td>0.39%</td>
<td>0.48%</td>
<td>1.93</td>
<td>3.14*</td>
<td>2.38*</td>
</tr>
<tr>
<td>1</td>
<td>0.33%</td>
<td>0.17%</td>
<td>1.63</td>
<td>1.11</td>
<td>1.68</td>
</tr>
<tr>
<td>2</td>
<td>-0.14%</td>
<td>-0.14%</td>
<td>-0.71</td>
<td>-0.90</td>
<td>-0.56</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>0.82%</td>
<td>0.13%</td>
<td>1.79</td>
<td>0.97</td>
<td>2.08*</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

The evidence from table 4 reveals the that bidding firms engaging in cross-border M&A experience an insignificant abnormal return of 0.33% whereas the gain to domestic bidders are significant at 0.82% for one parametric tests, while there is not enough statistical evidence to say that the return is different from zero for the nonparametric tests. Based on the arguments used in the discussion of the test statistics in section 6.1, it must be concluded that we cannot reject the null hypothesis that the CAR to bidder shareholders of domestic and cross-border M&A announcements are different from zero at the 5% significance level. Therefore, at the best the results show that the announcements do not destroy shareholder wealth effects. The findings contradict empirical findings of Markides & Ittner (1994) and Corhay & Rad (2000) who found weak evidence that cross-border M&A as well as domestic M&A are wealth-creating corporate
activities using substantially larger sample sizes. Contrary, it supports Datta & Puia (1995) who found that cross-border M&A, on average, do not create value for the bidding firm shareholders.

6.4 UK versus Continental Europe

When examining the short-term wealth effects for UK target versus Continental European targets, higher premiums in M&A involving UK firms are expected as there is an active market for corporate control, a higher degree of disclosure, and a higher degree of shareholder protection than that of Continental European countries. This conjuncture is confirmed from table 5 below:

Table 5. Abnormal return UK versus Continental Europe, targets

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Continental</td>
<td>UK</td>
<td>Continental</td>
<td>UK</td>
</tr>
<tr>
<td>-2</td>
<td>0.75%</td>
<td>0.54%</td>
<td>1.51</td>
<td>1.86</td>
<td>0.94</td>
</tr>
<tr>
<td>-1</td>
<td>2.60%</td>
<td>0.71%</td>
<td>5.24*</td>
<td>2.49*</td>
<td>4.86*</td>
</tr>
<tr>
<td>0</td>
<td>11.07%</td>
<td>9.59%</td>
<td>22.30*</td>
<td>33.40*</td>
<td>26.06*</td>
</tr>
<tr>
<td>1</td>
<td>1.40%</td>
<td>2.13%</td>
<td>7.25*</td>
<td>8.09*</td>
<td>7.71*</td>
</tr>
<tr>
<td>2</td>
<td>-0.06%</td>
<td>0.07%</td>
<td>-0.13</td>
<td>0.21</td>
<td>-0.05</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>17.96%</td>
<td>13.23%</td>
<td>16.17*</td>
<td>20.60*</td>
<td>17.68*</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

The average CAR value for UK targets are 17.96% while the corresponding number for targets located in Continental Europe is 13.23%. The table also shows that abnormal return for UK target increases significantly one day prior to the announcement, which could indicate that the market already has some information about the impending announcement. On the contrary, there is no significant sign of information leakage for Continental European targets. The CAR to target shareholders is significant for both sub-samples in the parametric and non-parametric tests. The difference suggests that because UK shareholders are better protected to their Continental European peers they are able to reduce expropriation by bidders and achieve higher premiums in takeover negotiations. An alternative explanation is that hostile acquisitions i.e. offers made directly to the shareholders that are opposed by management, occur more frequently in the UK than Continental Europe. Empirical evidence suggests that hostile acquisitions trigger substantially larger price reactions to target shareholders than friendly M&A that characterize Continental Europe (e.g. Franks & Mayer: 1996).

