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Profitability of Firms after M&As in the UK, France and Germany: an Event Study Approach

A Thesis Submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy of Cardiff University

by

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Abstract

This thesis examines share price performance of firms after mergers and acquisitions (M&As) in some major EU M&A markets. In particular, they are the UK, French and German M&A markets. The thesis performs a full empirical survey covering not only both the short and long run share price performance, but also both domestic and cross-border acquisitions. In addition, the thesis pays attention to the long run performance of the acquirers of private target firms.

Based on a sample in the three selected M&A markets over the period 1992-2003, the thesis shows that, in the short run, target firm shareholders receive on average positive excess returns while acquirers receive on average zero or slightly positive excess returns. This is in line with other studies in this area. In addition, amongst other things, UK target firm shareholders receive substantially higher excess returns than continental-EU target firm shareholders.

In the case of the UK sample, there is some evidence that in the long run domestic acquirers on average experience negative buy-and-hold-abnormal-returns and cross-border acquirers are likely to experience insignificant buy-and-hold-abnormal-returns. When I gather all types of UK acquirers together, the evidence shows that overall acquisitions by UK acquirers yield negative profits in the long run. The thesis also shows that UK overlapping acquirers outperform UK non-overlapping acquirers in certain circumstances.

On the other hand, the results of the French sample in general suggest no under- or over- performance in the long run. In Germany, there is some evidence for underperformance in the long run.

The thesis reveals that, in the long run, UK acquirers of cross-border M&As experience higher share price performance than those of domestic M&As. Other factors, such as means of payment, tender offer, market-to-book-value, leverage ratio, and market value are found to be important determinants for the short and/or the long run share price performance.

Overall, this thesis performs a comprehensive empirical study to examine the profitability of firms after M&As and explore the determinants of the profitability.

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List of Abbreviations

BHAR	Buy-and-hold Abnormal Return
CAPM	Capital Asset Pricing Model
CAR	Cumulative Abnormal Return
CF	Control Firm
CP	Control Portfolio
CTCP	Calendar Time Control Portfolio
CTFF	Calendar Time Fama-French Three-Factor
DY	Dividend Yield
FF	Fama-French Three-Factor
MTBV	Market-to-Book-Value
MV	Market Value
TDCE	Total Debt to Common Equity Ratio

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Chapter 1 Introduction

Section 1.1 Objectives and Importance of the Study

This study aims to consider a comprehensive empirical examination of the profitability of mergers and acquisitions (M&As) following an event study approach. The profitability of M&A activity as well as some other relevant issues has generated a wide interest and debate over the past 30 years. Various approaches have been adopted by earlier researchers such as case studies (or surveys of executives), accounting studies examining financial statements and event studies examining abnormal returns to shareholders. Among these approaches, the event study approach has the unique advantages of being theoretically well-grounded and providing a direct measure of value created for investors.

Earlier event studies have extensively studied short run abnormal returns for target and bidding firms. In general they report positive and statistically significant abnormal returns for target firms. The results for bidding firms are quite mixed. Some frequently cited studies, such as Jensen and Ruback (1983) and Franks and Harris (1989), conclude that acquiring firms generally experience zero or slightly positive abnormal returns in several days surrounding the announcement time, whereas some other studies, such as Healy, Palepu and Ruback (1992), claim negative abnormal returns for acquiring firms over the event time.

While the announcement period returns are important sources of information, the possibility exists that the market does not always accurately predict the future performance of M&As. Based on the announcement period returns, we may still ask if bidding firms' shareholders do experience wealth gains (or losses) over longer periods (e.g. up to 5 years). Put differently, the short run abnormal returns may only provide an incomplete image of acquiring firms' shareholder wealth effects. Therefore, it is important to examine the long run share price performance of M&As together with the short run performance.

Despite the importance of examining the long run share price performance, however, there is a relative lack of long run event studies which is in sharp contrast with a large number of existing short run studies. Also, consequently, only a few earlier studies (e.g. Franks and Harris, 1989; Gregory, 1997) have examined both the short and the long run share price performance of M&As. In addition, recently researchers (e.g. Fama and French, 1992, 1993; Barber and Lyon, 1997; Lyon et al., 1999; Mitchell and Stafford, 2000) have raised serious questions on earlier studies employing conventional event-study methodologies for detecting the long run share price performance. As a result, some earlier long run event studies of M&As may be flawed for various methodological reasons (discussed later in this dissertation). Hence, for all the reasons above, this study undertakes an event study focusing on the long run, while also examining the short run, shareholder wealth effects of M&As and utilising methodologies that are robust to these recent criticisms.

Earlier event studies of M&A activity have also focused more on domestic M&A markets, and relatively rarely has an earlier event study examined both domestic and cross-border M&As in both the short and the long run. However, there are important theoretical reasons for examining the wealth effects of both domestic M&As and cross-border M&As. Roll (1986) argues that bidding companies tend to over-pay for targets because managers are affected by 'hubris'. Overseas companies are more difficult to value than domestic firms due to greater information asymmetry (e.g. due to different accounting standards, difficulties of access foreign information) and as a result, cross-border bidders may be linked with greater 'hubris' than domestic ones. In this case, we may see higher target gains and lower bidder gains in cross-border M&As than in domestic M&As.[1] In contrast, as argued by Sudarsanam (1995, p. 269), there is a group of other factors indicating that cross-border bidders may, in fact, turn out to be outperformers compared with domestic bidders. This group of opinions claims that cross-border M&As may be more influenced by synergy-related factors such as escaping a small home market, extending markets served, achieving economies of scale and responding to overseas clients' needs. These factors provide an argument for expecting higher shareholder wealth effects in cross-border than in

[1] There are some other arguments that suggest lower bidder gains in cross-border than in domestic M&As. See Section 2.3.2.2 of Chapter 2 (*Literature Review*) for more discussion of this issue.

domestic M&As. For all the reasons above, it is important to examine the performance of these different types of M&As. This study does so by bringing cross-border and domestic M&As together and makes comparisons between them in one study.

Earlier event studies of M&A activity have also been limited to some extent in terms of concentrating mainly on the US and UK markets and/or M&As in a single country. Conn and Connell (1990) suggest that regulations that facilitate the flow of information regarding M&As can encourage competitive bids. As a result, higher premiums for targets may exist in the better regulated UK and US markets. La Porta et al. (2000) claims that a positive relationship exists between the quality of shareholder protection and share valuations assessed by investors. La Porta et al. (2000) suggests that shareholder protection is higher in English common law countries (such as the UK and US) than in civil law countries (such as France and Germany). Therefore, target firms in the UK and US markets may, on average, receive higher premiums than those in other markets. In addition, the UK and US markets have higher liquidity than other markets. A higher liquidity allows savers to sell their shares more easily if they desire, therefore making shares relatively more attractive investments. Many profitable investments require a long-term commitment of capital, but investors might not want to tie up their savings for such long periods. All the considerations above suggest that target firms in the UK and US markets may experience higher wealth effects than those in other markets (such as the French and German markets). Hence, an investigation of M&As for multi-countries may be important and may yield interesting results at least for target firms. This study does so by examining EU M&A markets. In particular, it focuses on the UK market but also brings two Continental-EU M&A markets (specifically, the French and German markets) into one study. These are the most active M&A markets in Continental-EU and they have better data availability than other Continental-EU countries. This also contributes to the literature of the profitability of M&As because rarely has an earlier event study examined, in particular, the long run share price performance of the French and German M&A markets.

Finally, there is a distinctive lack of event studies, especially long run event studies, that have examined recent data. Prior long-run event studies have only investigated the period up to Year 1994 (e.g. Gregory and McCorriston, 2005). Therefore, this study focuses on the most recent period for the UK, France and Germany, specifically, from 1992 to 2003. The next section will introduce the background of M&A activities for this period and we can see that there are some significant movements of M&A activities during this period.

Section 1.2 M&A Activities

As noted in Section 1.1, this study investigates the shareholder wealth effects of the major EU M&As (the UK, France and Germany) for the period 1992-2003. In the 1990s, due to the introduction of the single currency in the European Union, the deregulation and promotion of an integrated single market in Europe (and as a result the decreased cost of performing European corporate acquisitions), the technological progress in some industries and the development of financial instruments and markets, the value of M&A activity in Europe rose significantly. In terms of the total value, the largest M&A wave in history could be observed spanning approximately the years 1992-2000. The start of the rise in M&A activity in Europe seems to be from the end of the year 1992. In 1993 the total dollar value paid for target firms doubled after four consecutive years of decline in M&A activity. An even steeper rise was observed in 1996 with European M&A activity accounting for 37% of the worldwide value of M&A deals. In the following years, the total value of M&A deals in Europe rose further to about 550.9 ($ billion) in 1997, 869.2 ($ billion) in 1998, 1,559.9 ($ billion) in 1999, and 1,483.9 ($ billion) in 2000. The year 1999 was remarkable for the European M&A market as it was almost as large as the US market. Afterwards (approximately from 2001), Europe experienced a reduction in M&A activity. [2]

More detailed information is available on the UK M&A market. Together with the M&A trend in Europe, the level of UK M&A activity similarly appeared to accelerate in the 1990s (see Figure 1.1 below). In the UK, after a M&A wave during the period 1986-1989, another wave was observed from around 1995. This M&A wave has involved some very large takeover bids and the total value of M&As has reached a

[2] Data source of paragraph: a M&A report by Thomson Financial Securities Data report, and Goergen and Renneboog (2004).

new high. The value of the UK M&As in 1994 was 28,646 (£ million) whereas in 1995 it was 57,384 (£ million). In 1998, the value of UK M&A deals jumped to 116,855 (£ million), in 1999 the UK M&A wave gained even more strength with a value of 198,216 (£ million), and by the end of 2000 it reached a peak value of 352,819 (£ million). After year 2000, the value of UK M&A deals decreased sharply and by the end of 2003 it was only 48,744 (£ million).

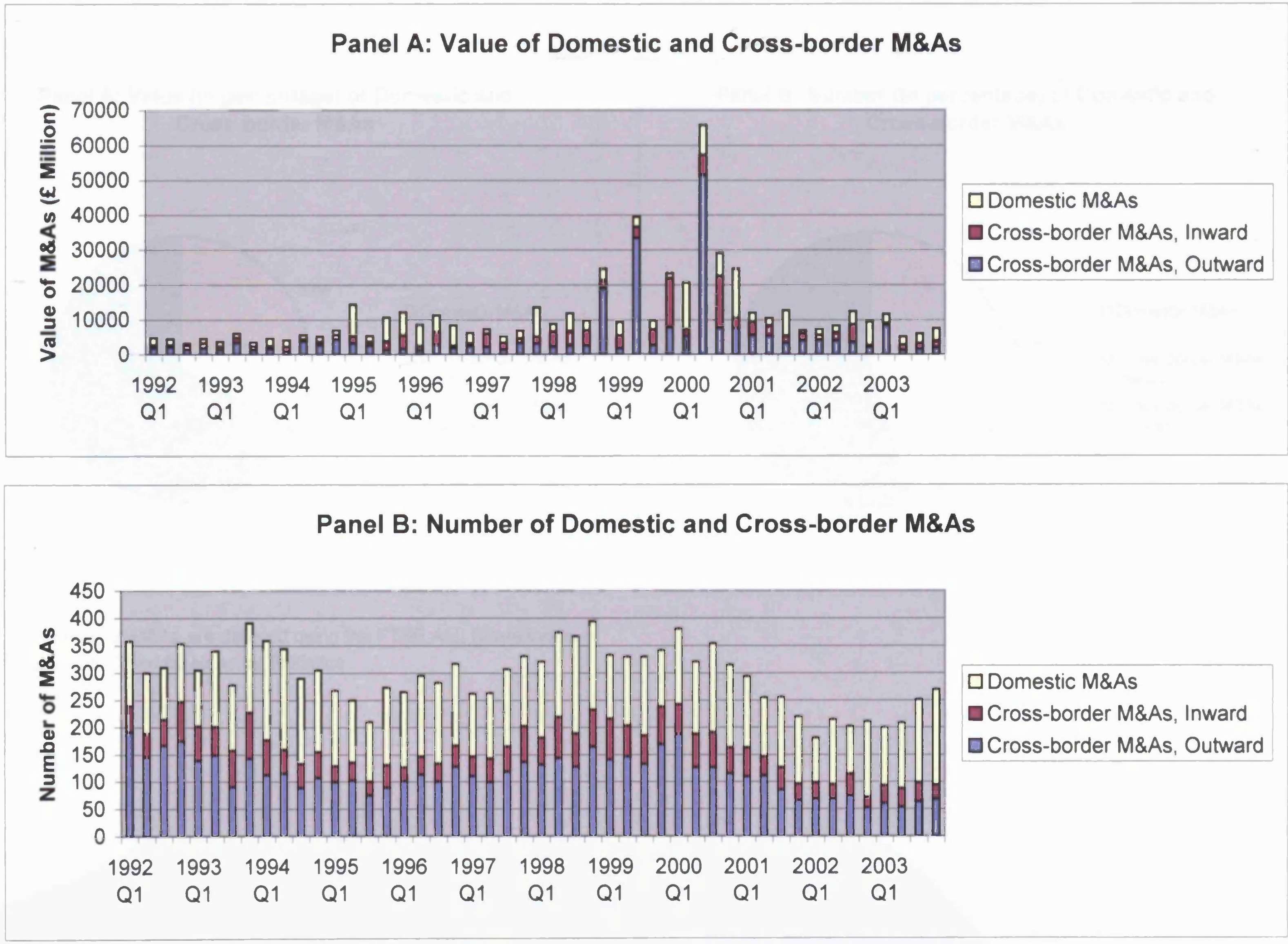
We can observe this trend in Panel A of Figure 1.1.[3] On the other hand, Panel B of Figure 1.1 shows the quarterly number of M&As from 1992 to 2003. By comparing Panel A and Panel B we can see that, from around 1995, both the number and value of M&A deals with a UK company involved rose steadily. The number of M&As peaked in Year 2000 Quarter 1 and the value of M&As peaked in Year 2000 Quarter 2. After this period, UK M&A activity decreased especially in terms of total value.

Also, cross-border M&As contribute to an important part of the UK M&A activities in terms of both number and total value. In Figure 2, Panel A shows that 67% of the deal values (deflated by the FTSE ALL Share index) in the period 1992-2003 are from cross-border M&As for the UK market. Also, in Panel B we can see more than half the number of M&A cases are cross-border ones. Furthermore, outward UK cross-border M&As have higher total value (as well as more total bid numbers) than inward ones. According to UNCTAD (2000), by 2000 the UK was the largest acquiring country worldwide, accounting for 31% of the total value of all cross-border acquisitions.

In short, the period, 1992-2003, examined by this study represents some significant movements in M&A activities from a historical point of view. The next section will briefly introduce the major findings for this period as well as the structure of the study.

[3] The deal values in Figure 1.1 are quarterly data and deflated using the FTSE ALL Share index.

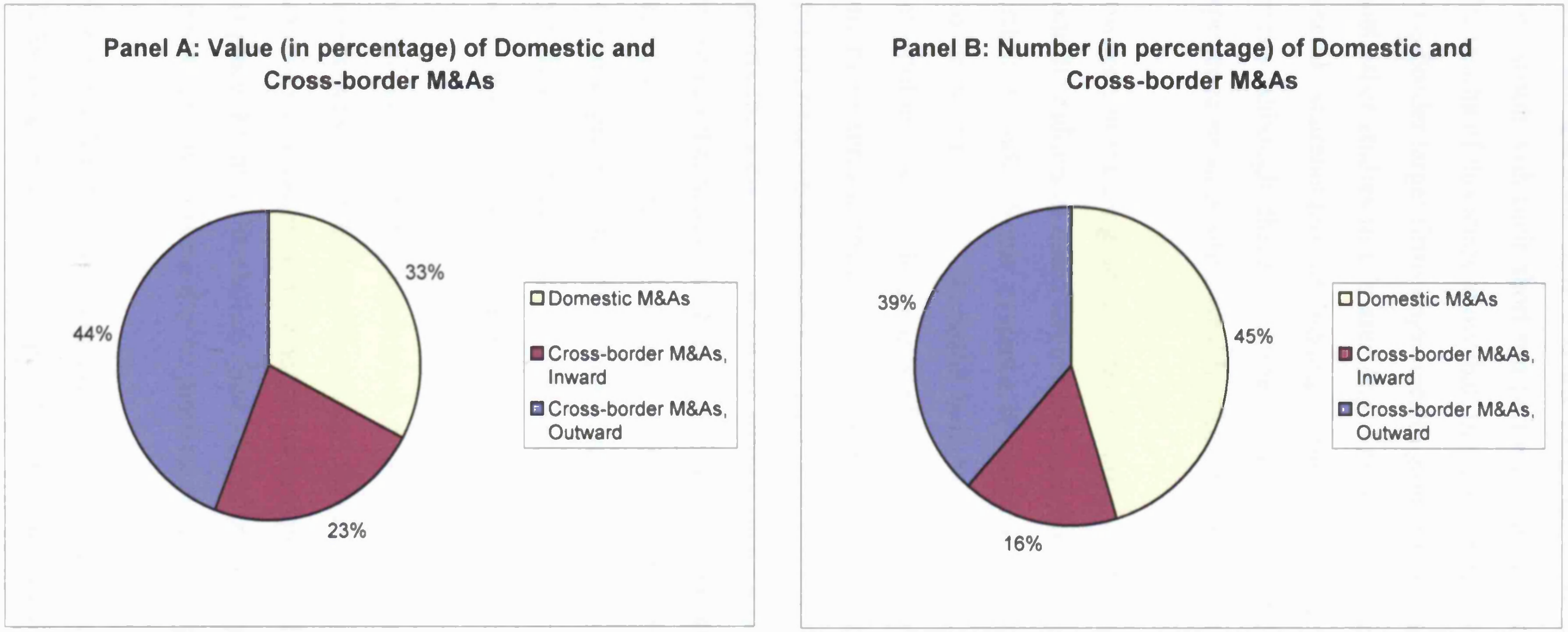
Figure 1.1
The Value and Number of Domestic and Cross-border M&As in the UK M&A Market, 1992-2003



Note: The values of M&As are deflated using the FTSE ALL Share index.
Data Source: UK Office for National Statistics

Figure 1.2

The Value and Number of Domestic and Cross-border M&As (in percentage) in the UK M&A Market, 1992-2003



Note: The values of M&As are deflated using the FTSE ALL Share index.
Data Source: UK Office for National Statistics

Section 1.3 Major Findings and the Structure of the Study

Some major findings of this study are concluded as follows. First, Section 1.1 has raised the question: how was the long run share price performance of M&As, in comparison with their short run performance, for the period examined in this study? The results of this study show that, in the short run, shareholders of both domestic and cross-border target firms enjoy wealth gains for all three countries. This is in line with most other studies in this area (e.g. Franks and Harris, 1989). On the other hand, in general, shareholders of bidding firms experience insignificant average abnormal returns although there is some evidence that UK acquirers' shareholders may experience small positive wealth effects in the short run.

However, in the long horizon, the results show that there is strong evidence that UK domestic bidders of listed targets under-perform relative to a control firm (or a control portfolio) model. Some evidence of negative long-run share price performance can also be found for UK domestic bidders of private targets but this depends on the methodology used. UK cross-border acquirers, in general, experience insignificant abnormal returns in the long run. Nevertheless, by gathering all types of UK acquirers together, negative average abnormal returns are found in the long run in the UK. This supports the view of some earlier studies such as Gregory (1997) but is in contrast with some other studies such as Higson and Elliot (1998). These earlier studies will be discussed in Chapter 2 (*Literature Review*). On the other hand, there is some evidence for share price underperformance in the long horizon for the German sample, depending on methodology used. Results for the French sample mainly suggest no under- or over- share price performance in the long run.

On balance, I find that some types of acquirers under-perform in the long run. This raises a question on the wealth-creation feature of M&As measured in the short run. It also raises a question as to whether these types of M&As should be approved in the first place. From a shareholder (and a broader public policy) point of view, the results suggest that investors need to be more cautious in supporting these types of M&As.

Second, Section 1.1 has also raised two more questions: one is whether cross-border M&As experience different profitability compared with domestic M&As for the period examined? Another is whether UK M&As on average experienced different profitability compared with French and German M&As at least for target firms? On the first question, this study reveals that, in the short run, UK targets in cross-border M&As experience higher share price performance than those in domestic M&As. However, UK bidders in cross-border M&As do not under-perform UK domestic bidders. In the long run, there is evidence that UK cross-border bidders have better share price performance than UK domestic bidders. These results suggest that some synergy-related factors (such as escaping small home markets and responding to overseas clients) are important to UK cross-border bidders in the long run. On the second question, this study finds a 'market effect' does exist. The available evidence suggests that target firms in the UK market on average gain considerably higher abnormal returns than those in the French and German markets. This is consistent with the view discussed in Section 1.1. On the other hand, no 'market effect' is observed in bidding firms between the UK market and the French and German markets.

Third, this study further attempts to explore the possible determinants to explain the variations in the share price performance of UK M&As for the period examined. A number of factors have been discovered that have explanatory power for short- and/or long- run post-acquisition share price performance. For example, this study suggests that Jensen (1986)'s 'free cash flow' hypothesis[4] is not a major factor in the UK M&A market by examining the impacts of cash offer and dividend yield on M&A profitability. This study shows that the post-acquisition share price performance has a positively relationship with cash offers and a negative relationship with dividend yield. This is in contrast with Jensen (1986)'s predictions. As one more example, this study also suggests that acquirers' experience of handling M&As may have a positive impact on bidding firm shareholder wealth effects, as reflected by the better performance of an overlapping[5] sample than a non-overlapping one. More findings, including the importance of tender offer, market value, market-to-book-value, the

[4] Jensen (1986) predicts that firms with larger free cash flow are more likely to undertake M&As than pay out cash to shareholders because of a conflict of interest between managers and shareholders. He also argues that low or negative profitability is often associated with these kinds of M&As.

[5] 'Overlapping' means bidders have multiple M&As within the relevant periods.

total debt / common equity ratio and some other factors are also obtained and their implications are discussed in Chapters 4-6.

The rest of the study is organised as follows:

In chapter 2, I survey more than 100 earlier studies using the event study approach and present a review of the existing literature. Chapter 2 discusses the motives of mergers and acquisitions, reviews existing studies on both short and long run shareholder wealth effects, and further summarises existing evidence on the possible determinants of share price performance. Some hypotheses are generated which are tested in later chapters.

In chapter 3, I discuss various methods used for both short and long run tests of abnormal returns. Besides the presentation of the methodologies, chapter 3 identifies the potential problems that exist in event studies for both the short and the long run as well as discussing the advantages and limitations of each methodology discussed.

In chapter 4, I present the share price performance for the short run for up to one month surrounding the announcement of an M&A for the UK, French and German samples in turn. The market model, the multi-factor market model and the control firm model were employed although since all gave similar results, only results based on the market model are reported. Some other relevant issues, such as comparing cross-border M&As and domestic M&As and comparing the UK market and the French and German markets, are also discussed.

In chapter 5, I present the share price performance for acquirers for up to 5 years after the announcement of a M&A for the UK, France and German markets. Efforts are made to ensure that the results are robust to some recent criticisms of commonly used event study methodologies. Various methods are employed including the control firm model, the control portfolio model, the Fama-French three-factor model with the calendar time approach, the control portfolio model with the calendar time approach, and the control firm model adjusted for industry. Additionally, skewness-adjusted t-statistics (where applicable) are calculated to avoid test statistic misspecifications. On the other hand, the original samples are subdivided into non-overlapping sub-samples and overlapping sub-samples. In particular, the calendar time approach is employed for overlapping sub-samples as this provides a way of avoiding sample contamination and statistical biases in this kind of study.

In chapter 6, I examine the possible determinants of share price performance following the announcement of M&As. This chapter examines a number of factors and discusses the possible implications of the results. The factors include domestic/cross-border acquisitions, cash/equity payment methods, tender/non-tender offers, acquiring private/publicly-listed target firms, dividend yield, market-to-book-value, the total debt to common equity ratio, market value, and industry effects. Their impact is examined for up to five years following a M&A announcement and a number of significant effects are observed.

In Chapter 7, a conclusion is made for this study. It brings all the major results of this study together and discusses their implications. Chapter 7 also identifies the contributions and discusses the wider significance of the results in this study.

Chapter 2 Literature Review

Section 2.1 Introduction

This chapter reviews studies on the profitability of M&As as well as other relevant issues. About 100 studies are surveyed in this chapter including the most cited research over several decades, and some most recent and notable work.

Research generally offers four approaches to measure merger and acquisition profitability. They are: the accounting approach examining reported financial performance, surveys of executives, case studies focusing on one transaction in order to explore insights in more detail, and event studies. I concentrate on event studies in this thesis. A distinctive advantage of the event study methodology is that it provides a direct measure of value created for investors.

The rest of the chapter is organized as follows: 1) to examine the major hypotheses of M&A motives (Section 2.2); 2) to review the existing empirical results on the profitability of M&As in the short run, both for domestic and cross-border M&As (Section 2.3); 3) to review the existing empirical results on the profitability of M&As for bidders in the long run (Section 2.4); 4) to examine the links between the motives and M&A profitability in relation to bid characteristics (e.g. means of payment) (Section 2.5). Finally, a conclusion (Section 2.6) is made for Chapter 2.

Section 2.2 Motives for M&As

This section discusses the possible motives for M&As. Mainly three hypothesis of motives for M&As have been advanced in the literature: the synergy motive, the agency motive, and the 'hubris' motive.

2.2.1 Synergies

The synergy motive assumes that managers of targets and acquirers maximize shareholder wealth and would engage in takeover activity only if acquisitions result in gains to both sets of shareholders. As a result, 'synergies' are created and M&As are beneficial to shareholders. A number of forms of synergy may be distinguished as follows.

First, synergy gains could occur through the realization of economies of scale and scope. Datta and Puia (1995, p. 340) state that synergies are 'created' through M&As: '...for both cross-border and domestic acquisitions, operating synergies in acquisitions can take the form of economies of scale and scope (in areas such as R&D, marketing and production) resulting in a firm being able to secure a cost advantage over its competitors'. This form of synergy gain is often involved in horizontal (acquiring firms with similar production lines) and vertical (acquiring firms at different stages of an industry) M&As. For horizontal M&As, extra synergy gains may be achieved through the familiarity the acquiring firm has in the acquired firm industry; for vertical M&As, extra synergy gains may be achieved through more efficient co-ordination of the different levels of an industry.

Second, value creation may be realized through the replacement of less efficient management of the acquired firms (e.g. Manne, 1965). M&As may improve the efficiency of the combined firms' operations by letting superior managers shift control of an acquired firm's assets from a relatively inefficient management to the superior managers of the acquiring firms. Both the range and depth of the management skills and abilities could be improved and transferred to the acquired firms. This type of M&A is often hostile in its bid characteristics.

Some studies agree that 'synergies' occur through replacing the management of the acquired firm, but stress different perspectives. For example, Brealey and Myers (1991, p. 283) stress that in some cases synergies are 'saved' by getting rid of inefficient management and operation rather than 'created' by better management skills: '...there are always firms with unexplored opportunities to cut costs and increase sales and earnings. Such firms are natural candidates for acquisition by other firms with better management. ...in some cases 'better management' may simply mean the determination to force painful cuts or realignment of the company's operations.'

Third, synergy gains may also be realized for financial reasons. If the cash flow streams of the two firms are not perfectly correlated, corporate failure probabilities may be lowered through M&A. Although the co-insurance motive above benefits debtholders at the expense of shareholders (Higgins and Schall, 1975), this effect can be offset by increasing gearing after the M&A, and the result will be increased tax savings on interest payments (Galai and Masulis, 1976).

Finally, synergy gains may be achieved by acquiring under-valued target firms. This 'under-valuation' hypothesis often uses the 'q' ratio as a proxy, where the 'q' ratio is the ratio of market value to replacement cost of a company's assets. For example, if the 'q' ratio of a target is 0.6 and the premium paid by a bidder over the target's market value is 50%, the resulting purchase price is 0.6 times 1.5 which equals 0.9. Since the outcome '0.9' would still be 10% below the current replacement cost of the assets acquired, this acquisition may imply a 'good buy'. Empirically, however, there are difficulties of accurately valuing a 'q' ratio (e.g. Gonzalez et al. 1998).

In summary, the 'synergies' motive assumes that M&As maximize shareholders' wealth. The sources of synergies may be due to operating synergies through economies of scale and scope, replacement of less efficient management, financial reasons, and seeking under-valued targets.

2.2.2 Agency Problems

Managers might have substantial power while in office. The problem of managerial power and discretion when ownership and management are separated has been analyzed as an 'agency problem'. Managers may engage in maximizing their own benefits rather than shareholders'. They also may fail to distribute excess cash to shareholders and instead prefer a less desirable M&A. These 'agency-related' issues provide another dimension motivating M&As.

Maximizing Managers' Own Interests

When a firm makes an acquisition, its managers might consider both their personal benefits from the investment and the consequences for the market value of the firm. Assuming that managers have enough independence from their shareholders, they may aim to maximize their own utility rather other maximize shareholders' wealth. As a result, this will reduce the profitability of the M&A against the shareholders' interests. This hypothesis is directly contrasting to the 'synergies' hypothesis. A number of hypotheses on how managers may want to maximize their own utility may be distinguished as follows.

Williamson (1964) suggests that managers may seek to maximize a utility function subject to reported profit exceeding some minimum acceptable level, which is a function of staff employed, emoluments of the managers and 'discretionary' profits. On the first term, the managers have a preference for increased staff as a means of increasing their power, salary and status. The emoluments refer to the portion of management compensation obtained directly in the form of expense accounts, large office, etc. The 'discretionary' profits are profits above the minimum performance constraint which are used as discretionary expenditure by the managers. Such expenditures, in particular, might be used for M&As which do not maximise shareholder wealth.

Marris (1964) suggests that the interests of the managers lead the firm to maximize as utility function which is a function of long-term growth subject to a constraint on their job security. Long term growth is seen as a proxy for income, power and prestige and the job security constraint is imposed by the desire not to be a M&A target. When the market value of a firm falls sufficiently, a M&A attack may occur and the managers' job security is threatened. Marris (1964)' model was the first to hypothesize that managers were constrained by the threat of M&As and could imply that M&As might actually be used to avoid any threat of other M&As.

There are some other hypotheses on why managers might prefer to maximize their own utility. For example, Amihud and Lev (1981) argue that managers hold highly undiversified portfolios which are overwhelmingly invested in their own firms, hence

M&As are motivated in order to diversify managers' personal portfolios. Shleifer and Vishny (1989) argue that the greater complexity of larger firms may increase the firm's dependence on management and hence, managers' status and power in the firm is strengthened. Hence, managers will again love an incentive to undertake excess M7As.

All hypotheses above assume that shareholders' wealth is not a priority in the consideration of undertaking M&As. M&As may be motivated by empire building (for increasing status, power, salary, etc.), risk diversification of managers' portfolios, and the defensive motive of avoiding becoming a M&A target. When managers and shareholders conflicts are severe, M&As may be associated with low- or non-profitable projects. In short, the 'maximizing top managers' own interests' hypothesis implies that M&As are value-destroying for bidders and possibly for the combined firms as well.

In contrast with the views above, Mueller (1972)'s life-cycle theory suggest that M&As are one way to reduce manager/shareholder conflict by avoiding the slowdown in growth that product maturity brings. He hypothesizes the existence of 'young' firms that have 'taken off' into a process of fast, accelerating growth (in terms of time since some event, e.g. a technological or commercial breakthrough) and which are associated with good profitability. At the 'young' stage the interests of managers and shareholders converge to maximum feasible growth. Later, as the exceptional circumstances fade, the optimum growth rate for shareholders gradually declines and may finally become negative. During this phase, conflict between managerial and stockholder interests emerges, and it is presumed that the managerial interests prevail. This hypothesis does not necessarily predict that the fastest growing firms are the ones for which the managerial/stockholder conflict is most severe. In contrast, the most extreme managerial/stockholder conflict may arise for firms that are hardly growing at all and have only modest opportunities for profit. In his model, M&As of moving into growth industries are one way to avoid slowdown in growth that product maturity brings and are not necessarily value-decreasing.

Free Cash Flow Hypothesis

Jensen (1986, 1988) suggests that M&As in general generate a special type of agency problem in firms that have substantial free cash flow. Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital (Jensen, 1986, p. 323). Such free cash flow is generally available to profitable firms in mature industries with few growth prospects (e.g. the tobacco industry). Managers of those firms have the option to increase the dividend payout or, alternatively, could reduce the size of free cash flow to finance diversifying acquisitions. When the organization generates substantial free cash flow, conflicts of interest between shareholders and managers over payout policies will be especially severe. Acquisitions may be used as one way for managers to spend cash instead of paying it out to shareholders. As a result some firms are more likely to make acquisitions when they have generated larger free cash flows. M&As of this type are often associated with low-benefit or even value-destroying projects. Jensen's free cash theory, therefore, implies that M&As motivated by free cash flow are more likely to destroy, than to create, value.

Similar to the 'maximizing managers' own benefits' hypothesis, the 'free cash flow' hypothesis also assumes that managers may not undertake M&As in an optimal way from the shareholders' perspective. 'For shareholders the (free cash flow) problem is how to motivate managers to disgorge the excess cash rather than investing it at below the cost of capital or wasting it on organisational inefficiencies' (Jensen, 1988, p. 29).

2.2.3 'Hubris' Hypothesis

In M&A markets, the bidding firm identifies a potential target firm and a 'valuation' of the equity of the target is undertaken. The 'valuation' itself can be considered a random variable whose mean is the target firm's current market price. When the random variable exceeds its mean, a M&A offer is made and otherwise there is no offer. Now there is a possibility that no potential synergies exist but some bidding firms believe that such gains exist. As a result, offers are observed only when the valuation is too high. The M&A premium in such a case is a mistake by the bidding firm and most importantly, the observed error is always in the same direction. Corresponding errors in the opposite direction are not made public. This is the extreme version of the 'hubris' hypothesis raised by Roll (1986).

The 'hubris' hypothesis suggests (Roll, 1986, p. 212): 'decision makers in acquiring firms pay too much for their targets due to 'hubris', which means they over-estimate their ability and/or make mistakes in evaluating potential targets. ...the 'hubris' hypothesis implies: (1) the combined value of the target and bidding firms could be zero or negative; (2) the value of the bidding firm should decrease; (3) the value of the target should increase'.

The extreme version of the 'hubris' hypothesis predicts that there are no synergistic gains from M&As and the entire premium paid to the target firm is a transfer from the acquirer. Roll (1986, p. 200) describes the 'hubris' hypothesis in its extreme version as consistent with strong form market efficiency: 'financial markets are assumed to be efficient in that asset prices reflect all information about individual firms. Product and labour markets are assumed efficient in the sense that (a) no industrial reorganization can bring gains in aggregate output at the same cost or reductions in aggregate costs with the same output and (b) management talent is employed in its best alternative use'.

Heaton (2002) attempted to establish a mechanism to link managerial overconfidence, free cash flow and M&A activities together. Heaton (2002, p. 33) assumes that managers are generally too optimistic, where 'optimistic' is defined to mean they 'systematically overestimate the probability of good firm performance and underestimate the probability of bad firm performance'. First, managerial optimism leads managers to believe that capital markets undervalue their firm's securities. Therefore, managerial optimism leads to a preference for internal funds to finance M&A activities. Second, optimistic managers overvalue their own corporate projects and may wish to invest in (in fact) unprofitable M&A projects even when they are loyal to shareholders. As a result, the Heaton (2002) framework suggests that: 1) M&As may be motivated by excessive managerial optimism when managers have enough internal funds at their disposal; 2) M&As' profitability is affected by excessive managerial optimism because managers may overpay or misjudge their own ability according to Roll (1986); 3) such managers may prefer to finance M&As by excess cash flow without invoking the 'agency' problems proposed by Jensen (1986).

Heaton (2002), in comparison with Roll (1986), makes the explicit assumption that individuals do not always make rational decisions under uncertainty. In addition, Heaton (2002) provides an alternative motive for cash-financed M&As without invoking Jensen (1986).[1]

In short, the 'hubris' related hypotheses suggest that M&As may not be value-creating because managers either over-estimate targets' true value (and overpay) and/or are too optimistic of their own ability. Bidding firms infected by 'hubris' simply pay too much for their targets.

2.2.4 Conclusion

This section has (mainly) discussed three motives for M&As: synergy gains, agency problems, and 'hubris'. The major difference between the 'synergy' and 'agency' motives is: the former assumes managers are motivated by shareholders' interests and the latter suggests managers prefer to maximize their own utility at the expense of the shareholders of the firm. On the other hand, the 'hubris' hypothesis simply suggests that bidding firm managers make mistakes in evaluating target firms. The 'synergy' hypotheses predict positive gains for both targets and bidders of M&As, whereas the 'agency' and 'hubris' hypotheses are often associated with negative wealth effects for bidder shareholders in M&As. In real life, multiple motives may be at work in any given M&A decision. For example, agency costs (or 'hubris' costs) may exist in conjunction with higher efficiency (e.g. Seth, Song and Pettit, 2000). This may increase the difficulties of empirical research of identifying motives for M&As.

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[1] The effects of cash offer on shareholder wealth effects are examined in more detail in Section 2.5.1.

Section 2.3 Profitability of M&As: Short Run Studies

Numerous studies estimate the profitability of M&A activity on stock performance of bidder and target firms around the time of announcement of M&As. Section 2.3 surveys those studies and examines insights about market-based excess returns to target shareholders, bidder shareholders, and the combined profitability of M&A activities respectively. Section 2.3 is organized as follows: excess returns for targets and bidders in domestic M&As; returns to bidders and targets combined; followed by a further discussion of excess returns for targets and bidders in cross-border M&As. I put the wealth effects of bidders and targets combined before the discussion of cross-border M&As because earlier studies on the combined wealth effects have been limited to domestic M&As.

2.3.1 Profitability of Domestic M&As

2.3.1.1 Excess Returns to Target Firms

Prior surveys

Several earlier survey studies (e.g. Jensen and Ruback, 1983; Jarrell, Brickley & Netter, 1988; Jensen, 1988; and Datta and Pinches, 1992) in general conclude that target firm shareholders enjoy abnormal returns that are positive and statistically significant. For example, Jensen and Ruback (1983) survey 13 studies of pre-1980 data and suggest that target shareholders receive average abnormal returns around 16% for mergers and around 30% for tender offers[2]. Jarrell, Brickley & Netter (1988) agree that gains for target shareholders range from 19% to 35%, depending on the periods and bid types.

[2] Tender offers are public offers (by a person or a group of individuals) to existing shareholders to buy a specific number of shares in the company at a particular price and date. See Section 2.5.3 for more discussion of tender offers.

Survey of the thesis

The survey of the thesis is summarized in Table A2.1 in the appendix[3].

It is not easy to directly compare results across all studies reported in this table because the benchmark used, sample periods, trading markets, event windows and mode of bids are different from each other. However, in general, average abnormal returns to target shareholders are uniformly positive and statistically significant, despite variations in time periods, type of deals (mergers or tender offers), observation periods, etc. This conclusion holds up for the UK market, the US market and European markets.

For the UK market 8 studies are presented in Table A2.1. All 8 studies are consistent in the sense that targets enjoy positive and statistically significant abnormal returns from M&As. For example, Firth (1980) finds that CAR(-1M, 0M)[4] is 35.0% (statistically significant at the 1% level) for UK targets in the period 1969-1975; and Tse and Soufani (2001) find that CAR for the event month is 30.5% (statistically significant at the 1% level) in the 1990-1993 period. CARs reported in other studies range from 8.9% to about 32.0%, depending on the length of event window examined, methodologies used, and sample periods, etc.

In total 12 studies for the US market are presented in the table. Three have studied tender offers. Two tender offer studies report CARs around the 30% level around the announcement date. In comparison, Lang, Stulz and Walking (1989) report a higher CAR of 40.3% over the ±5D period for tender offers. All results are statistically significant at the 1% level. Other US studies in the table also uniformly report positive and statistically significant CARs for targets. The highest CAR (45.6%,

[3] The selection of the studies is based on three principles: 1) they were frequently referred to in earlier studies, 2) they are selected in an attempt to cover as many time periods as possible, 3) they are selected in an attempt to cover as many methodologies as possible. For example, the 8 studies selected for the UK cover time periods from 1955 to 2000 and a number of methodologies were used by these studies, including the market model, the CAPM, and the size-adjusted benchmark. These principles are also applicable to other sections on M&A profitability reviews.

[4] '0M' is 'the month of bid announcement' and '-1M' is 'one month before bid announcement month'. Similarly, '0D' is the day of bid announcement and '-1D' is 'one day before bid announcement day'.

statistically significant at the 1% level) reported in the table is that from Healy, Palepu and Ruback (1992) who examine major deals during 1979-1984. As another example, Maquiera, Megginson and Nail (1998) examine 92 stock-for-stock mergers in the period 1963-1996. The CARs over the period (-60D, +60D) are high and range from 38.0% to 41.7% (both statistically significant at the 1% level), depending on the sub-sample used. Other studies report CARs ranging from about 6.2% to 28.0%, with most of them statistically significant at the 1% level.

Two studies in the table examine target profitability for European M&As. Goergen and Renneboog (2004) examine targets in large deals in the 1993-2000 period. They find that CARs for targets of domestic M&As range from 10.2% to 22.9% (depending on the event window used) and are statistically significant. Similarly, Campa and Hernando (2002) find that CARs are positive and statistically significant for targets of domestic M&As in the period 1998-2000, ranging from 3.5% to 9.3% (depending on the event window used). All results are significant at the 5% level.

What do those results suggest?

The survey above generates some insights into shareholder' wealth effects for the target side:

First, the studies presented in Table A2.1 generally show positive and sometimes large abnormal returns to target firms. This is in line with prior survey studies for the 1980s. In short, it suggests that the M&A transaction delivers a premium return to target firm shareholders. Therefore, the first hypothesis developed is the *wealth (for targets of domestic M&As) hypothesis*: domestic M&As deliver premiums for shareholders of target firms.

Second, by observing and comparing target gains, it is shown that targets of different markets may enjoy substantially different wealth gains. Few studies have directly compared target gains between the UK and US domestic-M&A markets. In the table, however, Draper and Paudyal (1999) find that CAR (-1D, +1D) is 8.9% (statistically significant at the 5% level) for 581 UK targets in the 1988-1996 period. Also based on a large sample size and the same event window, Mulherin and Boone (2000) find

CAR (-1D, +1D) is 21.2% (statistically significant at the 1% level) for 376 US targets in the period 1990-1999. The two time periods studied above are overlapping and the difference in target gains is a substantial 12.3%.

A more recent study by Goergen and Renneboog (2004) provide us with a direct comparison of targets gains between the UK and (the rest of) European markets. Over the (-1D, 0D) event window, the average CAR for the UK sample is 12.3% and statistically significant at the 1% level[5], while the average CAR for the (rest of) European sample is 5.9% and statistically significant at the 1% level[6]. The difference is 6.4% and statistically significant at the 1% level. The sample firms are restricted to firms with large MVs. Although sample target firms are mixed with targets in both domestic and cross-border M&As, the results still indicate that target gains may be significantly different depending on locations.

The evidence above suggests higher target gains in the US than in the UK, and higher target gains in the UK than in the rest of the Europe. Conn and Connell (1990) suggest that regulations that facilitate the flow of information regarding M&As can encourage competitive bids. Hence, returns to target firms in better regulated markets should be more than those observed in other markets. La Porta et al. (2000) suggest that a target country's corporate governance system (e.g. the English common law, the French civil law and the German civil law) may have impacts on shareholder wealth effects. They claim that a positive relationship exists between the quality of shareholder protection and share valuations assessed by investors. Therefore, target firms in the market with higher shareholder protection may on average receive higher premiums. Goergen and Renneboog (2004) further suggest that the market effect is the combined result of a high degree of disclosure in the UK, a liquid and well-developed equity market and a higher degree of shareholder protection (see also La Porta et al., 2000). Therefore, the second hypothesis developed is the *market effect (for targets of domestic M&As) hypothesis*: domestic targets in the UK market experience higher CARs than those in the French/German markets in the short run[7]. I will further test if the hypothesis holds up for targets in cross-border M&As, because

[5] The whole sample size is 70, 14 are targets in cross-border M&As.
[6] The whole sample size is 66, 35 are targets in cross-border M&As.
[7] This dissertation focuses on three markets: the UK, France and Germany.

the conditions suggested by Goergen and Renneboog (2004) and Conn and Connell (1990) also hold for cross-border targets.