The level of CAR to target shareholders are in line with findings of Martynova & Renneboog (2004), who report a 17.64% gain to UK targets and a 10.19% to Continental European targets.
using data from 1993 to 2001. Thus, the results suggest that target shareholder experience approximately the same level of gain despite variation in time.

Table 6. Abnormal return UK versus Continental Europe, bidders

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Continental</td>
<td>UK</td>
<td>Continental</td>
<td>UK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2</td>
<td>0.24%</td>
<td>-0.04%</td>
<td>0.49</td>
<td>0.13</td>
<td>1.11</td>
</tr>
<tr>
<td>-1</td>
<td>-0.08%</td>
<td>0.03%</td>
<td>-0.15</td>
<td>0.09</td>
<td>0.05</td>
</tr>
<tr>
<td>0</td>
<td>0.29%</td>
<td>0.54%</td>
<td>0.59</td>
<td>1.86</td>
<td>0.49</td>
</tr>
<tr>
<td>1</td>
<td>0.19%</td>
<td>0.12%</td>
<td>0.37</td>
<td>1.11</td>
<td>0.90</td>
</tr>
<tr>
<td>2</td>
<td>0.09%</td>
<td>-0.15%</td>
<td>0.18</td>
<td>-1.10</td>
<td>0.66</td>
</tr>
<tr>
<td>[-2;2]</td>
<td>0.73%</td>
<td>0.53%</td>
<td>0.66</td>
<td>0.82</td>
<td>1.88</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

When focusing on the location of the bidding firm (UK versus Continental Europe), the following results are seen (table 6). There is little difference between the average CAR of the UK and Continental Europe. UK shareholders gain on average 0.75% in the period around the announcement while the gains to bidders are marginally lower at 0.53%. However, it must be concluded there is not enough statistical evidence to prove that any of the CAR for the two samples are significantly different from zero as all test statistics point in this direction. The lack of statistical significance contradicts previous findings, as Martynova & Renneboog (2006) and Goergen & Renneboog (2004) who all document significance for UK bidders. On the other hand, the results confirm that UK and Continental European deals, on average, do not destroy value for the target shareholders.

6.5. Focus versus diversification

To examine the issue of relatedness of the two parties involved in M&A activity, the target and bidder sample is subdivided into focus or diversification M&A announcement based on their SIC codes. Table 7 reports the abnormal return to targets around the announcement. CAR to focus-oriented M&A deals are slightly higher than for M&A deals driven by diversification. All tests statistics show that the CAR to shareholders is significantly different from zero. The results are surprising because a greater willingness of bidders to overpay for unrelated firms target firms as a result of agency costs was expected which would be reflected in the abnormal to target shareholders in diversification deals. A potential explanation could be that the market may consider the disadvantages of diversification to outweigh the synergies, and hence see a greater future potential in related or focus-oriented M&A deals. Alternatively, it could be that because of
asymmetrical information the market may not be sufficiently informed to determine the true impact or potential of the diversified firms whereas the market is more knowledgeable about focused intra-industry firms.

Table 7. Abnormal return focus versus diversification strategy, targets

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Diversified</td>
<td>Focus</td>
<td>Diversified</td>
<td>Focus</td>
<td>Diversified</td>
</tr>
<tr>
<td>-2</td>
<td>0.61%</td>
<td>0.61%</td>
<td>1.97*</td>
<td>1.40</td>
<td>1.99*</td>
</tr>
<tr>
<td>-1</td>
<td>1.57%</td>
<td>0.89%</td>
<td>5.09*</td>
<td>2.04*</td>
<td>5.15*</td>
</tr>
<tr>
<td>0</td>
<td>9.85%</td>
<td>10.83%</td>
<td>31.86*</td>
<td>24.68*</td>
<td>36.19*</td>
</tr>
<tr>
<td>1</td>
<td>3.03%</td>
<td>2.13%</td>
<td>9.78*</td>
<td>4.84*</td>
<td>11.17*</td>
</tr>
<tr>
<td>2</td>
<td>0.05%</td>
<td>-0.00%</td>
<td>-0.14</td>
<td>0.23</td>
<td>0.84</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>15.11%</td>
<td>14.40%</td>
<td>21.86*</td>
<td>16.67*</td>
<td>24.48*</td>
</tr>
</tbody>
</table>

* Significance at the 5% level

It is expected that CAR to bidder shareholders would be greater for focus-oriented deals as unrelated acquisitions may be motivated by managerial preferences that differ from shareholders desires. However, the abnormal return to shareholders around the M&A announcement is approximately the same for focus and diversified deals (see table 8). Only one of the tests statistics are able to conclude that the 0.61% CAR to focus-oriented strategies, while the other three, including the two non-parametric tests, indicate that there is not enough evidence to say that the CAR is different from zero at the 5% level. Thus, the conclusion must be that we are not able to reject the null hypothesis that the CAR for any of the two strategies is different from zero, and at the best are able to say that the bidder firm does not destroy value for the shareholder of the bidding firm.

Table 8. Abnormal return focus versus diversification strategy, bidders

<table>
<thead>
<tr>
<th>Event window</th>
<th>Abnormal return</th>
<th>t-test with adjusted cross-sectional independence</th>
<th>t-test with adjusted standardized abnormal return</th>
<th>Rank test</th>
<th>Sign test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Diversified</td>
<td>Focus</td>
<td>Diversified</td>
<td>Focus</td>
<td>Diversified</td>
</tr>
<tr>
<td>-2</td>
<td>0.17%</td>
<td>-0.19%</td>
<td>0.97</td>
<td>-0.62</td>
<td>0.59</td>
</tr>
<tr>
<td>-1</td>
<td>0.00%</td>
<td>-0.08%</td>
<td>0.03</td>
<td>-0.28</td>
<td>0.21</td>
</tr>
<tr>
<td>0</td>
<td>0.27%</td>
<td>0.91%</td>
<td>1.53</td>
<td>3.02*</td>
<td>2.08*</td>
</tr>
<tr>
<td>1</td>
<td>0.13%</td>
<td>0.08%</td>
<td>1.86</td>
<td>0.26</td>
<td>2.47*</td>
</tr>
<tr>
<td>2</td>
<td>-0.16%</td>
<td>-0.09%</td>
<td>-0.92</td>
<td>-0.28</td>
<td>-0.88</td>
</tr>
<tr>
<td>CAR [-2;2]</td>
<td>0.61%</td>
<td>0.61%</td>
<td>1.55</td>
<td>0.93</td>
<td>2.00*</td>
</tr>
</tbody>
</table>

* Significance at the 5% level
6.6 Examining differences between CAR

After having reviewed and tested whether the abnormal returns are significantly different from zero, it is appropriate to test whether a significant difference can be found between the different strategies employed by the target and bidder firm in M&A deals. The first section presents the reader to the findings for the European targets, while the second section covers the sample of bidders.

6.6.1. Target firms

As mentioned in section 3.5, the F-test (ANOVA) is applied to test difference between the three payment methods, while a conventional \( t \)-test is used to detect a difference between the cross-border and domestic abnormal return, to assess the difference between target and bidders located in the UK and Continental Europe, and to detect any difference between the focus-oriented deals and diversification deals. A detailed evaluation of the assumptions related to the three tests is available from the appendix M, while only the major parts will be discussed here.