2.3.1.2 Excess Returns to Bidding Firms

Prior surveys

There are a number of prior survey studies for M&As of the 1980s and earlier as noted in Section 2.3.1.1. Jensen and Ruback (1983), based on an analysis of 16 studies, conclude that average excess returns to bidders in successful mergers are zero, and in successful hostile offers are 4%. They therefore conclude that bidding firm shareholders do not lose in corporate takeovers (Jensen and Ruback, 1983, p. 5). Jarrell, Brickley and Netter (1988) conclude that in the 1980s corporate takeovers generated negative but statistically insignificant wealth effects to bidders (Jarrell et al., 1988, p. 53). Datta and Pinches (1992) conclude that bidders earn very small excess returns. They therefore summarize (Datta et al., 1992, p. 13) that '... on average, shareholders of bidding or acquiring firms do not realize significant returns from mergers and acquisitions.'

As a result, some studies would prefer to use the notion: 'the evidence is evenly distributed between studies that report negative excess returns and those that report zero and slightly positive excess returns.'

Survey of the thesis

The current survey of 24 studies is summarized in Table A2.2.

Table 2.1 below may be helpful to check the 24 studies in Table A2.2 conveniently. Studies 6, 7 and 8 have examined tender offers. The significance level is not available for Study 11.

Table 2.1 Distribution of CARs in Table A2.2

<table>
<tr><td rowspan="2"></td><td rowspan="2">Studies reporting insignificant CAR</td><td colspan="3">Studies reporting significant CAR</td><td rowspan="2">N/A</td></tr>
<tr><td>10%</td><td>5%</td><td>1%</td></tr>
<tr><td>Positive CARs</td><td rowspan="2">3, 7
10, 13, 18, 22, 23(main results), 24</td><td>21</td><td>9</td><td>4, 6, 8, 19</td><td></td></tr>
<tr><td>Negative CARs</td><td></td><td>2, 14, 17(main results)</td><td>15</td><td>11</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="3">Depending on other factors</td><td colspan="3">Depending on event window length or sample period</td><td colspan="2">Depending on feature of bids</td></tr>
<tr><td>Mainly negative CAR (either statistically significant or insignificant)</td><td colspan="2">Mainly positive CAR (either statistically significant or insignificant)</td><td colspan="2"></td></tr>
<tr><td>1, 5</td><td colspan="2">12, 20</td><td colspan="2">16</td></tr>
</table>

Although it may be not easy to compare these studies directly (because the benchmark used, sample periods, trading markets, event windows, sample sizes and mode of bids are different), Table 2.1 shows that a large number of studies report insignificant CARs. The rest of the studies are distributed between 'positive and statistically significant' and 'negative and statistically significant' with no apparent tilt if I exclude the three tender offer studies (Studies 6, 7 and 8).[8] Therefore, Table A2.2 (and Table 2.1) are basically consistent with prior survey studies. The abnormal returns for bidders could be one of the three possibilities with no apparent clustering: positive, negative or zero.

There are 8 studies for the UK market, 15 studies for the US market and 3 studies for other regions in Table A2.2. For the UK market, all studies report small CARs ranging from 1.1% to 1.3% (in absolute values). Among them, Franks and Harris (1989), Tse and Soufani (2001), and Chatterjee and Kuenzi (2001) find positive and statistically significant CARs. Franks and Harris (1989) report CARs of 1% (statistically significant at the 1% level) for the event month; Chatterjee and Kuenzi (2001) report CARs of 1% (statistically significant at the 10% level) for the event day.

[8] Tender offers tend to show better performance for acquirers than mergers. Further discussion is available in Section 2.5.3.

In addition, Tse and Soufani (2001) find that UK bidders in large and friendly deals in the 1990-1993 period experience positive CARs of 4.9% over the (-1M, 0) event window which is statistically significant at the 5% level.

Some studies find negative and statistically significant CARs for the UK market. Sudarsanam et al. (1996) find that, in the 1980-1990 period, UK bidders experienced significant losses (at the 1% level) of -1.3% on the event announcement day. Draper and Paudyal (1999) examine bidding firms listed on the LSE in the period 1988-1996. They show that in a short event window of (-1D, +1D), bidders receive negative and statistically significant CARs of -1.1%. However, in a relatively large event window of (-5D, +5D), bidders' CARs are negative but statistically insignificant. Goergen and Renneboog (2004) study 52 UK large deals in the period 1993-2000 and find very similar results to Draper and Paudyal (1999).

15 studies examine the US market. Table 2.2 below may be helpful to check the 15 studies on the US market in Table A2.2. Studies 6, 7 and 8 examined tender offers. The significance level is not available for Study 11.

Table 2.2 Distribution of CARs in Table A2.2 for the US market

<table>
<tr><td rowspan="2"></td><td rowspan="2">Studies report insignificant CAR</td><td colspan="3">Studies report significant CAR</td><td rowspan="2">N/A</td></tr>
<tr><td>10%</td><td>5%</td><td>1%</td></tr>
<tr><td>Positive CARs</td><td rowspan="2">3, 7, 10, 13, 18, 22</td><td></td><td></td><td>4, 6, 8</td><td></td></tr>
<tr><td>Negative CARs</td><td></td><td>2, 14</td><td></td><td>11</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="3">Depending on other factors</td><td colspan="4">Depending on event window length or sample period</td><td>Depending on feature of bids</td></tr>
<tr><td>Negative CAR (either statistically significant or insignificant)</td><td colspan="3">Positive CAR (either statistically significant or insignificant)</td><td></td></tr>
<tr><td>12</td><td colspan="3"></td><td>5, 16</td></tr>
</table>

In Table 2.2, six studies report insignificant results. Three studies show positive CARs which are statistically significant at the 1% level (two of them are tender offer studies). Two studies show negative and statistically significant CARs. In addition, results of a number of studies are conditional on features of bids (e.g. how M&As are financed). Similar to the UK results, the picture of bidders' abnormal returns for the US market appears to be well distributed around insignificant CARs.

Two tender offer studies in Table A2.2 show positive and statistically significant CARs. Bradley, Desai and Kim (1988) find that in a (-5D, +5D) event window, CARs for US tender offer bidders in the period 1963-1984 are on average 1.0% (statistically significant at the 1% level). Jarrell and Poulson (1989) also have similar findings.

A number of non-tender-offer studies also report statistically significant abnormal returns. Asquith et al. (1983) find positive and statistically significant average abnormal returns. The average CAR over the (-20D, 0) window for the US market in the period 1963-1979 is 3.5% (significant at the 1% level). In contrast, two studies, Dodd (1980), and Healy et al. (1992), find negative and statistically significant CARs although the amounts involved are very small.

Additionally, Loderer and Martin (1990) find CARs for US bidders kept decreasing over the period 1966-1984. In the period 1966-1968, US bidders received positive and statistically significant average CARs of 1.7% over the (-5D, 0) event window. The average CARs over the (-5D, 0) event window decreased to 0.6% but were still statistically significant in the period 1968-1980. They further decreased to –0.1% in the period 1981-1984 and became statistically insignificant.

Turning to other markets, Studies 19, 23 and 24 in Table A2.2 examine the European and Canadian markets. Eckbo and Thorburn (2000) study domestic acquisitions in Canada in the period 1964-1983. The average abnormal return for the event month is 1.3% and statistically significant at the 1% level. Goergen and Renneboog (2004) study European bidders in large deals in the period 1993-2000 and Campa and Hernando (2002) study European bidders in the period 1998-2000. Both studies find insignificant CARs for bidders, irrespective of the event window used (except in one case as shown in Table A2.2).

What do those results suggest?

The available evidence seems to confirm that 'the evidence for bidders is evenly distributed between studies that report negative excess returns and those that report zero and slightly positive excess returns'. If the abnormal returns for bidders are statistically significant (either positive or negative), the magnitude generally remains quite small. Therefore, a test can be performed on whether M&As actually deliver premiums to shareholders of bidding firms, which is the third hypothesis to be tested: the *wealth (for bidders of domestic M&As) hypothesis.*

The evidence surveyed above suggests that most of the M&A gains are enjoyed by targets alone. A number of hypotheses attempt to explain the distribution of takeover gains between targets and bidders in the short run. The managerial hypotheses as I have discussed earlier, argue that bidder gains are lowered by agency costs. The 'hubris' hypotheses, e.g. Roll (1986), argue that bidders may overpay for targets because they overestimate the targets' true value due to managers' misjudgement, hence bidder gains are reduced. Some 'hubris'-related hypotheses also suggest that excessively optimistic managers may misjudge their own ability, therefore M&As are often associated with projects that managers in fact are unable to handle. In this case, M&As may turn out to be bad news for bidder shareholders.

Finally, among the studies surveyed above, only Goergen and Renneboog (2004) find weak evidence (statistically significant at the 10% level) that UK bidders (domestic plus cross-border bidders) experience higher CARs, by an average 0.64%, than the continental European bidders in the short run. Therefore, the 'market effect' fo r targets (targets in the continental EU markets on average may receive lower premiums than those in the UK and US markets) is not apparent for bidders.

2.3.1.3 Returns to Bidders and Targets Combined

Prior surveys

At first I present two prior survey studies of M&As in the 1980s. Jensen (1988, p. 23) suggests: 'takeovers do not waste credit or resources. Indeed, they generate substantial gains: historically, 8 percent of the total value of both companies. Those value gains represent gains to economic efficiency, not redistribution between various parties.' Jarrell, Brickley and Netter (1988) also argue that there is virtually no empirical evidence that gains to target firm shareholders are due to losses from other shareholders. They, therefore, conclude that the gains to shareholders must be real economic gains via the efficient rearrangement of resources. Thus, based mainly on US data, both Jensen (1988) and Jarrell et al. (1988) suggest real and substantial combined economic gains from M&As.

Survey of the thesis

Table A2.3 reports the findings of 15 studies on this issue. Most of them focus on domestic acquisitions.[9] Among the 15 studies, six studies report positive and statistically significant total wealth gains, ranging from 1.4% to 10.8%. Although several studies do not report statistic significance levels, most of them still show positive total wealth effects.

Six studies report the percentage of positive wealth effects for the combined firms. Most of the studies (4 out of the 6 studies) in the table show that more than 50% of the M&As in the samples have positive total wealth effects.

Two studies, by Firth (1979, 1980), report a small negative total wealth effects. Both studies examine the UK market in the pre-1975 period. On the other hand, four studies report insignificant total wealth effects.

[9] Campa and Hernando (2002) examine the combined wealth effects for European cross-border M&As in the period 1998-2000. Small positive total returns are found for two event windows. Significance levels are not available.

One study reports results for several event windows. Draper and Paudyal (1999) study the UK market from 1988 to 1996. The total wealth gains for 394 LSE listed firms peak at 10.8% over the (-20D, +20D) event window in their study. Across all event windows, they consistently find positive and statistically significant (at the 5% level) combined wealth effects.

One study reports results of different time periods. Andrade et al. (2001) examined the US market from 1973 to 1998. They show that the values of the total wealth gains are largest for the period 1980-1989. In that period the average total wealth gain is 2.6% over the event window (-1D, +1D), which is statistically significant at the 5% level. Throughout all periods in Andrade et al. (2001), no negative total gain was found.

In conclusion, corporate M&As largely report positive combined returns. This suggests that, on average, M&As do not destroy value for the combined firms in the short run, irrespective of the selection of markets or event windows. This is in line with Jensen (1988) and Jarrell et al. (1988).

Conclusion

This section discussed four issues: 1) the hypothesis that M&As deliver premiums to targets in domestic offers; 2) the hypothesis that domestic M&As have neutral wealth effects on the bidder shareholder side. A number of theories have made attempts to explain why M&A gains may be distributed in this way. Some possible explanations are that agency-costs or hubris-costs offset the gains to bidders in M&As; 3) the hypothesis that bid premiums may have a 'market effect' as suggested by Goergen and Renneboog (2004) and Conn and Connell (1990). Also the available evidence suggests that the market effect is mainly present on the target side. Namely, in the case of this study, target firms in the UK may on average receive higher premiums than those in the French and German markets. There are relatively few studies that have tested the 'market effect', therefore a study comparing shareholder wealth effects between the UK and France/Germany may provide more evidence on this issue; 4) in the short run targets gain substantially and bidders (on average) do not loss. As a result, the wealth effects for the combined firms are generally positive, which suggests that collectively M&As are more likely to be value-creating in the short run.

2.3.2 Wealth Effects of Cross-border M&As

The motives as well as sources of gains may be different between domestic and cross-border M&As. For example, Sudarsanam (1995, p. 269) suggest that there are additional motives (and synergy gains) for cross-border M&As, such as to escape a small home market, to extend markets served and to respond to overseas clients. In contrast, e.g. Seth, Song and Pettit (2000) argue that 'hubris' may be more relevant in cross-border than domestic M&As because there is greater information asymmetry between foreign bidders and domestic targets than between domestic bidders and targets. Section 2.3.2.1 surveys the wealth effects of cross-border M&As for both targets and bidders. To extend the issue, Section 2.3.2.2 compares wealth effects between domestic and cross-border M&As, in order to examine whether they are different and the possible reasons why they may be different.

2.3.2.1 Wealth Effects of Cross-border M&As

Survey of the Thesis

A list of earlier studies is summarized in Table A2.4 and Table A2.5. Table A2.4 focuses on the wealth effects for targets, and Table A2.5 focuses on the wealth effects for bidders.

At first, Table A.2.4 surveys seven studies focusing on the target side. In general the evidence suggests that cross-border M&As deliver premiums to targets.

Four of the seven studies focus on the US market. Conn and Connell (1990) report an average CAR of 39.9% over the period (-12M, 0) for 24 US target firms (acquired by UK bidding firms) in the period 1971-1980. Similarly, Harris and Ravenscraft (1991), Kang (1993), and Cheng and Chan (1995) all find positive CARs for cross-border targets listed in the US markets. A few studies in Table A2.4 have examined the cross-border target wealth effects for the UK market. Irrespective of different time periods, these studies in general report positive and statistically significant CARs. For example, Conn and Connell (1990) analyze the abnormal returns of 22 UK targets (acquired by US bidding firms) in the period 1971-1980. Over a twelve-month period, the cumulative returns for the UK targets amounted to 18.2%, in comparison to 39.9% for the US targets in their study. This also suggests that the 'market effect' discussed in Section 2.3.1.1 may be present for targets in cross-border M&As. As another study for the UK market, Danbolt (2004) finds, during the (0M, +1M) period, the average abnormal return amounts to 22.0% for target shareholders in cross-border M&As in the period 1986-1991, which is statistically significant at the 1% level. Turning to European markets, Goergen and Renneboog (2004) examine European firms with deal values larger than USD 100million. They find positive CARs for European targets (significant at the 1% level) over the (-1D, 0) and (-40D, 0) event windows, ranging from 11.3% to 19.8%. One more study for European markets, Campa and Hernando (2002) examine European (including UK) M&As in the period 1998-2000. In their study targets of cross-border M&As receive an average CAR of 4.7% (statistically significant at the 5% level) for the event window (-7D, +7D) and of 8.7% (statistically significant at the 5% level) for the event window (-30D, +30D).

Secondly, Table A.2.5 surveys 11 studies focusing on the bidder side. The available evidence in Table A2.5 seems to suggest that in general cross-border M&As only have a small or insignificant impact on the wealth effects of bidding firms as in the domestic case.

For the US market, two studies report positive and statistically significant CARs. For example, Markides and Ittner (1994) report positive and statistically significant CARs of 0.5% for US bidders over the (-2D, 3D) event windows in the period 1975-1988. In contrast, Datta and Puia (1995) report negative and statistically significant (at the 10% level for most of the cases) CARs. They examine 112 large cross-border acquisitions by US acquiring firms in the period 1978-1990. The average CARs over the (-1D, 0), (-15D, +15D) and (-30D, +30D) periods are –0.4%, -1.4% and -2.5% in turn. Other studies (e.g. Servaes and Zenner, 1994; Doukas and Travlos, 1988; Cakici, Hessel and Tandon, 1996; and Echbo and Thorburn, 2000) report insignificant CARs in the short run for US bidding firms engaging in cross-border acquisitions. Turning to the UK market, only Goergen and Renneboog (2004) report that, over the event window (-1D, 0), the average CAR is 6.3% which is statistically significant at the 1% level. The sample firms are UK bidders in very large cross-border deals in the 1993-2000 period. Other cross-border studies that have examined the UK market report insignificant event period CARs. Finally turning to European markets, Goergen and Renneboog (2004) examine European firms with deal values larger than USD 100million. They report the average CAR(-1D, 0) is 2.4%, which is statistically significant at the 1% level. Corhay and Rad (2000) study international acquisitions and shareholder wealth effects using a Netherlands sample. They tested 16 different event windows, two of them (as shown in Table A2.5) generate positive and statistically significant (at the 5% level) CARs for Dutch acquiring firms. Other studies (e.g. Campa and Hernando, 2002) report that the event period CARs are insignificant.

2.3.2.2 Cross-border vs Domestic

This section makes comparison of wealth effects between domestic and cross-border M&As, examining whether they are different and the possible reasons why they may be different.

Survey of the thesis

For the target side: Harris and Ravenscaft (1991) examine cross-border and domestic acquisitions in the US stock market in the period 1970-1987. They show that target wealth gains are significantly higher in cross-border takeovers (39.77%) than in domestic takeovers (26.33%). Furthermore, the gap between domestic and cross-border target gains persists after controlling for means of payment and the effects of multiple bids. Similarly, Danbolt (2004) examines UK cross-border and domestic targets in the period 1986-1991. He finds that targets of cross-border acquisitions receive higher gains of 4.05% and 10.07% than targets of domestic ones in the event windows of (0, +1M) and (-2M, +1M) in turn. Both are statistically significant. Hence, both studies suggest that targets of cross-border M&As experience greater gains than those of domestic ones. However, in a European M&A study, Campa and

Hernando (2002) find that target gains in cross-border M&As are not statistically different from those in domestic ones.

For the bidder side: Campa and Hernando (2002) find that in the period 1998-2000, in Europe bidders of cross-border M&As generally under-perform those of domestic M&As. The gap of the average CARs between cross-border and domestic M&As are –1.38% over the (-1D, +5D) event window and –3.51% over the (-30D, +30D) event window. Both are statistically significant.

What do those results suggest?

Both Harris and Ravenscaft (1991) and Danbolt (2001) suggest that in a stock market there is a cross-border effect for targets of M&As. Namely, cross-border targets gain significantly more than domestic targets during the months (days) surrounding the bid. On the other hand, Danbolt (1995), and Campa and Hernando (2002) suggest that such a cross-border effect may also be present for bidders of M&As but in an opposite direction. Namely, cross-border bidders gain significantly less than domestic bidders for the event period. Therefore the fourth hypothesis developed is the *cross-border effect hypothesis*: in a market, in the short run cross-border targets gain significantly more than domestic targets while cross-border bidders gain significantly less than domestic bidders.

Some studies (e.g. Harris and Ravenscaft, 1991; Goergen and Renneboog, 2004; and Danbolt, 2004) attempt to explain why such a cross-border effect may exist. A number of explanations may be distinguished as follows:

First, bid characteristics may partly have explanatory power. For example, Danbolt (2004, p. 96) suggests that '...a significantly higher proportion of cross-border than domestic acquisitions are cash offers'. If investors respond less favourably to cash than to equity offers, the cross-border effect may be attributable to such a payment effect. However, the available evidence is mixed. Danbolt (2004), based on UK data, reports that the 'cross-border effect' for targets is insignificant after controlling for means of payment. In contrast, Harris and Ravenscaft (1991), based on US data, report that the 'cross-border effect' for targets persists after controlling for means of payment.

Second, 'hubris' factors. Roll (1986) argues that bidding companies tend to over-pay because bidding companies' managers are affected by 'hubris'. Seth, Song and Pettit (2000) argue that 'hubris' may be more relevant in cross-border than domestic M&As because there is greater information asymmetry between foreign bidders and domestic targets than between domestic bidders and targets. If overseas companies are more difficult to value than domestic firms (e.g. due to different accounting standards and culture differences), the size of overpayment may be larger in cross-border than in domestic acquisitions.

Third, some studies (e.g. Megginson, Morgan and Nail, 2004) also argue that cultural differences in cross-border M&As may make acquisition integration a difficult, time consuming and expensive process, therefore poorer share price performance may be expected from cross-border bidders than domestic ones.

Finally, managerial factors. As with domestic acquisitions, cross-border acquisitions may not be driven by shareholder wealth maximisation objectives, but may also be a result of agency conflict. Cross-border acquisitions may be more advantageous to managers than domestic ones if managers are pursuing power and status through empire building, or increase the company's global reach at the cost of paying higher premiums. Hence cross-border acquisitions may also be motivated by managerial factors. As a result, agency costs may be higher for cross-border bidders.

All the hypotheses above suggest that bidders in cross-border M&As may on average underperform those in domestic ones. However, as indicated by Sudarsanam (1995), there are a group of factors that point in the opposite direction. This group of factors claim that cross-border acquisitions may be more influenced by synergy-related factors such as escaping small home market, extending markets served, achieving economies of scale, replacing inefficient management of a foreign firm, and responding to overseas clients' needs. This group of factors provides an argument for expecting higher shareholders' wealth effects in cross-border than in domestic M&As.

Section 2.4 Long Run Post-acquisition Event Studies

In this section I focus on the long run post-acquisition share price performance for bidders. The investigation into the long term event window is of interest because some of the evidence suggests that the long run post-acquisition performance is different from the short run one. Also, some evidence in long run event studies is not consistent with the efficient markets theory. I divide the review of bidder post-merger performance in the long term event window into two sections. In the first section I present a survey of the studies that have examined an event window no longer than one year after the announcement date. This enables me to compare the profitability of M&As more continuously with the short run event studies discussed above. In the second section I discuss the previous studies of longer term event studies, typically over an event window (0, +5Y).

2.4.1 Post-acquisition Share Price Performance within the One-year Horizon

Conn and Connell (1990) argue that 'the CARs in a longer window (e.g. 6 to 12 months) after announcement are also of interest since this period represents, on average, the market's assessment of the merger following the actual merger'. For this reason, I concentrate on event studies that have examined an event window consisting of the (+2M, +12M) period. The eleven studies reviewed in this section are summarized in Table A2.6.

In Table A2.6, four studies report negative and statistically significant abnormal returns to acquirers in longer event windows within the one year horizon. They are: Asquith (1983), Malatesta (1983), Franks and Harris (1989), and Gregory (1997). For example, Gregory (1997) studied UK domestic M&As for the period 1984-1992. He found an average CAR of -9.2% (statistically significant at the 1% level) over the one-year post-acquisition event window. He used six different models in his study which all report similar results within one year relative to the announcement time. A number of studies, however, only find insignificant abnormal returns. For example, Agrawal, Jaffe and Mandelker (1992) show that at the end of the first year after M&As, US bidders experience insignificant abnormal returns. As one more example, recently, Gregory and McCorriston (2005) also show insignificant abnormal returns at the end of the first year after M&As for UK cross-border bidders in the period 1985-1994. On the other hand, Conn and Connell (1990) employ six different benchmarks to assess the post-acquisition performance of US and UK cross-border bidders in 1971-1980. The results in their study are sensitive to the benchmark used. The abnormal returns over a one-year post-acquisition event range from -10% to 10%, which can be either significantly positive or significantly negative.

Five studies in Table A2.6 report the percentages of positive abnormal returns for bidders in their samples. All five studies report less than half of sample bidders experience positive abnormal returns over approximately the one-year horizon relative to the announcement date.

Overall, the evidence suggests that the post-acquisition share price performance within the one year horizon is more likely to be negative or zero than to be positive for bidders.

2.4.2 Long Run Post-acquisition (up to 5 Years) Share Price Performance

Some recent evidence suggests big apparent abnormal returns spread over several years following well-publicised events like mergers and acquisitions. For example, Franks and Harris (1989), and Agrawal et al. (1992) both find negative and statistically significant abnormal returns over the long horizon. Franks and Harris (1989) study the 2-year long-term post-merger performance of UK acquiring firms. They find that bidder post-merger performance is negative (statistically significant at the 1% level), cumulating to about -12.6%. These losses are more than enough to offset the small positive wealth effects for bidders in the short horizon. Agrawal, Jaffe and Mandelker (1992) study the US market in the period 1955-1987. They find the CARs (for acquirers in mergers) are negative and statistically significant for holding periods up to five years (also for two, three and four years). For the five-year period, the CAR is –10.3% and statistically significant at the 5% level. In addition, the percentage of positive abnormal returns over the five-year period is 44.0%, which is significantly lower than 50 at the 1% level. The median value of abnormal return over the five-year time period is –7.5%.

These results pose a challenge to the efficient markets hypothesis. The evidence of market inefficiency has created an entirely new area of research examining long-horizon stock-price performance following an event. This is in sharp contrast to the boom in short window event studies and studies of economic consequences (Kathari, 2001, p. 107). For example, a long-horizon event study tests whether one-to-five-year returns following an event are systematically non-zero for a sample of firms. These studies assume that the market can overreact or under-react to new information and that it can take a long time to correct the mis-valuation because of continued apparently inefficient behaviour and frictions in the market. The source of under-reaction and overreaction is human judgement or behavioural biases in information processing.

However, although recent studies pose a challenge to the efficient markets hypothesis, the long horizon event studies suffer from problems such as: risk mis-estimation (e.g. an 'imperfect' asset pricing model), data problems, test statistic mis-specification and the lack of a theory of market inefficiency as the null hypothesis. Risk mis-estimation can arise because sensitivity to a risk factor is measured incorrectly or because a relevant risk factor is omitted from the model of expected returns. Data problems can arise from survivorship biases. In detail, it is not uncommon to observe 50% or more of the initial sample of firms failing to survive the long horizon examined in the study (Kothari, 2001, p.189). Especially when both stock-price and financial accounting data are required, data survivor and data-mining biases can be very serious in the long-horizon event studies. Test statistic mis-specification can arise from the long-horizon returns of cross-correlated sample firms (Mitchell and Stafford, 2000). In addition, the long-horizon return data are highly skewed to the right, which poses problems in using statistical tests that assume normality (Barber and Lyon, 1997). Chapter 3 (*Methodology*) will discuss these issues in more detail.

Therefore in recent years, studies of long-horizon post-acquisition performance are accompanied by discussions of methodology in order to eliminate some of the problems noted above. I discuss the methodology in Chapter 3. In the rest of this section I concentrate on the earlier findings on the long run share price performance for bidding firms. Table A2.7 is a summary table of the existing evidence.

Loughran and Vijh (1997) study 788 mergers in the period 1970-1989 for the US market. Their study measures abnormal returns as the difference between the five-year holding period returns of sample stocks and matching stocks (chosen to control for size and market-to-book-value). The sample firms show an average buy-and-hold return of 81.2% compared to 97.1% for their matched firms. The difference is –15.9% and statistically significant at the 1% level. However, they find positive and statistically significant mean buy-and-hold abnormal returns for tender offers.

Rau and Vermaelen (1998) examine 3,169 mergers and 348 tender offers completed in the period 1980-1991. Acquirers are traded on the NYSE, AMEX or NASDAQ. They report negative and statistically significant abnormal returns over 36 months following mergers. The average 'bias adjusted CAR'[10] across all mergers is -4.04% and significant at the 1% level. On the other hand, the average 'bias adjusted CAR' for tender offers following takeovers of public targets is a positive 8.85% and statistically significant at the 10% level.

Gregory (1997), and Gregory and McCorriston (2005) have studied the long-horizon share price performance of UK acquiring firms. Gregory (1997) tests six benchmarks, including the CAPM, the 'control for size' approach and the Fama-French three-factor model. All models show negative and statistically significant CARs for the 24 months following the completion of M&As, ranging from –11.82% to –18.01%.

Gregory and McCorriston (2005) study UK cross-border acquirers who have acquired US firms in the period 1985-1994. They find the average long run share price performance of those UK acquirers over the 5-year horizon after the announcement date is a negative -27.1% and statistically significant at the 1% level. However, they also report that UK acquirers acquiring EU firms in the same period only receive insignificant post-acquisition abnormal returns.

[10] Abnormal returns are adjusted using the bootstrapping approach.

In contrast, a number of studies find insignificant abnormal returns over the long horizon event window. For example, Franks, Harris and Titman (1991), Loderer and Martin (1992) and Mitchell and Stafford (2000). All three studies have examined the US acquisition market. Another example, Higson and Elliott (1998) have studied UK bidders in the period 1970-1990. In their study the 24-month post-acquisition share price performance is –1.1% and insignificant. However, the post-acquisition abnormal return over the 36-month period becomes positive but still insignificant.

In summary, some previous studies report insignificant long run share price abnormal performance, whereas some other previous studies report that acquirer shareholders suffer negative shareholder wealth effects over the long run post-acquisition period. The existing evidence is mixed but there is more evidence of shareholder wealth losses in the long run than evidence of insignificant long run share price abnormal performance. Therefore, the fifth hypothesis developed is the *long run wealth hypothesis (for bidders)*: in the long run, on average, there are negative wealth effects for bidding firms' shareholders. The shareholder wealth losses in the long run not only raise questions to the approval of M&As, but to market efficiency as well.

Section 2.5 Relationship between M&A Profitability and Bid Characteristics

This section discusses the links between M&A motives and profitability in relation to bid characteristics.

2.5.1 Means of Payment

Jensen (1986) suggests that M&As financed by free cash flows are often costly because of a conflict between managers and shareholders. Managers want to retain free cash flows and invest them in projects that increase managerial benefits like compensation or power and reputation. As a result, managers of firms with excess cash flows have a tendency to waste these cash flows on unprofitable investments.

Therefore cash offers are associated with more negative wealth effects on bidding firms' shareholders compared with equity offers.

Harford (1999) finds support for the view that cash offers may be motivated by the agency problem of Jensen (1986). Harford (1999), based on pre-1994 US data, reports that: 1) cash rich firms are more likely to make acquisitions; 2) cash-rich firms are more likely to pick up targets that do not attract interest from other acquirers; 3) cash-rich firms are more likely to make diversifying acquisitions; 4) acquisitions by cash-rich firms are value-decreasing. Overall, the evidence of Harford (1999) supports the agency costs of free cash flow explanation for acquisitions by cash-rich firms. A similar result can be found in Lang, Stultz and Walking (1991), in which they report an increase in free cash flow is associated with a decrease in bidders'[11] gains from M&As.

Alternatively, Heaton (2002) argues (as discussed in Section 2.2.3) that excessive managerial optimism leads managers to believe that capital markets undervalue their firm's securities. Therefore, managerial optimism leads to a preference for internal funds to finance M&A activities. At the same time, optimistic managers tend to overvalue their own corporate projects (e.g. Roll, 1986) and may invest in unprofitable projects even when they are loyal to shareholders. The Heaton (2002) framework suggests that cash offers are motivated by excessive optimism, which simultaneously leads to hubris-affected projects. As a result, cash offers are often associated with negative wealth effects for bidders.

Therefore, when the agency problem of Jensen (1986) or manager optimism (Roll, 1986; Heaton, 2002) is the link between making cash offers and M&A profitability, the sixth hypothesis developed is the *cash offer hypothesis*: M&As financed by cash have worse wealth effects for bidders.

Table A2.8 summarizes ten studies that have examined the impact of choices of payment on M&A profitability. Among the ten studies, Goergen and Renneboog (2004) support the cash offer hypothesis above. Goergen and Renneboog (2004)

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[11] Bidders without good investment opportunities. Lang, Stultz and Walking also suggest that for cash-rich bidders with good investment opportunities, M&As do not destroy value.

examine European M&As with very large deal values. They find that the average CAR (-2D, +2D) is 2.6% for bidders with equity offers while it is only 0.9% for bidders with cash offers. The difference is statistically significant at the 1% level.

Some studies in Table A2.8 do not support the cash offer hypothesis above. Travlos (1987), Loughran and Vijh (1997), Peterson and Peterson (1991), Draper (1999) and Franks, Harris and Mayer (1988) all find that stock-based deals are associated with negative and statistically significant returns at deal announcement for acquirers, which is not the case for bidders with cash offers. Peterson and Peterson (1991), and Franks, Harris and Mayer (1988) further show that bidder abnormal returns in cash-financed acquisitions are statistically significantly higher than those in equity-financed ones. If the impact of cash offer turns out to be positive rather than the 'cash offer' hypothesis above, one possible explanation is Myers and Majluf (1984)'s asymmetric information model. Myers and Majluf (1984) assume that: 1) the acquiring firm's management possesses information about the intrinsic value of the firm which is not reflected in the pre-acquisition share price; and 2) managers are loyal to existing shareholders. Therefore, managers will favour a cash offer if they believe that their firm is undervalued, whereas they will favour a stock offer if they believe their stocks are overvalued. Consequently, a cash offer serves as good news to investors because it signals that the bidder is undervalued. In Myers and Majluf (1984)'s approach, free cash flow is beneficial.

2.5.2 Effects of Bidder Size and 'Relative Size'[12]

The 'maximizing top managers' own interests' motives suggest that managers may sacrifice shareholders' interests to pursue their own interests. As a firm becomes bigger, the power of the agents may also get bigger, which makes monitoring agents more difficult and costly. Hence, M&As with large bidders may be associated with greater manager/shareholder conflicts and greater agency costs. On the other hand, bigger firms may have less focus on the acquired targets. If these are the case, bigger firms may be linked to worse share price performance after M&As. As an example,

[12] For convenience I define 'relative size' as 'bidder market value / target market value'.

Moeller, Schlingemann and Stulz (2004, p. 1) based on US data from 1980 to 2001, report that 'the announcement return for acquiring-firm shareholders is roughly two percentage points higher for small acquirers irrespective of the form of financing and whether the acquired firm is public or private. The size effect is robust to firm and deal characteristics, and it is not reversed over time'. Therefore, the seventh hypothesis developed is the *bidder size hypothesis*: there is a size effect in M&As that bigger bidders are associated with lower average abnormal returns.

However, a bigger bidder could also have more bargaining power in the acquisition process, more flexibility in financing the acquisition deal, and more adaptability/experience in absorbing target firms (e.g. Peterson and Peterson, 1991). These factors may have positive wealth effects on bidder shareholders in M&As and provide an argument contrasting to the bidder size hypothesis raised above.

Additionally, in some studies 'relative size' rather than 'size' is tested. For example, Franks and Harris (1989), and Eckbo and Thorburn (2000) both use a sample where targets are on average about one eighth the size of bidders. The bigger the relative size, the more likely that mangers of the bidder have less focus on the target. Danbolt (2004) also argues that large bidding companies can afford to be comparatively more generous with small targets, thus paying a higher premium to small than to larger target companies. Nine studies are summarized in Table A2.9 that have investigated the 'relative size' effects on excess returns. Four studies, Asquith, Bruner, and Mullins (1983), Jarrell and Poulsen (1989), Loderer and Martin (1990), and Eckbo and Thorburn (2000), support the views above that the bigger the difference in size between bidder and target, the less benefit the bidder may experience. In contrast, Markides and Ittner (1994)'s finding points in the opposite direction. Other studies suggest that relative size have no effects on shareholders wealth after M&As.

2.5.3 Effects of Tender Offers

Mergers are often friendly negotiated between the top management of bidder and target firms. Tender offers are structured as a take-it-or-leave-it proposal, directly to the target firm shareholders. Quite often, tender offers are unfriendly. Several studies report larger announcement returns to bidders in tender offers, as compared with friendly negotiated transactions. The sources of gains in tender offers are not fully clear, but the value-creation feature of a tender offer is consistent with the view that acquiring firms can replace the inefficient management of target firms and realize a capital gain by improving operating performance. The bidder uncovers value-creating insights about the target firm and seeks to avoid giving value up in a negotiation with the target firm. Therefore, the eighth hypothesis developed is the *tender offer hypothesis*: bidders in tender offers experience higher average abnormal returns than those in negotiated offers.

Jensen and Ruback (1983) in their study show that after tender offers, bidders earn statistically significant and positive abnormal returns, while after mergers, bidding firms systematically under-perform. There are a number of other empirical studies that show positive and statistically significant abnormal returns to bidders in tender offers. For example, Lang, Stultz and Walking (1989), Jarrell and Poulsen (1989), Gregory (1997), Loughran and Vijh (1997), and Rau and Vermaelen (1998).

2.5.4 Overreaction Hypothesis and Effects of MTBV

The overreaction hypothesis assumes that investors make systematic mistakes when they react to information. It can arise from investors' tendency to form beliefs about future performance by extrapolating from recent past performance. On seeing a stock that has experienced a string of good news or a period of growth, investors may wrongly believe that growth will continue, which pushes the stock's price higher than is justified by the news. Thus, the market over-reacts to the observed tendencies from the past achievement of the firm. In the long run, the price reverses when investors realize mistakes were made. Barberis, Shleifer and Vishny (1998, pp. 307-314) state that: '...recent empirical research in finance has identified two families of pervasive regularities: under-reaction (to news such as earnings announcements) and over-reaction (to a series of good or bad news). ...the overreaction evidence shows that over longer horizons of perhaps 3-5 years, security prices overreact to consistent patterns of news pointing in the same direction. That is, securities that have had a long record of good news tend to become overpriced and have low average returns afterwards. Put differently, securities with strings of good performance, however measured, receive extremely high valuations, and these valuations, on average, return to the mean. ...similarly, stocks with a consistent record of bad news become undervalued and (investors) subsequently earn superior returns'.

Stocks with very high market valuations relative to their book values (glamour stocks) tend to be stocks of companies with extremely high earnings growth over the previous several years, whereas stocks with low market valuations to their book values (value stocks) tend to be the opposite. If the overreaction hypothesis is the case, the market may over-react to the past performance of acquirers at the time of the bid announcement. Acquirers with a high MTBV (glamour stocks) tend to have a high share price reflecting a recent high growth in earnings, and vice versa. After a period of time the market corrects the previous over-reaction based of past performance, shareholders of acquirers with a high MTBV at the announcement time will experience low average returns afterwards, and shareholders of acquirers with a low MTBV (value stocks) at the announcement time will subsequently earn superior returns (Lakonishok, Shleifer and Vishny, 1994). Therefore, there are two hypotheses developed. The ninth hypothesis developed is the *short run MTBV effect hypothesis*: Shareholders of high MTBV acquirers experience better share price performance than low MTBV acquirers at the announcement time; and the tenth hypothesis developed is the *long run MTBV effect hypothesis*: in the long run, shareholders of high MTBV acquirers experience poorer share price performance than low MTBV acquirers.

Few studies have investigated the differential performance of bidders based on their MTBVs. Rau and Vermaelen (1998) examine a sample of 987 US takeovers during the period 1980 to 1991. Their results show that glamour acquirers in a merger experience average gains of -5.6%, -5.4% and 0.1% during the first, second and third years respectively after completion (statistically significant at the 1%, 1% and 10% level in turn). In contrast, value acquirers experience wealth gains of 5.6%, -1.1% and 5.4% during the first, second and third years after completion (statistically significant at the 1%, 10% and 1% level in turn). Over the entire 36 months, glamour acquirers earn abnormal returns of -10.8% but value acquirers earn 9.9% (both statistically significant at the 1% level). Rau and Vermaelen (1998)'s results are consistent with the long run MTBV effect hypothesis above.

As another study, Sudarsanam and Mahate (2003) examine a sample of 519 UK acquirers during the period 1983 to 1995. They report that at the bid announcement (-1D, +1D) period glamour acquirers experience abnormal returns in the range of -2% to -1.8% [13] (statistically significant at the 1% level), while the returns are -1% to 0.9% (generally statistically significant at the 5% level) for value acquirers. The difference is statistically significant at the 10% level. This finding is contrary to the short run MTBV hypothesis which argues that the market favours glamour acquirers with high MTBV at the time of the bid announcement. During the period (+2D, +40D) they find that average abnormal returns are not statistically significantly different between glamour and value acquirers. During the event window (+41D, +750D), they report that glamour acquirers experience average (buy-and-hold) abnormal returns in the range of -26.0% to -16.0% (statistically significant at the 1% level), while value acquirers experience in the range of -16.0% to -3.0% (statistically significant at the 1% level). The difference is statistically significant for most of the cases with value acquirers outperforming glamour ones. The findings based on the post-acquisition event window (+41D, +750D) are consistent with the long run MTBV effect hypothesis.

Section 2.6 Conclusion

In summary, Chapter 2 has reviewed earlier event studies on the profitability of M&As as well as other relevant issues as follows.

This chapter examined the motives for M&As (e.g. synergies, agency problems and hubris). The 'synergies' factor drives the outcome of M&As towards positive gains, while the other two factors reduce the shareholder wealth benefits for bidders. Multiple motives may be at work in any given M&A decision, therefore the actual wealth effects of M&As may depends on which motive prevails.

[13] Depending on the benchmark used.

The chapter examined the announcement period wealth effects of M&A activity, both for domestic and cross-border M&As. The available evidence suggests that target firm shareholders enjoy abnormal returns that are generally positive and statistically significant, while studies of excess returns to bidding firm shareholders are (in general) evenly distributed between negative excess returns and those that report zero and slightly positive excess returns. As a result, previous studies tend to report, on balance, positive total gains for the combined firms. Two hypotheses were developed here:

1. M&As deliver premiums to target firm shareholders in the short run.

2. M&As have either a small or insignificant wealth effects for bidder firm shareholders.

This chapter compared earlier evidence on the UK and US and Continental EU M&A markets. Due to the greater competitiveness of M&A activities in the UK, a more liquid and developed equity market and a higher degree of shareholder protection in the UK than in the Continental EU markets, target shareholders in the UK on average are expected to receive higher premiums than target shareholders in Continental EU. The earlier studies on this issue have been limited. The developed hypothesis states that:

3. M&As have a market effect for target shareholders. Target shareholders in the UK market receive higher premiums than those in the France/Germany markets.

This chapter makes distinction between domestic and cross-border M&As. Cross-border M&As may have different profitability from domestic ones because: 1) they may be more affected by 'hubris' due to greater information asymmetry; and 2) culture differences in cross-border M&As may make acquisition integration a more difficult, time-consuming and expensive process. For these reasons, the developed cross-border effect hypothesis was developed:

4. M&As have a cross-border effect. In a stock market, in the short run cross-border target shareholders experience higher average CARs than domestic target shareholders, while cross-border bidder shareholders gain less than domestic ones.

This chapter also examined the long-term post-acquisition share price performance for acquirers. Some evidence seems to suggest that acquirer shareholders on average experience negative post-acquisition drift in share price returns. This not only raises questions to the possible short-run wealth gains of M&As, but on market efficiency as well. The developed long run wealth effect hypothesis is described as:

5. In the long run, on balance there are negative wealth effects for bidding firms' shareholders.

Finally, this chapter examined some links between M&A motives and profitability in relation to bid characteristics (e.g. means of payment). A number of hypotheses were developed.

6. Cash offers are associated with lower bidder gains. One possible explanation is the conflict of interest between managers and shareholders, according to Jensen (1986)'s free cash flow hypothesis.

7. A size effect exists. Bigger bidders are associated with lower gains compared with smaller ones. One possible reason is managers of bigger bidders often have higher power and status, which makes it more difficult and costly to monitor them. The associated greater agency costs may lower the synergy gains for bidder shareholders.

8. Bidders in tender offers experience higher average abnormal returns than those in negotiated offers. This is consistent with the view that the bidder uncovers value-creating insights in relation to target firms and avoids giving up value in a negotiation.