Table 9. Results of ANOVA and two \( t \)-tests for targets

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Test</th>
<th>Obs</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment (Cash, Shares, Mixed)</td>
<td>F-test</td>
<td>1.632</td>
<td>0.200</td>
</tr>
<tr>
<td>Cross-border versus Domestic</td>
<td>( t )-test</td>
<td>0.397</td>
<td>0.692</td>
</tr>
<tr>
<td>UK versus Continental Europe</td>
<td>( t )-test</td>
<td>-1.996*</td>
<td>0.048</td>
</tr>
<tr>
<td>Focus versus Diversification</td>
<td>( t )-test</td>
<td>0.070</td>
<td>0.792</td>
</tr>
</tbody>
</table>

*Significance at the 5% level
Source: Author's own calculations

The assumptions concerning the F-test do not reveal any major violations; from Levene’s test it can be concluded that it is not possible at the 5% significance level to reject the hypothesis of equal variance, and independence between the samples is assumed as there is never more than two announcements per day and the companies are not represented in no more than one of the subsamples (cash, shares, mixed). A potential problem could be that the distributions are skewed which could lead to false conclusions (type 1 error). The assumptions, however, are not considered to be severely violated such that necessary steps would be needed. Table 9 presents the results of the F-test and shows that although the CAR to cash payments (16.67%) is larger than both all-equity (11.52%) and (13.56%) in the sample of 129 deals there is not enough evidence to infer that there is a significant difference between in the CAR of at least two of the payment methods. The
findings contradict previous empirical evidence from e.g. Travlos (1987), Wansley et al (1987), Franks et al (1987), who all document a significant difference between all-cash and all-equity payment. The lack of statistical significance between the means of payment are primarily attributed to small sample sizes of especially all-equity and mixed deals, which could make it difficult to trigger a significant difference between the different types of payment method.

The $t$-test of equal variance is carried out as the assumptions of independence between samples, approximately normally distributed data and variance homoscedasticity is fulfilled for the all subsamples (see appendix N). Table 9 shows that there is no significant difference between the average CAR of the cross-border M&A announcements (15.15%) and that of domestic M&A announcements (14.95%). The findings are in line with recent results of Campa & Hernando (2004) who found that the difference between domestic and cross-border deals in their sample ranges from 0.2% to 2.0% over different event windows, but are never significant. Likewise, Goergen & Renneboog (2004) were not able to document a significant difference between the geographical diversification in their sample of European targets. Therefore, the test statistics suggests that target shareholder on average receive the same premium in the short-term no matter whether the deals is domestic or cross-border. Secondly, the difference between the average CAR to UK targets (17.96 %) and the Continental European targets (13.23%) is significant at the 5% level, but as the p-value (0.048) is barely below this level the conclusion is uncertain (see table 9). The results show that UK targets on average are able to pocket significant larger gains than their continental European counterparts in the time around M&A announcements. The difference is attributed to differences in corporate governance regulations and shareholder protection between the UK and Continental Europe. Hence it supports theory and the empirical findings in the field such as Martynova & Renneboog (2006) and Goergen & Renneboog (2004) who likewise document a significant difference. Finally, table 9 shows that no significant difference is present between the average CAR to focus-oriented M&A deals (15.11%) and those of unrelated firms that does not share the same two-digit SIC code (14.40%). The result confirm previous of findings by Morck et al (1990), Sundarsanam et al (1996), and Walker (2000).

To confirm the findings F-test and $t$-tests, to distinguish the effects on shareholder wealth effect (CAR) of different variables, but more importantly to give the reader an alternative presentation of the results, a cross-sectional dummy-regression based on White’s (1978) heteroscedasticity
correction procedure is used on the target sample. The model (see appendix O) for target shareholder wealth shows, as expected, that the CAR of the targets is significantly determined by one variable, \textit{UK\textunderscore Continental}. In fact the related coefficient indicates that UK targets receive a 5.6\% premium compared to their Continental counterparts around the announcements.