9. Shareholders of high MTBV acquirers experience better share price performance than low MTBV acquirers in the short run. After a period of time, in the long run, shareholders of high MTBV acquirers experience poorer share price performance than low MTBV acquirers. One possible reason is 'market overreaction' as I have discussed in Section 2.5.4.

The hypotheses listed above are tested and presented in Chapters 4-6. The next chapter, Chapter 3, is the discussion of methodology to be used.

Appendix: Chapter 2

Table A2.1: Excess returns to target firms in domestic M&As

Study	CAR	Event Window	Sample Period	Number of target firms	Target Market	Percentage of Positive Returns	Methodology
Firth (1979)	22.0% N/A	Event Month	1972-1974	224	UK	99.0%	The market model
	32.0% N/A	(-1M, 0M)				N/A	
Firth (1980)	28.1%***	Event Month	1969-1975	434	UK	99%	The market model
	35.0% ***	(-1M, 0M)				98%	
Asquith (1983)	6.2% ***	(-1D, 0M)	1962-1976	211	US	84.0%	The mean return model
Asquith et al. (1983)	16.8% ***	(-20D, 0D)	1963-1979	54	US	N/A	The mean return model
Bradley, Desai and Kim (1988)	31.8%***	(-5D,+5D)	1963-1984	236	US (tender offers)	95%	The market model
Lang, Stulz and Walking (1989)	40.3% ***	(-5D, +5D)	1968-86	87	US (tender offers)	N/A	The market model
Jarell and Poulsen (1989)	29.0%***	(-20D, +10D)	1963-1986	526	US (tender offers)	N/A	The Scholes-Williams methodology
Franks and Harris (1989)	23.3%***	Event month	1955-1985	1814	UK	87.0%	The simplified market model (α=0 β=1)
	29.7%***	(-4M, +1M)				85%	
Franks, Harris, Titman (1991)	28.0% ***	(-5D, +5D)	1975-1984	399	US	N/A	Multi-factor model

Healy, Palepu and Ruback (1992)	45.6%***	(-5D, +5D)	1979-1984	50 (Very large deals only)	US	N/A	The market model
Sudarsanam, Holl and Salami (1996)	14.0%***	Event day	1980-1990	429	UK	N/A	The Dimson(1979) adjusted market model
Maquieria, Megginson and Nail (1998)	41.7% ***	(-60D, +60D)	1963-1996	47 (conglomerate)	US (Stock-for-stock mergers)	61.8%;	The market model
	38.0% ***			55 (non-conglomerate)		83.0%	
Draper and Paudyal (1999)	14.9% **	(-20D, +20D)	1988-1996	581	UK	N/A	The market model
	12.9% **	(-10D, +10D)					
	11.3% **	(-5D, +5D)					
	9.6% **	(-3D, +3D)					
	8.9% **	(-1D, +1D)					
Mulherin and Boone (2000)	21.2% ***	(-1D, +1D)	1990-1999	376	US	N/A	The market model
Eckbo and Thorburn (2000)	7. 5% #	(-40D, 0D)	1964-1983	345	Canada	N/A	The CAPM
Tse and Soufani (2001)	30.5%***	Event month	1990-1993	40	UK (large, friendly deals)	N/A	Not reported
	19.9%***		1994-1996				

Andrade et al. (2001)	16.0%**	(-1D, +1D)	1973-1979	3688 (total firms)	US	N/A	Not reported
	16.0%**		1980-1989				
	15.9%**		1990-1998				
	16.0%**		1973-1998				
	24.8%**	(-20D, 0D)	1973-1979				
	23.9%**		1980-1989				
	23.3%**		1990-1998				
	23.8%**		1973-1998				
Goergen and Renneboog (2004)	10.2% ***	(-1D, 0D)	1993-2000	118 (Very large deals only)	Europe (including UK)	N/A	The CAPM
	12.7% ***	(-2D, +2D)					
	22.7%***	(-40D, 0D)					
	22.9%***	(-60D, +60D)					
	12.9%***	(-1D, 0D)		56 (Very large deals only)	UK only		
	15.7%***	(-2D, +2D)					
	27.0%***	(-40D, 0D)					
	27.8%***	(-60D, +60D)					
Danbolt (2001)	17.8%***	(0M, +1M)	1986-1991	474	UK	N/A	Size adjusted benchmark
	20.2%***	(-2M, +1M)					
Agrawal and Jaffe (2002)	20.4%***	Event Month	1926-1996	1987	US	N/A	The size and market-to-book-value adjusted approach
	24.5%***	(-1M, 0M)		2003			
	25.8%***	(-2M, 0M)		1009			

Campa and Hernando (2002)	3.5% **	(-1D, +5D)	1998-2000	288	Europe (including UK)	59.2%	The CAPM
	6.3% **	(-7D, +7D)				59.9%	
	9.3% **	(-30D, +30D)				63.7%	

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.2: Excess returns to bidding firms in domestic M&As

No.	Study	CAR	Event Window	Sample Period	Number of bidder firms	Bidder Market	Percentage of Positive Returns	Methodology
1	Firth (1979)	-2.4% (non-equity);[N/A]	Event Month	1972-1974	224	UK	21.0%	The market model
		-3% (equity offer);[N/A]					20.0%	
2	Dodd (1980)	-1.1% **	(-1D, 0D)	1970-1977	151	US	N/A	The market model
3	Asquith (1983)	0.2%	(-1D, 0D)	1962-1976	196	US	57.7%	The mean return model
4	Asquith et al. (1983)	3.5% ***	(-20D, 0D)	1963-1979	214	US	60.0%	The mean return model
5	Travlos (1987)	0.2% (cash offer)	(-1D, 0D)	1972-1981	167	US	N/A	The market model
		-1.5% *** (equity offer)						
6	Bradley, Desai and Kim (1988)	1.0%***	(-5D,+5D)	1963-1984	236	US (tender offers)	47.0%	The market model
7	Lang, Stulz and Walking (1989)	0%	(-5D, +5D)	1968-86	87	US (tender offers)	N/A	The market model

8	Jarrell and Poulsen (1989)	0.9%***	(-5D, +5D)	1963-1986	526	US (tender offers)	N/A	The Scholes-Williams methodology
9	Franks and Harris (1989)	1%**	Event month	1955-1985	1058	UK	49.0%	The simplified market model (α=0 β=1)
10	Lahey and Conn (1990)	-2.5%	Event month	1960-1979	91 (major mergers)	US	N/A	The market model
11	Morck et al. (1990)	-0.7%[N/A]	(-1D, +1D)	1975-1987	326	US	41.4%	Industry-adjusted performance
12	Loderer and Martin (1990)	1.7% [#]	(-5D, 0D)	1966-1968	970	US	N/A	The market model
		0.6%[#]		1968-1980	3401			
		-0.1%		1981-1984	801			
13	Franks, Harris, Titman (1991)	-1.0%	(-5D, +5D)	1975-1984	399	US	N/A	Multi-factor model
14	Healy, Palepu and Ruback (1992)	-2.2%**	(-5D, +5D)	1979-1984	50 (Very large deals only)	US	N/A	The market model
15	Sudarsanam, Holl and Salami (1996)	-1.3% ***	Event day	1980-1990	429	UK	N/A	The Dimson(1979) adjusted market model

16	Maquieria, Megginson and Nail (1998)	-4.8%	(-60D, +60D)	1963-1996	47 (conglomerate)	US (Stock-for-stock mergers)	36.2%	The market model
		6.1% ***			55 (non-conglomerate)		61.8%	
17	Draper and Paudyal (1999)	-1.1%**	(-1D, +1D)	1988-1996	394	UK	N/A	The market model
		-1.0%	(-5D, +5D)					
18	Mulherin and Boone (2000)	-0.4%	(-1D, +1D)	1990-1999	281	US	N/A	The market model
19	Eckbo & Thorburn (2000) (for TSE listed firms)	1.3%***	Event month	1964-1983	1261	Canada	Ranging from 50.0% to 59.4%; depending on benchmark and time period	The CAPM
20	Tse and Soufani (2001)	1.7%	Event month	1990-1993	40 (large deals)	UK (large, friendly deals)	N/A	Not reported
		4.9% **	(-1M, 0M)					
		1.4%	Event month	1994-1996				
		1.8%	(-1M, 0M)					
21	Chatterjee and Kuenzi (2001)	1.0%; *	(-1D, 0M)	1991, 1995 & 1999	362	UK	N/A	The mean return model

22	Andrade et al. (2001)	-0.3%	(-1D, +1D)	1973-1979	3688	US	N/A	Not reported
		-0.4%		1980-1989				
		-1.0%		1990-1998				
		-0.7%		1973-1998				
		-4.5%	(-20D, 0D)	1973-1979				
		-3.1%		1980-1989				
		-3.9%		1990-1998				
		-3.8%		1973-1998				
23	Goergen and Renneboog (2004)	-0.5%	(-1D, 0D)	1993-2000	86 (Large deals only)	Europe (including UK)	N/A	The CAPM
		-0.1%	(-2D, +2D)					
		-1.3%***	(-1D, 0D)		52 (Large deals only)	UK & Ireland only		
		-0.6%	(-2D, +2D)					
24	Campa and Hernando (2002)	0.5%	(-7D, +7D)	1998-2000	288	Europe (including UK)	50.0%	The CAPM
		1.4%	(-30D, +30D)					

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.3: Wealth effects of bidders and targets combined

Study	Total Wealth Gains (abnormal gains in value and/or in percentage)	Event Window	Percentage of positive pairs	Sample Period	Number of acquisitions	Sample Market	Notes
Halpern (1973)	$27.35M	(-140D, 0D)	N/A	1950-1965	77	US	
Firth (1979)	-£9.1M [N/A]	(-1M, +1M)	46.9%	1972-1974	224	UK	
Firth (1980)	-£36.6M [N/A]	(-1M, 0D)	48.4%	1969-1975	434	UK	
Bradley et al. (1982)	$17M	(-20D, +5D)	N/A	1962-1980	162	US	Tender offers only
Bradley et al. (1983)	$33.9M	(-20D, +5D)	N/A	1963-1980	161	US	Tender offers only
Malatesta (1983)	$32.4M[#]	(-20D, +20D)	N/A	1969-1974	30	US	Larger deals only
Bradley et al. (1988)	$117MM / 7.4% **	(-5D, +5D)	75.0%	1963-1984	236	US	Tender offers only
Franks and Harris (1989)	£2.37M [N/A]	Event month	68.0%	1955-1985	1841 (targets) 1058 (bidders)	UK	
Franks et al. (1991)	3.9% [#]	(-5D, +5D)	N/A	1975-1984	399	US	
Healy et al. (1992)	9.1% **	(-5D, +5D)	N/A	1979-1984	50	US	Very large deals only
Draper and Paudyal (1999)	10.8%**	(-20D, +20D)	N/A	1988-1996	394	UK	
	8.6%**	(-10D, +10D)					
	7.2%**	(-5D, +5D)					
	6.0%**	(-3D, +3D)					
	5.2%**	(-1D, +1D)					

Mulherin and Boone (2000)	3.6%	(-1D, +1D)	N/A	1990-1999	281	US	
Andrade et al. (2001)	1.5%	(-1D, +1D)	N/A	1973-1979	3688	US	
	2.6%**			1980-1989			
	1.4% **			1990-1998			
	1.8%**			1973-1998			
	0.1%	(-20D, 0D)		1973-1979			
	3.2%			1980-1989			
	1.6%			1990-1998			
	1.9%			1973-1998			
Goergen and Renneboog (2004)	4.0% N/A	Event day	58.0%	1993-2000	68	Europe	very large deals only
Campa and Hernando (2002)	1.0% N/A	(-7D, +7D)	56.1%	1998-2000	231	Europe	
	0.8% N/A	(-30D, +30D)	50.0%				

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.4: Excess returns to target firms in cross-border M&As [1]

Study	CAR for acquired firms	Event Window	Sample Period	Number of target firms	Target Market / Bidder Market	Methodology
Conn and Connell (1990)	18.2%**	(-12M, 0M)	1971-1980	22	UK / US	The market model
	39.9%**			24	US / UK	
Harris and Ravenscraft (1991)	39.8% ***	(-3D, +1D)	1970-1987	159	US / Various	The market model
Kang (1993)	7.0%***	(-1D, +1D)	1975-1988	102	US / Japan	The market model
	13.7%***	(-20D, +20D)				
	9.4%***	(-1D, +1D)			Japan / US	
	12.4%***	(-2D, +2D)				
Chen and Chan (1995)	29.6%***	(-4D, +1D)	1985-1990	70	US / Various	The market model
	21.8%***	(-1D, +1D)				
Danbolt (2001)	22.0%***	(0M, +1M)	1986-1991	106	UK / Various	The market model
	31.0%***	(-2M, +1M)				

Goergen and Renneboog (2004)	11.3%***	(-1D, 0D)	1993-2000	49 (large deals only)	Within Europe (including UK)	The CAPM
	19.8%***	(-40D, 0D)				
	15.3%***	(-1D, 0D)		14 (large deals only)	UK (+Ireland) / Europe (non-UK)	
	31.2%***	(-40D, 0D)				
Campa and Hernando (2002)	4.7%**	(-7D, +7D)	1998-2000	288	Within Europe (including UK)	The CAPM
	8.7%**	(-30D, +30D)				

[1] Information of percentage of positive CAR is largely unavailable.

***, **, * denotes significant at the 1%, 5% and 10% level respectively. [N/A] denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.5: Excess returns to bidding firms in cross-border M&As [2]

Study	CAR for acquiring firms	Event Window	Sample Period	Number of bidder firms	Target Market / Bidder Market	Methodology
Conn and Connell (1990)	-2.5%	(-12M, 0M)	1971-1980	35	UK / US	The market model
	-5.9%*	(-12M, +1M)				
	-7.9%	(-12M, 0M)		38	US / UK	
	-7.3%	(-12M, +1M)				
Markides and Ittner (1994)	0.1%	(-5D, +5D)	1975-1988	276	Various / US	The market model
	0.5%***	(-2D, 3D)				
Cakici et al. (1996)	2.0%***	(-10D, +10D)	1983-1992	195	US / Various	The market model
	-0.3%			112	Various / US	
Doukas (1995)	0.4%** (Tobin' Q >1)	(-1D, 0D)	1975-1989	234	Various / US	The market model
	-0.2% (Tobin' Q <1)					
Servaes and Zenner (1994)	0.1%	(0, +1D)	1979-1988	123	US / Various	The market model
Doukas and Travlos (1988)	0.1%	Event day	1975-1983	202	Various / US	The market model
	0.5%	(-10D,+10D)				

Eckbo and Thorburn (2000)	-0.2%	Event Month	1964-1983	390	Canada / US	The market model
Datta and Puia (1995)	-0.4%*	(-1D, 0D)	1978-1990	112	Various / US (large deals only)	The market model
	-0.8%	(-10D, +10D)				
	-1.4%*	(-15D, +15D)				
	-2.5%**	(-30D, +30D)				
Corhay and Rad (2000)	1.1%**	(-5D, 0D)	1990-1996	84	European / Dutch	The market model
	-1.1%	(-40D, +40D)				
	-0.5%	(-5D, 0D)		17	US / Dutch	
	4.8%**	(-40D, +40D)				
Goergen and Renneboog (2004)	2.4%***	(-1D, 0D)	1993-2000	56	Within Europe (including UK) (large deals only)	The CAPM
	1.5%	(-40D, 0D)				
	6.3%***	(-1D, 0D)		14	Europe (Non-UK) / UK (+Ireland) (large deals only)	
	4.9%	(-40D, 0D)				
Campa and Hernando (2002)	-0.8%	(-7D, +7D)	1998-2000	288	Within EU (including UK)	The CAPM
	-2.1%	(-30D, +30D)				

[2] Information of percentage of positive CAR is largely unavailable.

***, **, * denotes significant at the 1%, 5% and 10% level respectively. [N/A] denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.6: Post-acquisition share price performance within the one-year horizon

Study	Abnormal returns over the post-acquisition event window	Post-acquisition event window	Sample Description (number of bidders / sample period / bidder home country)	Percentage of Positive CARs	Methodology
Firth (1979)	-5.6% (Cash offers) N/A -11.2%(equity offers) N/A	(0M, +12M)	224 / 1972–1974 / UK	39.0% 37.0%	The market model
Asquith (1983)	-7.2%**	(0M, +240D)	196 / 1962-1976 / US	N/A	The mean return model
Malatesta (1983)	-7.6%**	(0M, +12M)	256 / 1969-1974 / US	N/A	The market model
Dodds and Quek (1985)	7.1% N/A	(0M, +10M)	70 / 1974-1976 / US	43.0%	The market model
Franks and Harris (1989)	-4.8%***	(0M, +12M)	1058 / 1955-1985 / UK	N/A	The market model
Conn and Connell (1990)	Evenly distributed between positive and negative CAR, ranging from –0.1 to 0.1 (depending on which benchmark to use)	(0M, +12M)	35 US Firms & 38 UK Firms / 1971-1980	N/A	The market model; (6 different benchmarks)

Agrawal, Jaffe and Mandelker (1992)	-1.5%	(+1M, +12M)	765 / 1955-1987 / US	46.5%	The Dimson and Marsh (1986) model
Gregory (1997)	-9.2%***	(0M, +12M)	452/ 1984-1992 / UK	35.6%	The CAPM
Higson and Elliott (1998)	-0.7%	(+1M, +12M)	830/ 1975-1990 / UK	47.3%	The size matched benchmark
Eckbo and Thorburn (2000)	-0.6%	(+1M, +12M)	1261 / 1964-1983 / Canada	N/A	The market model
Gregory and McCorriston (2005)	0.7%	(0M, +12M)	365 / 1985-1994 / UK (cross-border acquisitions)	N/A	The size and market-to-book-value adjusted approach

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.7: Long term post-acquisition share price performance

Study	Abnormal returns over long horizon post-acquisition event window	Month relative to the announcement month	Sample Description (Number of bidders / sample period / bidder market)	Percentage of Positive Returns	Methodology
Dodds and Quek (1985)	-6.8% N/A	+60 Months	70 / 1974–1976 / US	N/A	The market model
Franks and Harris (1989)	-12.6%***	+24 Months	1058 / 1955-1985 / UK	N/A	The market model
Franks, Harris and Titman (1991)	-11%	+36 Months	399 / 1975-1984 / US	49.0%	Eight-portfolio benchmark
Loderer and Martin (1992)	-0.8% for mergers	+60 Months	304 (mergers) and 155 (tender offers) / 1965-86 / US	N/A	The size and market-to-book-value adjusted approach
	-1% for tender offers				
Agrawal, Jaffe and Mandelker (1992)	-10.3% ** for mergers	+60 Months	937 (mergers) and 227 (tender offers) / 1955-1987 / US	44.0% for mergers	The Dimson and Marsh (1986) model
	+2.2% for tender offers			percentage for tender offers not available	
Gregory (1997)	-11.8% ***	+24 Months	452 / 1984-1992 / UK	52.0%	The size adjusted approach

Loughran and Vijh (1997)	-15.9% *** for mergers +43% ** for tender offers	+60 Months	788 (mergers) and 135 (tender offers) / 1970-1989 / US	N/A	The size and market-to-book-value adjusted approach
Higson and Elliott (1998)	-1.1%	+24 Months	776 (for 24 months window) and 722 (for 36 months window) / 1975-1990 / UK	42.7%	The size matched benchmark
	+0.8%	+36 Months		43.0%	
Rau and Vermaelen (1998)	-4.0% *** for mergers +8.9% * for tender offers	+36 Months	3169 (mergers) and 316 (tender offers) / 1980-1991/ US	N/A	The size and market-to-book-value adjusted approach
Gregory and McCorriston (2000)	-14.3% ***	+36 Months	365 / 1985-1994 / UK (cross-border)	48.0%	The CAPM
Mitchell and Stafford (2000)	-1%	+36 Months	2068 / 1961- 1993 / US	N/A	The (equal weighted) size and market-to-book-value adjusted approach

Gregory and McCorriston (2005)	-27.09% *** (for acquisitions into the US market)	+60 Months	197 / 1985-1994 / UK (cross-border)	N/A	The size and market-to-book-value adjusted approach
	10.20% (for acquisitions into the continental-EU markets)		97 / 1985-1994 / UK (cross-border)	N/A	

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.8: Effects of means of payment on the profitability of bidding firms

Study	Market / Time period	CAR (target)		CAR (bidder)		Significance level of the difference between two types of offers		Event Window
		Cash offers	Equity offers	Cash offers	Equity offers	Target side	Bidder side	
Studies that show better bidder performance after cash offers								
Travlos (1987)	US / 1972-81	N/A		0.245	-1.47% ***	N/A		(-1D, 0D)
Franks, Harris and Mayer (1988)	US / 1955-84	25.4% ***	11.1% ***	2%***	-0.9% ***	***	***	Event Month
Peterson and Peterson (1991)	US / 1980-86	9.6% **	4.6% **	0.2%	-0.9% **	**	**	(-1D, 0D)
Loughran and Vijh (1997)	US / 1970-89	N/A		-4.9%	-25% ***	N/A		(0M, +60M)
Draper and Paudyal (1999)	UK / 1988-96	8.9%**	3.3%**	-0.1%	-0.3% **	N/A		(-1D, +1D)
Studies that show better bidder performance after equity offers								
Eckbo and Thorburn (2000)	Canada / 1964-83	N/A		3.1%	3.0% #	N/A		(0M, +12M)
Goergen and Renneboog (2002)	Europe / 1993-2000 (large deals only)	13.6%***	11.4%***	0.9% *	2.6% ***	***	***	(-2D, +2D)

-Continued								
Studies that show bidder performance not affected by choice of payments								
Franks, Harris and Mayer (1988)	UK / 1955-85	30.2% ***	15.2% ***	0.7%	-1.1%	***	Insignificant	Event Month
Cornett and De (1991)	US / 1982-86 (interstate bank mergers)	13.6% ***	9.8% ***	0.9% ***	-0.9% ***	N/A	Insignificant	(-1D, 0D)
Davidson and Cheng (1997)	US / 1981-97	Page 477: 'Once control for the relative size of payment and other variables, we find the method of payment to be unrelated to target firm abnormal returns'. After controlling other variables (e.g. tender offer dummy), the coefficient of 'cash-offer dummy' = -1.0058, with t = -0.890. (Page 476)						

***, **, * denotes significant at the 1%, 5% and 10% level respectively. N/A denotes information not available. # denotes significant but the significance level not available. Other results are insignificant.

Y denotes Yearly; M denotes Monthly; D denotes Daily.

Table A2.9: Effects of 'relative size'[3] on bidder shareholder wealth effects

Study	Effect of 'Relative Size'	Number of firms (targets/bidders)	Sample Period / Bidder Market	Methodology (to assess excess returns)
Asquith et al. (1983)	C	54 / 170	1963 – 1979 / US	The mean return model
Jarrell and Poulsen (1989)	C	526 / 462 (Tender offers)	1963-1986 / US	The Scholes-Williams methodology
Franks & Harris (1989)	B	1050 / 1984	1955 – 1985 / UK	The market model
Loderer and Martin (1990)	C	5172	1966-1984 / US	The market model
Franks, Harris & Titman (1991)	B	399 / 399	1975 –1984 / US	Various benchmarks
Peterson and Peterson (1991)	B	130/130	1980-1986 / US	The market model
Markides and Ittner (1994)	A	276 / 276	1975 – 1988 / US	The market model
Eckbo and Thorburn (2000)	C	345 / 1226	1964 – 1998 / Canada	The CAPM
Campa and Hernando (2002)	B	288 / 288	1998 – 2000 / European	The CAPM

Notes:
A denotes positive relationship between 'relative size' and bidder abnormal returns
B denotes 'relative size' has no significant effect on post-takeover returns for bidders
C denotes negative relationship between 'relative size' and bidder abnormal returns

[3] 'Relative size' is defined as 'bidder market value / target market value'.

Chapter 3 Methodology

This thesis examines the profitability of M&As based on the event study approach. Event studies examine the abnormal returns to shareholders in a period surrounding the announcement of a transaction. Another general approach to measure profitability is accounting studies where returns are estimated from reported financial statements. In comparison with the accounting study approach, the event study approach provides a direct measure of value created for investors.

Section 3.1 Introduction to Event Studies

Event study methodology has been widely used to measure the impact of an economic event on the value of firms. Fama et al. (1969) introduced the methodology that is essentially similar to what is in use today. A number of studies have reviewed the conventional procedure of event study. For example, Firth (1980), Conn (1985) and Mackinlay (1997). In this thesis I not only employ the conventional event study procedure introduced by these prior studies but also make use of the most recent developments in event studies as well as asset pricing methodology.

The initial task of conducting an event study is to define the event of interest and identify the period over which the security prices of the firms involved in this event will be examined. It is customary to define the event window to be larger than the specific period of interest. This permits examination of periods surrounding the event. The periods prior to and after the event period may also be of interest.

Then it is necessary to determine the selection criteria for the inclusion of a given firm in the study. The most problematic part in performing an event study is the appraisal of the event's impact. It requires a measure of the 'normal' return, which is at the core of an event study. The assessment of the 'normal' return is based on the application of a certain pricing model (e.g. the basic market model in past has been the dominant technology in the field). Given the selection of sample firms, the estimation window needs to be defined (for some asset pricing models). In the mean time, there are some important considerations such as determining the techniques for aggregating the individual firm's abnormal returns. The abnormal return ($AR_{i\tau}$) is the actual ex post return of the security ($R_{i\tau}$) over the event window minus the 'normal' return of the firm over the event window:

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau} \mid X_\tau)$$

where $E(R_{i\tau} \mid X_\tau)$ is the expected 'normal' return given the conditioning information X for time period τ. To keep the notation simple, I "normalize" the time so period 0 is the time of the event for asset *i* —and then I repeat this for every asset. To control for information leakage and possible slow price adjustment, the abnormal return is often calculated for some time before and after the event. I take the appraisal of abnormal return as the most problematic part of an event study because the abnormal returns may be sensitive to model selection, the chosen event window and the chosen estimation window.

The description above outlines the event study approach. The rest of this chapter is organized as 5 parts: the structure of event studies, models of 'normal' returns, models of 'normal' returns for long-run studies, further issues in testing abnormal returns, and a summary of the models to be used.

Section 3.2 Structure of Conventional Event Studies

To assess the 'normal returns', one needs to define the estimation windows (L), event window (τ), and determine the techniques for cumulating the individual firm abnormal returns. In Section 3.2, I discuss these issues in detail.

The figure below provides a graphical illustration for the time periods used in the event study method (taking the basic market model as an example):

Figure 3.1 Estimation and Event Windows (for the market model)[1]

Time=0

T_1-L_{pre} $\qquad$ T_1		t_1 $\qquad$ t_2		T_2 $\qquad$ T_2+L_{post}
Estimation window (L_{pre})		Event window (τ)		Post-estimation window (L_{post})

First of all I discuss the determination of estimation window using the basic market model as an example. The basic market is $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$ with $E(\varepsilon_{it})=0$ and $VAR(\varepsilon_{it}) = \sigma^2(\varepsilon_i)$, [2] thus the sample abnormal return is

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{3.1}$$

Under the null hypothesis, conditional on the market-model returns over the event window, the abnormal returns will be jointly normally distributed with a zero conditional mean and conditional variance $\sigma^2(AR_{it})$ where (e.g. Mackinlay, 1997, pp. 20-21):

$$\sigma^2(AR_{it}) = \sigma^2(\varepsilon_i) + \frac{1}{L_{pre}}[1+\frac{(R_{mt}-\hat{u}_m)^2}{\hat{\sigma}_m^2}] \tag{3.2}$$

where

L_{pre} is the length of the estimation window;

$\hat{u}_m$ is the average of R_{mt} in the estimation window L_{pre} and $\hat{\sigma}_m$ is its variance.

One component of Equation 3.2 is the disturbance variance $\sigma^2(\varepsilon_i)$ and a second component is additional variance due to sampling error in $\hat{\alpha}_i$ and $\hat{\beta}_i$. As L_{pre}

[1] L_{pre} and L_{post} denote the length of the estimation window; T and t both denote the point of time; t_1 , $T_1 < 0$ and t_2 , $T_2 > 0$; $t_1 \geq T_1$ and $t_2 \leq T_2$; $t_2 - t_1 + 1 = \tau$. See Conn (1985), and Coutts, Mills and Roberts (1997) for similar figures.

[2] See equation (3.6) for further discussion.

becomes large, the second component approaches zero. The variance of the abnormal return, $\sigma^2(AR_{it})$, then will become $\sigma^2(\varepsilon_i)$ which is independent through time. Thus, in practice the estimation window, L_{pre} , usually is chosen to be large enough (e.g. 5 years in Franks and Harris, 1989) to make it reasonable to assume that the contribution of the second component to the variance of the abnormal return is effectively zero.

The event window, τ, is often calculated for some time before and after the event in order to control for information leakage (market anticipation) and the possible slow price adjustment. For example, Firth (1979) finds that the market begins to anticipate a merger one month prior to the announcement. It is common that a period like (-5D, +5D), (-10D, +10D) or (-2M, +1M) is chosen as the event window. In this thesis, several alternative periods are used.

The abnormal return observations must be aggregated in order to draw overall inferences for the event period of interest. One popular method is to use cumulative abnormal returns (**CARs**). Briefly, for any interval in the event window the mathematical formula of the mean CAR (cumulated over time) is:

$$\overline{CAR}(t_1, t_2) = \sum_{t=t_1}^{t_2} \overline{AR_t} \tag{3.3}$$

Where $\overline{AR_t} = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$ (where *i* denotes the *i*th firm and N denotes the number of firms)

In event studies over a longer horizon, an alternative method for drawing overall inferences is the buy-and-hold abnormal return (**BHAR**). The BHAR is specified as:

$$BHAR_{i\tau} = \prod_{t=1}^{\tau}(1+R_{it}) - \prod_{t=1}^{\tau}[1+E(R_{it})] \tag{3.4}$$

where

R_{it} = return for security i at time t

$E(R_{it})$ = the expected return for security i at time t

$BHAR_{i\tau}$ = the τ period buy-and-hold abnormal return for security i

Beginning with a long-term event study by Ritter (1991), the most popular estimator of long-term abnormal performance is the mean BAHR. Barber and Lyon (1997) argue that the mean BHAR is appropriate because it precisely measures investor experience in the long horizon. However, both Mitchell and Stafford (2000) and Fama (1998) argue that there is no compelling reason to use BHARs. First, if a matched-portfolio, like the market index, is used, biases can arise from severe skewness of multi-year abnormal returns.[3] Second, BHARs can give false impressions of the speed of price adjustment to an event.[4] Therefo re both CARs and BHARs have advantages and disadvantages, but in the long run event studies it is now common to see that BHARs are used.

Section 3.3 Models of 'Normal' Returns

The most commonly used approaches in this area are the market model and the CAPM. Recently, the market model has increasingly been replaced by a multi-factor model introduced by Fama and French (1992, 1993). Yet another approach is to construct a normal return as the actual return on assets which are very similar to the asset with the event. Normally this approach chooses to match the event-asset with a non-event-asset that is similar in MV and/or MTBV,[5] inspired by the finding (Fama and French, 1992, 1993) that average returns are well explained by the combination of MV and MTBV. I discuss the asset pricing models used in this thesis based on a market index first. In Section 3.3.1 and Section 3.3.2 the market model and the CAPM are presented in turn. Then in Section 3.3.3, I discuss the models which are in relation to the MV and MTBV factors. In particular, they are the Fama-French three-

[3] For example, it is common to observe a sample firm with an annual return in excess of 100%, but uncommon to observe a sample firm with an annual return in excess of 100%.

[4] For example, suppose returns for the first year after the event are 20% for event firms and zero for benchmark firms, so the first-year abnormal return is 20%. Suppose over the next four years both event and benchmark firms have a 100% buy-and-hold return. Although there is no abnormal return after the first year, the BHAR after five years grows to 40%.

[5] MV = Market Value; MTBV = Market-to-book-value.

factor model and the MV/MTBV-matched models. In the thesis, both the market model and the MV/MTBV- matched model are used for the short run study (Chapter 4). However, without modification and/or improvements many of these models are not appropriate to measure abnormal performance in the long horizon. I leave these discussion of the modification/improvements to Section 3.4 and Section 3.5.

3.3.1 Market Model

3.3.1.1 Market Model

The basic market model was developed by Markowitz (1952) and Sharpe (1963). Recently a number of studies have reviewed the basic market model methodology (and other relevant issues). For example, Patell (1976), Conn (1985) and Mackinlay (1997). At first, I discuss the procedure introduced by these prior studies. The market model was the most used model in short run event studies of M&As. For this reason, I also use this model in my short run share price performance study (Chapter 4).

The market model typically assumes the return on a risky asset is statistically related to the return on a market index (e.g. the FTSE all share index or the S&P 500). The market model is specified as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{3.5}$$

where

R_{it} = the return on security *i* at time *t*, where return reflects both dividends and capital gains/losses, i.e.

$$R_{it} = \ln \left[\frac{P_{i,t} + D_{it}}{P_{i,t-1}}\right], \text{ where } D_{it} \text{ is cash dividend paid per share of firm } i \text{ at time } t.$$

α_i = constant intercept

R_{mt} = the return on the market portfolio at time *t*, where return includes both dividends and capital gains/loss, i.e.

$$R_{mt} = \ln \left[\frac{P_{m,t}}{P_{m,t-1}}\right], \text{ where } P_{mt} \text{ is adjusted with dividends and capital gains/losses.}$$

β_i = beta coefficient

ε_{it} = residual error, namely difference between actual return and predicted return on security *i* at time *t*

3.3.1.2 Advantages and Variations of the Market Model

Perhaps the simplest model in assessing 'normal' returns is the constant-mean-return model.[6] Although Brown and Warner (1980, 1985) find that the constant-mean-return model sometimes yields similar results to those of more sophisticated models, the following equations show that the market model can lead to more precise inferences than the constant-mean-return model. The variance of the abnormal return for the market model is:

$$\sigma_{\varepsilon}^2 = Var[R_{it} - \hat{\alpha} - \hat{\beta} R_{mt}]$$
$$= Var[R_{it}] - \hat{\beta}^2[R_{mt}]$$
$$= (1 - R_i^2)\, Var[R_{it}] \qquad (3.6)$$

where R_i^2 is the R^2 of the market-model regression for security *i*.

For the constant-mean-return model

$$\sigma_{\varepsilon}^2 = Var[R_{it} - \mu_i] = Var[R_{it}] \qquad (3.7)$$

where μ_i is the mean return for asset *i*.

Since R_i^2 lies between zero and one, the variance of the abnormal return using the market model will be less than or equal to the abnormal return variance using the constant-mean-return model. Thus the application of the market model will be a better

[6] This model assumes the expected return is constant and equal to the mean return of a pre-merger period.

approach than that of the constant-mean-return model. For this reason, I do not use the constant-mean-return model for the current study.

Equation 3.6 suggests that in principle further increases in R^2 could be achieved by using a multi-factor model. One occasionally tested multi-factor model is the international market index model. Yang, Wangsley and Lane (1985) find that a two-factor market model (derived by adding a world index) outperforms a single domestic-index model for the US market. They find that portfolios of firms with a high degree of multi-nationality have a relatively high coefficient relating to the international index. A two-factor market model states that:

$$R_{it} = \alpha_i + \beta_{id}R_{dt} + \beta_{iw}R_{wt} + \varepsilon_{it} \tag{3.8}$$

where

α_i, β_{id} and β_{iw} are regression parameters respectively and

R_{it} = rate of return on asset *i* at time *t*

R_{dt} = rate of return on the domestic market index at time *t*

R_{wt} = rate of return on the world market index at time *t*

ε_{it} = residual error

However, Campbell, Lo and MacKinlay (1997) argue that (p. 163) '...in practice, however, the gains in R^2 from adding additional factors are usually small'. Both Conn and Connell (1990), and Kiymaz and Mukherjee (2001) find no significant differences between CARs in the domestic model and in the international model. Thus both studies claim that (Conn and Connell, 1990, p. 708) '...there is no compelling reason to incur the extra research cost with the more complex dual-index model'.

3.3.2 CAPM

The Capital Asset Pricing Model (CAPM) was developed by Markowitz (1959), Sharpe (1964), Lintner (1965b, 1969) and Mossin (1966). Recently Sharpe (1991), and Campbell, Lo and MacKinlay (1997) have reviewed the CAPM.

The CAPM is an equilibrium model for 'normal' returns and is based on the following assumptions:

1. There are no transaction costs[7] or taxes.
2. Investors are price-takers. Any individual investor cannot affect the price of a stock by his buying or selling. Perfect competition exists in the capital market.
3. All investors make their portfolio decisions relying on expected values and standard deviations of the returns on their portfolios. Also they are assumed to be risk-averse.
4. Each investor has access to unlimited short sales and unlimited lending and borrowing at the risk-free rate.
5. Investors possess the same information about the distribution of returns among all assets. Also, they plan to invest over the same horizon.
6. The market portfolio consists of all publicly traded assets.

Given these assumptions, the Sharpe and Lintner version of the CAPM in terms of expectations states that (time series regression):

$$E(R_{it}) = R_{ft} + \beta_i \, [E(R_{mt}) - R_{ft}] \tag{3.9}$$ [8]

where

$E(R_{it})$ = the expected return of security i at time t, and

$R_{it} = \ln \left[\frac{P_{i,t} + D_{it}}{P_{i,t-1}}\right]$, where D_{it} is cash dividend paid per share of firm i at time t.

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[7] To include transaction costs in the model adds a great deal of complexity. Given the low value of transaction costs, they are probably of minor importance to the validity of the model.

[8] A simple approach to derive the CAPM is as follows: the reward-to-risk ratio for asset i in an efficient portfolio is $\frac{E(R_i) - R_f}{2COV(R_i, R^*)}$ where R* is an efficient portfolio. This ratio is the same for all risky assets including the efficient market portfolio. So $\frac{E(R_i) - R_f}{2COV(R_i, R_m)} = \frac{E(R_m) - R_f}{2VAR(R_m)}$. By cross-multiplying terms the equation becomes $\frac{E(R_i) - R_f}{E(R_m) - R_f} = \frac{COV(R_i, R_m)}{VAR(R_m)}$. To replace $\frac{COV(R_i, R_m)}{VAR(R_m)}$ with β_i the equation becomes the form of the CAPM in terms of expectations.

R_{ft} = the continuously compounded risk-free rate of return

$E(R_{mt})$ = the expected return on the efficient market portfolio at time *t*, and

$R_{mt} = \ln [\frac{P_{m,t}}{P_{m,t-1}}]$, where P_{mt} is adjusted with dividends and capital gains/losses.

$\beta_i = \frac{COV(R_i, R_m)}{VAR(R_m)}$, which measures the systematic risk between security *i* and the efficient market portfolio

What the CAPM says is, therefore, that the only factor which determines the difference in expected return is the risk coefficient β_i and the relationship between the expected return and the market return is linear. The effect of any other factors that may affect returns can be reduced to zero through diversification. When β is high, the asset is very sensitive to market movements and therefore is more risky. The asset is not sensitive to market movements when β is low. Negative/Zero β means that asset is negatively-correlated/uncorrelated with the market.

Relationship between the Market Model and the CAPM

The theoretical motivation between the two models is different. The market model is not an equilibrium model like the CAPM. The basic market model does not make any assumptions about how investors optimize their portfolio but makes the assumption about the statistical relationship within the market. The CAPM uses the value-weighted market portfolio. The market portfolio is the portfolio of all risky assets which is completely diversified. In practice 'all risky assets' are not observable so a market index is typically used.

The CAPM is related to the market model as follows. First, consider the market model regression

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where ε_{it} is i.i.d..

Let R_f denote the risk-free rate. Now subtract R_f from both sides of the equation above to give:

$$R_{it} - R_f = \alpha_i - R_f + \beta_i R_{mt} + \varepsilon_{it}$$

Next, add and subtract $\beta_i R_f$ from the right-hand-side of equation to give

$$\begin{aligned} R_{it} - R_f &= \alpha_i - R_f (1 - \beta_i) + \beta_i (R_{mt} - R_f) + \varepsilon_{it} \\ &= \alpha_i^* + \beta_i (R_{mt} - R_f) + \varepsilon_{it} \end{aligned}$$

where $\alpha_i^* = \alpha_i - R_f (1 - \beta_i)$

This re-expressed market model is called the market model in excess return form (or the excess return market model). One of the focuses of empirical tests of the Sharpe-Lintner CAPM is the hypothesis that

$$H_0: \alpha_i^* = \alpha_i - R_f (1 - \beta_i) = 0 \text{ vs } H_1: \alpha_i^* \neq 0$$

When the null hypothesis $H_0 = 0$ is not rejected, the excess return market model is equivalent to the CAPM in the Sharpe-Lintner version.

3.3.3 MV and MTBV Adjusted Approaches

MV and MTBV approaches also used in the short run analysis are based on the findings that the combination of MV and MTBV provides a good explanation of the average return of shares (Fama and French, 1992, 1993). There are two ways of assessing asset prices with the adjustments for MV and MTBV: the Fama-French three-factor model and the MV/MTBV-matched model. In Section 3.3.3, I discuss them in turn.

3.3.3.1 Fama-French Three-factor Model

General Discussion of the Fama-French Three-factor Model

Although the CAPM assumes the beta coefficient captures all cross-sections of average share returns, previous work shows that average returns on common stocks are related to firm characteristics such as MV (stock price times number of shares in issue), the price-earnings ratio (P/E), MTBV (the ratio of the market value to book value of common equity), past sales growth, etc. These patterns in average returns are not explained by the CAPM (e.g. Fama and French, 1996).

In an influential paper, Fama and French (1992) bring together MV, leverage, E/P, MTBV and beta in a single cross-sectional study. They find for the US market in the period 1962-1989 (p. 445): '(1). When we allow for variation in beta that is unrelated to MV, there is no reliable relation between beta and average return. (2) The opposite roles of market leverage and book leverage in average returns are captured well by MTBV. (3) The relation between E/P and average return seems to be absorbed by the combination of MV and MTBV.' Subsequently, Fama and French (1993) develop the Fama-French three-factor model (the **FF** model for convenience). The FF model is applied by regressing the post-event monthly excess returns for firm *i* on a market premium factor, a MV factor and a MTBV factor. Fama and French claim that many of the CAPM average-return anomalies are captured by this model. Additionally, Fama and French (1996) show that the FF model performs well to portfolios formed on the cash-flow/price ratio, P/E, and sales growth. Specifically, the model is in regression form:

$$R_{it} - R_{ft} = \alpha_i + \beta_i\,(R_{mt} - R_{ft}) + s_i\,SMB_t + h_i\,HML_t + \varepsilon_{it} \tag{3.10}$$

where

R_{it} = the simple return on the common stock of firm *i* at time *t*

R_{ft} = the risk-free rate of return

R_{mt} = the return on a value-weighted market index at time *t*

SMB_t = the return on a value-weighted portfolio of small stocks less the return on a value-weighted portfolio of big stocks at time *t*

HML_t = the return on a value-weighted portfolio of high MTBV stocks less the return on a value-weighted portfolio of low MTBV stocks at time *t*

α_i , β_i and s_i , and h_i are regression parameters and

ε_{it} = residual error

In addition, (Fama and French, 1996, p.56) conclude '…at a minimum, the available evidence suggests that' the FF model in (3.10) 'with the intercepts (α's) equal to 0, is a parsimonious description of returns and average returns'. Therefore the mean intercept term is used to test the null hypothesis that the mean monthly abnormal return of firms is equal to zero.

The FF model tends to produce significant coefficients on all three factors, and regression R^2 values are close to 1 for most portfolios in their tests. Portfolios of value stocks[9] tend to have a high value for *h*, while growth portfolios will have a negative *h*. Large portfolios tend to load negatively on SMB and small portfolios will have a large positive value for *s*. In practice, most of the studies that both apply the FF model and examine the issue of M&A are limited to long-term event studies (e.g. from one year to five years). For example, Gregory (1997), and Gregory and McCorriston (2000).

One advantage of the FF model over the MV/MTBV-matched model is that it does not require MV or MTBV data for sample firms. Removing this requirement implies firms without available data on MV or MTBV can be included in the analysis. Another advantage is that the FF model does not require pre-event data if it is used in the long run study. When the FF model is employed on short-run event studies is that it may sacrifice the advantage that this model does not require pre-event data. This is because, in the short-run study, the coefficients of the three factors have to be estimated using a pre-event estimation window (see Barber and Lyon, 1997, p.372, footnote 5), analogous to a conventional market model approach.

[9] Fama and French define value stocks as those stocks that have high ratios of book value to market value and 'glamour' stocks as those that have low ratios of book value to market value.

Deriving the Fama-French Three-factors

There are three factors in the Fama-French three-factor model: (R_{mt} - R_{ft}), SMB_t and HML_t. The method to derive the (R_{mt} - R_{ft}) factor is straightforward. To calculate the SMB and HML factors for the FF model in this study, I follow Fama and French (1993, pp.8-9)[10]. In January of each year *t* all stocks on the market are ranked by MV (price times shares in issue). The median MV is then used to split stocks into two groups, small and big (S and B). MTBV is measured by market equity for the fiscal year ending in year *t-1*, divided by book common equity at the end of December of *t-1*. I then break all stocks on the market into three MTBV groups based on the breakpoints for the bottom 30% (low, L), middle 40% (medium, M), and top 30% (high, H) of the ranked values of MTBV. At this stage I construct six portfolios (S/L, S/M, S/H, B/L, B/H, B/M) from the intersections of the two MV and the three MTBV groups. For example, the S/L portfolio contains stocks in the S group that are also in the L group. Monthly value-weighted returns on the six portfolios were calculated from January of year *t* to December of *t*. The portfolios are re-formed in January of each year. The portfolio SMB (small minus big) is the difference, each month, between the simple average of the returns on the three small-stock portfolios (S/L, S/M, and S/H) and the simple average of the returns on the three big–stock portfolios (B/L, B/M, B/H). The portfolio HML (high minus low) is defined similarly. It is the difference, each month, between the simple average of the returns on the S/H and B/H portfolios and the simple average of the returns on the two low MTBV portfolios (S/L and B/L).

3.3.3.2 Control-Firm Model

It has been mentioned that an alternative approach to the FF model that also adjusts for MV and MTBV is the matched-MV/MTBV approach. Based on Fama and French

[10] Only firms with common equity are included in their tests. Fama and French select non-financial firms for their test because they think the high leverage that is normal for financial firms probably does not have the same meaning as for non-financial firms. Barber and Lyon (1997) suggest the impact of this exclusion is minimal. Foerster and Sapp (2004) find the model works well for financial firms but the estimated coefficients on some Fama-French factors have different signs from those for non-financial firms.

(1992)'s results, they conclude (p. 452) '...our results then imply that the performance of managed portfolios ... can be evaluated by comparing their average returns with the average returns of benchmark portfolios with similar MV and MTBV characteristics. Likewise, the expected returns for different portfolio strategies can be estimated from the historical average returns of portfolios with matching MV and MTBV properties.' Also, Fama (1998, p. 293) states: '...it is now common to estimate abnormal returns by matching event stocks with non-event stocks similar in terms of MV and MTBV'.

One such model is the control-firm model (the **CF** model) which is used as an alternative in my short run share price study (Chapter 4). Sample firms are matched to a matched firm on the basis of MV and MTBV characteristics. The control firms are selected by first dividing all stock-listed firms on DataStream into 10 equal sized portfolios based on their MVs at the beginning of each calendar year *t*. Each sample firm is then matched with the non-merging firm from its MV portfolio which has the closest MTBV in December of each calendar year *t-1*. This procedure is repeated for each post-acquisition calendar year. Lyon et al. (1999) show that the control firm approach avoids the skewness and rebalancing biases inherent in a reference portfolio as discussed later in Section 3.4.2. This model follows the BHAR approach and has the form:

$$\text{BHAR}_{i\tau} = \prod_{t=1}^{\tau}(1+R_{it}) - \prod_{t=1}^{\tau}[1+E(R_{it})] \tag{3.11}$$

where

R_{it} = dividend adjusted return for security *i* at time *t*

$E(R_{it})$ = the expected dividend adjusted return for security *i* at time *t*

$\text{BHAR}_{i\tau}$ = the τ period buy-and-hold abnormal return for security *i*

3.3.3.3 Control-Portfolio Model

General Discussion of the Control-portfolio Model

Another model following the MV/MTBV-matched framework is the control-portfolio model (the **CP** model). When applying the control-portfolio approach, the control portfolio (whose firms are similar in MV and MTBV characteristics) returns can be calculated using the 'buy-and-hold' method described in Lyon et al. (1999)[11]:

$$R^{bh}_{p,s,\tau} = \sum_{i=1}^{n_s} \frac{[\prod_{t=s}^{s+\tau}(1+R_{it})]-1}{n_s} \tag{3.12}$$

where

bh denotes 'buy-and-hold'

p, s, τ denote portfolio, the beginning period and the period of investments in turn

$R^{bh}_{p,s,\tau}$ = the buy-and-hold return for the control portfolio during period τ starting from time s

n_s denotes the number of securities traded in month s, the beginning period for the return calculation

R_{it} = the simple net return (incorporating the effect of dividends) on security *i* of the identified control portfolio at time *t*, and

$$R_{it} = \frac{P_{it} - P_{i,t-1} + D_{it}}{P_{i,t-1}}$$

This method of calculating returns on a reference portfolio involves first compounding the returns on securities constituting the portfolio and then summing across securities.

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[11] An alternative measurement of portfolio returns is $R^{reb}_{p,s,\tau} = \prod_{i=s}^{s+\tau}[1+\frac{\sum_{i=1}^{n_t} R_{it}}{n_t}]$ - 1, where 'reb' denotes 're-balanced return' and n_t denotes the number of securities at time *t*. When τ is 1, namely single period (e.g. one month using monthly data), n_t and n_s must remain unchanged and the two measurements of portfolio returns are equivalent. When τ are multi-periods (e.g. long-term event study), Lyon et al. (1999) object to the use of $R^{reb}_{p,s,\tau}$ because it suffers the re-balancing and the new-listing biases as discussed in Section 3.4.2.

We therefore calculate abnormal returns as:

$$AR_{i\tau} = R_{i\tau} - E(R_{p\tau}) \tag{3.13}$$

where

$AR_{i\tau}$ = the τ period buy-and-hold abnormal return for security i

$R_{i\tau}$ = the τ period dividend adjusted buy-and-hold return for security i

$E(R_{p\tau})$ = the expected τ period buy-and-hold dividend adjusted return for the matched portfolio p. In the thesis, I use $R^{bh}_{p,s,\tau}$ as the benchmark of the expected τ period buy-and-hold return, $E(R_{p\tau})$.

Method to Construct Control- portfolios

In constructing the control portfolios, I follow Lyon et al. (1999). At first I construct 10 MV portfolios as follows:

1. I calculate firm MV at the beginning of each year for all firms.
2. In each year t, I rank all firms on the market on the basis of firm MV and then form MV decile portfolios based on these rankings.
3. Then the returns of the MV portfolios are tracked from January of year t to December of year t for each month.

I then construct 5 MTBV-matched portfolios for each MV decile as follows:

1. I obtain firms' MTBV in December of year t-1.
2. In December of year t-1, I rank all firms on the basis of relative position of MTBV in the population and then form 5 deciles based on these rankings
3. Then the returns of the MV portfolios are tracked from January of year t to December of year t for each month.

Therefore I in fact obtain 50 different portfolios. In each month I find the control portfolio for an event firm that is similar in MV and MTBV characteristics. Then I calculate holding returns for the identified MV and MTBV - matched portfolios using equation (3.12). The portfolios are re-formed at the beginning of each year.

Section 3.4 Models of 'Normal' Returns for the Long-run Study

I have discussed a number of asset pricing models. However, some of these models are not appropriate to measure share price performance in the long horizon although they are well-specified in short run studies. Section 3.4.1 explains why these models are not appropriate for long horizon tests. In section 3.4.2 and section 3.4.3 I introduce some well-specified models of measuring abnormal returns in the long horizon. In particular, they are the control firm model and the control portfolio model along with the use of the skewness-adjusted t-statistic, which are both used in my long run share price performance study (Chapter 5). Section 3.5 will discuss some further issues of model selection.

3.4.1 Problems in the Long-run Study

So far I have presented a number of models to measure abnormal returns from M&As. Kothari and Warner (1997) perform a simulation test using 250 randomly selected samples of 200 securities from the CRSP monthly return tape from Jan. 1980 to Dec. 1989. All models tested (the market model, the CAPM, and the FF model) yield no problem within the first month. The criterion of model performance is the percentage of 250 samples that the null hypothesis of zero abnormal returns is rejected.[12] For example, the means and cross-sectional standard deviations of the *t* test statistics obtained from the 250 samples are close to zero and 1 respectively. Thus within short horizon (e.g. one month) these models can generate convincing results.

[12] This criterion is also used for other studies discussed in this section.

However, in long horizon studies the picture is totally different. The tests by Kothari and Warner (1997) over longer horizons yield some suspicious results. For example, the mean and cross-sectional standard deviation of the *t* test statistics obtained from 250 samples now become over 0.82 and over 1.33 respectively[13]. Therefore the use of the market model, the CAPM and the FF model in long horizon event studies is less certain.

A number of reasons have been documented in recent papers[14] that may explain the inability of these three models (the market model, the CAPM and the FF model) in detecting the long horizon share price performance. A first issue is that these models pre-assume that the coefficients of the parameters are constant over time. A second issue is the lack of cross-sectional independence among sample firms. A third issue is model imperfection problems (e.g. Fama, 1998, pp. 292-293). Any asset pricing model does not completely describe expected returns. For example, the Sharpe-Lintner CAPM and the basic market model do not explain the small-stock effect found by Banz (1981).[15] The FF model does not explain the short-term return momentum found by Jegadeesh (1990), and Jegadeesh and Titman (1993). These are likely to become more important in longer period studies. A fourth issue is data requirements and the survival problem. For one thing the results could be biased toward firms with data and which remain alive, for another a potential problem (when the MV and MTBV matched approaches are used) can arise from how to weight firms that do not survive the whole period in the long horizon.[16] In the short horizon these problems are very minor but in the longer horizon they can be significant as the effects aggregate over time.

Barber and Lyon (1997) document that test statistics based on abnormal returns calculated using a matched portfolio model (e.g. a market index or a MV/MTBV

[13] Ideally, they should be zero and one.

[14] For example, Kothari and Warner (1997), Barber and Lyon (1997), Fama (1998), Lyon et al. (1999), Mitchell and Stafford (2000), and Kothari (2001).

[15] Banz (1981) finds that the stock of firms with low market capitalization have higher average returns than large capitalization stocks.

[16] Lyon et al. (1999) use the return of the matched portfolio to replace that of the delisted firm. Alternatively, Conn et al. (2002) use the next firm available that has the closest MV and MTBV characteristics. Either way can cause their results slightly biased.

matched portfolio[17]) are also misspecified in terms of empirical rejection rates that exceed theoretical rejection rates. Tests are based on 1000 random samples of 200 firms. They find the CAR approach yields significantly positively biased results and the BHAR approach yields significantly negatively biased results when using the control-portfolio approach in the long horizon. They suggest that these are the results of the skewness biases, rebalancing biased and new-listing biases.[18]

In brief, the market model, the CAPM, the FF model and the original CP model yield no problem in the short horizon event study. However, all these models are inappropriate for long horizon studies. Now I move on to discuss the models that are appropriate for the long horizon event study.

3.4.2 Using the Control-firm Model in the Long Run Study

Barber and Lyon (1997) find the MV/MTBV–matched firm approach (the CF model) yields well-specified test statistics in random samples. Tests are based on 1000 random samples of 200 firms. No matter whether the CAR or the BAHR approach is used, the mean abnormal returns over three event windows (12, 36 and 60 months) are close to zero. The rejection frequencies (percentage of firms in a sample that reject zero abnormal performance) are low and insignificant for all event windows. In addition the control-firm approach yields virtually no skewness in all situations considered, which enhances the power of test statistics. Therefore, the authors conclude (p. 370) '...most importantly, we identify a method of measuring long-run abnormal returns that yields well-specified test statistics...'. This control-firm method to measure the long horizon share price performance is adopted in several event studies nowadays, for example Cosh and Guest (2001).

Barber and Lyon (1997) indicate three reasons why the control-firm model outperforms some other models in long horizon event studies. Firstly, the control-firm model avoids the new-listing bias. Firms that constitute the index (or reference portfolio) include newly listed firms which in general (e.g. Ritter, 1991) under-

[17] See Section 3.3.3.3 for details of the control-portfolio model.
[18] See Section 3.4.2 for more detailed discussion of these biases.

perform the market average. Consequently, the population mean for CARs will be positively biased. BHARs using the control-portfolio model are also affected by this problem. Barber and Lyon refer it as the new-listing bias. Secondly, the control-firm model avoids the rebalancing bias. When buy-and-hold abnormal returns are calculated using an equally weighted market index, the long-run return on the index is compounded assuming monthly rebalancing of all securities constituting the index. To maintain equal weighting of all securities in the index, securities that have beaten market averages are sold, while those that have lagged market averages are purchased. Since the consecutive monthly returns for individual securities are negatively correlated, the purchased firms subsequently perform well and the sold firms subsequently perform poorly. Therefore this monthly rebalancing leads to an inflated return on the market index and a negative bias in BHARs. The rebalancing bias does not affect the calculation of cumulative abnormal returns, since the monthly returns of sample firms and the index are both summed rather than compounded. Thirdly, the control-firm model avoids the skewness bias. Long horizon BHARs are severely positively skewed. For example, it is common to observe a sample firm with an annual return in excess of 100%, but uncommon to observe a return on the market index in excess of 100%. The positive skewness leads to a negative bias in test statistics. The skewness bias is less pronounced in CARs because the monthly returns of sample firms are summed rather than compounded.

In short, the use of the MV/MTBV control-firm approach alleviates the new listing bias (since both the sample and control firm must be listed in the identified event month), the rebalancing bias (since both the sample and control firm returns are calculated without rebalancing), and the skewness bias (since the sample and control firms are equally likely to experience large positive return. In this sense, the control firm model is appropriate for the long run share price performance study.

3.4.3 Using the Control-portfolio Model and the Skewness-adjusted t-statistic

The BHARs based on the control-portfolio model are typically skewed as just discussed. Sutton (1993) concludes that a bootstrapped statistic may be preferred to the *t* test when the parent distribution is asymmetrical. To eliminate the skewness bias when long-run abnormal returns are calculated based on a portfolio's performance, a bootstrapped skewness-adjusted t-statistic can be used as follows:

$$t_{sa} = \sqrt{n}(S + \frac{1}{3}\hat{\gamma} \cdot S^2 + \frac{1}{6n}\hat{\gamma}) \tag{3.14}$$

where

$S = \dfrac{\overline{AR_\gamma}}{\sigma(AR_\gamma)}$ and $\sqrt{n}$ S is the conventional t-statistic

$\hat{\gamma} = \dfrac{\sum_{i=1}^{n}(AR_{i\gamma} - \overline{AR_\gamma})^3}{n\sigma(AR_\gamma)^3}$ which is an estimate of the coefficient of skewness

Bootstrapping the test statistic involves drawing *b* resamples of size n_b from the original sample. The skewness adjusted test statistic is calculated in each of these *b* bootstrapped resamples and the critical values for the transformed test statistic are calculated from the *b* values of the transformed statistic. Specifically, firstly to draw 1000 bootstrapped resamples from the original sample of size $n_b=\frac{n}{4}$. The choice of $\frac{n}{4}$ is based on the recommendation of Lyon et al. (1999). They indicated: 'Our choice of $n_b=\frac{n}{4}$ is based on empirical analysis. The skewness adjustment results in more conservative test statistics as the size of the bootstrap resample decreases. Bootstrap resample sizes of $\frac{n}{2}$ also yield well-specified inferences, while bootstrap resample sizes of n do not...'. Secondly, in each resample, calculate the statistic:

$$t^b_{sa} = \sqrt{n_b}(S + \frac{1}{3}\hat{\gamma}S^2 + \frac{1}{6n}\gamma)$$

From the 1000 resamples, I calculate the two critical values, x_l^* and x_u^*, for the transformed test statistic, t_{sa}, to reject the null hypothesis that the mean long-run abnormal return is zero at the α significance level by solving:

$$\Pr[t_{sa}^b \leq x_l^*] = \Pr[t_{sa}^b \leq x_u^*] = \frac{\alpha}{2}$$

Finally, reject the null hypothesis that the mean long-run abnormal return is zero if $t_{sa} < x_l^*$ or $t_{sa} < x_u^*$.

Barber and Lyon (1997) provide evidence that the MV/MTBV control-portfolio model along with the use of the skewness-adjusted t-statistic yields well-specified test statistics in random samples. This approach is nowadays adopted by event studies to examine the issue of M&A profitability in the long period. One example is Gregory and McCorriston (2005), which is based on the control-portfolio model and employ the skew-adjusted t-statistic in a long run study.

Section 3.5 Further Issues in Testing Abnormal Returns

3.5.1 Change in Systematic Risk

One of the problems in applying the basic market model, the CAPM and the FF model to event studies is the instability of parameters over time. M&As may alter firms' systematic risk by changing MVs, operating and/or financial risks of both buyer and seller firms, whereas non-merger events, such as earnings announcements, are less likely to alter the firm's systematic risk. If an acquisition increases a firm's β then that firm's CAR will indicate positive gains from merger, whereas in reality risk-adjusted returns may not have changed. Similarly, if an acquisition decreases a firm's systematic risk then the firm's CAR will be negatively biased. Only if the parameters are constant over both the pre-merger period and the acquisition-related period will the model yield unbiased results.

A number of studies argue that beta changes around M&A dates are not important. Haugen and Langetieg (1975) find that the percentages of mergers that have statistically significant changes (10% level) in betas are quite similar between sample firms and non-merging control firms. Dodd (1980) tests various estimation windows and also states (p. 109) '...different estimation periods were tried and in no case are the results and conclusions of this paper altered'. Similarly, Elgers and Clark (1980), and Pettway and Yamada (1986)[19] find that systematic risk is essentially unchanged over the event periods that they examined.

In comparison, a number of event studies find that beta changes are important over the event period. One paper by Mandelker (1974)[20] finds that beta increases steadily in the per-merger periods (-100 months to –20 months) and then decreases in the next 60 months (-20 months to +40 months). In order to adjust for the changes in beta, Mandelker (1974) suggests using both pre-acquisition data (-30 months to –1 months) and post-acquisition data (+1 months to +30 months) to estimate beta. Some other studies, e.g. Lahey and Conn (1990), Kiymaz and Mukherjee (2001),[21] also report significant beta reduction in the post-acquisition period. As an example, Kiymaz and Mukherjee (2001) find that betas decline irrespective of the location of the target, although the degree of decline and its level of significance vary across countries.

While these studies[22] report a downward shift in the post-event beta, Langetieg, Haugen and Wichern (1980) find that mergers tend to be associated with an increase in levels of systematic risk.

[19] A study of Japanese mergers.

[20] See Conn (1985, p. 49) for a few other studies with similar findings that were published before the year 1980.

[21] Both two studies find no significant changes in 'alpha' (intercept) over time. Shrieves and Lubatkin (1990) report results inconsistent with them. Shrieves and Lubatkin (1990) find strong evidence for changes in 'alpha' but only find weak evidence for beta reductions. They conclude (p.67): 'mergers appear to lower beta...although the effect was only of marginal statistical significance in one of the three sub-samples'.

[22] See Conn (1985, p. 49) and Kiymaz and Mukherjee (2001, p. 252) for a few more examples.

Hence, a number of existing empirical studies did not find significant role of parameter shifts and a number of others argue that parameter shifts are important. It could be worthwhile to test the parameter stability in the event study framework. If specific breakpoints of systematic-risk change are hypothesized, versions of the Chow (1960) test can be computed and this is done in Chapter 4.

3.5.2 Cross-sectional Dependence in Share Returns in the Long Run Study

3.5.2.1 Cross-sectional Dependence in Share Returns

So far the discussion above typically pre-assume that the abnormal returns are uncorrelated across time and across assets. In practice both assumptions can be violated. In short horizon event studies, the effects of these problems are minimal. In long horizon tests, they are more important as the effects aggregate over long periods, which causes the statistical tests to lack power.

The first assumption can be violated because abnormal returns may in fact be correlated across time. It is often referred to as 'overlapping share returns'. This is a statistical problem of including abnormal returns for the same firm which overlap in calendar time, which causes the conventional *t*-statistic to be biased upward because the returns are positively correlated (e.g. Lyon et al., 1999 and Mitchell and Stafford, 2000).

To overcome this problem, it is necessary to select firms which had no other significant firm-specific events for a reasonably long period around the announcement date. For example, Conn and Connell (1990) only select firms which had no other significant event during several years around M&As. Alternatively, Mitchell and Stafford (2000) include the first acquisition and exclude the next if it occurs within the pre-defined event window. In this thesis I follow the first way because when BHARs are used the second way is flawed. For example, if I want to examine the average share price performance of the 4^{th} year's holding abnormal return, it could be mixed with the impacts of the 1^{st} years' holding abnormal return of other overlapping M&As.

For the long horizon study, some studies find that to use or not to use non-overlapping sample significantly changes abnormal returns in certain circumstances. For the short term study, in practice the effect of pursuing a non-overlapping sample is usually not strong. Lahey and Conn (1990) examine 91 US major mergers during 1960-1979. They find evidence that (p. 436) '...there is no significant difference in the market's reaction to acquiring firms with one merger as opposed to those with multiple mergers'.

Mitchell and Stafford (2000) show that abnormal returns of different acquirers are correlated so the second assumption above (abnormal returns uncorrelated across assets) can be violated. Again this is a very minor problem in short horizon event studies, but becomes an important issue in longer horizon tests as effects aggregate over longer period.

Abnormal returns of different acquirers can be correlated through similar characteristics of acquirers (such as similar MV, MTBV, industry, etc.). Lyon et al. (1999) find that non-random samples often yield mis-specified test statistics for long horizon tests. They investigated 7 types of non-random samples: firms in the biggest MV decile only and in the smallest MV decile only, firms in the highest MTBV decile only and in the smallest MTBV decile only, firms with superior pre-event return performance only and with poor pre-event return performance only, firms with extreme industry clustering only, firms with extreme calendar clustering only (therefore cross-sectional dependence will be most severe when all sample firms share the same event date), and firms with extreme overlapping returns only. Although the control-firm model (or the control-portfolio model along with the skewness-adjusted t-statistic) still outperform other models, they yield mis-specified test statistics in testing the long run share price performance of these groups. Although their tests are based on some extreme cases, they provide evidence that lack of independence in abnormal returns weakens the power of the tests.

Thus, at this stage I conclude that when I test a random sample where firm characteristics are roughly evenly distributed, the control-firm model (and the control-portfolio model with the use of the skewness-adjusted t-statistic) can yield convincing results because they avoid the misspecifications I have discussed. However, the results become less certain when the cross-sectional dependence between abnormal returns becomes stronger, particularly for long horizon tests as the effects can aggregate over a long time period. In Section 3.5.2.2 I introduce the use of the calendar time portfolio approach to tackle these problems.

3.5.2.2 Calendar Time Approach

Both Fama (1998), and Mitchell and Stafford (2000) strongly advocate a monthly calendar-time portfolio approach to measure long term share price performance. The calendar time approach tracks the average abnormal returns of event firms over a calendar period of time rather than over an event window period as I have discussed in Section 3.2. There are some advantages for using this model (see Mitchell and Stafford, 2000, p. 288). At first, by forming monthly calendar-time portfolios, all cross-correlations of event firm abnormal returns are automatically accounted for in the variance. On the other hand, the distribution of this estimator is better approximated by the normal distribution, allowing for classical statistical inference. For these reasons, the calendar time portfolio approach is used in my long run study, especially in the measurement of overlapping share price performance (Chapter 5). However, there are a few disadvantages with this approach: 1) this approach is that it does not precisely measure investor experience as BHAR does, and 2) this approach only tracks the performance of a portfolio.

Generally there are two ways to employ the calendar time portfolio approach. One is to incorporate the calendar-time portfolio into the FF model, which I call the **CTFF** model. In each calendar month, I form a portfolio composed of event firms that had events within the last 5 years. I take the average cross-sectional returns of the portfolio for each month. The obtained average cross-sectional returns are then used in a Fama-French three-factor model regression.:

$$R_{pt} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + \beta_i\, SMB_t + \beta_i\, HML_t + \varepsilon_{it} \tag{3.15}$$

where

R_{pt} = the simple monthly return on the calendar-time portfolio,

R_{mt} = the return on a value-weighted market index at time *t*

SMB_t = the return on a value-weighted portfolio of small stocks less the return on a value-weighted portfolio of big stocks at time *t*

HML_t = the return on a value-weighted portfolio of high MTBV stocks less the return on a value-weighted portfolio of low MTBV stocks at time *t*

α_i , β_i and s_i , and h_i are regression parameters respectively.

Each firm that had an event within last 5 years will only be counted once to construct R_{pt} for each calendar month. The average abnormal return for the entire sample is the time series average of the intercept of the Fama-French three-factor model regression. The CTFF model yields robust test statistics in non-random samples, and enables me to use the conventional test statistics (see also Lyon et al., 1999). One potential problem in using the CTFF model is that changing portfolio composition may introduce heteroskedasticity as the variance is related to the number of firms in the portfolio. However, both Lyon et al. (1999) and Mitchell and Stafford (2000) find the potential heteroskedasticity problem is minimal. Another potential problem is that the CTFF model may co-suffer from the model misspecification of the FF model (e.g. the pre-assumed constant parameters over time).

An alternative method is to incorporate the calendar time approach into the MV/MTBV-matched portfolio model. Lyon et al. (1999)'s simulation tests suggest that the calendar time portfolio approach employing control-portfolio abnormal returns (the calendar time control portfolio model for convenience, or the **CTCP** model) also yield well-specified test statistics, especially when equally weighted calendar-time portfolios are used.[23] Suppose the event period of interest is 5 years. For each month in calendar time, I calculate the abnormal return for each security that had an event within the last five years of the calendar month. I then take the equally weighted average cross-sectional abnormal return for that month. For each month I repeat this procedure but no longer test securities that become irrelevant (namely having no significant event within the last five years) and additionally include the

[23] Lyon et al. (1999) call it 'mean monthly calendar-time abnormal returns'. In this thesis I refer it as the CTCP model.

securities that become relevant. The abnormal return for calendar month *t* in the equally-weighted CTCP model is:

$$AR_{it} = R_{it} - R_{pt}, \tag{3.16}$$

where

AR_{it} = the abnormal return for security *i* at time *t*

R_{it} = the actual return for security *i* at time *t*

R_{pt} = the return on the MV and MTBV matched portfolios

In each calendar month *t*, I calculate a mean abnormal return across firms in the portfolio:

$$\overline{AR_t} = \sum_{i=1}^{n_t} x_{it} * AR_{it} \tag{3.17}$$

where

n_t is the number of firms in the portfolio in month t

the abnormal return of each firm could either be equally-weighted or value-weighted, which is reflected by x_{it}

A mean monthly abnormal return is therefore calculated as:

$$\overline{AR} = \frac{1}{T}\sum_{t=1}^{T} \overline{AR_t} \tag{3.18}$$

where

T = the total number of calendar months

To test the null hypothesis of zero mean monthly abnormal returns, a conventional t-statistic is applied.

Lyon et al. (1999) show that the calendar-time approach is well-specified in random samples. This is applicable for either the CTFF model or the CTCP model. Secondly, they find the calendar-time approach performs well when cross-sectional dependence is severe, such as in the case of overlapping returns. Finally, they find the calendar-time approach does not eliminate misspecification when samples are drawn from a single industry. This suggests that the misspecification from industry clustering can be a problem at least partially attributable model misspecification.

Section 3.6 Conclusion

In this chapter I have discussed the structure of event studies as well as the model of 'normal' returns for the short-run and long-run study in turn. I now briefly summarize these models.

For short horizon tests, the market model, the CAPM, the FF model, the CF model and the CP model are all valid options. These models suffer no major problems in short horizon tests. Another model - the two-factor international market model as discussed earlier, may be helpful in providing more precise inferences for cross-border M&As.

When employing regression models such as the market model, I estimate the parameters first. I follow, for example, Franks and Harris (1989), and Conn and Connell (1990), and use 60 months pre-event data beginning at one year prior to estimate the parameters if a regression model (like the market model) is used. If the estimated parameters are unstable around the events, I employ the Chow (1960) test to test the stability of regression coefficients.

For long horizon tests, I have shown that two models are able to produce credible results: one is the control-firm model, another is the control-portfolio approach employing the skewness-adjusted t-statistic (reference portfolios must be free of the new-listing and rebalancing biases). Both models are used in my study of the long-run post-acquisition share price performance (Chapter 5).

However, one must be careful in detecting the long-run share price performance. The lack of cross-sectional independence in share returns may weaken the power of the test statistics and lead to a biased conclusion. When there is a lack of cross-sectional independence across sample firm returns due to e.g. overlapping events, there are two approaches to solve the problem: one is to pursue a non-overlapping sample and another is to employ the CTFF and CTCP models. However, the disadvantages of the calendar-time-approach are that this approach does not precisely measure investors' experience and it tracks portfolio performance only. Therefore, both two approaches will be used in my long run study (Chapter 5).

Chapter 4 Short-term Excess Returns

Section 4.1 Introduction

This chapter presents the empirical results focusing on share price performance around the M&A announcement period.

Numerous studies have examined the wealth effects of target and bidding firms around the announcement time of the M&A. Many earlier findings, e.g. Franks and Harris (1989) who studied UK M&As in 1955-1985, and Mulherin and Boone (2000) who studied US M&As in 1990-1999, suggest that target firms in M&As experience positive wealth effects.

However, results are mixed for bidding firm shareholders in earlier short run event studies. For example, Franks and Harris (1989) reported an average excess return of 1% (statistically significant at the 5% level) over the event month for bidder shareholders. In contrast, Sudarsanam, Holl and Salami (1996) studied UK M&As in 1980-1990. They found that the short run average excess return for bidder shareholders is -1.3% (statistically significant at the 1% level) on the event day.

On the other hand, in Chapter 2 (*Literature Review*) we see that earlier event studies have been more limited to the US and UK M&A markets. Relatively few short run studies have examined EU markets for the post-1990 period. For example, Campa and Hernando (2002) studied EU M&As in 1998-2000. They found that the average short run excess return for EU bidder shareholders is not statistically significant.

Chapter 2 raised two questions on short run wealth effects of M&As. First, higher 'hubris' may be found in cross-border M&As due to greater information asymmetry between target and bidding firms in cross-border than domestic M&As. This suggests we would expect higher target gains and lower bidder gains[1] in cross-border than domestic M&As (for convenience I call it the 'cross-border effect')? Second, there is

[1] More explanations have been discussed in Section 2.3.2.2 of Chapter 2 (*Literature Review*), e.g. culture differences may lower or delay synergy gains to cross-border bidders.

higher shareholder protection in the UK than Continental EU equity markets (see also La Porta et al., 2000). Besides, there is a more liquid and developed equity market as well as higher M&A competition in the UK than Continental EU markets. Hence, we expect higher target gains in the UK than Continental EU markets (for convenience I call it the 'market effect').

Chapter 4 aims at bringing all issues above together and undertakes a comprehensive investigation on the short run wealth effects of M&As. This chapter focuses on three countries: the UK, France and Germany, as they are the most active M&A markets in the EU. Tables 4.1 to 4.10 present results for this chapter.[2]

The rest of this chapter is organised as follows. Section 4.2 discusses the data and methodology used for this chapter. Section 4.3 investigates the entire sample focusing on three issues: 1) the short run wealth effects for target shareholders; 2) the short run wealth effects for bidding firm shareholders; 3) examining the cross-border effect. Section 4.4 undertakes sub-sample analysis for each country, focusing on the three issues above plus an examination of the market effect. Some further issues such as short term pre-merger and post-merger share price performance are discussed in Section 4.5. The last section, Section 4.6, concludes the findings in this chapter.

Section 4.2 Data and Methodology

Data sources and sample selection:

This study focuses on UK and EU M&As. In particular, it concentrates on three countries: the UK, France and Germany. This is because both the data availability and sample size for other EU countries are very limited. This has been noted by Goergen and Renneboog (2004) who studied short run wealth effects of EU M&As with a deal value of at least USD 100 million[3] during the period 1993-2000. In their study (p.14)

[2] In Tables 4.3-4.10, *** , ** and * denote significant at the 1%, 5% and 10% level, respectively.

[3] Goergen and Renneboog (2004)'s results only show the wealth effects for large European bidders. As it will be shown later in Chapter 6, post-merger bidder shareholder wealth effects

they comment the 'lack of share price and/or accounting information reduced the sample to 187 offer announcements in 18 European countries'. In particular, in their study there are only 3 bids for Scandinavia, 6 bids for Benelux, 10 bids for Southern Europe and 2 bids for Central Europe, whereas there are about 100 bids[4] for the UK, France and Germany altogether. Similar problems affected this study and I focus here on data for these three larger countries in this study.

Data on European M&As – involving both bidders and targets – were collected from Acquisitions Monthly for the period 1992-2003. Additional efforts were made to collect bidding information (e.g. correct announcement date) by directly searching business news in the newspapers. For a firm to be included in the sample, the following conditions were applied.

First, both target and bidding firms had to be publicly listed on EU stock exchange markets. This condition reduced the sample size to approximately less than half of the original number of bids collected from Acquisitions Monthly for three reasons: 1) as noted by Goergen and Renneboog (2004) data availability is low, especially for target firms listed in Acquisitions Monthly; 2) acquisitions into Non-EU markets were excluded as they are not the focus of this study; 3) acquisitions of private targets were not included in the sample of this chapter[5] because private target firms do not have share price data.

Second, bidding firms with other significant M&A activities within 2 years surrounding the announcement time were not included in the sample. There are two benefits from this condition: 1) a firm in a M&A often has significant share price movement over a period before or after the M&A. For example, as in Section 2.4.1 of

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may be significantly different between large and small bidders. Therefore, Goergen and Renneboog (2004)'s results do not fully reveal the shareholder wealth effects for all (large and small) European bidders.

[4] Goergen and Renneboog (2004)'s UK sample also consists of Ireland M&As, and their Germany sample also includes Austrian and Swiss M&As. Therefore, the exact number of bids for UK, France and Germany is not clear.

[5] This restriction will not affect the results in this chapter. In Chapter 6 of this study, the regression analysis shows that in the short run, domestic acquirers of publicly-listed targets do not perform significantly differently compared with domestic acquirers of private targets. In the long run event study (Chapter 5) which investigates share price performance for only the bidder side, acquirers of both listed and private targets are examined.

Chapter 2 (*Literature Review*), Gregory (1997) studied UK bidders in 1984-1992 and found an average CAR of -9.2% (statistically significant at the 1% level) over one year after M&As. This may have a significant impact on the CARs of this firm's successive M&A activity that occurs within a relevant period of time; 2) it reduces the possibility of a change in systematic risk when a regression model (e.g. the market model) is employed, as I have discussed in Section 3.5.1 of Chapter 3 (*Methodology*). The condition above further reduces by approximately one-fourth of the original bids collected from Acquisitions Monthly for this chapter.

Third, for a firm to remain in the sample, it had to have been listed on the stock market for over 24 months. This condition reduces the sample size further, however, there are important reasons for doing it. When any regression model, such as the market model, is employed, this measurement ensures that the β values can be calculated relatively efficiently; when the CF/CP models are employed, this condition ensures that at the beginning of the calendar year of the announcement, the size and MTBV of the sample firm are available in order to identify a potential control firm (or control portfolio). The CF/CP models have been discussed in Section 3.3.3 of Chapter 3 (*Methodology*). One more advantage of this condition is that it offers the benefit of preventing new-listing biases from contaminating the results. Biases could be induced by newly listed sample firms (and newly listed control firms for the CF/CP models) because these firms in general under-perform the market average (Ritter, 1991).

By applying all three screening procedures above, the final sample consisted of 347 targets and 362 bidders. The details of the sample composition are shown in Table 4.1 below.

Table 4.1 Sample Composition for the Short Run Study

Country	Bid Type	Targets	Bidders
UK	Cross-border	38	60
	Domestic	187	187
France	Cross-border	33	39
	Domestic	41	41
Germany	Cross-border	31	18
	Domestic	17	17
ALL	Cross-border	102	117
	Domestic	245	245

Table 4.1 shows that UK firms are a large portion in the entire sample, followed by French firms. In total, there are 247 bidders and 225 targets for the UK, 80 bidders and 74 targets for France, and 35 bidders and 48 targets for Germany. The sample size may be compared to two earlier studies which have overlapping time periods. Goergen and Renneboog (2004) studied the short run wealth effects of EU M&As during the period 1993-2000, but they restricted the sample firms to those with a deal value of at least USD 100 million. In their study, there are 66 bidders and 70 targets for the UK & Ireland, 26 bidders and 14 targets for France, and 16 bidders and 18 targets for Germany, Austria & Switzerland. Another study, Campa and Hernando (2002) studied European M&As for the period 1998-2000. In their study, there are 35 bidders and 37 targets for the UK. They also have 36 bidders and 34 targets for France, and 58 bidders and 61 targets for Germany. Therefore, on balance the sample size of this thesis is larger with the exception of Germany in the Campa and Hernando (2002) study.

Table 4.2 below shows the distribution of MVs and MTBVs for the firms included in the samples of this chapter.

Table 4.2 Descriptive Statistics for the Short Run Study

Panel A:		UK			
		Target		Bidder	
		Domestic	Cross-border	Domestic	Cross-border
MV (£,Millions)	Mean	444.13	702.88	1670.71	2685.56
	Median	76.45	110.19	334.87	637.73
MTBV	Mean	2.44	2.34	2.43	3.52
	Median	1.82	1.81	1.46	2.62

Panel B:		France			
		Target		Bidder	
		Domestic	Cross-border	Domestic	Cross-border
MV (€,Millions)	Mean	2090.72	1945.06	7687.02	9170.55
	Median	223.72	478.49	1282.07	2856.62
MTBV	Mean	2.30	2.71	2.35	3.49
	Median	1.71	1.55	1.77	1.93

Panel C:		Germany			
		Target		Bidder	
		Domestic	Cross-border	Domestic	Cross-border
MV (€,Millions)	Mean	2452.72	4437.00	5902.64	17420.56
	Median	685.36	331.47	704.67	6303.31
MTBV	Mean	1.54	2.78	2.43	1.83
	Median	1.48	2.28	1.99	1.67

Table 4.2 highlights that in general the market values of bidders are larger than those of targets. This is consistent with earlier studies, e.g. Franks and Harris (1989). A

more recent study, Goergen and Ronneboog (2004), examined EU M&As with larger deal values for the period of 1993-2000. In their study, the mean market value for targets is USD 17,878 million and that for bidders is USD 21,568 million. On average, the mean MVs are smaller in this study compared to Goergen and Ronneboog (2004). It may be the consequence that they applied a sample selection criterion of a minimum bid value of USD 100 million in their study. On the other hand, the average MTBVs in my study range from 1.54 to 3.52. The average MTBVs in Goergen and Ronneboog (2004)'s study is 4.26 for targets and 4.01 for bidders. The differences may also be due to their sample selection criterion of a minimum bid value of USD 100 million. There is a higher proportion of large firms (which tend to have high MTBVs) in Goergen and Ronneboog (2004) compared with the samples of this thesis.

Methodology

I measure the short-term wealth effects for target and bidding firms by calculating the cumulative average abnormal returns in an event study framework. To calculate the expected returns and verify the robustness of the returns, I used three different models. First, I used the market model as in Section 3.3.1.1 of Chapter 3 (*Methodology*). The all-share index for each country was used as the market index. For example, for UK targets and bidders, the FT-All Share Index was used. Second, as in Section 3.3.1.2 of Chapter 3, a two-factor market model was calculated. The additional factor in the two-factor market model is the FT-Europe Index. Third, to avoid the problem that sample companies are also part of the market index, the control firm model was used as I have discussed in Section 3.3.3.2 of Chapter 3. The control firm approach compares sample firm average returns with the average returns of benchmark firms with similar MV and MTBV. This approach eliminates any misspecification that might be introduced by the use of the market index. As none of the major results of this chapter was influenced by the choice of the model, I only report results based on the market model[6]. This is also consistent with earlier event studies which largely reported that, for the short run period surrounding the announcement time of M&As, the selection

[6] At the request of an examiner, I also looked at the possibility of outliers in the data. Examination of the data suggested there could be one outliner in the German target firms. Omitting this firm, however, only slightly weakens the significance of the results for the German sub-sample of target firms.

of models has little impact on the results. For example, Gregory (1997) used six different models to study the shareholder wealth effects for the UK in the period 1984-1992. The results are very similar across the six models over the announcement month. Another study, Goergen and Renneboog (2004), used several different approaches to estimate the β values but they also concluded that the impacts on the results were minimal.

As shown in Section 3.3.1 of Chapter 3, the market model is specified as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} is the dividend adjusted return on security *i* during period *t*, R_{mt} is the dividend adjusted return on the market portfolio during period *t*.

As noted in Section 3.2 of Chapter 3, to assess the coefficients of the risk factors (α_i and β_i values in this case), one needs to define the estimation windows. In practice the estimation window is usually chosen to be large enough (e.g. 5 years in Franks and Harris, 1989) as I have discussed in Section 3.2. Therefore, I followed Franks and Harris (1989) and estimated α_i and β_i values by running the market model over up to a 60-month period starting at t= -71, ending 6 months prior to the event month. For some sample firms that did not have 71 months pre-event price data, the market model was run from the earliest month the price data were available, and a minimum of 24 months pre-event price data was required or the firm was dropped from the sample as I have discussed earlier.

The excess return is therefore defined as:

$$AR_{it} = R_{it} - E(R_{it})$$

where E is the expectation sign.

The mean abnormal return is defined as:

$$\overline{AR_t} = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

where *i* denotes the *i*th firm and N denotes the number of firms.

The abnormal return observations must be aggregated in order to draw overall inferences for the event period of interest. The cumulative average abnormal return ($\overline{CAR}$) is then defined as:

$$\overline{CAR}(t_1, t_2) = \sum_{t=t1}^{t2} \overline{AR_t}$$

where (t_1, t_2) is the event window.

The event window is often calculated for some time before and after the event in order to control for information leakage (or market anticipation) as well as to allow for possible slow price adjustment. For these reasons, it is common in earlier event studies that a period like (-5D, +5D) or (-1M, +1M) is chosen as the event window. In this thesis, several alternative periods are used as in Tables 4.3-4.10. They are CAR (-1D, +1D), CAR (-5D, +5D), CAR (-1M, +1M) and CAR (0M). For example, CAR (-1D, +1D) means cumulative abnormal return aggregated from one day before the announcement to one day after; CAR (0M) is equivalent to AR(0M) which means abnormal return of exactly the announcement month.

Finally, a two-tailed t-test was applied to detect whether the obtained $\overline{CAR}$ was statistically significant.

Section 4.3 Short-run Excess Returns for EU M&As

This section focuses on the wealth effects of M&As for all EU (including UK) firms. There are three hypotheses that are relevant to this section: 1) whether M&A transactions deliver a premium return to target firm shareholders; 2) whether M&A transactions deliver a premium return to bidder firm shareholders M&A transactions; 3) whether the cross-border effect exists; specifically, in the short run cross-border target shareholders experience higher average CARs than domestic target shareholders, while cross-border bidder shareholders gain less than domestic ones. The results are presented in Table 4.3.