6.6.1. Bidding firms

Table 10 shows the results of the F-test for the sample of European bidders split into means of payment (cash, shares, mixed). At the 5\% level the null hypothesis cannot be rejected that the average CAR of the all-cash deals, all-equity deals, and deals financed by a combination of cash, shares, loan notes etc. differs from each other. The sample, however, did not pass the test of equal variance which could lead to a wrong interpretation of the result, but as multiple Welch’s \textit{t}-test did not lead to a different result the conclusion are assumed to be reliable (see appendix P for analysis of the assumptions). Thus, although method of payment is likely to affect share value of the bidder firm, there is not convincing evidence to rule that the signaling effect is the one of the main source of wealth effects. The findings contradict previous findings from Travlos (1987) and Brown & Ryngert (1991) who demonstrate significant difference between all-cash and all-equity acquisitions for the bidding firm but are, on the other hand, consistent with European results of Martynova & Renneboog (2006) and Goergen & Renneboog (2004) who did not find any significant difference. Therefore, the results confirm the mixed pattern of empirical findings for the bidding firm.

<table>
<thead>
<tr>
<th>Test</th>
<th>Obs</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment (Cash, Shares, Mixed)</td>
<td>F-test</td>
<td>0.352</td>
</tr>
<tr>
<td>Cross-border versus Domestic</td>
<td>\textit{t}-test</td>
<td>0.683</td>
</tr>
<tr>
<td>UK versus Continental Europe</td>
<td>\textit{t}-test</td>
<td>-0.927</td>
</tr>
<tr>
<td>Focus versus Diversification</td>
<td>\textit{t}-test</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Source: Author's own calculations

The \textit{t}-test (see appendix Q for assumptions) cannot the reject that the average CAR of the cross-border sample (0.82\%) and that of the domestic sample (0.33\%) is different from each other i.e. in terms of shareholder wealth the market does not distinguish between domestic and cross-border M&A deals in the short-term. Moeller & Schlingemann (2004) document that US firms who acquire cross-border targets relative to those that acquire domestic target experience significantly lower announcement stock returns (approximately 1\%), while e.g. Goergen & Renneboog (2004) document the opposite. In that light, the results cannot give support to any of these contradicting
findings, but at the best emphasize a need for further investigation in the area. Likewise, table 10 show no difference between the return to UK versus Continental European bidders and between focus versus diversification related bidders, both are in line with Martynova & Renneboog (2006). Thus neither the location of the bidder nor its relatedness to the target makes is more favorable in terms of shareholder wealth to the bidding firms’ shareholders.

In sum, no statistical difference could be found between the different strategies employed by the bidder. As a result, regression similar to that of the target sample will not be set up as it would not give the reader additional insight into the shareholder wealth effects of the bidding firm.

7. Evaluation and future studies
Like any other empirical studies, this study found several points which should not remain unmentioned for future studies. These points are briefly evaluated. In conjunction with the domestic versus cross-border M&A, the study did not examine the current international exposure of the bidder firm that is involved in M&A outside its home market i.e. a firm which is already strongly geographical diversified might not have the same effect as an announcement made by the firm that makes its first cross-border M&A. Bidder firms with previous experience in cross-border M&A might be more successful in creating value for their shareholders by being more selective in their choice of target firm. On the contrary, a bidder who has been unsuccessful in the past might tend to overpay the target hence contribute negatively to shareholder wealth effects. Also, because cross-border M&A tend to be between firms from culturally contingent countries it would be relevant to adjust for the cultural fit between the bidder and the target based on Hofstede’s (1980) four cultural dimension and the cultural distance formula suggested by Kogut and Singh (1988). This would give an alternative and comprehensive view of shareholder wealth effects of cross-border M&A announcements that is not only restricted to whether or not two parties involved in the M&A is located in the same country. Secondly, the SIC-based diversification measurement method applied in this thesis is widely used to specify whether transactions can be classified as related or unrelated. However, a comprehensive study by Kahle & Walking (1996) found that SIC-classifications differ dramatically across databases mainly because information on a firm’s industrial classifications changes over time. A misspecification of the SIC codes in the ZEPHYR database could potentially have lead to wrong classifications, that could have influenced the empirical findings. To overcome the problem qualitative measures such as those used to verify the
announcement day could have been used under less rigid time constraints. Finally, evidence from this study show that larger sample sizes of the different strategies employed by the bidders and targets are needed as the ability to detect a difference between means, whether using $t$-test or $F$-test, depends in part on effective size because the smaller effect the more observations is need to establish it existence i.e. mean differences between CAR have to be larger to become significant. Thus, the rather small subsamples applied are very likely to have made it very difficult to trigger any significant differences between the strategies used in the M&A deals. Likewise, larger sample sizes would have made it possible to control for factors within the sample that could have lead to different results.