Table 4.3 Excess Returns (Entire Sample)

		Event Window							
		(-1D, +1D)		(-5D, +5D)		(-1M, +1M)		(0M)	
Targets	Cross-border	0.105611	***	0.173233	***	0.188957	***	0.148048	***
		6.647359		*6.547667*		*6.646305*		*7.126349*	
	Percentage Pos.	76.47%		76.47%		82.35%		87.25%	
	Domestic	0.128352	***	0.207608	***	0.171593	***	0.141856	***
		13.202795		*12.522836*		*7.0657038*		*11.010344*	
	Percentage Pos.	84.02%		81.15%		80.74%		80.33%	
	Diff	-0.022741		-0.034375		0.017364		0.006193	
	P-value	0.212549		0.265515		0.678315		0.796792	
Bidders	Cross-border	-0.003371		-0.002258		-0.005653		-0.003226	
		-0.356236		*-0.089976*		*-0.346475*		*-0.302220*	
	Percentage Pos.	51.28%		45.30%		51.28%		52.14%	
	Domestic	0.004359		0.032366	**	0.012783		-0.001756	
		0.700254		*2.225660*		*1.221966*		*-0.279035*	
	Percentage Pos.	50.61%		54.69%		50.10%		50.20%	
	Diff	-0.007730		-0.034623		-0.018437		-0.001470	
	P-value	0.487825		0.204895		0.329328		0.900204	

Table 4.3 shows mean excess returns and differences in mean excess returns of the entire sample. 'Diff' = Cross-border - Domestic. t-values are in italics. 'Percentage Pos.' denotes percentage of positive CARs.

Result One: Table 4.3 shows that M&A transactions deliver a premium return to target firm shareholders. Table 4.3 further shows evidence that this finding holds for both domestic and cross-border targets.

For targets involved in cross-border M&As, abnormal returns range from 10.56% over the days (-1D, +1D) to around 18.90% over the period (-1M, +1M). All abnormal returns are statistically significant at the 1% level for all event windows. Around 76.47% to 82.35% of the target firms in cross-border M&As display positive abnormal returns. For target firms in domestic M&As, abnormal returns range from 12.84% over the days (-1D, +1D) to 20.76% over the days (-5D, +5D). Similarly, all abnormal returns are significant at the 1% level. There are around 80.74% to 84.02% of target firms which show positive abnormal returns.

The results may be compared to some earlier studies. Goergen and Renneboog (2004) find the average excess return over several days around the announcement date for large EU target firms (over the period 1993-2000) in domestic M&As is around 10.2% to 12.7%, while for those in large cross-border M&As it is around 11.3% to 13.5%. Campa and Hernando (2002) find that EU target firms (over the period 1998-2000) in domestic M&As enjoy excess returns of from 6.3% over the days (-7D, +7D) to 9.3% (-30D, +30D), while those in cross-border M&As enjoy excess returns of from 4.7% to 8.7% respectively. All results are statistically significant. My results confirm the positive and statistically significant excess returns to target firms involved in both domestic and cross-border M&As. However, the excess returns of my results are on a slightly larger scale, ranging from 10.56% to 20.76% depending on the event window and the type of acquisition.

Result Two: Table 4.3 also shows that in general M&A transactions have insignificant effects on bidder firm shareholders in the short run, although there is one exception in which positive CARs are statistically significant.

For bidding firms in cross-border M&As, excess returns are on average negative but only on a small scale, and statistically insignificant across all event windows. Table 4.3 also shows that around 45.30% to 51.28% of the firms enjoy positive abnormal returns in cross-border M&As.

For those bidding firms in domestic M&As, three event windows report insignificant results. However, over the days (-5D, +5D), the average abnormal return is 3.24% and statistically significant at the 5% level. The percentages of positive abnormal returns range from 50.61% to 55.10% depending on the selected event window. The result for the event window (-5D, +5D) show at least there were positive wealth effects to domestic bidders for this period.

My results for bidding firm shareholder abnormal returns are slightly different from some recent studies. In Goergen and Renneboog (2004)'s study, they find the average excess return over several days around the announcement date for EU large domestic bidders is around -0.5% to -0.1% (both insignificant), while for those involved in large cross-border M&As is around 2.4% to 3.1% (both statistically significant). Hence their study suggests a different picture to that presented here. Another study, by Campa and Hernando (2002), does not show any significant short term abnormal returns regardless of the event window selected.

Overall the evidence in this study suggests that M&As do not generate any gain (or loss) for the bidding firm shareholders, except in the case of domestic bidders in the period (-5D, +5D).

Result Three: There is no evidence to show that a cross-border effect exists in the entire EU sample.

As I have discussed in Section 2.3.2 of Chapter 2 (*Literature Review*), we may expect higher target gains and lower bidder gains in cross-border than domestic M&As. The main reason may be greater information asymmetry between target and bidding firms in cross-border M&As (e.g. Seth, Song and Pettit, 2000). Also culture differences may increase the difficulties for cross-border bidders to claim synergy gains at the early stage of post-M&A period (e.g. Megginson, Morgan and Nail, 2004). The results from the entire EU sample of this chapter, however, do not provide evidence for the cross-border hypothesis. I will further examine this hypothesis in the sub-sample analysis of the next section.

Section 4.4 Analysis by Country

This section analyzes the short term excess returns for different countries. Four hypotheses are relevant to this section: 1) whether M&A transactions deliver a premium return to target firm shareholders; 2) whether M&A transactions deliver a premium return to bidder firm shareholders M&A transactions; 3) whether the cross-border effect exists in the nation-wide sub-samples; 4) whether the market effect exists; specifically, target firms in the UK market may receive higher premiums than those in the France/Germany markets. Tables 4.4 to 4.6 provide empirical results for the section. Tables 4.7 to 4.8 provide additional results for examining the market effect.

Result Four: In general, Tables 4.4 to 4.6 show that M&A transactions deliver a statistically significant premium return to target firm shareholders for the UK, France and Germany.

UK: Table 4.4 shows that the average excess returns for UK domestic targets peak at 23.74% over the (-5D, +5D) event window, which is statistically significant at the 1% level. On the other hand, the average excess returns peak at 32.06% over the (-1M, +1M) window for UK cross-border targets, which is statistically significant at the 1% level.

Franks and Harris (1989) study UK domestic targets for the period 1955-1985. The average abnormal return for the event month in their study is 23.3% (statistically significant at the 1% level). Danbolt (2001) reports that the average abnormal return is 20.2% (statistically significant at the 1% level) over the (-2M, +1M) event window for UK domestic targets over the period 1986-1991. A few other studies have examined UK targets in cross-border M&As. For example, Danbolt (2001) reports that the average abnormal return for UK targets in cross-border M&As in 1986-1991 is 31.0% over the (-2M, +1M) event window, which is statistically significant at the 1% level. These results are similar to the results reported in my study.

France and Germany: Tables 4.5 and 4.6 show the distribution of excess returns to targets and bidders over different event windows for the French and Germany sub-

Table 4.4 Excess Returns (UK)

		Event Window							
		(-1D, +1D)		(-5D, +5D)		(-1M, +1M)		(0M)	
Targets	Cross-border	0.209843	***	0.283398	***	0.320096	***	0.235158	***
		6.6913306		*5.2304688*		*6.1048587*		*6.8635078*	
	Domestic	0.153056	***	0.237379	***	0.222915	***	0.169943	***
		13.709545		*13.218975*		*10.430504*		*12.103157*	
	Diff	0.056787	**	0.04602		0.097181	*	0.065215	*
	P-value	0.047482		0.325229		0.067828		0.061916	
Bidders	Cross-border	0.010228		0.026609	*	0.011652		0.012503	
		1.4985354		*1.8973861*		*0.7124754*		*0.9327363*	
	Domestic	-0.00049		0.031987	**	0.015617		-0.00242	
		-0.073513		*2.0173959*		*1.2995213*		*-0.336661*	
	Diff	0.010721		-0.00538		-0.00396		0.014918	
	P-value	0.433886		0.863776		0.86422		0.313341	

Table 4.4 shows mean excess returns and differences in mean excess returns of the UK sample. 'Diff' = Cross-border - Domestic. t-values are in italics.

Table 4.5 Excess Returns (France)

		Event Window (-1D, +1D)		(-5D, +5D)		(-1M, +1M)		(0M)	
Targets	Cross-border	0.024595		0.069785	**	0.120468	**	0.101614	**
		1.4553055		*2.4248752*		*2.3725079*		*2.3757798*	
	Domestic	0.043378	**	0.080137	*	0.046665		0.05899	**
		2.3940512		*1.8557487*		*0.7097175*		*2.1838286*	
	Diff	-0.01878		-0.01035		0.073803		0.042624	
	P-value	0.4581		0.849312		0.392978		0.386345	
Bidders	Cross-border	-0.0206		-0.05386		-0.04782		-0.03029	
		-0.998793		*-0.86445*		*-1.275828*		*-1.390716*	
	Domestic	0.01828		0.032065		0.018143		0.004102	
		1.260241		*0.8190971*		*0.8952991*		*0.3115945*	
	Diff	-0.03888		-0.08593		-0.06596		-0.03439	
	P-value	0.124152		0.241582		0.120692		0.175654	

Table 4.5 shows mean excess returns and differences in mean excess returns of the French sample. 'Diff' = Cross-border - Domestic. t-values are in italics.

Table 4.6 Excess Returns (Germany)

		Event Window							
		(-1D, +1D)		(-5D, +5D)		(-1M, +1M)		(0M)	
	Cross-border	0.064086	***	0.148315	***	0.101115	***	0.090699	***
		4.0476008		*3.8565614*		*3.708318*		*4.3595482*	
	Domestic	0.05655	*	0.180067	**	-0.099		0.027876	
Targets		*1.8093055*		*2.5633579*		*-0.516921*		*0.4191085*	
	Diff	0.007537		-0.03175		0.200115		0.062823	
	P-value	0.81155		0.667142		0.175215		0.271025	
	Cross-border	-0.01137		0.013336		0.028015		0.002981	
		-0.913806		*0.3430939*		*0.7094151*		*0.1289902*	
	Domestic	*0.024162*		*0.037253*		*-0.03132*		*-0.00863*	
Bidders		*0.6428935*		*0.522296*		*-0.574103*		*-0.264235*	
	Diff	*-0.03553*		*-0.02392*		*0.059333*		*0.01161*	
	P-value	0.36489		0.766823		0.380707		0.771484	

Table 4.6 shows mean excess returns and differences in mean excess returns of the German sample. 'Diff' = Cross-border - Domestic. t-values are in italics.

samples. For France, the average excess returns for French targets in cross-border M&As range from 2.46% to 12.05%, depending on which event window is used. The average excess returns for domestic targets range from 4.34% to 8.01% which depends on the event window used. These figures are generally statistically significant but there are two exceptions: the average excess return for French targets in cross-border M&As over the (-1D, +1D) event window and that for French domestic targets over the (-1M, +1M) event window are not statistically significant. For Germany, the average excess returns for targets in cross-border M&As range from 6.41% to 14.83% (all are statistically significant at the 1% level), depending on which event window is used. The average excess returns for German domestic targets are statistically significant for the (-1D, +1D) and (-5D, +5D) event windows, which are 5.66% and 18.01% in turn.

Few studies have examined share price performance for French and German target firms. Goergen and Renneboog (2004) study European targets involved in M&As with large deal values for period 1993-2000. They report that the average excess returns in the short run range from 3.57% to 17.15% (all are statistically significant) for French targets, depending on which sub-sample and which event window are used. My results for French targets are close to theirs. On the other hand, they did not report the average excess returns for the German-firm sub-sample.

Result Five: In general (two exceptions can be found in the UK sample), Tables 4.4 to 4.6 show that M&A transactions have insignificant effects on bidder firm shareholders in the short run for the UK, France and Germany.

UK: Table 4.4 shows that a majority of results are not statistically significant. However, two exceptions can be found. The average excess returns for UK cross-border bidders over the (-5D, +5D) event window is 2.66% and statistically significant at the 10% level. Also, the average excess returns for UK domestic bidders over the (-5D, +5D) event window is 3.19% and statistically significant at the 5% level. The UK results obtained by this study are generally consistent with earlier studies (e.g. Franks and Harris, 1989), which report that there are either small gains or insignificant results associated with bidders in M&As.

France and Germany: Tables 4.5 to 4.6 show the average excess returns for French and German bidding firms are consistently insignificant, regardless of the selected event window or the bid type (domestic or cross-border). Few studies have examined the share price performance for French and German bidders. Goergen and Renneboog (2004) find that the average excess returns in the short run for French bidders with large deal values range from -1.91% to 2.83%, depending on which sub-sample and which event window are used. Some of their results are statistically significant. For example, they report that large French domestic bidders lose by -1.72% over the (-1D, 0D) event window, which is statistically significant at the 5% level. They also report that large French cross-border bidders gain 2.83% over the (-2D, +2D) event window, which is statistically significant at the 5% level. Therefore, the French results of my study are slightly different from theirs. On the other hand, no comparable data for Germany appear to exist.

Result Six: Tables 4.4 to 4.6 provide evidence that the cross-border effect exists for the UK target firms, but not for UK bidders, nor for targets or bidders in France and Germany.

Table 4.4 shows that CARs of UK target firms in cross-border bids are consistently higher than those in domestic bids, regardless of the selected event window. Over the (-1M, +1M) event window, the UK target firms in cross-border M&As outperform those in domestic ones by a CAR of 9.72% which is statistically significant at the 10% level. Over the announcement month window the former outperform the latter by a CAR of 6.52%, which is statistically significant at the 10% level. Over the much shorter event window (-1D, +1D), the difference becomes 5.68% which is statistically significant at the 5% level. The only exception is the difference over the (-5D, +5D) window which is insignificant but remains positive. On the other hand, there is no real evidence that the cross-border effect also exists for UK bidders, nor in France and Germany.

The result for target firms in the UK indicates that foreign EU firms are paying higher premiums for UK target firms than UK domestic bidders. There are two possible reasons for this. One is that cross-border acquisitions into the UK market could be likely motivated by managerial factors such as empire building or increasing the company's global reach at the cost of paying higher premiums. Another possible reason is cross-border acquisitions into the UK market could be affected by 'hubris' (resulting from greater information asymmetry in cross-border M&As) such that managers of bidding firms overestimate the true values of UK target firms.

The cross-border hypothesis also suggests that cross-border bidders underperform domestic ones. The possible reasons have been discussed earlier (e.g. Section 2.3.2.2). However, this is not supported by the results in Tables 4.4 to 4.6. In practice, it may take extra time for a cross-border bidder to develop synergy gains (e.g. adapt to culture differences). For these reasons, in Chapter 6 (*Regression Analysis*) I will further examine whether the cross-border effect exists in the long run for UK bidders.

My short-run results of the cross-border effect for target firms are more in line with Danbolt (2001). Danbolt (2001) finds that UK target firms in 1986-1991 in cross-border bids significantly outperform UK target firms in domestic bids. The out-performance ranges from 4.15% to 13.4% depending on the event window. However, my results are in contrast with Campa and Hernando (2002). Campa and Hernando (2002) studied EU M&As in 1998-2000. They find that the share price performance of domestic and cross-border targets is not statistically significantly different in most cases.

Result Seven: Table 4.7 provides evidence for the existence of the market effect for targets. Namely, target shareholders in the UK market experience significantly higher premiums than those in France and Germany. Table 4.8 shows no evidence of a market effect between the UK and France and Germany for bidding firms.

In Tables 4.4 to 4.6 we can see that in general targets in the French and German markets receive lower average excess returns than those in the UK market. Also, we find that some average target excess returns for France and Germany samples are not statistically significant, which is in contrast with the UK results where average target excess returns (across different event windows) are all statistically significant at the 1% level. To further examine the issue, Table 4.7 provides a direct comparison between the UK targets and the French and German ones. It indicates the existence of market effects between the UK and these continental EU markets.

Table 4.7 UK versus Continental-EU (Targets)

Bid Type	Window	UK			Con-EU			Diff		P-value
Cross-border	(-1D, +1D)	0.209843	*6.6913306*	***	0.043723	*3.7111249*	***	0.16612	***	*0.000000*
	(-5D, +5D)	0.283398	*5.2304688*	***	0.107823	*4.4674783*	***	0.175576	***	*0.001073*
	(-1M, +1M)	0.320096	*6.1048587*	***	0.111094	*3.8144458*	***	0.209002	***	*0.000266*
	(0M)	0.235158	*6.8635078*	***	0.096327	*4.0017683*	***	0.138831	***	*0.000985*
Domestic	(-1D, +1D)	0.153056	*13.709545*	***	0.047306	*3.0263846*	***	0.10575	***	*0.000003*
	(-5D, +5D)	0.237379	*13.218975*	***	0.109941	*2.9711835*	***	0.127438	***	*0.001043*
	(-1M, +1M)	0.222915	*10.430504*	***	0.003221	*0.0441659*		0.219694	***	*0.000106*
	(0M)	0.169943	*12.103157*	***	0.04971	*1.8308517*	*	0.120232	***	*0.000063*

Table 4.7 shows mean excess returns and differences in mean excess returns between UK targets and Continental-EU targets. 'Diff' = UK - Continental-EU. t-values are in italics.

Table 4.8 UK versus Continental-EU (Bidders)

Bid Type	Window	UK			Con-EU		Diff	P-value
Cross-border	(-1D, +1D)	0.0102276	*1.4985354*		-0.017686	*-1.2127527*	*0.0279137*	*0.141116*
	(-5D, +5D)	0.026609	*1.8973861*	*	-0.032644	*-0.7364136*	*0.0592525*	*0.239498*
	(-1M, +1M)	0.0116523	*0.7124754*		-0.02387	*-0.8316236*	*0.0355225*	*0.278424*
	(0M)	0.0125029	*0.9327363*		-0.019783	*-1.1913875*	*0.0322863*	*0.131202*
Domestic	(-1D, +1D)	-0.000494	*-0.073513*		0.020004	*1.3465067*	*-0.020498*	*0.162036*
	(-5D, +5D)	0.0319875	*2.0173959*	**	0.033585	*0.9781863*	*-0.001598*	*0.962863*
	(-1M, +1M)	0.0156172	*1.2995213*		0.003646	*0.1704495*	*0.0119717*	*0.62762*
	(0M)	-0.002415	*-0.3366612*		0.000371	*0.0280834*	*-0.002786*	*0.851156*

Table 4.8 shows mean excess returns and differences in mean excess returns between UK bidders and Continental-EU bidders. 'Diff' = UK - Continental-EU. t-values are in italics.

Table 4.7 shows that on average UK targets receive higher excess returns than these continental-EU targets. The differences of CARs between the two groups of target firms are statistically significant at the 1% level, regardless of the selected event window or the bid type (domestic or cross-border). On average UK target firms receive higher premiums than these continental-EU target firms by around 10.58% to 21.97%, depending on the selected event window.

On the other hand, Table 4.8 shows that the market effect does not exist between the UK and these continental EU bidders. Goergen and Renneboog (2004) find weak evidence that UK bidding firms receive significantly higher premiums than continental-EU bidding firms. This is not confirmed by my results.

The results of higher excess returns for UK targets may be due to a number of factors as I have discussed in Section 2.3.1.1. Conn and Connell (1990) suggest that regulations that facilitate the flow of information regarding M&As can encourage competitive bids. Hence, returns to target firms in better regulated markets (such as the UK market) should be more than those observed in other markets. La Porta et al. (2000) suggest that a target country's corporate governance system (e.g. the English common law, the French civil law and the German civil law) may have impacts on shareholder wealth effects. A higher degree of shareholder protection may lead to a higher premium paid by bidders. Goergen and Renneboog (2004) further suggest that the market effect is the combined result of a high degree of disclosure in the UK, a liquid and well-developed equity market and a higher degree of shareholder protection (see also La Porta et al., 2000). My results provide further support for their suggestions.

Section 4.5 Short Run Pre- and Post- Acquisition Share Price Performance

The short run pre- and post- acquisition share price performance is presented in Tables 4.9 and 4.10 in turn.

Table 4.9 shows that there is evidence of positive and statistically significant excess returns for target firms in the UK in the period one month before the announcement.

Table 4.9 One Month Pre-acquisition Performance

	Sub-sample→ Window→	ALL (-1M)		UK (-1M)		France (-1M)		Germany (-1M)
Targets	Cross-border	0.030252	**	0.066613	**	0.006536		0.010928
		2.5024228		*2.6209726*		*0.4778086*		*0.5896093*
	Domestic	0.030847	***	0.04241	***	-0.00055		-0.02247
		2.8396167		*3.7786839*		*-0.016231*		*-0.445531*
	Diff	-0.00059		0.024202		0.007089		0.033396
	P-value	0.974427		0.378123		0.858276		0.459259
Bidders	Cross-border	-0.00879		-0.02328	***	0.015218	*	-0.01246
		-1.542082		*-2.674594*		*1.9948128*		*-0.968551*
	Domestic	0.007501		0.009238	*	0.003998		-0.00315
		1.5113374		*1.6976797*		*0.2776145*		*-0.16478*
	Diff	-0.01629	**	-0.03252	***	0.01122		-0.00931
	P-value	0.047559		0.002746		0.499448		0.681098

Table 4.9 shows mean excess returns and differences in mean excess returns at one month before the M&A announcement. 'Diff' = UK - Continental-EU. t-values are in italics.

Table 4.10 One Month Post-acquisition Performance

	Sub-sample→ Window→	ALL (+1M)	UK (+1M)		France (+1M)		Germany (+1M)	
Targets	Cross-border	0.010657	0.018325	*	0.012319		-0.00051	
		1.4796922	*1.8900996*		*1.0013635*		*-0.032182*	
	Domestic	-0.00111	0.010562		-0.01177		-0.10441	
		-0.114794	*1.4686324*		*-0.378599*		*-1.210219*	
	Diff	0.011766	0.007763		0.024091		0.103896	
	P-value	0.453283	0.639639		0.506077		0.127299	
Bidders	Cross-border	0.006359	0.022434	**	-0.03274	*	0.037497	
		0.7061949	*2.548413*		*-1.764234*		*1.3893302*	
	Domestic	0.007038	0.008795		0.010043		-0.01953	
		1.3630894	*1.4673345*		*0.8103394*		*-1.144392*	
	Diff	-0.00068	0.01364		-0.04279	*	0.057032	*
	P-value	0.944353	0.244883		0.056635		0.087275	

Table 4.10 shows mean excess returns and differences in mean excess returns at one month after the M&A announcement. 'Diff' = UK - Continental-EU. t-values are in italics.

The average excess return over the one month per-acquisition event window is 6.66% for targets in cross-border bids and 4.24% for targets in domestic bids. Both are at least statistically significant at the 5% level. This suggests some evidence of trading on rumours in the target shares or of insider trading in the UK data. This is in line with Sudarsanam et al. (1996), who found about a 10% average excess return for UK target firms (in the period 1980-1990) over the (-20D, -1D) event window.

On the bidder side, there is some evidence of pre-acquisition share price movements in bidder share prices in the UK sample. In addition, the average excess returns of bidding firms over the one month pre-acquisition event window show different signs for cross-border bidders and domestic bidders. In Table 4.9, the average one month pre-acquisition excess return for UK bidders in cross-border bids is -2.33%, statistically significant at the 1% level; but that for UK bidders in domestic bids is 0.92%, statistically significant at the 10% level. Interestingly, the difference between these values, -3.25%, is statistically significant at the 1% level. It seems that in the UK investors have different reactions and expectations on bidding rumours between domestic and cross-border bids. Specifically, it suggests that in the UK market investors in bidders, when they face bidding rumours, are much more in favour of domestic M&As than cross-border ones. Some possible reasons could be that investors worry about the potential problems such as culture differences and difficulties of valuing a foreign firm which may reduce the profitability of the bidding firm or lead to overpayment for targets. The evidence on premium paid for targets, albeit for UK targets, suggests there may be sound reasons for this.

On the other hand, Table 4.9 shows no strong evidence of rumour trading or insider trading for French and German firms. This holds for both French/German bidding and target firms. The only exception is the average excess return of 1.52% for French firms that make cross-border bids, which is statistically significant at the 10% level.

The short run pre-acquisition share price performance for the entire sample is similar to that for the UK sample, perhaps because the UK sub-sample is a large portion in the entire sample.

Table 4.10 shows one month post-acquisition share price performance. In general we find no strong evidence of significant average excess returns over this window. This suggests the major adjustment process is completed speedily. There are some exceptions, however, worth mentioning. One is that UK cross-border bidding firms on average receive a 2.24% excess return, which is statistically significant at the 5% level. Another is French cross-border bidding firms on average receive a -3.27% excess return, which is statistically significant at the 10% level.

By comparing Table 4.9 and Table 4.10, we may see that investors in cross-border bidders seem to change their views before and after the announcement. For UK cross-border bidders, the average excess return is -2.33% (statistically significant at the 1% level) over the one month pre-acquisition event window but is changed to 2.24% (statistically significant at the 5% level) one month after the announcement. For French cross-border bidders, the average excess return is 1.52% (statistically significant at the 10% level) over the one month pre-acquisition event window and is changed to -3.27% (statistically significant at the 10% level) one month after the announcement. One possible reason is high information asymmetry in cross-border M&As which makes it difficult to value or access to information of a foreign firm. Therefore, investors may revise their views as the evidence/performance of foreign acquisitions become clearer.

Section 4.6 Conclusion

This chapter has performed an analysis of excess returns to both target and bidding firms around the announcement period of an M&A involving UK, French and German firms. This chapter mainly focuses on the hypotheses listed in Section 4.1, which are developed in Chapter 2, but also examines short run pre- and post- M&A share price performance. There are a number of major findings as follows:

First, the results in this chapter support the hypothesis that M&A transactions deliver a premium return to target firm shareholders. Indeed, Table 4.3 shows that around 76% to 87% of the transactions have positive excess returns for targets in the short run. Furthermore, this chapter shows that in general the hypothesis remains true irrespective of countries (the UK, France and Germany) and bid types (domestic and cross-border).

Second, a majority of the results in this chapter suggest that the average excess returns to bidding firms are not systematically different from zero. Table 4.3 shows that there is roughly a fifty-fifty chance of excess returns to be positive (or negative) for bidders. In other words, M&As have either a small or insignificant wealth effect for bidder firm shareholders.

Third, the results in this chapter provide evidence that the cross-border effect exists for UK target firms. Table 4.4 shows that in general UK cross-border targets receive high premiums than UK domestic targets, thus indicates that foreign EU firms are paying higher premiums for UK domestic firms than domestic bidders. There are two possible reasons for this as I have discussed in Section 4.4.

Fourth, the results in this chapter provide evidence for the existence of the market effect for target firms. Table 4.7 shows that UK targets receive higher excess returns than continental-EU targets, regardless of domestic or cross-border bids. One possible reason is that it is the combined result of a high degree of M&A competitiveness in the UK, a liquid and well-developed equity market, and a higher degree of shareholder protection in the UK as I have discussed in Section 4.4.

Finally, this chapter further examined the short-run pre- and post- M&A share price performance for all three countries. There are two main findings. The first is that the results provide evidence of trading on rumours (or insider trading) in the UK market but not in France and Germany; the second is that the results show that the share price adjustment process is completed speedily for domestic M&As. There is some evidence that share price adjustment process is less speedy for cross-border M&As in some cases. Some possible reasons have been discussed (e.g. difficulties in valuing foreign firms) in Section 4.5.

Appendix: Chapter 4 (Sample List)

UK DOMESTIC

	BIDDING FIRMS	TARGET FIRMS	YEAR	MONTH	DAY
1	HANSON	BEAZER	1991	9	16
2	LASMO	ULTRAMAR	1991	10	17
3	TR PROPERTY INV.	NEW ENGL.PROPS.	1991	12	23
4	PENTOS	WILDING OFFE.EQUP.	1991	12	6
5	REDLAND	STEETLEY	1991	12	10
6	LAPORTE	EVODE	1992	1	6
7	EIT GP.	SINTROM	1992	1	7
8	CARLTON COMMS.	PICKWICK GROUP	1992	1	28
9	FROGMORE ESTATES	TREVIAN	1992	1	22
10	RAINE	LAWRENCE WALTER	1992	3	31
12	MOORFIELD GROUP	GROSVENOR GROUP	1992	5	14
13	MEGGITT	MICRELEC GP.	1992	5	6
14	YORKS.TYNE TEES TV.	TYNE TEES TV ED	1992	6	17
11	TI GROUP	DOWTY GROUP	1992	6	10
15	PRONTAPRINT	CNTU.STATIONERY	1992	8	18
16	ACT GROUP	NMW COMPUTERS	1992	10	20
17	TOMKINS	RANKS, HOVIS	1992	10	29
18	SPRING RAM CORP.	STAG FURNITURE	1992	11	6
19	ALBERT FISHER	HUNTER SAPHIR	1993	1	22
20	GCAP MEDIA	MIDLANDS RADIO	1993	1	22
21	UNIQ	CLIFFORDS FOODS	1993	2	12
22	HELENE	GABICCI	1993	2	26
25	PITTENCRIEFF	ABERDEEN PTL.	1993	3	15
23	VODAFONE GROUP	HAWTHORN LESLIE	1993	4	8
24	WILLS GROUP	PLATON INTL.	1993	4	15
26	MCKECHNIE	SAVAGE GROUP	1993	4	27
27	CAIRN ENERGY	TEREDO PTL.	1993	4	8
28	PEARSON	THAMES TV.	1993	4	22
29	GREENALLS GP.'A'	DEVENISH (JA)	1993	6	23
30	STRATAGEM GROUP	HARRISON INDS.	1993	7	9
31	MAI	ANGLIA TV.GROUP	1994	1	18
32	GKN	WESTLAND GP.	1994	2	8

33	SIG	FREEMAN GROUP	1994	2	8
34	GARNER	REJECT SHOP	1994	2	3
35	CLAREMONT GARM.	MAGELLAN INDS.	1994	3	8
36	SUTER	WILKES (JAMES)	1994	4	7
37	INCHCAPE	HOGG GROUP	1994	4	22
38	BRITTON GP.	NMC GROUP	1994	5	19
39	SLOUGH ESTATES	BREDERO PROPS.	1994	5	13
40	EVANS HALSHAW ED	DAVENPORT NON	1994	6	8
41	DE LA RUE	PORTALS GP.	1994	12	20
42	TRAVIS PERKINS	BMSS	1995	1	15
43	HYDER	SOUTH WLS.ELTY.	1995	1	4
44	WACE GROUP	FERRY PICKERING	1995	1	23
45	ABACUS GROUP	POLAR	1995	1	23
46	TANDEM GP.	CASKET	1995	1	25
54	PREMIER OIL	PICT PETROLEUM	1995	1	10
55	ASH & LACY	CI GROUP	1995	1	15
53	MISYS	ACT GROUP	1995	2	13
52	MARCONI EXCH F	VSEL	1995	6	8
56	WILSON CONNOLLY	LDN.& CLYDESIDE	1995	6	26
58	AGA FOODSERVICE	VICTAULIC	1995	6	29
57	ABBEY NATIONAL	FIRST NAT.FIN.	1995	7	4
51	MORLAND	UNICORN INNS	1995	8	17
59	LYNX GP.	VISTEC GP.	1995	9	29
47	UNITED UTILITIES	NORWEB	1995	9	8
48	MENVIER-SWAIN	SCANTRONIC	1995	9	26
49	BRITISH EMPIRE SECS.	SELECTIVE ASSETS	1995	9	1
50	MATTHEW CLARK	TAUNTON CIDER	1995	9	20
60	DE E GROUP	BODDINGTON GP.	1995	10	6
61	ITV	FORTE	1995	11	22
62	TBI	MOLYNEUX ESTS.	1995	12	5
63	ABBOT GROUP	OIS INTL.INSPEC.	1995	12	21
64	SPECTRIS	BURNFIELD	1996	1	17
65	PEARSON	SELECTV	1996	1	30
66	COURT CVNDSH.GP.	GREENACRE GP.	1996	4	26
67	ROYAL & SUN ALL.IN.	ROYAL IN.	1996	5	3
68	ASCOT	SUTER	1996	7	25

69	HOMESTYLE GROUP	REXMORE	1996	8	15
70	BOOKER	NURDIN & PEACOCK	1996	9	4
71	MENTMORE	BRIT.DATA MAN.	1996	9	11
72	WILLIAMS	CHUBB SECURITY	1997	2	14
73	WELLINGTON UNDERWRITING J	PREMIUM UNDWRT.	1997	2	17
74	CHARTER	HOWDEN GROUP	1997	3	21
75	BARDON GROUP	CAMAS	1997	4	14
76	BARLOWS	ROWLINSON SECS.	1997	4	11
77	TIBBETT &.BRITTEN	APPLIED DS.GP.	1997	5	13
78	ANGLIAN GROUP	HARTLEPOOL WATER	1997	5	28
79	MCALPINE(ALFRED)	RAINE	1997	5	8
80	AWG	HARTLEPOOL WATER	1997	5	28
81	SMG	GRAMPIAN TV.	1997	6	10
82	ABBEY NATIONAL	CATER ALLEN	1997	6	26
83	BANK OF SCOTLAND	EFT GROUP	1997	6	30
84	BRITANNIA GROUP	BRIT.BLDG.& ENGR.	1997	7	25
85	ENNSTONE	BRUNTCLIFFE AGG.	1997	8	22
86	T & S STORES	M & W	1997	9	15
87	NOVARA	HARRIS (PHILIP)	1997	9	5
88	MIRROR GP.	MIDL.INDE.NWSP.	1997	10	22
89	MILNER ESTATES	SPECIALITY SHOPS	1997	10	14
90	HISCOX	HISCOX SLT.IN.FD.	1997	12	9
91	YULE CATTO	HOLLIDAY CHM.	1997	12	8
92	UNITED INDS.	NEEPSEND	1997	12	16
93	AUSTIN REED 'A'	COUNTRY CASUALS	1997	12	22
94	AVIVA	GENERAL ACCIDENT	1998	2	25
95	HOME RETAIL GROUP	ARGOS	1998	2	3
96	WESTBURY	MAUNDERS (JOHN)	1998	3	12
97	TELEWEST COMMS.	GENERAL CABLE	1998	4	16
98	HEMINGWAY PR.	OLIVES PROPERTY	1998	4	29
99	INTERSERVE	HOW GROUP	1998	5	13
100	ST.IVES	HUNTERS ARMLEY	1998	5	22
101	TI GROUP	EIS GROUP	1998	5	19
102	ASSD.BRIT.PORTS	AMERICAN PORT SERVICES	1998	5	19
103	VARDY (REG)	TRUST MOTOR GP.	1998	6	9
104	HOLIDAYBREAK	BALDWIN	1998	7	10

105	MAYFLOWER CORPORATION	DENNIS GROUP	1998	8	10
106	LAPORTE	INSPEC	1998	8	5
107	SLOUGH ESTATES	BILTON	1998	9	11
108	SCOT.& SOUTHERN ENERGY	SOUTHERN ELEC.	1998	9	1
109	BRIT-BORNEO OIL & GAS	HARDY OIL & GAS	1998	9	14
110	WASSALL	TLG	1998	9	10
111	COURTAULDS	CLAREMONT GARM.	1998	9	16
112	BRITISH VITA	DOEFLEX ED	1998	9	7
113	KINGFISHER	VCI ED	1998	9	29
114	PETERHOUSE GROUP	JACKSON GROUP	1998	12	11
115	PENDRAGON	EVANS HALSHAW	1998	12	23
137	MAI	BEARING POWER INTL.	1999	1	15
139	REVENUE ASSURANCE SVS.	XAVIER COMPUTER GP.	1999	1	27
116	LADBROKES	STAKIS	1999	2	8
118	MINORCO (LON)	REUNION MINING	1999	2	9
124	ACAL	SEDGEMOOR	1999	2	3
117	BUNZL	PROVEND GROUP	1999	3	8
119	RYLAND GP.	WYNDHAM GROUP	1999	3	9
140	PRUDENTIAL	M&G GROUP	1999	3	11
121	STANLEY LEISURE	CAPITAL CORP.	1999	3	30
120	IMI	POLYPIPE	1999	4	14
122	SSL INTERNATIONAL	LONDON INTL.GP.	1999	5	24
123	LASMO	MONUMENT OIL&GAS	1999	5	4
125	SHANKS GROUP	CAIRD GROUP	1999	5	26
126	WOLSELEY	BRIT.FITTINGS	1999	5	7
127	FAIREY	SERVOMEX	1999	5	12
128	GRAINGER TRUST	PARK ESTATES (LIPOOL)	1999	5	13
141	MERCHANT RETAIL	DE GRUCHY (A)	1999	5	24
142	JENNINGS BROTHERS	CAFE INNS	1999	6	29
129	BRIT INSURANCE	WREN	1999	6	17
130	ATKINS(WS)	LAMBERT SMITH HAMPTON	1999	6	16
131	CELLTECH GROUP	CHIROSCIENCE GP.	1999	6	15
133	ORB ESTATES	ALBEMARLE PR INVS	1999	6	22
134	MENTMORE	BIRKBY	1999	6	24
135	COATS	HICKING PENTCST.	1999	6	30
144	GREENE KING	MORLAND	1999	7	15

132	BSS GROUP	PTS	1999	7	16
136	BANK OF SCOTLAND	HILL HIRE	1999	9	14
143	TRAVIS PERKINS	SHARPE & FISHER	1999	10	23
138	MARSTON'S	MARSTON THOMPSON	1998	11	28
145	RMC GROUP	RUGBY GROUP	1999	11	08
147	LIMIT	TORCH	1999	11	12
146	COMMUNISIS	WADDINGTON	1999	12	7
148	NATIONAL EXPRESS	PRISM RAIL	2000	1	4
149	GLAXOSMITHKLINE	SMITHKLINE BHM.	2000	1	14
150	JOHNSON SERVICE GROUP	SEMARA	2000	1	28
151	LAING JOHN A	BEECHCROFT	2000	1	14
152	ROYAL BANK OF SCTL.GP.	NAT.WSTM.BANK	2000	1	29
153	TELEWEST COMMS.	FLEXTECH	2000	1	27
154	E WOOD	MERISTEM	2000	2	17
155	BP	BURMAH CASTROL	2000	3	13
156	FIRST TECHNOLOGY	CITY TECHNOLOGY.	2000	3	2
157	RENEW	BRITANNIA GROUP	2000	3	16
158	PEARSON	DORLING KINDER.	2000	3	31
159	YEOMAN GP.	LASER SCAN	2000	3	31
160	GCAP MEDIA	BORDER TV.	2000	4	13
161	LUMINAR	NORTHERN LEIS.	2000	4	10
162	ENNSTONE	BREEDON	2000	4	28
163	BIG FOOD GROUP	BOOKER	2000	5	25
164	ITV	COMPASS GROUP	2000	5	17
165	MARYL.WARWICK BALFOUR	LIBERTY	2000	5	16
166	BIG FOOD GROUP	BOOKER	2000	5	25
167	BLOOMSBURY PBL.	BLACK A&C	2000	5	25
168	WYEVALE GDN.CENTRES	COUNTRY GARDENS	2000	5	19
169	AMVESCAP	PERPETUAL	2000	5	8
170	HOMESTYLE GROUP	HARVEYS FURNISHINGS	2000	6	9
171	NATIONAL EXPRESS	PRISM RAIL	2000	7	18
172	HILL & SMITH	ASH & LACY	2000	7	26
173	BARCLAYS	WOOLWICH	2000	8	9
174	SMITHS GROUP	TI GROUP	2000	9	16
175	PILLAR PROPERTY	WATES CTY.LDN.	2000	11	13
176	BRITISH AIRWAYS	BRIT.REGIONAL AIRLINES	2000	12	4

177	TAYLOR WOODROW	BRYANT GROUP	2001	1	15
178	PERSIMMON	BEAZER GROUP	2001	1	15
179	XENOVA GROUP	CANTAB PHARMS.	2001	2	17
180	MISYS	DBS MANAGEMENT	2001	5	10
181	JOHNSON MATTHEY	MECONIC	2001	6	21
182	GREENE KING	OLD ENG.INNS	2001	8	15
183	WPP GROUP	TEMPUS GROUP	2001	8	16
184	JJB SPORTS	HUGHES (TJ)	2002	3	8
185	EVOLUTION GROUP	BEESON GREGORY GROUP	2002	5	30
186	HIT ENTERTAINMENT	GULLANE ENTM.	2002	6	25
187	TESCO	T & S STORES	2002	10	30

UK CROSS-BORDER

	BIDDING FIRMS	YEAR	MONTH	DAY
1	WOLSELEY	1992	2	7
2	HAYS	1992	6	23
3	BLUE CIRCLE INDS.	1992	6	4
4	PLYSU	1992	6	23
5	HICKSON INTL.	1992	7	9
6	BTR	1992	7	14
7	SAGE GROUP	1992	10	6
8	KINGFISHER	1993	2	5
9	KALON GROUP	1993	2	4
10	KELDA GROUP	1993	4	1
11	WHATMAN	1993	4	2
12	SPIRAXSARCO	1993	4	2
13	MEDEVA	1993	4	2
14	INTERCARE GROUP	1993	5	11
15	ASPREY	1993	5	28
16	TEMPUS GROUP	1993	12	24
17	CADBURY SCHWEPPES	1994	1	20
18	PHOTOME INTL.	1994	1	26
19	ACAL	1994	3	9

20	MANDERS	1994	5	19
21	CHARTER	1994	6	30
22	FKI	1994	6	17
23	LAIRD GROUP	1994	8	4
24	NOBO GROUP	1994	9	22
25	NEWMAN TONKS	1994	10	21
26	ALBEMARLE PR INVS	1995	3	16
27	VITEC GROUP	1995	3	22
28	LAPORTE	1995	3	14
29	SMITH & NEPHEW	1995	4	3
30	LILLESHALL	1995	7	11
31	MORGAN CRUCIBLE	1996	1	16
32	SIG	1996	3	19
33	BPB	1996	4	25
34	ROTORK	1998	2	4
35	LAVENDON GROUP	1999	1	4
36	SALVESEN(CHRIS.)	1999	5	24
37	DOMNICK HUNTER	1999	6	4
38	RECKITT BENCKISER	1999	7	27
39	LEGAL & GENERAL	1999	7	26
40	SERCO GROUP	1999	8	10
41	BBA AVIATION	1996	9	10
42	ALLIANCE BOOTS	1996	9	20
43	WAGON	1999	9	27
44	SCHRODERS	2000	6	7
45	FIRST CHOICE HOLS.	2000	6	16
46	REED ELSEVIER	2000	7	25
47	RPC GROUP	2000	7	19
48	ENERGIS	2000	12	19
49	TOREX GROUP	2000	12	12
50	PACE MICRO TECHNOLOGY	2001	2	6
51	REUTERS GROUP	2001	3	2
52	NOVAR X	2001	3	16
53	ABBOT GROUP	2001	8	31
54	DAVIS SERVICE GROUP	2002	3	22
55	SPECTRIS	2002	7	17

56	HALMA	2002	10	16
57	AGA FOODSERVICE	2002	10	28
58	AMEC	2002	12	5
59	ASHTENNE	2003	3	19
60	SABMILLER	2003	5	14

UK CROSS-BORDER

	TARGET FIRMS	YEAR	MONTH	DAY
1	JUPITER TYNDALL	1995	3	30
2	FISONS	1995	8	18
3	BET	1996	2	16
4	TRADE INDEMNITY	1996	2	1
5	APPLEBY WWARD.GP.	1997	1	31
6	ATLAS CONVERTING	1997	4	4
7	MARLING INDS.	1997	8	29
8	BORTHWICKS	1997	8	8
9	REDLAND	1997	10	13
10	ETAM	1997	11	12
11	UDO	1997	12	19
12	CODA GROUP	1998	2	23
13	COURTAULDS	1998	4	20
14	OLIVER ASHWORTH GP.	1998	4	22
15	BRIT.DREDGING	1998	4	24
16	JEYES	1998	5	7
17	PARAMOUNT FOODS	1998	8	5
18	GARDINER GROUP	1998	10	20
19	BCH GROUP	1998	12	23
20	COPYRIGHT PROMOTIONS	1999	1	11
21	BWI	1999	1	6
22	GUARDIAN RYL.	1999	2	1
23	LIBERFABRICA	1999	2	19
24	SERVISAIR	1999	3	11
25	TIE RACK	1999	4	6

26	ILION GROUP	1999	4	15
27	RIVA GROUP	1999	7	8
28	ALLIED CARPETS	1999	8	17
29	ARJO WIGGINS APL.	2000	5	16
30	SAATCHI & SAATCHI	2000	6	19
31	HAZLEWOOD FOODS	2000	9	8
32	ELLIS & EVERARD	2000	10	24
33	HEPWORTH	2000	11	1
34	KENWOOD APP.	2000	12	13
35	COMMUNITY HOSPITALS	2001	1	15
36	BLUE CIRCLE INDS.	2001	1	8
37	LYNX GP.	2001	12	19
38	ENTERPRISE OIL	2002	4	2

FRANCE DOMESTIC

	BIDDING FIRMS	TARGET FIRMS	YEAR	MONTH	DAY
1	TAITTINGER	BACCARAT	1991	12	10
2	NAVIGATION MIXTE	FABRIQUE SUCRE	1991	12	26
3	AFFINE (EX IMMOBAIL)	SOVABAIL	1992	2	25
4	MATRAHACHETTE	MATRA	1992	10	22
5	IMMEUBLES DE LYON	MAGASINS LYONGERLAND	1992	12	7
6	ZODIAC	SICMA AERO SEAT	1993	3	19
7	ESSILOR INTL.	BACOU-DALLOZ	1993	5	5
8	DOCKS DE FRANCE	ALSAC.SUPERMARCH	1993	6	17
9	GALERIES LAFAYETTE	MONOPRIX	1993	10	30
10	LAGARDERE GROUPE	MATRAHACHETTE	1994	2	1
11	NAVIGATION MIXTE	ECCO	1994	7	4
12	CREDIT COML.FRANC	BANQUE HYDRO-ENERGIE	1996	5	21
13	ATOS ORIGIN	SLIGOS	1996	10	31
14	ALLIANCE SANTE DS.	ILE DE FRANCE PHARMAC	1997	11	21
15	PINAULT PRINTEMPS	GUILBERT	1998	1	22
16	IMMOB.BATIBAIL	FONCIERE DES REGIONS	1998	4	8
17	CEGID GROUP	SERVANT SOFT	1999	1	8

18	SOCIETE GENERALE	PARIBAS	1999	2	1
19	GREVIN ET COMPAGNIE	MUSEE GREVIN	1999	3	22
20	WORMS ET CIE R	PARTICIP HOTEL FIN	1999	3	3
21	FIMALAC	FACOM SA	1999	3	24
22	SUEZ	L'ENTREPRISE INDUST.	1999	4	16
23	TOTAL SA	ELF AQUITAINE	1999	7	5
24	CARREFOUR	PROMODES	1999	8	30
25	GECINA	IMMOB.BATIBAIL	1999	9	7
26	ZODIAC	INTERTECHNIQUE	1999	10	28
27	DIOSOS	SEGUIN MOREAU	1999	11	19
28	AIR FRANCEKLM	REGIONAL AIRLINES	2000	1	19
29	CDACIE.DES ALPES	MERIBEL ALPINA	2000	1	24
30	PPR	SURCOUF	2000	3	13
31	SOPHIA	SOCIETE GENERALE	2000	5	26
32	VALEO	SYLEA	2000	5	2
33	VINCI (EX SGE)	GROUPE GTM	2000	7	13
34	OENEO	DIOSOS	2000	10	23
35	BAIL INVESTI.	ICC	2000	10	11
36	ACCOR	EUROPEENNE CASINOS	2001	1	17
37	CANAL +	EXPAND	2001	6	18
38	TECHNIP	ISIS	2001	7	3
39	CREDIT LYONNAIS	MARC ORIAN	2001	7	3
40	SEB	MOULINEX	2001	10	22
41	VRANKENPOMMERY MONOPOLE	CHAMPAGNE POMMERY	2002	4	3

FRANCE CROSS-BORDER

	BIDDING FIRMS	YEAR	MONTH	DAY
1	SIBILLE	1993	6	2
2	ALCATEL LUCENT	1994	9	21
3	AXA	1994	9	7
4	AVENTIS	1995	8	18
5	SUEZ	1995	11	23
6	PERNODRICARD	1997	1	31

7	SOMMERALLIBERT	1997	5	28
8	EAUX (GENERALE DES)	1997	8	28
9	ARCELOR	1997	10	14
10	ETAM DEVELOPEMENT	1997	11	12
11	ARTEMIS FINE ARTS	1998	5	18
12	PPR	1998	10	20
13	INFOGRAMES ENTM.	1999	1	25
14	ACCOR	1999	1	26
15	AXA-UAP	1999	2	1
16	FLAMMARION	1999	2	3
17	PENAUILLE POLYSERVICES	1999	3	11
18	LVMH	1999	3	19
19	PENAUILLE POLYSERVICES	1999	3	11
20	AVENTIS	1999	5	16
21	DANONE	1999	6	16
22	RUBIS	1999	6	21
23	GEODIS	1999	9	25
24	THALES (EX THOMSONCSF)	2000	1	4
25	SEQUANA CAPITAL	2000	5	16
26	PUBLICIS GROUPE	2000	6	19
27	INFOSOURCES	2000	6	29
28	ALSTOM	2000	6	20
29	ALCATEL LUCENT	2000	8	17
30	PUBLICIS GROUPE	2000	9	7
31	FI SYSTEM	2000	9	11
32	PECHINEY	2001	4	3
33	LAFARGE	2001	1	8
34	TRANSICIEL	2001	5	1
35	PENAUILLE POLYSERVICES	2001	5	30
36	ATOS ORIGIN	2001	7	27
37	LVMH	2001	11	26
38	STMICROELECTRONICS	2002	4	15
39	FROMAGERIES BEL	2002	9	19

FRANCE CROSS-BORDER

	TARGET FIRMS	YEAR	MONTH	DAY
1	GERLAND	1992	1	9
2	DARTY	1993	2	5
3	MATRAHACHETTE	1993	5	5
4	UNION INTL.IMMOB.	1994	10	2
5	LAMBERTRIVIERE	1994	12	6
6	MOULINEX	1995	10	16
7	SUDOUEST	1995	10	5
8	BRASSERIE FISCHER	1996	2	13
9	SICLI	1996	5	15
10	LOCATEL	1996	11	11
11	UNION FINC.FRANC.	1997	7	22
12	HIT	1997	10	1
13	SOCIETE GENERALE	1998	2	2
14	ECIA	1999	4	23
15	FICHET-BAUCHE	1999	4	21
16	DEXIA FRANCE	1999	9	19
17	FRAIKIN	1999	10	4
18	UBIQUS	2000	3	16
19	CR.COML.DE FRN.CCF	2000	4	1
20	SELF TRADE	2000	9	13
21	PERNODRICARD	2000	9	28
22	JET MULTIMEDIA	2000	9	18
23	VIA BANQUE	2000	9	11
24	FIVES LILLE	2000	12	4
25	SIDEL	2001	3	27
26	SAINTLOUIS	2001	6	29
27	SAUPIQUET	2001	12	1
28	FIVES LILLE	2000	12	4
29	ROCHETTE (LA)	2002	1	2
30	LABEYRIE	2002	3	15
31	BOUYGUES OFFSHORE	2002	5	8
32	DE DIETRICH	2002	7	16
33	REXEL	2003	3	19

GERMANY DOMESTIC

	BIDDING FIRMS	TARGET FIRMS	YEAR	MONTH	DAY
1	HOECHST	BAYER SCHG.PHARMA	1993	7	10
2	VIAG	COMPUTER 2000	1994	6	11
3	GILDEMEISTER	DECKEL-MAHO	1994	7	26
4	HUCKE	MHM MODE HLDG.MUNCHEN	1996	7	4
5	THYSSENKRUPP	FRI.KRUPPHOESCH KRUPP	1997	3	20
6	DEUTSCHE REAL ESTATE	STINNES	1999	6	30
7	FRI.KRUPPHOESCH KRUPP	THYSSENKRUPP	1997	11	5
8	SONAE INDUSTRIA SGPS	GLUNZ	1998	9	11
9	HOLSTEN-BRAUEREI	BAVARIA & ST.PAULI	1998	11	11
10	SCHENCK CARL	SCHENCK (CARL)	1999	10	29
11	DEGUSSA	SKW TROSTBERG	2000	8	23
12	WCM BETEILIGUNG	KLOECKNERWERKE	2000	11	22
13	DEUTSCHE BANK	VARTA	2000	11	6
14	ALLIANZ	DRESDNER BANK	2001	4	1
15	WALTER BAU	DYCKERHOFF & WIDMANN	2001	4	11
16	BILFINGER BERGER	RHEINHOLD & MAHLA	2002	6	6
17	FREENET	MOBILCOM	2003	2	17

GERMANY CROSS-BORDER

	BIDDING FIRMS	YEAR	MONTH	DAY
1	SIEMENS	1993	11	18
2	COMMERZBANK	1995	3	30
3	RWE	1995	4	19
4	DRESDNER BANK	1995	6	26
5	DEUTSCHE BANK	1998	12	23
6	IWKA	1999	1	6
7	BAYER	1999	2	5
8	IVG IMMOBILIEN	1999	3	8
9	DEUTSCHE TELEKOM	1999	4	18

10	GEA GROUP	1999	7	8
11	DAIMLERCHRYSLER	1999	10	5
12	HENKEL	1999	12	22
13	TUI	2000	4	4
14	ERGOSICHERUNG	2000	8	17
15	DAB BANK	2000	9	13
16	DEGUSSA	2000	12	15
17	SUEDZUCKER	2001	6	29
18	VOSSLOH	2002	7	16

GERMANY CROSS-BORDER

	TARGET FIRMS	YEAR	MONTH	DAY
1	CAMPINA	1993	10	4
2	DVB BANK	1994	1	18
3	MAXDATA	1994	6	30
4	AEG SEE	1994	9	21
5	HARTMANN & BRAUN	1995	10	31
6	AMB AACH&MUNCH BET.REGD.	1997	12	19
7	ROSENTHAL	1997	12	4
8	VDN.DTL.NICKELWERKE	1998	4	3
9	BASF	1998	5	4
10	IFA HOTEL & TOURISTIK	1999	1	6
11	ALBINGIAS.	1999	2	1
12	HOECHST	1999	5	17
13	GERRESHEIMER GLAS	1999	6	16
14	BUS BERZELIUS	1999	7	6
15	DEBITEL	1999	7	9
16	BMW	1999	10	25
17	PRAKTIKER BAU UND HEIM	1999	11	3
18	MANNESMANN	1999	11	13
19	COMPUTEC MEDIA	2000	2	22
20	DEGUSSA	2000	3	29
21	RICARDO	2000	5	15

22	TELEGATE	2000	5	4
23	AGIV REAL ESTATE	2000	5	3
24	DAIMLERCHRYSLER	2000	9	20
25	KIEKERT	2000	6	7
26	ISION INTERNET	2000	12	19
27	GRAMMER	2001	4	26
28	ALSTOM	2001	5	15
29	MICROLOG LOGISTICS	2002	10	18
30	GILDE BRAUEREI	2002	11	4
31	WELLA	2003	3	18

Chapter 5 Long-term Excess Returns

Section 5.1 Introduction

This chapter focuses on the empirical results of the long term excess returns of firms after M&As. The investigation will reveal a more complete consequence of shareholders' wealth effect by further looking into the one-year to 5-year event window than solely examining the short term share price performance.

Earlier long term share price performance studies reported mixed results as I have examined in Section 2.4 of Chapter 2 (*Literature Review*). For example, Higson and Elliott (1998) studied UK bidders in the period 1970-1990 and they report that the average long term excess returns are statistically insignificant, whereas Gregory (1997) studied UK bidders in the period 1984-1992 and their results are negative and statistically significant.

On the other hand, some earlier long term event studies could suffer from a number of problems such as (see also Barber and Lyon, 1997): 1) new listing biases; 2) rebalancing biases; 3) skewness biases; 4) cross-sectional dependence in abnormal returns and/or 5) an 'imperfect' model. Sections 3.4-3.5 of Chapter 3 (*Methodology*) have discussed the problems above and identified some possible solutions. First, using the control firm (CF) and/or the control portfolio (CP) model can effectively avoid the new listing biases by selecting reference firms from non-event firms only. Second, the CF and/or CP model also effectively avoid the rebalancing biases because no market index is involved. Third, a bootstrapped skewness-adjusted t-statistic can be used to reduce the skewness biases in long term abnormal returns. Finally, if the abnormal returns are severely correlated across time (e.g. a bidder with overlapping M&A activities) and across assets (e.g. bidders with similar MV, MTBV, industry, etc.), a calendar time (CT) approach can be employed as advocated by Fama (1998) and Mitchell and Stafford (2000). My study will take into account these issues. Also, there will be some further discussions for these issues in the current chapter (where appropriate).

My study for the long term share price performance focuses on the EU markets and in particular three countries: the UK, France and Germany as they have the best data availability and they are the most active M&A markets in the EU as noted in Chapter 4 (*Short-run Excess Returns*). This study differs from some earlier long run M&A studies for the follows reasons. First, few studies have examined the long run share price performance for the French and German markets. Second, this chapter includes bidders of both domestic and cross-border M&As, and bidders involved in acquiring privately held targets. Few earlier studies have examined all these different types of M&As. Third, this chapter utilises the CF (and CP) model as well as the calendar time approach, models which are robust to the recent criticisms of commonly used long run methods.

The rest of the chapter is organised as six parts: 1) data and methodology; 2) long term share price performance of the non-overlapping samples; 3) an alternative approach to detect long term share price performance when the industry factor is considered as a risk factor in evaluating average returns; 4) long term share price performance of the overlapping samples; 5) an extra section comparing high MV bidders and low MV bidders in the long run - as few studies have thoroughly examined the impacts of MV on long term share price performance; and 6) a conclusion of the findings.

Section 5.2 Data and Methodology

Data sources:

Data on the UK, French and German acquisitions were collected from Acquisitions Monthly for the period of 1992-2003. To be included in the sample for long term share performance analysis, the bidders involved in M&As must be listed in their local markets. In addition, I required the targets to be an EU firm as this study focuses on EU markets. M&A cases with unclear announcement date and inconsistent bidding descriptions (e.g. when there were inconsistent bidding descriptions from news and from Acquisitions Monthly) were not selected. Finally, I also required that there was unambiguous share price information on DataStream for a firm to be selected. Some firms that were not clearly identified on DataStream were not selected.

Sample selection and methodology

The exact sample size is subject to the selection of model to be used. As I have discussed, some earlier long run event studies suffer from problems such as: 1) new listing biases; 2) rebalancing biases; 3) skewness biases; 4) cross-sectional dependence in abnormal returns and/or 5) an 'imperfect' model. As a result, model selection has to take into account the factors above.

An influential paper, Fama and French (1992), brought together size, leverage, the earnings-price ratio, market-to-book-ratio, and beta in a single cross-section study. They found that that average stock returns are well explained by the combination of size (MV) and market-to-book-ratio (MTBV). Based on this finding, Lyon, Barber and Tsai (1999) made an important contribution to long-run event studies. They suggest the control firm (CF) approach or the control portfolio (CP) approach with skewness adjusted t-statistics yield well-specified tests in random samples for studies of long run share price performance. The control firm or control portfolio approach estimates an abnormal return as the difference between an event firm's return and the return on a non-event firm or portfolio that is similar on characteristics known to be related to average returns (MV and MTBV in this case). Furthermore, they suggest that the buy-and-hold return is a better indictor of investors' experience than the cumulative return.

As a result, the buy-and-hold abnormal return (BHAR) in the CF model is calculated as:

$$\text{BHAR}_{i\tau} = \prod_{t=1}^{\tau}(1+R_{it}) - \prod_{t=1}^{\tau}[1+E(R_{it})]$$

where

R_{it} = the return for security *i* at time *t*

$E(R_{it})$ = the expected return for security *i* at time *t*. Here I use the return of a matched firm that is similar in MV and MTBV characteristics. Security *i* is also called as reference firm.

$BHAR_{i\tau}$ = the τ period buy-and-hold abnormal return for security *i*

The long run abnormal return in the CP model is calculated as:

$$AR_{i\tau} = R_{i\tau} - E(R_{p\tau})$$

and

$$E(R_{p\tau}) = R^{bh}_{p,s,\tau} = \sum_{i=1}^{ns} \frac{[\prod_{t=s}^{s+\tau}(1+R_{it})]-1}{n_s}$$

where

$AR_{i\tau}$ = the τ period buy-and-hold abnormal return for security *i*

$R_{i\tau}$ = the τ period buy-and-hold dividend adjusted return for security *i*

$E(R_{p\tau})$ = the expected τ period buy-and-hold dividend adjusted return for the matched portfolio *p*

bh denotes 'buy-and-hold'

p, s, τ denote portfolio, the beginning period and the period of investments in turn

$R^{bh}_{p,s,\tau}$ = the buy-and-hold return for the control portfolio during period τ starting from time s

n_s denotes the number of securities traded in month s, the beginning period for the return calculation

R_{it} = the simple net return (incorporating the effect of dividends) on security *i* of a group of identified securities with similar MV and MTBV at time *t*, i.e.

$$R_{it} = \frac{P_{it} - P_{i,t-1} + D_{it}}{P_{i,t-1}}$$

The control firm (CF) and/or the control portfolio (CP) model effectively avoid the new listing biases by selecting reference firms from non-event firms only, and effectively avoid the rebalancing biases because no market index is involved. Section 3.3.3 of Chapter 3 (*Methodology*) has discussed how to identify a reference firm and/or a reference portfolio. Furthermore, to eliminate skewness biases, a bootstrapped application of the statistic is preferred to the standard *t* test. The bootstrapping approach has been discussed in Section 3.4.3 of Chapter 3 (*Methodology*).

As I have discussed in Section 3.5.2 of Chapter 3 (*Methodology*), the pursuit of non-overlapping sample firms (e.g. bidders with no other significant firm-specific event for a reasonably long period around the announcement date) can greatly reduce the biases caused by cross-sectional dependence in share abnormal returns. This source of bias is a statistical problem in that the inclusion of overlapping abnormal returns can cause the conventional *t*-statistic to be biased upward because the returns are positively correlated (e.g. Lyon, Barber and Tsai, 1999 and Mitchell and Stafford, 2000). Therefore, to avoid the misspecification of test statistics as well as sample contamination, I pursue a non-overlapping sample to tackle this problem when I employ the CF/CP models.

I adopted two approaches to define a 'non-overlapping' sample. The first is to define 'bidding firms with no multi-bids within 5 years' as non-overlapping sample firms. The sample that resulted from this concept is called the '5Y Non-overlapping Sample'. In this case, the sample firms have no overlapping M&A activities within 5 years around the announcement year. Also the reference firms (used in the CF/CP models as the benchmark of expected returns) must be 'clean' firms (namely without significant events) for 5 years before the M&A announcement year. I further require that the reference firms have no significant events within 2 years after the M&A announcement year. This is to prevent the impacts of any unusual pre-M&A share price movement of the reference firms. The second approach is to define 'bidding firms with no multi-bids within 3 years' as non-overlapping sample firms. The sample that fulfilled this requirement is called the '3Y non-overlapping sample' to make a distinction from the former case. In this case, the sample firms have no overlapping M&A activities within 3 years around the announcement year. Similarly the reference firms must be 'clean' firms for 3 years before the M&A announcement year. I also require that the reference firms have no significant events within 2 years after the M&A announcement year.

After pursuing the non-overlapping samples, the sample composition is shown in the table below. In Acquisitions Monthly the information for the completed acquisitions of private target firms is mainly available for the UK, therefore the acquisitions of private targets are not discussed for France and Germany.

Table 5.1 Sample composition for non-overlapping samples

5Y Non-overlapping Sample

	Domestic	Private	Cross-border	All
France	37	N/A	5	42
Germany	22	N/A	13	35
UK	24	34	17	75
Entire Sample	83	34	35	152

3Y Non-overlapping Sample

	Domestic	Private	Cross-border	All
France	56	N/A	14	70
Germany	35	N/A	20	55
UK	62	95	51	208
Entire Sample	153	95	85	333

From Table 5.1 we find that because of the high requirements of the '5Y non-overlapping' sampling method, as might be expected, there are only 152 sample acquisitions that are able to fulfil the requirements. On the other hand, the '3Y non-overlapping' sample doubles the sample size of the '5Y non-overlapping' sample as there are 333 cases in the sample. The UK bidding firms take a large portion in both samples, followed by the French firms.

Table 5.2 below gives the descriptive sample statistics for the non-overlapping samples.

Table 5.2 Descriptive statistics for the non-overlapping samples of the long run study

Panel A:		UK					
		5Y Non-overlapping			3Y Non-overlapping		
		Domestic	Private	Cross-border	Domestic	Private	Cross-border
MV (£,Millions)	Mean	876.48	293.28	880.85	891.02	516.10	1404.79
	Median	136.32	61.97	221.34	142.31	59.14	238.88
MTBV	Mean	2.27	2.93	3.03	2.39	3.62	5.43
	Median	1.24	1.75	2.66	1.31	1.81	2.71

Panel B:		France					
		5Y Non-overlapping			3Y Non-overlapping		
		Domestic	Private	Cross-border	Domestic	Private	Cross-border
MV (€,Millions)	Mean	509.98	N/A	3045.46	775.38	N/A	3460.33
	Median	113.28	N/A	722.85	133.97	N/A	778.26
MTBV	Mean	2.30	N/A	3.30	2.33	N/A	3.10
	Median	1.58	N/A	2.29	1.71	N/A	2.25

Panel C:		Germany					
		5Y Non-overlapping			3Y Non-overlapping		
		Domestic	Private	Cross-border	Domestic	Private	Cross-border
MV (€,Millions)	Mean	1239.81	N/A	1844.90	2004.414	N/A	2647.832
	Median	399.58	N/A	568.42	410.35	N/A	544.35
MTBV	Mean	3.02	N/A	2.89	3.04	N/A	2.65
	Median	2.81	N/A	2.16	2.77	N/A	2.12

In Table 4.2, the average MTBVs range from 2.27 to 5.43. Also, we can see that the 5Y Non-overlapping samples in general have lower average MVs than the corresponding 3Y Non-overlapping samples. This is because bidders with larger MVs are more frequently involved in M&As, and tend to be overlapping bidders. It is necessary to pursue non-overlapping samples to eliminate sample contamination and reduce the statistical biases caused by cross-sectional dependence in abnormal returns. In order to evaluate whether and to what extent purging overlapping bidders has any impact on the results, I also employ the calendar time approach in my study.

The calendar time approach is advocated by Fama (1998) and Mitchell and Stafford (2000). The approach is not commonly used in earlier event studies because it does not straightforwardly describe investors' experience as well as it only tracks the performance of a portfolio. However, the calendar time approach has some advantages (e.g. Mitchell and Stafford, 2000, p. 288) over some other approaches (e.g. the CF/CP model together with the use of a bootstrapped skewness-adjusted t-statistic). First, by forming a monthly calendar-time portfolio, all cross-correlations of event firm abnormal returns are automatically accounted for in the variance. Second, the distribution of this estimator is better approximated by the normal distribution, allowing for classical statistical inference. Therefore, although we need to be careful when we interpret the results from the calendar time approach because it does not straightforwardly measure shareholders' investment experience, the use of the calendar time approach in this chapter can serve two useful purposes (there is more discussion of these issues later in Section 5.5): 1) as a robustness check to the results from the CF/CP model; 2) as a valid method to calculate the long run wealth effects for bidders with overlapping M&A activities.

To employ the calendar time approach, the abnormal return for calendar month t is calculated as:

$$AR_{it} = R_{it} - E(R_{it}),$$

where

AR_{it} = the abnormal return for security i at time t

R_{it} = the actual return for security i at time t

$E(R_{it})$ = the expected return for security i at time t (see below for more information)

As I have discussed in Section 3.5.2 of Chapter 3 (*Methodology*), $E(R_{it})$ can be obtained by either the Fama-French model or the control portfolio model. For convenience, I call the former the CTFF approach and the latter CTCP approach. Then, in each calendar month t, I calculate a mean abnormal return across firms in the portfolio:

$$\overline{AR_t} = \sum_{i=1}^{nt} x_{it} * AR_{it}$$

where

n_t is the number of event firms in the portfolio in month t

x_{it} reflects whether the abnormal return of each firm is equally-weighted or value-weighted.

Lyon et al. (1999, pp. 194-195) show that both the CTFF and CTCP models perform well in extreme overlapping calculations when the calendar time portfolio is formed by equally-weighted average cross-sectional returns. For this reason, my study adopted the equally-weighted approach.

A mean monthly abnormal return is therefore calculated as:

$$\overline{AR} = \frac{1}{T}\sum_{t=1}^{T} \overline{AR_t} \tag{3.18}$$

where

T = the total number of calendar months

To test the null hypothesis of zero mean monthly abnormal returns, a conventional t-statistic is applied.

There is a potential problem with the calendar time models in that heteroskedasticity could be induced because of the varying number of firms in the calendar time portfolio for each month. However, Mitchell and Stafford (2000)'s examination of this issue suggests the impact of heteroskedasticity on the long-run results is minimal.

Section 5.3 Long Run Share Price Performance of the Non-overlapping Sample

This section examines the long run share price performance of the non-overlapping samples for the UK, France and Germany. The calculations are based on the CF and CP model with the use of a bootstrapped skewness-adjusted t-statistic as I have discussed in both the last section and Chapter 3 (Methodology). Tables A5.1 to A5.3 and Figures A5.1 to A5.10 provided detailed results (BHARs) at every 12-month interval after the M&A announcements for bidders[1]. In many cases the F test shows that in general there is no fundamental difference between the results based on the CF and CP model, but in the case if they appear to be different I will discuss both sets of results (obtained from the CF model and from the CP model) in the text.

5.3.1 Long Run Share Price Performance of the UK Acquirers

At first I discuss domestic acquisitions (acquiring publicly listed target firms) for the UK sample. *Based on the '5Y Non-overlapping Sample'*, UK domestic bidders consistently experienced negative abnormal performance within 5 years relative to the announcement date. We can see this in both Table A5.1 and Figure A5.1 (the yellow and the blue curves). These negative BHARs based on the '5Y Non-overlapping Sample' are, however, not statistically significant using the skewness-adjusted *t* statistics. The results *based on the '3Y Non-overlapping Sample'* are also negative but strongly statistically significant for most of the periods in Table A5.1. Table 5.3 below reports the details for these results (BHARs) based on the CF model and the '3Y Non-overlapping Sample' at every 3-month interval[2]:

[1] Because these tables are quite large, I gather them together at the end of this chapter,. Figures are also at the end of the chapter.

[2] In the table B.t-stat = bootstrapped skewness adjusted t-statistic; B.p-value = p-value associated with the empirical B. t-stat, and Sig = significance level. ***, **, * denotes statistically significant at the 1%, 5%, and 10% level.

Table 5.3 BHARs of UK domestic acquirers of public targets

Relative Months	Mean BHAR	B. t-stat	B. P-value	Sig.
3	-0.0348	-2.5206	0.0029	***
6	-0.0761	-2.7554	0.0165	**
9	-0.0995	-2.3445	0.0040	***
12	-0.1104	-1.8099	0.0956	*
15	-0.1032	-1.4806	0.1438	
18	-0.1506	-2.6324	0.0005	***
21	-0.1768	-2.6746	0.0001	***
24	-0.1955	-2.5976	0.0010	***
27	-0.1419	-1.6252	0.0228	**
30	-0.0969	-1.1023	0.1367	
33	-0.0498	-0.5305	0.4355	
36	0.0241	0.2281	0.8325	

N=62

Table 5.3 shows that the BHAR can be as low as -19.6% around Month +24 and this is statistically significant at the 1% level. After this time, the mean BHAR become less negative and statistically insignificant after Month +30. The results based on the CP model and the '3Y Non-overlapping Sample' are similar to those in Table 5.3, but the evidence is less strong (see Table A5.1 and the blue line in Figure A5.1).

Figure A5.1 shows that BHARs based on each model are similar at least for the two years after the announcement date. After the 2nd year there are some variations in BHARs as presented in Figure A5.1. In Table A5.1 it appears that statistically stronger results are obtained for the larger '3Y Non-overlapping Sample'.

<u>Turning to domestic acquisitions (acquiring private target firms) for the UK sample.</u> The CP model *based on the '5Y Non-overlapping Sample'* shows that the mean BHAR for the 1st year relative to the announcement date is a positive 13.9% and statistically significant at the 5% level (see Table A5.1). This is not the case from the results based on the CF model and the '5Y Non-overlapping Sample', which are less positive in the 1st year and statistically insignificant.

However, Table A5.1 shows strong evidence of negative and statistically significant BHARs for acquirers of private targets in the long run, *based on the '3Y Non-overlapping Sample'*. The details for these BHARs based on the CF model and the '3Y Non-overlapping Sample' are reported at every 3-month interval as Table 5.4 below:

Table 5.4 BHARs of UK domestic acquirers of private targets

Relative Months	Mean BHAR	B. t-stat	B. P-value	Sig.
3	0.0014	0.0719	0.9413	
6	0.0176	0.5170	0.5320	
9	-0.0135	-0.3260	0.5153	
12	-0.0535	-1.1118	0.0779	*
15	-0.0641	-1.1986	0.1023	
18	-0.0430	-0.5627	0.6065	
21	-0.1001	-1.3085	0.0277	**
24	-0.1408	-1.7398	0.0021	***
27	-0.1896	-2.3565	0.0006	***
30	-0.2079	-2.4460	0.0002	***
33	-0.2049	-2.0814	0.0017	***
36	-0.1786	-1.8383	0.5091	

N=95

In Table 5.4, the mean BHARs are negative and statistically significant at the 1% level after approximately 18 months relative to the announcement date. The mean BHAR in Table 5.4 is as low as – 20.8% around Month +30.

We can see a conflict of results between those based on the '5Y Non-overlapping Sample' and those based on the '3Y Non-overlapping Sample'. In Figure A5.2, the pink and the light blue curves are below zero for most of the periods while the blue and the yellow curves are persistently positive for a long period. The difference between the results based on the '3Y Non-overlapping Sample' and those based on the '5Y Non-overlapping Sample' are statistically significant at the 10% level over some periods. All sample acquirers of the '5Y Non-overlapping Sample' are also in the '3Y Non-overlapping Sample'. The rest of the sample acquirers in the '3Y Non-overlapping Sample' are similarly infrequent acquirers, however, they show some more desire for corporate expansions three years after the M&A announcement. This suggests that in long run event studies one should be careful in sampling methods and cautious in interpreting results.

Now I discuss cross-border acquisitions for the UK sample. Based on the '5Y Non-overlapping Sample', UK cross-border bidders mainly experienced negative share price performance within 5 years relative to the announcement, as shown in Figure A5.3. The magnitude of the negative BHARs is up to approximately -70% in both the CF and the CP model cases, as shown in Table A5.1. However, the bootstrapped skewness-adjusted t-statistics indicate that the BHARs are not statistically significant. Given the small sample size (n=17) for the '5Y Non-overlapping Sample', the results based on the '3Y Non-overlapping Sample' may be more convincing.[3] The '3Y Non-overlapping Sample' shows less negative BHARs (Table A5.1) than the '5Y Non-overlapping Sample', and these are also not statistically significant up to 3 years after the announcement date. The results based on the '5Y Non-overlapping Sample' are, however, suggestive that there could be substantial negative abnormal returns over a longer 5-year holding period.

Now I discuss the overall results for the entire UK sample. In Figure A5.4 we can see that the sets of results are very similar to each other for the overall UK sample. *Based on '5Y Non-overlapping Sample'*, there is strong evidence showing negative and statistically significant BHARs for the entire sample, irrespective of using the CF or the CP model. Only a few BHARs surrounding Month +48 are not statistically significant in Table A5.1.

Results *based on the '3Y Non-overlapping Sample'* provide even stronger evidence of negative BHARs in the long run. Table 5.5 below reports the detailed BHARs based on the CF model and the '3Y Non-overlapping Sample' as an example for the entire UK sample.

[3] In Section 5.4, it is shown that these mean BHARs obtained from the '5Y Non-overlapping Sample' become less negative when based on the industry-adjusted benchmark.

Table 5.5 BHARs of UK acquirers of the entire sample

Relative Months	Mean BHAR	B. t-stat	B. P-value	Sig.
3	-0.0068	-0.6391	0.0627	*
6	-0.0149	-0.7273	0.0773	*
9	-0.0305	-1.1335	0.0011	***
12	-0.0579	-1.7553	0.0000	***
15	-0.0572	-1.5201	0.0001	***
18	-0.0601	-1.1846	0.0061	***
21	-0.1036	-2.0289	0.0000	***
24	-0.1352	-2.4714	0.0000	***
27	-0.1539	-2.8329	0.0000	***
30	-0.1531	-2.7100	0.0000	***
33	-0.1437	-2.3392	0.0000	***
36	-0.1004	-1.5239	0.0196	**

N=208

In Table 5.5, the mean BHARs are in general statistically significant at the 1% level and can be as low as -15.4% around Month +27. The results based on the CP model and the '3Y Non-overlapping Sample' (Table A5.1) are similar to those in Table 5.4.

Conclusion: the results for UK acquirers can be summarised as in Table 5.6 below:

Table 5.6 Long run share price performance of the UK sample

	5Y Non-overlapping Sample	3Y Non-overlapping Sample
Domestic Acquirers of Public Targets	Negative but statistically insignificant BHARs	Strong evidence of negative and statistically significant BHARs
Domestic Acquirers of Private Targets	Generally statistically insignificant BHARs, but some evidence of positive and statistically significant BHARs for the 1st post-acquisition year	Strong evidence of negative and statistically significant BHARs

Cross-border acquirers	Negative but statistically insignificant BHARs	Insignificant BHARs
Entire sample	Strong evidence of negative and statistically significant BHARs	Strong evidence of negative and statistically significant BHARs

From Table 5.6 I can make the following points: 1) Overall, there is some strong evidence that bidders underperform in the long run. The results are more in line with e.g. Gregory (1997) who found negative and statistically significant long run abnormal returns for UK domestic bidders in the period 1984-1992. In contrast, they differ from e.g. Higson and Elliot (1998) who reported long run abnormal returns on average insignificant for UK domestic bidders in the period 1975-1990. In my results, there is strong evidence of negative and statistically significant BHARs based on either the 5Y or 3Y non-overlapping sample in the long run for the entire sample. Also, in the case of the '3Y Non-overlapping Sample' UK domestic acquirers (acquiring public targets) experience negative wealth effects in the long run; 2) Although bidders in UK market experience (mainly) insignificant abnormal returns in the short run as discussed in Chapter 4 (*Short-run Excess Returns*), they appear to experience negative and statistically significant abnormal returns in the long run. The results on balance suggest that 'hubris' or 'managerial motives' may be dominant factors in driving domestic M&As in UK markets from a longer term point of view; 3) the '3Y Non-overlapping Sample' seems to provide opposite patterns of BHARs for acquirers of private targets compared with the results based on the '5Y Non-overlapping Sample'. This suggests that sample selection can be an important issue in long run studies. Nevertheless, on balance the evidence suggests that acquirers do performance poorly in the long run relative to both the CF and CP models.

5.3.2 Long Run Share Price Performance of French and German Acquirers

Table A5.2 in the appendix shows the results of the French non-overlapping samples. At a quick glance at Table A5.2, we can see that although most of the mean BHARs are negative, they are not statistically significant except in one case. Based on the '3Y

Non-overlapping Sample', the mean BHAR at one year after the announcement date for the entire French sample firms is -12.6% and statistically significant at the 1% level.

Figure A5.5 in the appendix presents the movement of the mean BHARs for the French domestic sample. It shows that the abnormal returns based on the '3Y Non-Overlapping Sample' (the pink curve and the light blue curve) are generally higher than those based on the '5Y Non-overlapping Sample' (the blue and the yellow curve). But the F test indicates that the differences are not statistically significant for most of the periods (p-values around 0.2).

Table A5.3 in the appendix shows the results of the German non-overlapping samples. The results based on the '3Y Non-overlapping Sample' and the CF model indicate that German domestic acquirers on average are underperformers, and this is supported in most of cases by the CP model and/or the '5Y Non-overlapping Sample'. However, only results for the '3Y Non-overlapping Sample' and the CF model are statistically significant. Based on the '3Y Non-overlapping Sample' and the CF model, the mean BHAR for German domestic acquirers is as low as -28.3% two years after the announcement date, which is statistically significant at the 1% level. On the other hand, there is no statistically significant evidence of abnormal share price performance for German cross-border acquirers, irrespective of the sampling methods and/or the benchmarks used.

Based on the CF model, the '3Y Non-overlapping Sample' indicates that the entire German sample firms (domestic + cross-border) experienced negative BHARs in the long term post-acquisition period, which are statistically significant at the 1% level. There is also statistically significant evidence of under-performance in the first year using the '5Y Non-overlapping Sample' and the CF model. The CP model does not generate statistically significant results based on either sample.

Also, based on Figures A5.8-A5.10, we can see a tendency for recovery of BHARs in the five year data for the German samples. For the entire German sample, the average BHAR over a one year horizon based on the CF model is -15.0% and statistically significant at the 10% level, whereas it is +12.3% (but insignificant) over a five year horizon. There is some tentative (but insignificant) evidence that the profitability of German firms recovers after two years.

Conclusion: The results for the French and German samples can be summarized as Table 5.7 below:

Table 5.7 Long run share price performance of the French and German samples

	French Acquirers	German Acquirers
Domestic Acquirers	Insignificant BHARs	Negative and statistically significant but dependent on model used
Cross-border Acquirers	Insignificant BHARs	Insignificant BHARs
Entire Sample	Insignificant BHARs, except in one case	Negative and statistically significant for three years, dependent on model used

Table 5.7 suggests that: 1) there is no real (or at least statistically significant) evidence that acquirers under or over-perform in the long run for the French acquisition markets (except in one case); 2) the results for the German acquisition market are dependent on the model used. In general the CF model generates statistically stronger results than the CP model for German domestic acquirers. Based on the CF model, the average BHARs for German domestic acquirers are negative and statistically significant in the long run; 3) finally, there is no evidence of statistically significant abnormal share price performance in the long run German cross-border acquirers.

The results suggest that, unlike the UK results, the 'hubris' or 'managerial factors' may not be such dominant factors for M&A activities of bidders in French markets or for German markets dependent on the model used. This conclusion should be seen as tentative, however, at this stage.

5.3.3 Long Run Share Price Performance of the Entire Sample

Table A5.4 in the appendix reports the mean BHARs for the entire non-overlapping sample, including all non-overlapping sample firms (not acquiring private targets) of the UK, France and Germany. All mean BHARs shown in Table A5.4 are negative and many are statistically significant.

In Table A5.4 we see strong evidence that overall domestic acquirers in the three countries experience negative and statistically significant BHARs in the long run. This conclusion holds up for any combination of the sampling methods and benchmarks used. The mean BHAR can be as low as -22.2% if the results are based on the '5Y Non-overlapping Sample' and the CF model, and this is statistically significant at the 1% level.

The evidence for overall cross-border acquirers in the three countries is inconclusive. Based on the CF model, the results obtained from the '5Y Non-overlapping Sample' are consistently negative but are only statistically significant at the 1% level after three years, whereas the results from the '3Y Non-overlapping Sample' are negative but only statistically significant around the 1st year after the announcement date. The CP model generates weaker results than the CF model in most of cases.

Combining domestic acquirers and cross-border acquirers together, there is strong evidence of underperformance for almost all periods in the table (Table A5.4). The mean BHAR can be as low as -27.1% if the results are based on the '5Y Non-overlapping Sample' and the CF model, and this is significant at the 1% level. There is some evidence of improvement in performance after three years for domestic M&As and for all M&As (Table A5.4).

In conclusion, the results show evidence that overall M&As for the selected EU M&A markets as a whole are not profitable in the long run. The evidence is stronger in domestic bids as discussed above.

Section 5.4 Alternative Approach to Detect BHARs

This section employs an alternative approach to calculate the mean BHARs for the long-run post-acquisition share price performance of acquirers. The basic idea is to adjust the mean BHARs for industry effects. For convenience I call it the industry-adjusted approach. I focus on the UK sample as the sample size is bigger than the French/German samples and given the large data collection exercise required in conducting these tests.

Different industry sectors are often associated with different characteristics such as risk ratings. For example[4], in the US the aircraft, communication equipment and steel industry sectors are often considered as much riskier than some other industry sectors e.g. drugs and insurance. On the hand, different industry sectors may be linked with different growth opportunities. For example, the tobacco and aircraft sectors are often considered as low growth and high risk in the US, whereas the medical services, drug manufacturing, and educational services are often considered as high growth and low risk. These factors suggest that it may provide improved results for long run event studies to adjust the reference firms (which are used as the benchmark for the expected returns of the sample firms) with the industry sector effect, because it offers more similarities between the characteristics of the sample and reference firms.

To adjust the results with industry effects, first of all I group all firms in the markets by industry. The 'I/B/E/S industry classification system' of the DataStream is used. The 'I/E/B/S industry classification' is shown as Table 5.8 below:

Table 5.8 I/B/E/S industrial classifications

Sector I/B/E/S Code	***Sector mnemonic appearing in datatype***	***Sector description***
1	FINANCE	Finance
2	HEALTH	Health

[4] Source: www.globalinsight.com

3	CONSNO	Consumer non-durables
4	CONSSVC	Consumer services
5	CONSDUR	Consumer durables
6	ENERGY	Energy
7	TRANSP	Transportation
8	TECHNOL	Technology
9	BASIC	Basic industries
10	CAPITAL	Capital goods
11	UTILITY	Public utilities
99	UNDESIGN	Unclassified

Secondly, I label each sample firm with an I/B/E/S code according to its industry. For example, a financial firm will have an industry code 'one' as in the table above. Then I identify all non-event firms with the same industry code as the candidate reference firms.

Thirdly, from those identified candidate reference firms, I select all firms with a market value (MV) of equity between 70% to 130% of the market value of equity of the sample firm as the candidate reference firms. In the original BHARs approach, the candidate reference firms are partitioned into several equal sized portfolios based on the MVs. Because the candidate reference firms are filtered by 12 industries, on average the number of candidate reference firms is only 1/12 of the number of candidate reference firms without the industry filter. I adopt the (70%, 130%) approach to increase the chance of finding a control firm with similar characteristics. The restriction is relaxed (e.g. from 50% to 150%) for a few sample firms in cases where I could not find enough candidate reference firms.

Finally, within the surviving candidate reference firms, I choose the firm with the market-to-book-value (MTBV) closest to that of the sample firm as the control firm. Then the BHARs are calculated as the difference between the sample firm's share return and the control firm's share return each month.

Table A5.5 in the appendix shows the results of the industry-adjusted approach for the UK sample. The results are divided into two parts: one is based on the '5Y Non-overlapping Sample' and the other is based on the '3Y Non-overlapping Sample'. Figures A5.14 to A5.17 in the appendix compare the results based on the industry-adjusted approach with those based of the original CF model.

By examining Table A5.5 and the associated figures, *I can make the following points*:

1. The results of Table A5.5 which are based on the industry-adjusted CF model can serve as a robustness check to the results based on the original CF model. They show that, despite only a few variations, the results based on the industry-adjusted CF model are essentially similar to those based on the original CF model in Section 5.3. Take the '3Y Non-overlapping Sample' as an example. Based on the industry-adjusted CF model, the long run BHARs for domestic acquirers (either acquiring public or private targets) are negative and strongly statistically significant at least for the 2^{nd} year after the announcement date. The share price performance of the entire sample is also negative and strongly statistically significant after the 1^{st} year relative to the announcement date. These results are similar to those in Table A5.1.

2. The results based the industry-adjusted CF model present a revised scale of the long-run share price performance, although it does not fundamentally change the conclusions. For example, in Table A5.1 the mean BHARs for UK cross-border acquirers based on the '5Y Non-overlapping Sample' are as low as approximately -70% and statistically insignificant. The results in Table A5.5 show a revised amount of up to around -30% and statistically insignificant. Thus, in Figure A5.16, the yellow curve is less negative than the blue curve.