8. Conclusion

This thesis provides an overview of the European M&A market. Growing international trade, accelerated in particular by the Single Market programme, deregulation of economic activity in many sectors, and the monetary union, has seen a sharp increase in M&A activities domestically and across national borders between companies operating in the EU. As a result, the volume of M&A activity in the EU exceeded that of US in 2007.

In this thesis an analysis of shareholder value creation around the announcement of an M&A deal involving firms from 12 member states of the EU in the time period 2000-2008 has been performed. The stock market reaction upon the announcement reflects the changes in expected future cash-flows that will accrue to the shareholders of the firms involved and is a proxy of expected value arising from the M&A. The analysis finds evidence that target shareholders receive an average positive and significant abnormal return two days prior to the announcement and one day after disclosure of the deal, resulting in a large and cumulative abnormal return 14.92%. Conversely, the average cumulative abnormal return to shareholder of the bidding firms is not statistically different from zero. Both results are consistent with previous findings in the merger literature from the 80s and 90s reporting large returns to targets firms and zero return to the bidding firm. Thus, M&A announcements creates value for the targets, while the effect on bidders is neither value creating nor value destroying, but at the best, value is conserved in the short-term. The result is that $H_{1a}$ developed in section 2.2.1 is maintained while $H_{1a}$ would have to be rejected.
The paper also examined whether the market expectations about M&A profitability depend on different attributes of the deal composition. For example, the means of payment, especially all-cash payments, are likely to have a large impact on the share price of the target and the bidder, but not enough to trigger a significant difference between the other payment types (all-equity, and mixed payments). Also, all-cash payments were the only group in the bidder sample to be statistically different from zero across the battery of parametric and non-parametric tests employed. The lack of statistical significance means that the thesis has not been able to document the signalling theory of asymmetrical information as literature and previous empirical findings have suggested. The consequence is that $H_{2A}$ as well as $H_{2B}$ set forward in section 2.2.2 is rejected.

Furthermore, the thesis shows that a statistical difference cannot be found between the announcement effects of domestic versus cross-border M&A for the bidders and targets. The results suggest that the European market neither compensate nor penalize for the obstacles, such as cultural, legal and transaction barriers, that parties involved in cross-border M&A deals are likely to face. Likewise, no difference could be found between the focus-oriented versus diversification M&A for the target firms as well as the bidding firms indicating that market does distinguish between the industry-relatedness between the target and the bidder. The result is that the two hypotheses related to the targets, $H_{3A}$ and $H_{4A}$ from section 2.2.3 and 2.2.5 as well as those for the bidders, $H_{3B}$ and $H_{4B}$ is rejected.

Finally, it has been demonstrated that the premium paid statistically depends on the location of the target. When a UK target is involved, the abnormal returns to target shareholders are substantially higher than those of deals involving a Continental European target. The evidence suggests that differences in corporate governance regulations, shareholder protection, and legal origin have a large impact on the premium paid in M&A to targets. The difference between the announcement effect to shareholders of UK bidders and their Continental European counterparts is not statistically significant. Thus, the target hypothesis, $H_{4A}$, from section 2.2.4 is maintained while the bidder hypothesis, $H_{4B}$, is rejected.
9. Bibliography


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