3. The adjustment for industry effects reduces the sources of the differences between the results of the '5Y Non-overlapping Sample' and '3Y Non-overlapping Sample'. I find that based on the industry-adjusted CF model, the differences between the mean BHARs of the '5Y Non-overlapping Sample' and the '3Y Non-overlapping Sample' are smaller than those based on the original CF model. This is applicable for all Figures A5.14 to A5.17. For

example, in Figure A5.15, the gap between the yellow curve and the light blue curve is smaller than that between the blue curve and the pink curve. In brief, to adjust the results with industry effects reduces the variations in BHARs.

Section 5.5 Long Run Share Price Performance of the Overlapping Sample

As noted in Section 5.2, although the pursuit of non-overlapping samples eliminates sample contamination and reduces the statistical biases caused by cross-sectional dependence in share abnormal returns, it is also important to evaluate whether and to what extent purging overlapping bidders has any impact on the results. When I purge the sample firms with the overlapping returns, I am forced to give up sample size because some bidders (especially some bidders with large MVs) are very frequently involved in M&A activities and they have to be left out of the non-overlapping samples. When the calendar time approach is employed, however, all bidders in the relevant calendar time periods are involved in the calculation, therefore it can serve the purpose of both a robustness check of the results based on the non-overlapping samples and an assessment of the impact of purging overlapping sample firms. This is important if the overlapping sample firms on average perform significantly differently from the non-overlapping sample firms. In this case, the detected abnormal returns based on the non-overlapping sample could be misleading about the overall performance of firms after M&A. Different performance could occur if 'overlapping' is a sign of experience in handling M&As and if experience is positively correlated with the post-M&A share price performance. Similarly, 'overlapping' could be linked to the bidding firm's ambition, the speed of expansion, etc., which could have an impact on the long run share price performance.

To employ the calendar month approach, I use the equally-weighted formula:

$$\overline{AR_t} = \sum_{i=1}^{n_t} AR_{it}$$

as I have discussed in Section 5.2, where n represents the number of event firms at time *t*. In the study of this section I define the event period of interest to be 5 years and the examined period is 1995-1999 (see below). Also I require that there must be at least five event firms in each month[5]. I selected Year 1995 to the end of Year 1999 as the calendar period to examine because this period represents a high level of M&A activity in the volume of M&A cases (and in the total value of the M&A activity). This helps to fulfil the requirement of at least five event firms in each calendar month. Then in each calendar month t of 1995-1999, n represents how many firms have events within the last 5 years and AR_{it} represents the abnormal return for security i at month t. Therefore $\overline{AR_t}$ is the mean abnormal return at the calendar month t. For the whole period of 1995-1999, the mean abnormal return is

$$\overline{AR} = \frac{1}{T}\sum_{t=1}^{T}\overline{AR_t}$$

as I have mentioned in Section 5.2, where T is the number of calendar months of the whole period.

As an example, In the case of my study in this section, a mean abnormal return of 0.001 based on the calendar time approach translates to a compounded 5 year holding abnormal return of approximately 6.18%. However, as I have mentioned, the mean abnormal return based on the calendar time approach must be treated with care. For one thing, a mean abnormal return based on the calendar time approach only tracks portfolio performance; for another, a mean abnormal return based on the calendar time approach cannot be translated into a holding return because the number of event firms included in the calendar time portfolio keeps changing in every month. In brief, it does not straightforwardly measure investors' experience.

To compare the results between the overlapping and the non-overlapping samples, I also calculate the performance of the '5Y Non-overlapping Sample' using the same CTFF model as I have discussed in Section 5.2. Table A5.6 in the appendix presents the results of the overlapping sample and the non-overlapping sample for the UK, France and Germany in turn.

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[5] Namely, $n \geq 5$ in the formula $\overline{AR_t} = \sum_{i=1}^{n_t} AR_{it}$. The requirement of '5 firms' worked well in my research and generally there were 5 or more in each month. For the UK overlapping sample, there can be tens of event firms for each month over the period 1995-1999.

At first I discuss the results for the UK sample.

The non-overlapping domestic bidding firms perform poorly with a mean abnormal return = -0.77% (significant at the 5% level) in Table A5.6 over the period 1995 to 1999. In contrast, the overlapping domestic acquirers' mean abnormal return is only -0.05% over the same period and is statistically insignificant.

The non-overlapping acquirers of private target firms experience negative but statistically insignificant average abnormal returns. The overlapping acquirers of private target firms experience positive mean abnormal returns equal to +0.74% but this is still not statistically significant.

Non-overlapping cross-border acquirers experience negative mean abnormal returns equal to -0.68%, with t=-1.54 (insignificant). The overlapping acquirers of cross-border target firms experience positive but again not statistically significant mean abnormal returns.

The last row of Table A5.6 puts all bidding firms together. Overall the UK non-overlapping sample experiences negative mean abnormal return equal to -0.77%, which is statistically significant at the 5% level. The entire UK overlapping sample produces small positive mean abnormal return which is not statistically significant.

By examining the UK results, we find that the mean abnormal returns of the non-overlapping samples are all negative and uniformly smaller than those of the overlapping samples. On the other hand, the mean abnormal returns of the overlapping samples are generally positive but not enough to be statistically significant.

To examine the robustness of the UK results in Table A5.6, I also employ the **CTCP** model (calendar time control portfolio) to calculate the mean abnormal returns for the UK acquirers.[6] The results are in Table 5.9 below. The numbers in the brackets are t-statistics.

[6] Due to data limitations, this approach is not performed for the French and German samples.

5.9 Post-M&A share price performance based on the CTCP model

UK Samples	Domestic	Private	Cross-border	All
Non-overlapping	-0.00773*** (-2.8672)	-0.00289 (-0.7136)	-0.0003 (-0.0742)	-0.00348 (-1.5459)
Overlapping	-0.00321 (-0.6294)	0.008786*** (2.6861)	0.002973 (0.9257)	0.003253 (1.1061)
Difference[7]	0.004526 (0.8285)	0.011676** (2.5057)	0.003269 (0.6409)	0.006729* (1.9002)

Table 5.9 again shows that the mean abnormal returns of the UK overlapping samples are uniformly higher than those of the UK non-overlapping samples. The mean abnormal returns for all UK non-overlapping sub-samples are all negative and for the 'Domestic' non-overlapping sub-sample are statistically significant at the 1% level. On the other hand, most of the mean abnormal returns for the UK overlapping sub-samples are positive in the table and for the 'Private' overlapping sub-sample are positive and statistically significant at the 1% level. We can see the results in Table 5.9 are consistent with those in Table A5.6, except the evidence for the 'Private' overlapping sub-sample is statistically stronger.

Table 5.9 also shows that, for the 'Private' sub-sample, the difference between the overlapping and non-overlapping groups is 1.68% and statistically significant at the 5% level. For the 'All' sample, the difference between two groups is 0.67% and statistically significant at the 10% level.

The results discussed above suggest that: 1) the results for the UK non-overlapping samples based on the calendar time approach are generally in line with those results in Section 5.3 (which are based on the CF/CP models). In Table A5.6, the mean abnormal returns for both UK domestic non-overlapping bidders of public targets and for the entire UK non-overlapping sample are negative and statistically significant. These results echo the earlier conclusion that 'hubris' or managerial motives may be important factors for non-overlapping bidders in the UK M&A markets; 2) it has been

[7] Difference=Overlapping-Non-overlapping

shown that generally the overlapping sub-samples outperform the non-overlapping samples. In a few cases, the differences of the average abnormal returns between two types of samples are statistically significant. This suggests that experienced and frequent UK acquirers perform much better than less experienced UK acquirers. This suggests that factors such as M&A experience may play a positive role in long run share price performance for UK bidders.

Turning to the French and German samples.

In Table A5.6 the French results[8] are not very different between the overlapping group and the non-overlapping group. All mean abnormal returns are small and not statistically significant.

The results for the Germany sample, however, are more clear-cut. The non-overlapping German domestic bidding firms experience insignificant post-acquisition share price performance, while the overlapping German domestic bidding firms have a negative mean abnormal return of -1.86%, which is statistically significant at the 1% level. The last section of Table A5.6 shows the mean abnormal returns for the entire non-overlapping sample and the entire overlapping sample. The mean abnormal return of the entire non-overlapping sample is -0.35% and not statistically significant. The mean abnormal return of the entire overlapping sample is -1.80%, which is significant at the 1% level. It indicates that 'overlapping' contributes negatively to the post-acquisition share price performance of German acquirers.

The results for the French and German samples suggest that: 1) the results of non-overlapping samples for the French and German markets are on balance in line with the results of Section 5.2. The French and German non-overlapping acquirers in general have insignificant average abnormal returns; 2) the results provide evidence that German overlapping acquirers perform relatively poorly, especially for domestic acquirers. This once again shows the importance of examining overlapping sample firms. However, the results contrast with the UK ones in which overlapping acquirers

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[8] Unfortunately, there is insufficient data to make a comparison between non-overlapping and overlapping acquirers in some cases. I label them with N/A in Table A5.6.

generally outperform non-overlapping acquirers. Surprisingly, in the German sample, more frequent acquirers appear to do less well than less frequent acquirers.

Section 5.6 High MV Bidding Firms versus Low MV Bidding Firms

Many studies on long term share price performance examine the impact of MTBV on long-run abnormal returns by partitioning their sample firms into different MTBV groups. However, very few studies have examined the impact of bidding firm' size (MV) on long term share performance. Therefore, this section pays attention to the impact of MV on long term share price performance.[9]

The impact of MV could be either positively or negatively related to share price performance. As a bigger bidder, the power of the agents may also be bigger, which makes monitoring more difficult and costly. Also, a bigger bidder may have less focus on the acquired firms. If these are true, we may see that lower average abnormal returns are associated with bigger bidders e.g. because of higher agency costs (or greater 'hubris'). On the other hand, a bigger bidder could also have more bargaining power in the acquisition process, more flexibility in financing the acquisition deal, and more adaptability and experience in absorbing target firms. If these are true, we may find that higher average abnormal returns are associated with bigger bidders because of lower premiums paid to targets and/or higher management skills. Therefore, by the analyses above we see mixed consequences, which make it important to examine the actual impact of MV on share price performance.

To actually examine the impact of MV on share price performance, I partition the parent sample into two sub-samples: one with 'bigger' MVs and another with 'smaller' MVs. First, for each market (the UK, France and Germany), I partition all listed firms in that market into ten equal sized groups according to the rankings of the MVs of firms. Therefore, firms in Groups 1-5 have MVs bigger than the median MV of all listed firms. Also, firms in Groups 6-10 have MVs smaller than the median MV of all listed firms in that market. Second, for each sample firm at Month -1 of the

[9] The impact of MTBV on long term share price performance is studied in the next chapter.

announcement, I define it as a firm with 'bigger' MV if it belongs to Groups 1-5 ranked by the sample firm's MV. In contrast, I define a sample firm as a firm with 'smaller' MV if it belongs to Groups 6-10. For most of the experiments in this section, the approach above will divide the parent samples to roughly two equal-sized sub-samples, namely one with 'bigger' MVs and another with 'smaller' MVs.[10]

One has to be very careful in dealing with MVs in studies of long-run share abnormal returns because sometimes asset pricing models cannot properly value average returns of portfolios formed from firms with very large or very small MVs. The issue is complex but as suggested by Lyon et al. (1999), the CF model (or the CP model with boot-strapped skewness-adjusted t-statistics) is more appropriate than other models when the scale of MV is the concern of the study. The experiments below are based on the CF model. The results based on the CP model are similar and not reported. To test the impact of MV I regress BHARs on MV dummies as below:

$$\text{BHAR}_i^t = \text{Intercept}_i^t + \beta_i^t \text{ MV Dummy}_i^t + \varepsilon_i^t$$

where

BHAR_i^t = the BHAR of firm *i* at month t relative to the announcement month

'MV Dummy' = 1 if, at month -1 relative to the announcement month, firm *i* has 'bigger' MV; otherwise MV Dummy = 0.

Tables A5.7 to A5.9 in the appendix present the results for the UK, France and Germany in turn. Almost no intercept term is statistically significant in the tests, therefore in the tables only the coefficients of the MV dummy are reported. The '3Y Non-overlapping Sample' shows very similar results to the '5Y Non-overlapping Sample' for the first three years. Therefore in Tables A5.7 to A5.9 I report the results based on the '5Y Non-overlapping Sample' only, as it has the advantage of examining the 4th and 5th years' performance.

[10] Cross-border bidders often have big MVs. Therefore in a few cases, I define a cross-border sample as a firm with 'bigger' MV if it belongs to Groups 1-3, and as a firm with 'smaller' MV if it belong to Groups 4-10. This aim is to partition the parent sample into two roughly equal-sized sub-samples.

In Tables A5.7 there is some evidence that larger UK domestic acquirers of public targets are underperformers over the (+21M, +48M) period, compared with small UK domestic acquirers of public targets. The MV dummies are not statistically significant for UK domestic acquirers of private targets and UK cross-border acquirers (except one case). There is also some evidence that larger German cross-border acquirers perform better than relatively small ones over the (+33M, +60M) period as in Table A5.9. German domestic acquirers (Table A5.9) and all French acquirers (Table A5.8) are not very sensitive to MV effects.

I also make a closer examination on how exactly UK domestic acquirers of public targets and German cross-border acquirers perform in the long run.[11] The results are presented by Figures A5.18 to A5.19 in the appendix.

Figure A5.18 in the appendix shows the mean BHARs in the long run for UK domestic acquirers of public targets. It shows that 'smaller' UK domestic acquirers of public targets experience about 'zero' performance in the long run, while large ones experience negative share price abnormal performance although this is only statistically significant at the 10% level around the 3rd and 4th year after the announcement date. The results based on the industry-adjusted benchmark of Section 5.4 are similar (not reported), except the mean BHARs for smaller acquirers are less negative around the 3rd and 4th year than those BHARs based on the original MV/MTBV benchmark.

Figure A5.19 in the appendix presents the BHARs for German cross-border acquirers. It shows that German cross-border acquirers with 'bigger' MVs on average experience large positive abnormal share price performance after two years. On the other hand, German cross-border acquirers with 'smaller' MVs on average have negative wealth effects of up to -0.2.

In summary, by analysing all the results presented in this section, *I can make the following points*: 1) I find that the scale of bidding firms' MVs before the announcement has impacts on long run share price performance. It is mainly

[11] Because the MV only has impacts on these two groups, according to Tables A5.7 to A5.9.

supported by UK domestic acquisitions of publicly-listed targets and German cross-border bidding firms. For UK domestic acquisitions of publicly-listed targets, 'smaller' ones are better performers. This could be a result of the sharper focus given by relatively smaller acquirers to the combined firm. This also could be a result of higher agency costs associated with 'larger' bidders because it is more difficult to monitor managers of bigger firms. Later in Chapter 6, the impact of MV on share price performance will be further examined for the UK market using multi-factor regression models; 2) for German cross-border bidding firms, 'smaller' firms are underperformers however. 'Bigger' German cross-border bidders are more likely to perform well. This could indicate that there is less 'hubris' or 'agency costs' for 'bigger' German cross-border bidders in contrast with the UK results above. This also could be the results of higher financial and bargaining power (or better management skills) associated with 'bigger' acquiring firms.

Section 5.7 Conclusion

This chapter has examined the long run share performance of bidding firms after M&As for the UK, France and Germany. This chapter has focused on the following issues: 1) it has performed a full examination of the long run wealth effects of bidding firms of both domestic and cross-border M&As. It has also examined the long run wealth effects of domestic acquirers of private targets for the UK markets; 2) it has employed a variety of methodologies which are robust to some recent criticisms of long run event studies; 3) it has particularly examined the wealth effects of overlapping bidders for all three countries, in response to the possible concerns that the sample size loss of pursuing non-overlapping samples and whether the share price performance is different between non-overlapping and overlapping samples; 4) it has particularly examined the impacts of MV on the long run share price performance for all three markets. The earlier studies on the third and fourth issues have been limited.

The results in this chapter show that there is some strong evidence that UK domestic bidders acquiring listed targets do underperform in the long run. This finding holds irrespective of which model (the CF/CP model and/or the calendar time approach) is used. This suggests that 'hubris' or 'managerial motives' are important factors in driving M&As in the domestic markets for the UK. On the other hand, it appears that the France non-overlapping sample firms are less likely to be motivated by 'hubris' or managerial reasons. There is little evidence of statistically significant long run BHARs for the France sample. The results for the German sample depend on the model used. There is some evidence that German non-overlapping domestic acquirers have statistically underperformed in the long run if the results are based on the CF model.

Also, the chapter reveals that profitability based on the non-overlapping sample could be an incomplete description of the performance of all acquirers. This is mainly shown in the UK sample where the mean abnormal returns of the overlapping sample are higher than those of the non-overlapping sample. Surprisingly, it is also observed in the German domestic sample that more frequent acquirers appear to do less well than their non-overlapping counterpart. These results suggest that factors such as experience of acquisitions, managers' ambition and/or their corporate control strategy (e.g. aggressive or not aggressive) could play a role in explaining variations of post-acquisition share price performance. However, because the calendar time approach used in this part of the study does not straightforwardly measure investors' experience, we need to treat the results with care.

Finally, the chapter also shows that the scale of the bidding firms' MVs before the announcement has an impact on the long run share performance in some cases. This is supported by UK domestic acquirers of public targets as well as German cross-border sample firms. For the former (the UK case), 'smaller' acquirers on average outperform 'bigger' acquirers. This could be a result of high agency costs associated with 'bigger' acquirers because managers of 'bigger' acquirers are more powerful and difficult to monitor. For the latter (the German case), 'smaller' acquirers under-perform 'bigger' acquirers. This suggests that there is less 'hubris' or managerial motives associated with 'bigger' German cross-border firms, in contrast to the UK case. This also could be the result of higher financial and bargaining power (or better management skills) associated with 'bigger' cross-border acquiring firms in Germany.

Appendix: Chapter 5

Table A5.1
Mean BHARs of the UK sample, based on the "5Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.141906	-2.053	0.052		-2.224	0.122		-0.049985	-0.645	0.525		-0.582	0.638	
	2 year	-0.185997	-1.572	0.130		-1.574	0.180		-0.143670	-1.117	0.275		-1.037	0.943	
	3 year	-0.243788	-1.441	0.163		-1.382	0.539		-0.146839	-0.829	0.415		-0.777	0.878	
	4 year	-0.440885	-1.821	0.082	*	-1.917	0.195		-0.210177	-1.005	0.326		-0.977	0.870	
	5 year	-0.104888	-0.547	0.590		-0.509	0.904		-0.016551	-0.096	0.925		-0.084	0.870	
	n=24														
Private	1 year	0.070597	0.900	0.375		0.942	0.249		0.138961	1.902	0.066	*	2.041	0.023	**
	2 year	0.058236	0.453	0.653		0.481	0.495		0.028497	0.218	0.829		0.2401	0.5969	
	3 year	0.095683	0.625	0.536		0.675	0.231		0.014484	0.095	0.925		0.123	0.456	
	4 year	-0.003612	-0.012	0.990		0.037	0.426		-0.079145	-0.306	0.762		-0.224	0.320	
	5 year	-0.157278	-0.841	0.406		-0.892	0.208		-0.255667	-1.512	0.140		-1.481	0.117	
	n=34														

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Cross-border	1 year	-0.128777	-0.927	0.368		-0.860	0.976		-0.067273	-0.609	0.551		-0.583	0.885	
	2 year	-0.395676	-1.807	0.090	*	-1.789	0.680		-0.237970	-1.829	0.086	*	-1.578	0.622	
	3 year	-0.707441	-2.862	0.011	**	-3.096	0.127		-0.528831	-2.865	0.011	**	-1.690	0.226	
	4 year	-0.646239	-2.229	0.041	**	-2.148	0.660		-0.643112	-2.888	0.011	**	-2.128	0.739	
	5 year	-0.701736	-1.742	0.101		-1.931	0.371		-0.673523	-2.304	0.035	**	-1.494	0.707	
	n=17														
ALL	1 year	-0.042595	-0.804	0.424		-0.782	0.283		0.031752	0.648	0.519		0.670	0.433	
	2 year	-0.122805	-1.415	0.161		-1.390	0.104		-0.086996	-1.114	0.269		-1.056	0.100	*
	3 year	-0.194989	-1.787	0.078	*	-1.752	0.041	**	-0.160291	-1.599	0.114		-1.483	0.042	**
	4 year	-0.289201	-1.733	0.087	*	-1.546	0.695		-0.248908	-1.719	0.090	*	-1.425	0.818	
	5 year	-0.263924	-1.893	0.062	*	-2.021	0.005	***	-0.273864	-2.337	0.022	**	-2.196	0.009	***
	n=75														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Table A5.1 -Continued.
Mean BHARs of the UK sample, Based on the "3Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.110445	-1.800	0.077	*	-1.810	0.096	*	-0.053639	-1.046	0.300		-0.987	0.718	
	2 year	-0.195468	-2.397	0.020	**	-2.598	0.001	***	-0.113076	-1.538	0.129		-1.539	0.015	**
	3 year	0.024093	0.220	0.826		0.228	0.833		0.004151	0.040	0.968		0.055	0.476	
	n=62														
Private	1 year	-0.053488	-1.097	0.275		-1.112	0.078	*	-0.073099	-1.539	0.127		-1.507	0.021	**
	2 year	-0.140795	-1.819	0.072	*	-1.740	0.002	***	-0.150770	-2.167	0.033	**	-2.034	0.001	***
	3 year	-0.178606	-1.954	0.054	*	-1.838	0.509		-0.174135	-1.993	0.049	**	-1.864	0.280	
	n=95														
Cross-border	1 year	-0.002194	-0.033	0.974		-0.028	0.794		0.010487	0.168	0.868		0.176	0.676	
	2 year	-0.051779	-0.442	0.661		-0.375	0.802		-0.042512	-0.394	0.695		-0.324	0.657	
	3 year	-0.111764	-0.774	0.442		-0.717	0.932		-0.144590	-1.179	0.244		-1.057	0.781	
	n=51														

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
ALL	1 year	-0.057889	-1.748	0.082	*	-1.755	0.000	***	-0.046804	-1.529	0.128		-1.499	0.000	***
	2 year	-0.135266	-2.626	0.009	***	-2.471	0.000	***	-0.112990	-2.422	0.016	**	-2.244	0.000	***
	3 year	-0.100407	-1.578	0.116		-1.524	0.020	**	-0.112519	-1.921	0.056	*	-1.830	0.002	***
	n=208														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Fig. A5.1 --Long Term Performance of UK Domestic M&As

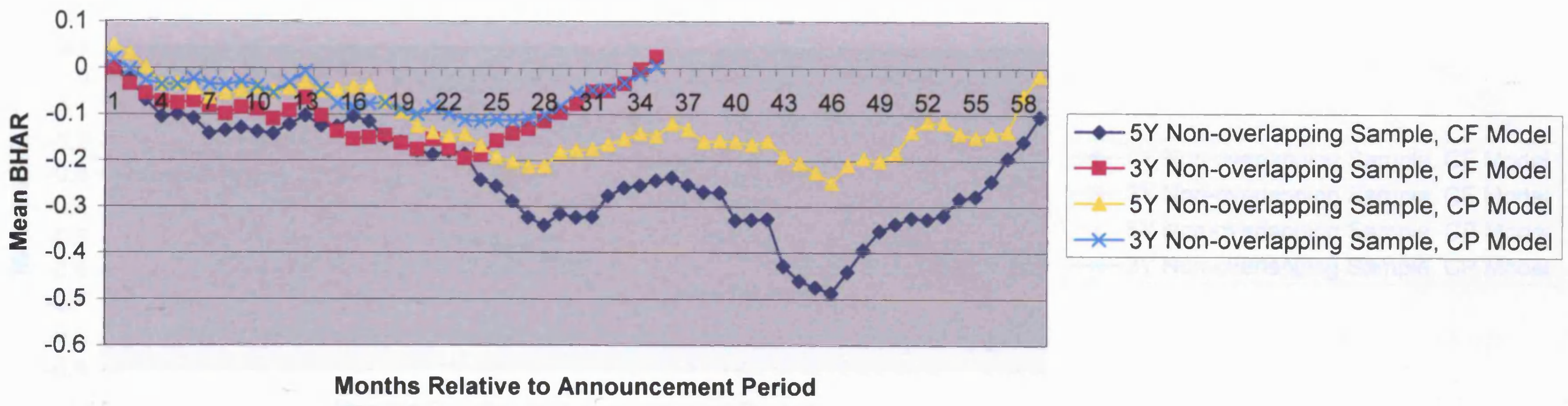
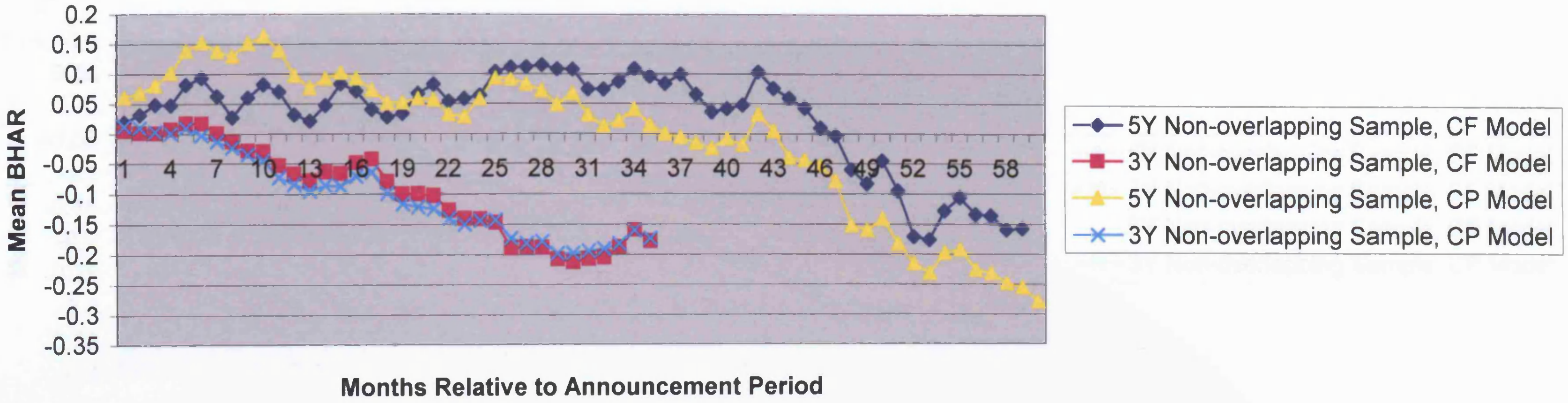


Fig. A5.2 --Long Term Performance of UK Private M&As



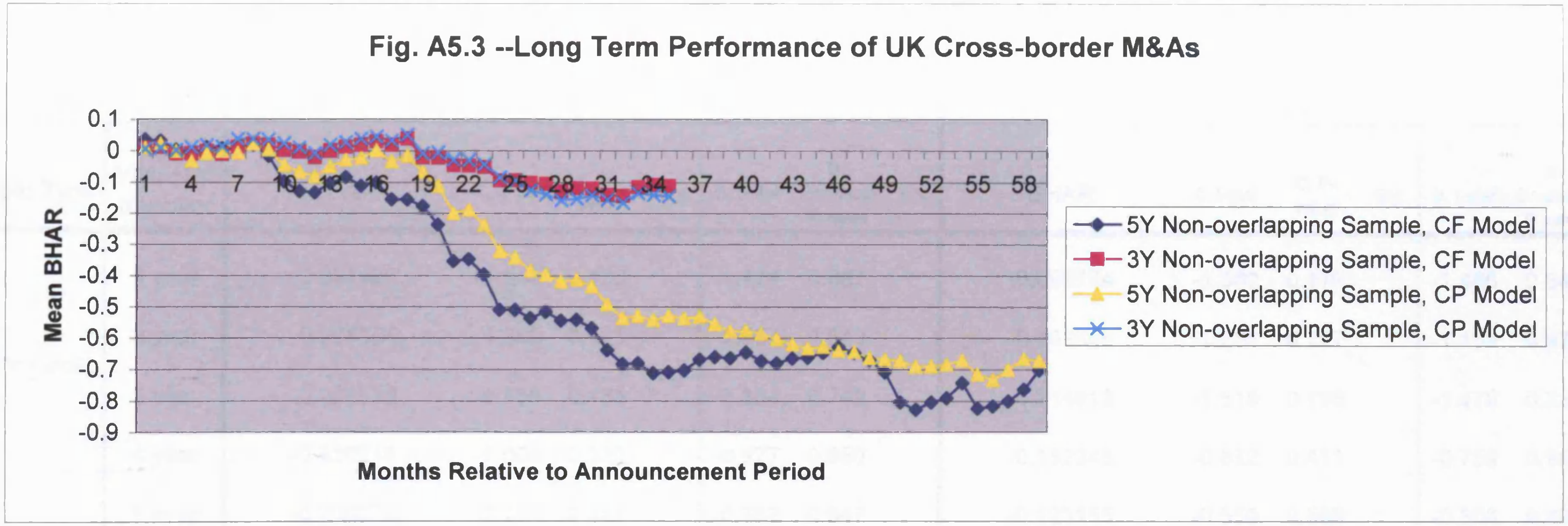


Fig. A5.3 --Long Term Performance of UK Cross-border M&As
Mean BHAR
Months Relative to Announcement Period
5Y Non-overlapping Sample, CF Model
3Y Non-overlapping Sample, CF Model
5Y Non-overlapping Sample, CP Model
3Y Non-overlapping Sample, CP Model

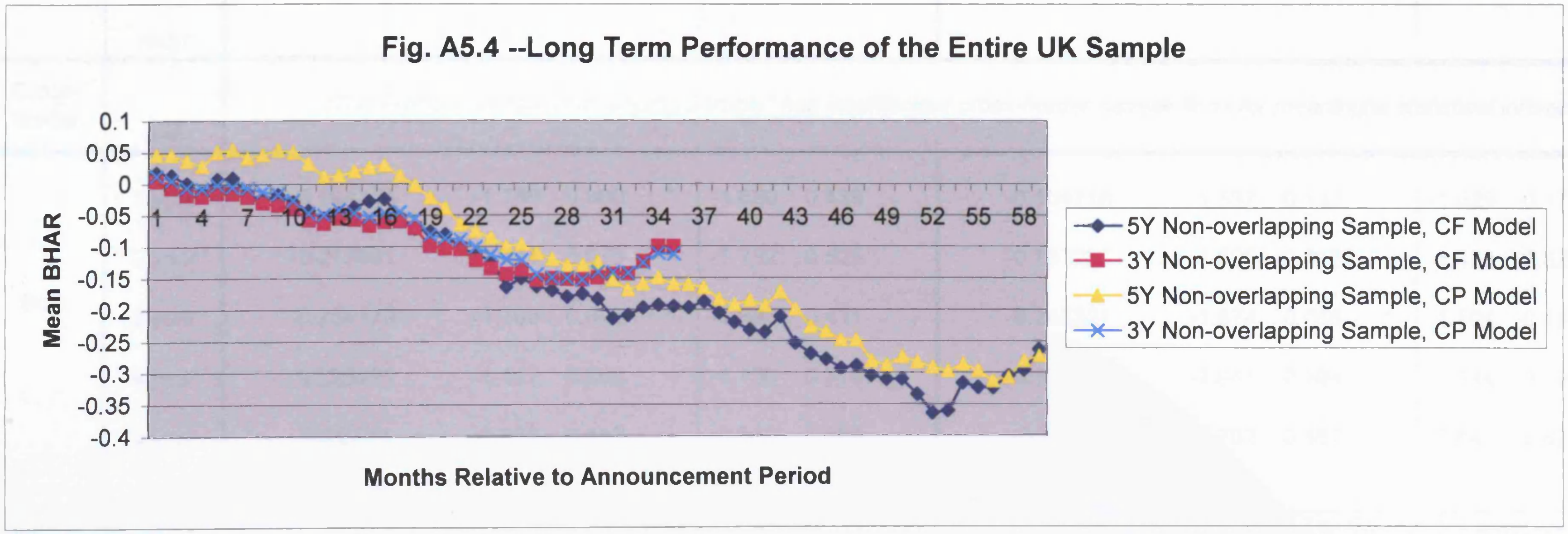


Fig. A5.4 --Long Term Performance of the Entire UK Sample
Mean BHAR
Months Relative to Announcement Period
5Y Non-overlapping Sample, CF Model
3Y Non-overlapping Sample, CF Model
5Y Non-overlapping Sample, CP Model
3Y Non-overlapping Sample, CP Model

Table A5.2
Mean BHARs of the French sample, based on the "5Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.087486	-1.548	0.130		-1.474	0.697		-0.099724	-1.380	0.176		-1.466	0.348	
	2 year	-0.264654	-1.589	0.121		-1.557	0.549		-0.169846	-1.286	0.207		-1.159	0.978	
	3 year	-0.222553	-1.358	0.183		-1.364	0.749		-0.214913	-1.518	0.138		-1.479	0.233	
	4 year	-0.220218	-1.008	0.320		-0.977	0.650		-0.152346	-0.832	0.411		-0.759	0.951	
	5 year	-0.200379	-0.753	0.457		-0.732	0.947		-0.123155	-0.559	0.580		-0.506	0.897	
	n=37														
Cross-border	n=5	*(The French "5Y Non-overlapping Sample" has insuffiecient cross-border sample firms for meaningful statistical inference.)*													
Both	1 year	-0.094324	-1.759	0.086	*	-1.680	0.429		-0.104718	-1.537	0.132		-1.629	0.171	
	2 year	-0.277461	-1.841	0.073	*	-1.792	0.525		-0.197225	-1.626	0.112		-1.438	0.829	
	3 year	-0.254170	-1.705	0.096	*	-1.698	0.411		-0.243321	-1.874	0.068	*	-1.804	0.186	
	4 year	-0.228391	-1.147	0.258		-1.109	0.514		-0.175329	-1.041	0.304		-0.944	0.592	
	5 year	-0.20549	-0.833	0.410		-0.809	0.684		-0.14442	-0.702	0.487		-0.641	0.671	
	n=42														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Table A5.2 -Continued
Mean BHARs of the French sample, based on the "3Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.086030	-1.314	0.194		-1.368	0.139		-0.034407	-0.590	0.558		-0.595	0.560	
	2 year	-0.007180	-0.051	0.959		-0.029	0.855		0.031820	0.268	0.790		0.295	0.490	
	3 year	-0.011497	-0.077	0.939		-0.043	0.781		-0.000455	-0.004	0.997		0.023	0.407	
	n=56														
Cross-border	1 year	-0.287551	-1.473	0.165		-1.526	0.554		-0.136256	-0.877	0.397		-0.832	0.949	
	2 year	-0.185357	-0.738	0.474		-0.844	0.424		-0.053023	-0.252	0.805		-0.235	0.843	
	3 year	-0.092153	-0.375	0.714		-0.413	0.180		-0.011574	-0.066	0.949		-0.080	0.375	
	n=14														
Both	1 year	-0.126335	-1.935	0.057	*	-2.033	0.002	***	-0.054777	-0.983	0.329		-0.983	0.132	
	2 year	-0.042816	-0.349	0.728		-0.332	0.907		0.014852	0.144	0.886		0.165	0.593	
	3 year	-0.026916	-0.208	0.836		-0.179	0.769		-0.002581	-0.023	0.981		-0.001	0.810	
	n=70														

Figures shown are the BHARs for 1- to 3-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Fig. A5.5 --Long Term Performance of French Domestic M&As

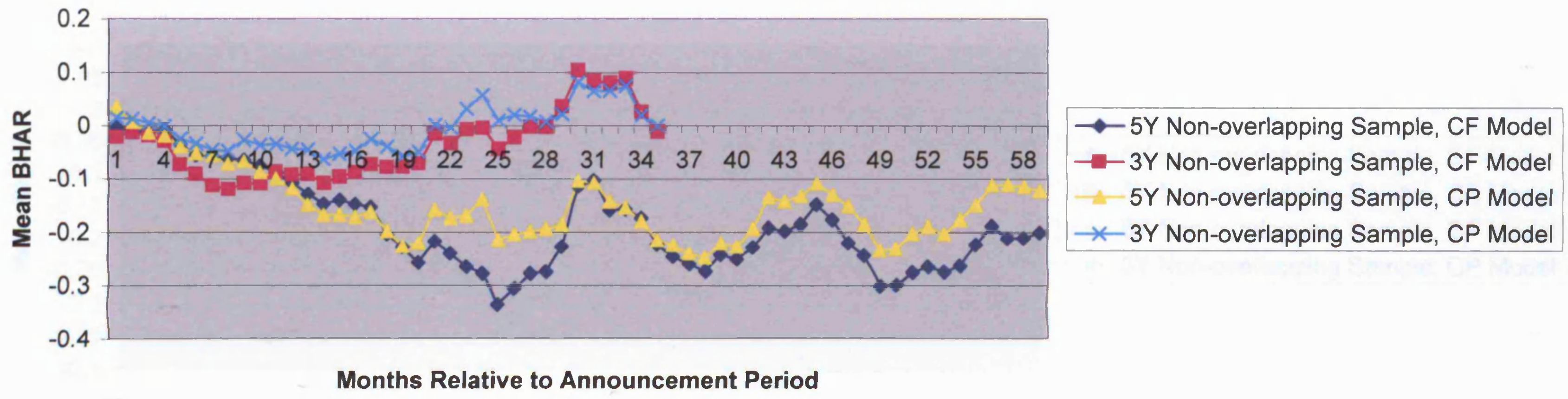


Fig. A5.6 --Long Term Performance of French Cross-border M&As

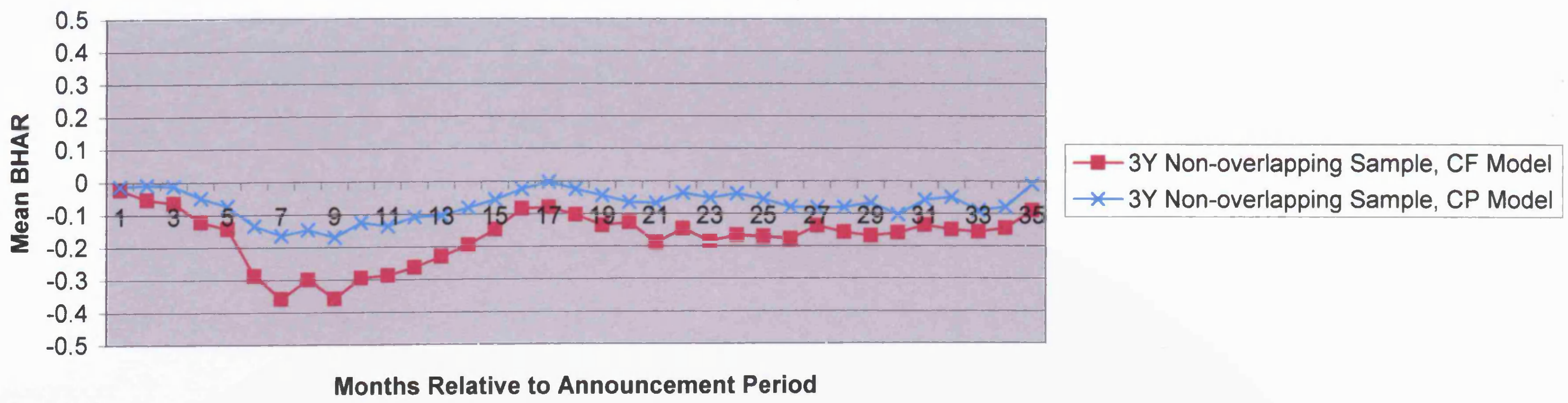


Fig. A5.7 --Long Term Performance of the Entire French Sample

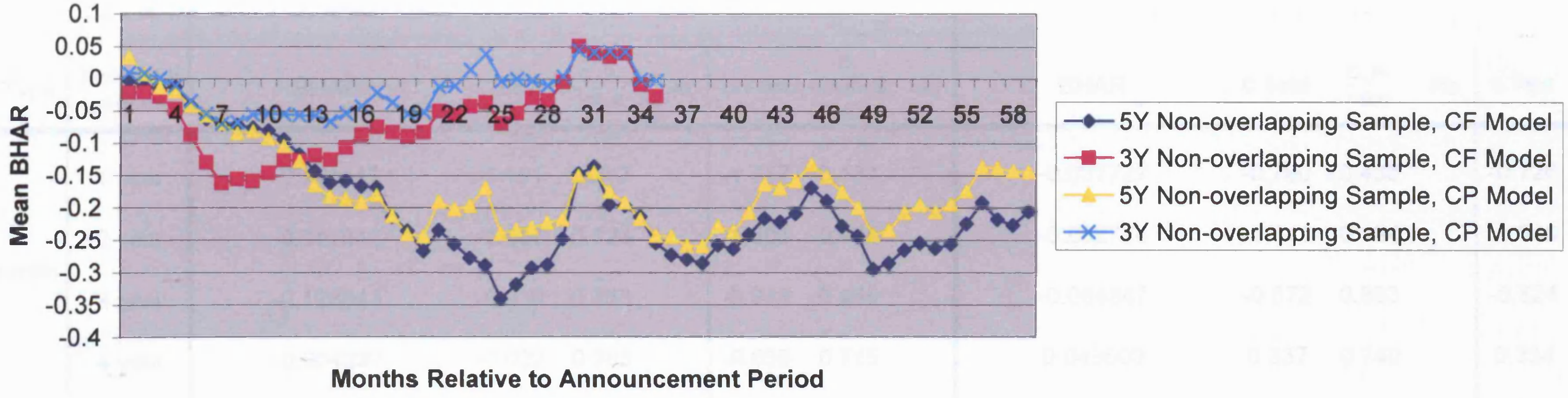


Table A5.3
Mean BHARs of the German sample, based on the "5Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.101112	-1.191	0.247		-1.417	0.184		-0.037727	-0.790	0.438		-0.726	0.885	
	2 year	-0.183013	-1.607	0.123		-1.803	0.194		-0.082718	-1.341	0.194		-1.310	0.580	
	3 year	-0.128043	-0.930	0.363		-0.943	0.469		-0.084847	-0.872	0.393		-0.824	0.992	
	4 year	-0.004237	-0.022	0.983		-0.058	0.715		0.049600	0.337	0.740		0.334	0.826	
	5 year	0.047871	0.134	0.894		0.102	0.728		0.234004	0.924	0.366		0.971	0.380	
	n=22														
Cross-border	1 year	-0.181621	-1.855	0.088	*	-1.804	0.616		-0.053384	-0.762	0.461		-0.752	0.961	
	2 year	-0.097134	-1.048	0.315		-1.119	0.534		-0.167074	-1.789	0.099	*	-2.108	0.178	
	3 year	-0.003433	-0.028	0.978		-0.007	0.825		0.030443	0.250	0.807		0.243	0.960	
	4 year	0.173780	1.145	0.275		1.089	0.712		0.070297	0.475	0.643		0.469	0.992	
	5 year	0.247235	1.060	0.310		1.049	0.759		0.214838	1.249	0.236		1.281	0.526	
	n=13														

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Both	1 year	-0.149814	-1.892	0.067	*	-2.516	0.002	***	-0.057889	-1.663	0.106		-1.666	0.187	
	2 year	-0.155925	-1.807	0.080	*	-1.969	0.133		-0.117118	-2.047	0.048	**	-2.061	0.237	
	3 year	-0.096092	-0.978	0.335		-1.003	0.378		-0.060848	-0.771	0.446		-0.763	0.521	
	4 year	0.105066	0.786	0.437		0.747	0.888		0.085921	0.776	0.443		0.792	0.386	
	5 year	0.122915	0.530	0.599		0.477	0.779		0.197438	1.213	0.234		1.246	0.349	
	n=35														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Table A5.3 -Continued
Mean BHARs of the German sample, based on the "3Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	-0.144773	-1.813	0.079	*	-2.197	0.014	**	-0.038937	-0.828	0.413		-0.859	0.433	
	2 year	-0.283205	-2.545	0.016	**	-2.900	0.008	***	-0.091665	-1.889	0.067	*	-1.799	0.175	
	3 year	-0.254016	-1.867	0.070	*	-1.943	0.071	*	-0.044987	-0.595	0.556		-0.579	0.650	
	n=35														
Cross-border	1 year	-0.016115	-0.225	0.824		-0.217	0.926		0.043458	0.568	0.577		0.608	0.518	
	2 year	0.002812	0.033	0.974		0.031	0.945		-0.015633	-0.166	0.870		-0.139	0.793	
	3 year	-0.057483	-0.570	0.576		-0.580	0.776		0.048751	0.470	0.644		0.479	0.762	
	n=20														
Both	1 year	-0.120046	-1.733	0.089	*	-2.142	0.001	***	-0.022806	-0.532	0.597		-0.523	0.744	
	2 year	-0.179160	-2.194	0.033	**	-2.438	0.001	***	-0.061951	-1.312	0.195		-1.245	0.156	
	3 year	-0.202374	-2.076	0.043	**	-2.202	0.007	***	-0.022953	-0.369	0.713		-0.364	0.524	
	n=55														

Figures shown are the BHARs for 1- to 3-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Fig A5.8 --Long Term Performance of German Domestic M&As

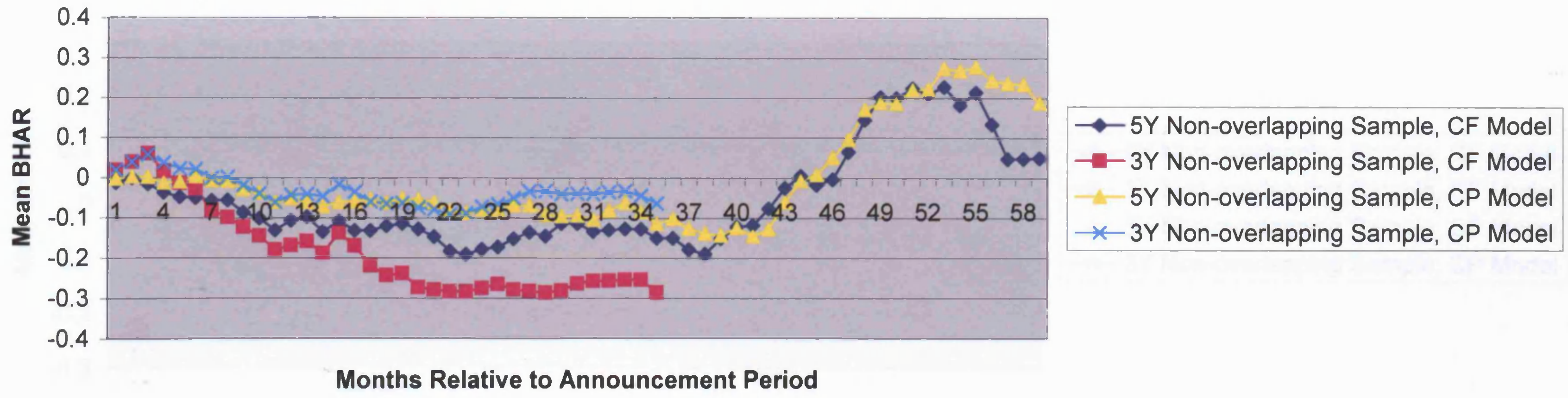


Fig. A5.9 --Long Term Performance of German Cross-border M&As

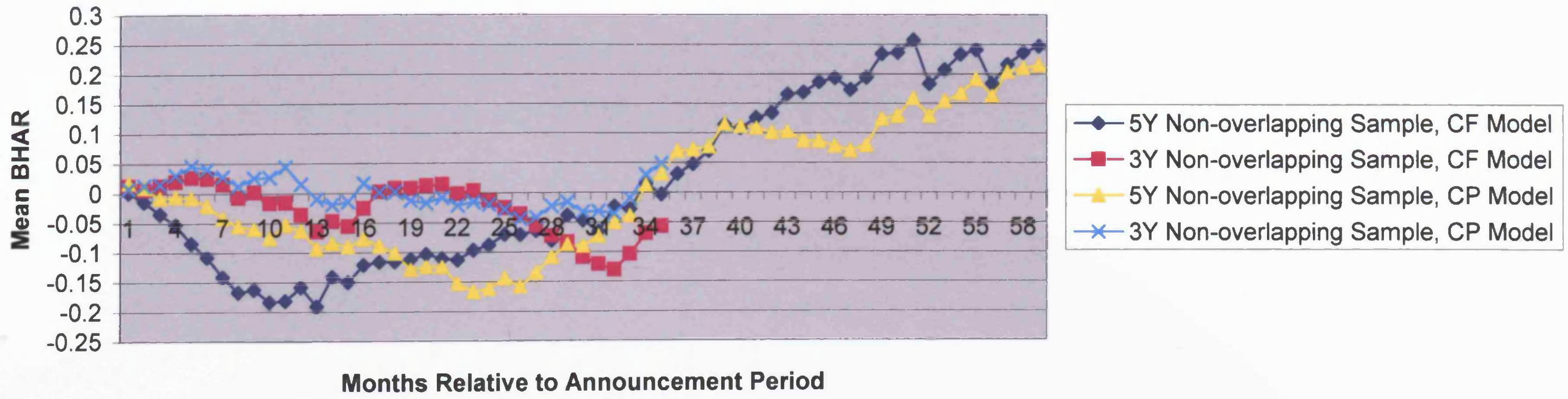


Fig. A5.10 --Long Term Performance of the Entire German Sample

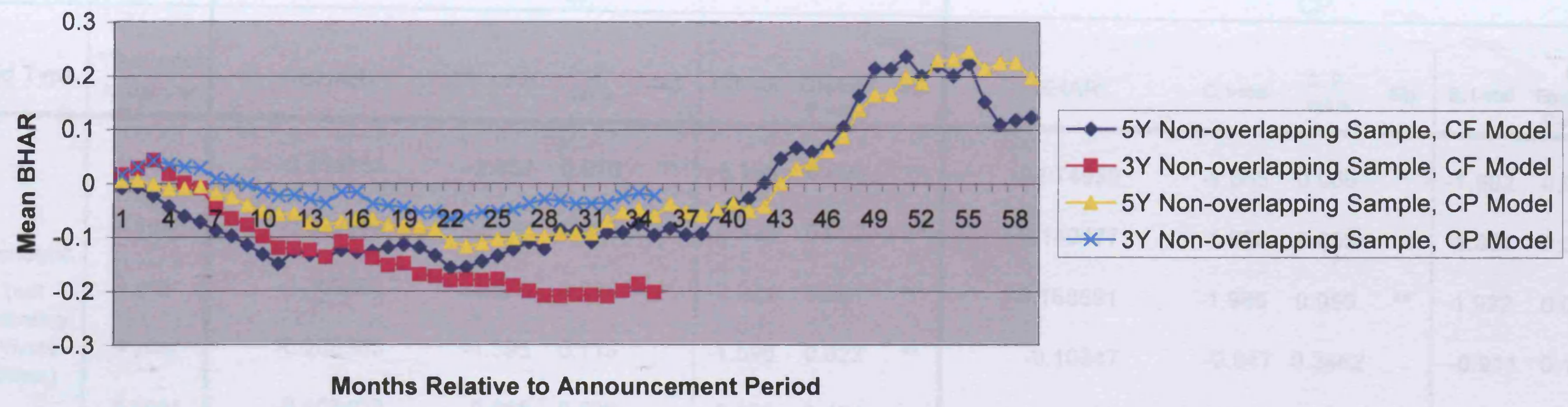


Table A5.4
Mean BHARs of the entire sample, based on the "5Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic (not including Private Offers)	1 year	-0.114761	-2.637	0.010	**	-3.164	0.000	***	-0.074959	-1.865	0.066	*	-1.902	0.020	**
	2 year	-0.222299	-2.538	0.013	**	-2.528	0.002	***	-0.140477	-1.960	0.053	*	-1.801	0.050	**
	3 year	-0.209686	-2.220	0.029	**	-2.221	0.001	***	-0.168691	-1.986	0.050	**	-1.922	0.017	**
	4 year	-0.208568	-1.595	0.115		-1.596	0.023	**	-0.10347	-0.947	0.3462		-0.911	0.160	
	5 year	-0.105402	-0.668	0.506		-0.673	0.404		-0.008700	-0.069	0.945		-0.053	0.588	
	n=83														
Cross-border	1 year	-0.152370	-1.901	0.066	*	-1.748	0.146		-0.071803	-1.103	0.278		-1.077	0.487	
	2 year	-0.281557	-2.408	0.022	**	-2.514	0.130		-0.235864	-3.025	0.005	***	-2.749	0.068	*
	3 year	-0.419343	-2.936	0.006	***	-3.374	0.003	***	-0.312317	-2.729	0.010	**	-2.330	0.404	
	4 year	-0.292438	-1.709	0.097	*	-1.788	0.122		-0.340315	-2.409	0.022	**	-2.278	0.095	*
	5 year	-0.285926	-1.188	0.243		-1.290	0.257		-0.294126	-1.592	0.121		-1.443	0.390	
	n=34														

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Both	1 year	-0.125690	-3.263	0.001	***	-3.584	0.000	***	-0.074041	-2.174	0.032	**	-2.188	0.000	***
	2 year	-0.239519	-3.393	0.001	***	-3.399	0.000	***	-0.168196	-3.024	0.003	***	-2.717	0.000	***
	3 year	-0.270612	-3.426	0.001	***	-3.508	0.000	***	-0.210428	-3.057	0.003	***	-2.896	0.000	***
	4 year	-0.232940	-2.220	0.028	**	-2.232	0.000	***	-0.172294	-1.960	0.052	*	-1.865	0.002	***
	5 year	-0.158314	-1.202	0.232		-1.224	0.027	**	-0.092359	-0.882	0.380		-0.847	0.174	
	n=117														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Table A5.4- Continued.
Mean BHARs of the entire sample, based on the "3Y Non-overlapping Sample"

Model→		CF							CP						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic (not including Private Offers)	1 year	-0.117291	-2.843	0.005	***	-3.100	0.000	***	-0.04821	-1.515	0.132		-1.491	0.000	***
	2 year	-0.146609	-2.195	0.030	**	-2.097	0.000	***	-0.054402	-1.008	0.315		-0.963	0.027	**
	3 year	-0.060553	-0.780	0.437		-0.752	0.061	*	-0.013306	-0.204	0.839		-0.188	0.994	
	n=153														
Cross-border	1 year	-0.052470	-0.963	0.338		-0.977	0.042	**	-0.005925	-0.122	0.903		-0.116	0.812	
	2 year	-0.060935	-0.731	0.467		-0.687	0.702		-0.03792	-0.500	0.619		-0.448	0.902	
	3 year	-0.095416	-0.985	0.327		-0.939	0.306		-0.076346	-0.928	0.356		-0.874	0.562	
	n=85														
Both	1 year	-0.094141	-2.862	0.005	***	-3.018	0.000	***	-0.033107	-1.235	0.218		-1.220	0.000	***
	2 year	-0.116011	-2.222	0.027	**	-2.125	0.000	***	-0.048515	-1.104	0.271		-1.051	0.005	***
	3 year	-0.072823	-1.200	0.231		-1.161	0.002	***	-0.035492	-0.694	0.488		-0.671	0.101	
	n=238														

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

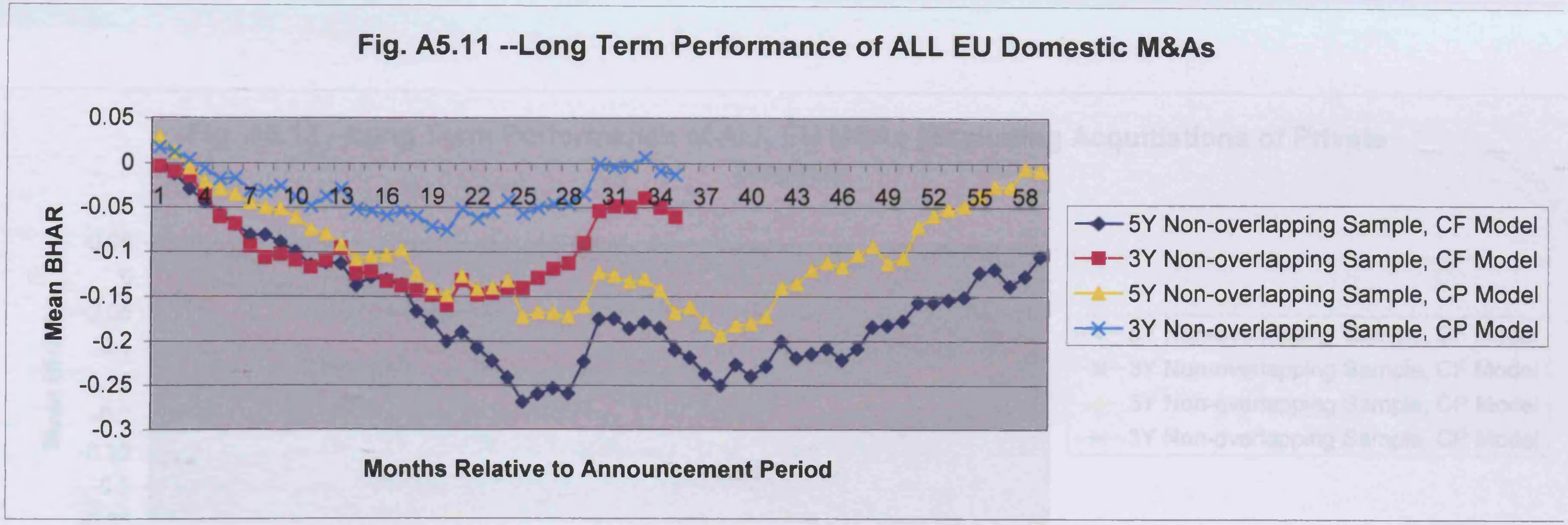


Fig. A5.11 --Long Term Performance of ALL EU Domestic M&As
Mean BHAR
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
-0.3
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58
Months Relative to Announcement Period
5Y Non-overlapping Sample, CF Model
3Y Non-overlapping Sample, CF Model
5Y Non-overlapping Sample, CP Model
3Y Non-overlapping Sample, CP Model

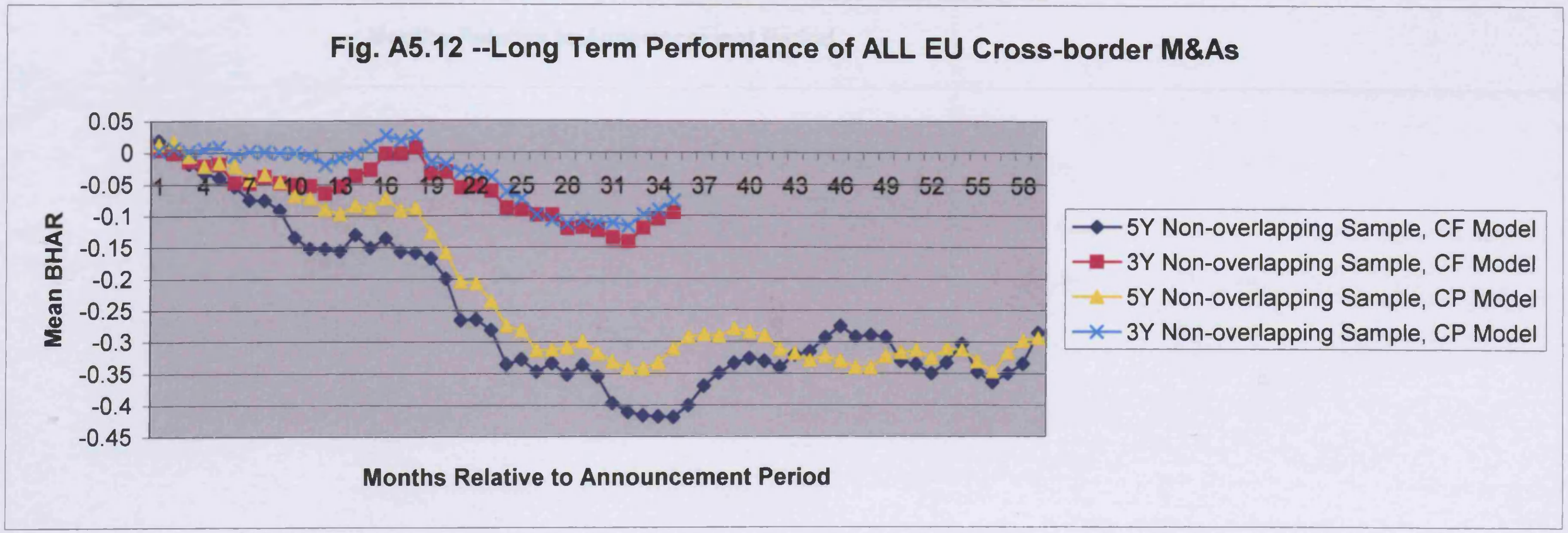


Fig. A5.12 --Long Term Performance of ALL EU Cross-border M&As
Mean BHAR
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
-0.3
-0.35
-0.4
-0.45
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58
Months Relative to Announcement Period
5Y Non-overlapping Sample, CF Model
3Y Non-overlapping Sample, CF Model
5Y Non-overlapping Sample, CP Model
3Y Non-overlapping Sample, CP Model

Fig. A5.13 --Long Term Performance of ALL EU M&As (Excluding Acquitistions of Private Targets)

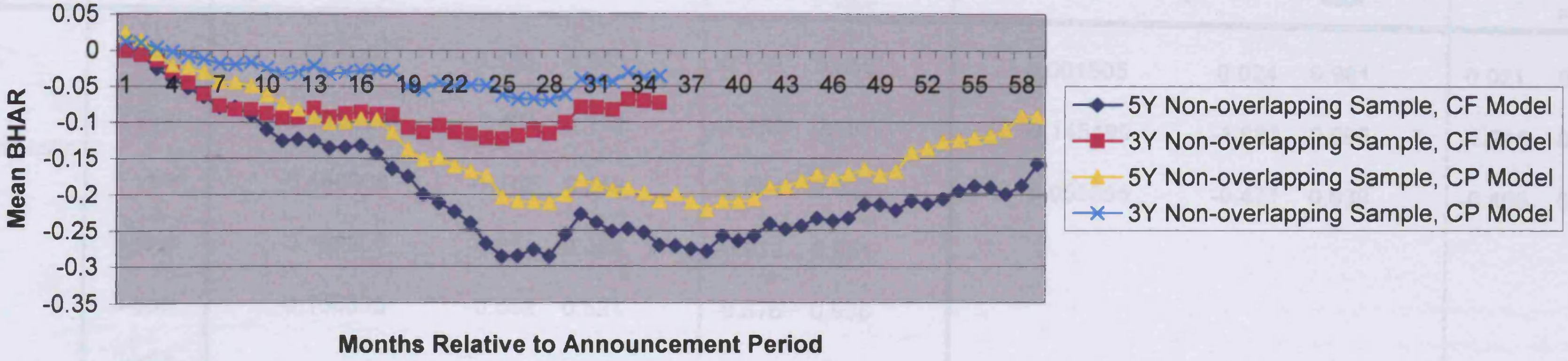


Table A5.5
Mean BHARs of the UK sample, based on the industry-adjusted CF model

Sample→		5Y Non-overlapping Sample							3Y Non-overlapping Sample						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Domestic	1 year	0.011535	0.153	0.880		0.159	0.856		0.001505	0.024	0.981		0.021	0.735	
	2 year	-0.216324	-1.484	0.151		-1.433	0.197		-0.145499	-1.697	0.095	*	-1.715	0.002	***
	3 year	-0.188908	-1.182	0.249		-1.064	0.922		-0.055855	-0.471	0.639		-0.468	0.885	
	4 year	-0.188950	-0.951	0.351		-0.912	0.951								
	5 year	-0.135335	-0.652	0.521		-0.676	0.986								
	n=24								n=62						
Private Offering	1 year	0.022235	0.293	0.771		0.287	0.396		-0.058590	-1.237	0.219		-1.276	0.003	***
	2 year	-0.109554	-0.694	0.493		-0.707	0.191		-0.163498	-2.024	0.046	**	-2.133	0.000	***
	3 year	0.016241	0.090	0.929		0.100	0.783		-0.253041	-2.496	0.014	**	-2.487	0.000	***
	4 year	0.022015	0.077	0.939		0.148	0.483								
	5 year	-0.107991	-0.697	0.491		-0.665	0.232								
	n=34								n=95						

Sample→		5Y Non-overlapping Sample							3Y Non-overlapping Sample						
Bid Type	Year post takeover	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.	BHAR	C. t-stat	C. P-value	Sig.	B. t-stat	B. Empirical P-value	Sig.
Cross-border	1 year	0.047070	0.383	0.707		0.395	0.692		0.058226	0.739	0.464		0.768	0.636	
	2 year	-0.012641	-0.056	0.956		-0.023	0.703		0.042216	0.327	0.745		0.378	0.350	
	3 year	-0.180971	-1.076	0.299		-1.005	0.922		-0.049890	-0.373	0.711		-0.365	0.908	
	4 year	-0.314302	-1.783	0.095	*	-1.690	0.545								
	5 year	-0.318880	-1.302	0.213		-1.152	0.893								
	n=17								n=51						
ALL	1 year	0.024187	0.490	0.626		0.491	0.710		-0.013663	-0.397	0.692		-0.398	0.282	
	2 year	-0.123608	-1.262	0.211		-1.246	0.111		-0.110015	-2.005	0.046	**	-1.976	0.000	***
	3 year	-0.095967	-0.932	0.354		-0.897	0.536		-0.145282	-2.171	0.031	**	-2.161	0.000	***
	4 year	-0.123044	-0.830	0.409		-0.711	0.190								
	5 year	-0.164758	-1.486	0.142		-1.464	0.039	**							
	n=75								n=208						

Figures shown are the BHARs for 1- to 5-year post acquisition periods together with the significance level. Significant observations at the 1%, 5% and 10% levels are shown by ***, ** and *, respectively.

"C. t-stat"= Conventional t-statistics; "C. P-value" = P-value associated with the conventional t-statistics; "Sig" = significance level; "B. t-stat" = bootstrapped skewness-adjusted t-statistics; "B. Empirical P-value"= P-value associated with the empirical distribution of t-statistic from bootstrapped resamples.

Fig. A5.14 --Long Term Performance of UK Domestic M&As

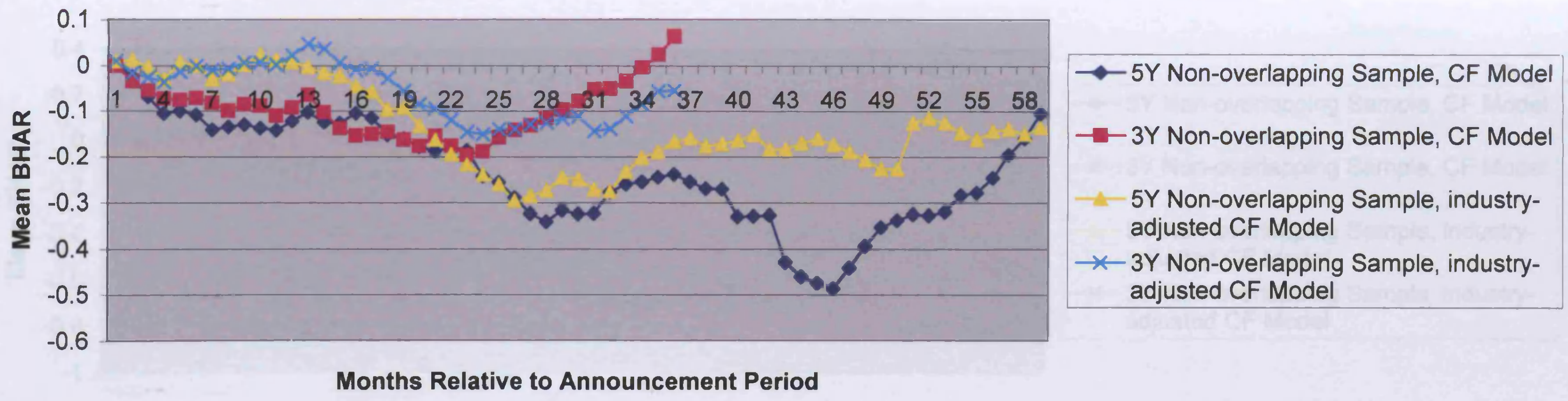


Fig. A5.15 --Long Term Performance of UK Private M&As

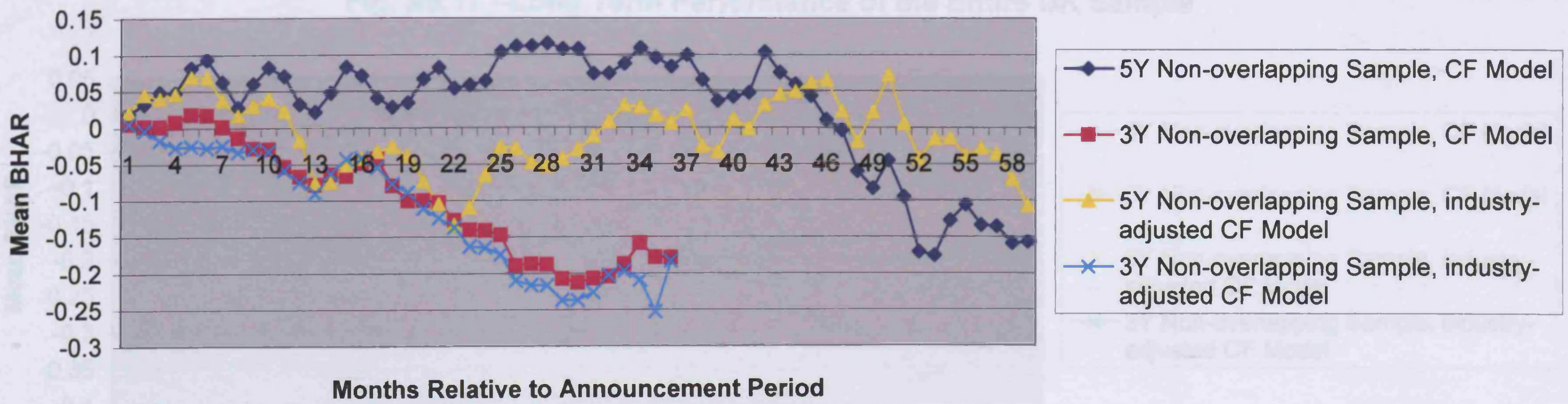


Fig. A5.16 --Long Term Performance of UK Cross-border M&As

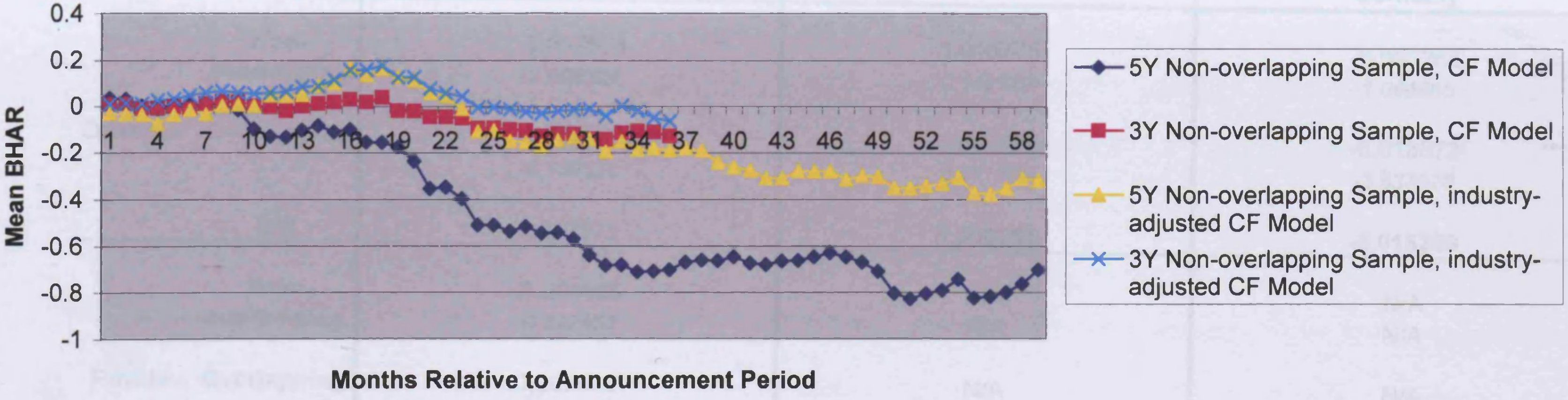


Fig. A5.17 --Long Term Performance of the Entire UK Sample

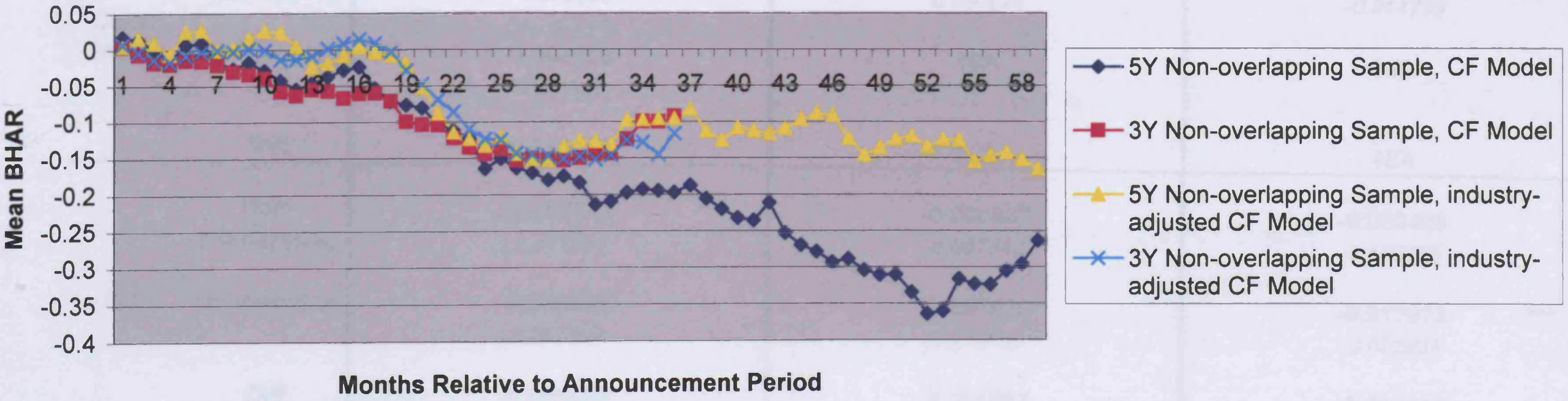


Table A5.6
Long-run share price performance of the overlapping samples, based on the CTFF model

		UK		France		Germany	
Domestic	**Non-overlapping**	-0.007694	**	0.000775		-0.003264	
		-2.008324		*0.142923*		*-1.064365*	
	Overlapping	-0.000523		0.001026		-0.018573	***
		-0.139816		*0.171700*		*-3.537628*	
	Diff	**0.007171**		**0.000251**		**-0.015309**	
Private	**Non-overlapping**	-0.001936		N/A		N/A	
		-0.392653		N/A		N/A	
	Overlapping	0.007402		N/A		N/A	
		1.184761					
	Diff	**0.009338**		N/A		N/A	
Cross-border	**Non-overlapping**	-0.006757		0.000334		-0.003524	
		-1.542558		*0.056626*		*-0.814739*	
	Overlapping	0.003408		N/A		N/A	
		0.981159					
	Diff	**0.010165**		N/A		N/A	
ALL	**Non-overlapping**	-0.007717	**	-0.000037		-0.003455	
		-2.311511		*-0.007342*		*-1.155285*	
	Overlapping	0.000803		-0.001633		-0.017973	***
		0.267769		*-0.279502*		*-3.678834*	
	Diff	**0.008520**		**-0.001597**		**-0.014518**	

"DIFF" = Overlapping - Non-overlapping

Table A5.7
The impact of MV on the long run share price performance of the UK acquirers

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Domestic (n=24)	**MV Dummy**	-0.02116	-0.08171	-0.09185	-0.06455	-0.16082	-0.27811	-0.40283	-0.60914	-0.53366	-0.59504	-0.64373	-0.68583
	t-stat	*-0.62864*	*-1.06536*	*-0.7632*	*-0.52584*	*-1.05311*	*-1.56324*	*-1.98061* *	*-2.18982* **	*-1.89254* *	*-1.98295* *	*-1.86236* *	*-1.78352* *
	Month Relative to Announcment Date, Continued →					39	42	45	48	51	54	57	60
	MV Dummy					-0.78055	-0.917	-1.07761	-0.92931	-0.79152	-0.79999	-0.69843	-0.59109
	t-stat					*-1.85939* *	*-2.12216* **	*-2.30593* **	*-1.90966* *	*-1.65141*	*-1.69963*	*-1.39012*	*-1.21338*

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Private (n=34)	**MV Dummy**	0.007952	0.068102	0.102657	0.230463	0.155565	-0.22956	-0.03568	-0.33859	-0.56414	-0.25485	-0.24322	-0.12269
	t-stat	*0.325577*	*0.741258*	*0.820802*	*1.534901*	*0.747827*	*-0.46338*	*-0.09186*	*-0.69137*	*-0.69782*	*-0.37746*	*-0.36696*	*-0.1844*
	Month Relative to Announcment Date, Continued →					39	42	45	48	51	54	57	60
	MV Dummy					-0.21283	-0.04695	-0.18225	-0.13524	-0.01143	0.122683	0.182289	0.378073
	t-stat					*-0.35312*	*-0.09148*	*-0.32881*	*-0.22624*	*-0.02057*	*0.247249*	*0.418644*	*0.966084*

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Cross-border (n=17)	**MV Dummy**	-0.0855	0.034099	0.025645	0.146081	0.248888	0.457666	0.513412	0.425989	0.451222	0.678457	0.652169	0.713379
	t-stat	*-1.76681* *	*0.190738*	*0.118322*	*0.52047*	*0.737778*	*0.869951*	*1.057293*	*0.974125*	*1.021163*	*1.443314*	*1.612164*	*1.520389*

	Month Relative to Announcment, Continued →	39	42	45	48	51	54	57	60
Cross-border (n=17)	**MV Dummy**	0.836172	0.828765	0.708191	0.788361	0.652026	0.920255	1.056323	1.181811
	t-stat	*1.522498*	*1.358622*	*1.297019*	*1.398986*	*0.974828*	*1.245092*	*1.430365*	*1.552469*

MV Dummy = 1 if the sample firm has 'bigger' MV as I have explained in the text. ***, ** and * denote significant at the 1%, 5% and 10% level, respectively.

Table A5.8
The impact of MV on the long run share price performance of French acquirers

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Domestic (n=37)	**MV Dummy**	0.017434	0.0876	0.025752	-0.26055	-0.04996	0.0109	-0.01421	-0.02557	0.371765	0.594242	0.841061	0,689369
	t-stat	*0.184705*	*0.70171*	*0.155776*	*-0.47774*	*-0.13565*	*0.03222*	*-0.03155*	*-0.05892*	*0.9603*	*1.380959*	*1.72812* *	*1.632197*

	Month Relative to Announcment Date, Continued →	39	42	45	48	51	54	57	60
Domestic (n=37)	**MV Dummy**	0.779771	0.619283	0.481017	0.725076	1.359078	1.694076	1.788036	2.112242
	t-stat	*1.380332*	*0.906773*	*0.574133*	*0.943437*	*1.135189*	*1.317249*	*1.378486*	*1.545586*

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Cross-border (n=14)	**MV Dummy**	0.100554	0.114717	0.095502	0.309245	0.229855	0.237021	0.114133	0.046275	0.11723	0.182711	0.110712	-0.19174
	t-stat	*0.793634*	*0.568602*	*0.348523*	*1.257038*	*0.817777*	*0.742196*	*0.27271*	*0.100207*	*0.312865*	*0.453074*	*0.254811*	*-0.38661*

(Based on the '3Y Nonoverlapping Sample')

	Month Relative to Announcment Date, Continued →	39	42	45	48	51	54	57	60
Cross-border (n=14)	**MV Dummy**	*(N/A) Insufficient sample firms*							
	t-stat								

MV Dummy = 1 if the sample firm has 'bigger' MV as I have explained in the text. ***, ** and * denote significant at the 1%, 5% and 10% level, respectively.

Table A5.9
The impact of MV on the long run share price performance of German acquirers

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Domestic (n=22)	**MV Dummy**	0.024077	0.020633	-0.10581	-0.07456	-0.02292	-0.10504	-0.13975	-0.14611	-0.0891	-0.06041	-0.03538	-0.07154
	t-stat	*0.701651*	*0.313163*	*-1.03666*	*-0.85756*	*-0.23498*	*-0.95113*	*-1.12229*	*-0.94698*	*-0.54848*	*-0.34275*	*-0.18849*	*-0.34097*
	Month Relative to Announcment Date, Continued →					39	42	45	48	51	54	57	60
	MV Dummy					0.041029	0.072856	0.175164	0.058151	-0.11407	-0.15302	-0.05602	0.267179
	t-stat					*0.171956*	*0.301693*	*0.639496*	*0.162811*	*-0.26108*	*-0.30642*	*-0.1103*	*0.545562*

	Month Relative to Announcment Date→	2	6	9	12	15	18	21	24	27	30	33	36
Cross-border (n=13)	**MV Dummy**	-0.09329	-0.09827	-0.12399	-0.02502	0.032585	0.02588	0.056677	0.122809	0.245032	0.335199	0.378033	0.472793
	t-stat	*-1.64774*	*-1.15335*	*-1.42556*	*-0.1524*	*0.193163*	*0.16739*	*0.336881*	*0.647337*	*1.388853*	*1.521214*	*1.81508* *	*2.008576* **
	Month Relative to Announcment Date, Continued →					39	42	45	48	51	54	57	60
	MV Dummy					0.411194	0.432324	0.440204	0.470793	0.56722	0.59218	0.674853	0.719476
	t-stat					*1.787396* *	*1.47665*	*1.51736*	*1.71584* *	*2.519378* **	*2.491565* **	*2.494558* **	*2.519011* **

MV Dummy = 1 if the sample firm has 'bigger' MV as I have explained in the text. ***, ** and * denote significant at the 1%, 5% and 10% level, respectively.

Fig. A5.18 --BHARs of High MV and Low MV UK Acquirers (Acquiring Public Targets)

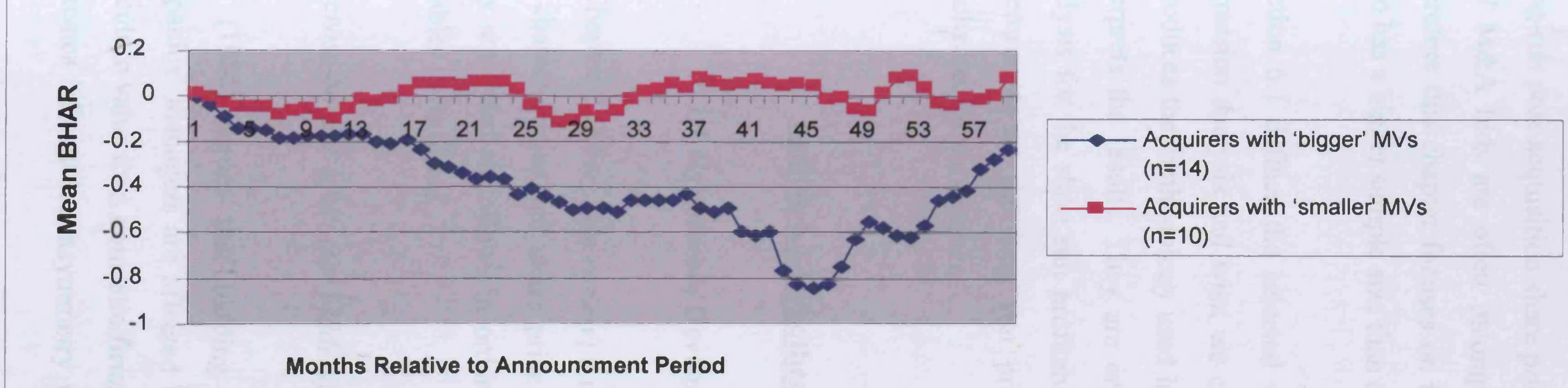
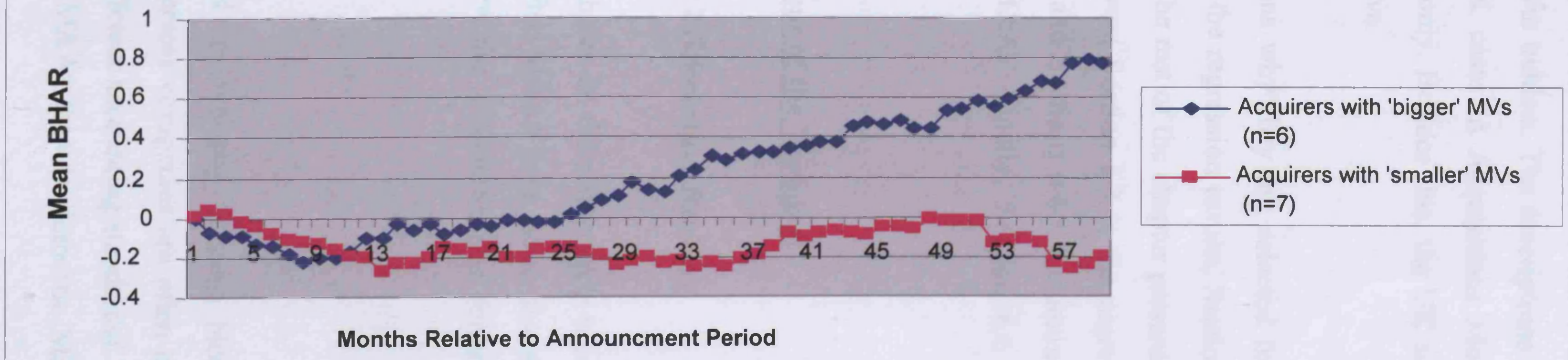


Fig. A5.19 --BHARs of High MV and Low MV German Cross-border Acquirers



Chapter 6: Regression Analysis

This chapter examines the impact of a number of variables on both short-run and long-run post-acquisition share price performance for bidders. The descriptions of the EU M&A bids are often incomplete for non-UK cases in Acquisitions Monthly, therefore this chapter focuses on the UK sample only. Besides this, the UK sample also has a bigger sample size than other samples have.

Section 6.1 defines the selected variables, explains why they are selected for the regression analysis and what we can expect from the regression results. Section 6.2 introduces the methodology used in this chapter. The rest of the chapter presents and interprets the results. They are organized as follows: Section 6.3 is the regression analysis for the short run profitability of M&As, and Sections 6.4-6.5 examine the determinants of the long run profitability of M&As. Finally, Section 6.6 is a conclusion for the chapter.

Section 6.1 Hypotheses and Definitions of the Variables

6.1.1 Hypotheses Developed in Chapter 2 (Literature Review)

In Chapter 2 (*Literature review*) a number of hypotheses on the relationship between bid characteristics and share price performance after M&As have been discussed. They are listed as follows in order to briefly review the hypotheses and define the variables to be tested,

The cross-border effect (for bidders) hypothesis

Roll (1986) argues that bidding companies tend to over-pay because bidding companies' managers are affected by 'hubris'. Overseas companies are often more difficult to value than domestic firms (e.g. due to different accounting standards). Due to greater information asymmetry in cross-border M&As than in domestic M&As

(Seth, Song and Pettit, 2000), 'hubris' may be more relevant to cross-border M&As than domestic ones. If this is true, the size of overpayment may be larger in cross-border than in domestic acquisitions. Some studies also argue that (e.g. Megginson, Morgan and Nail, 2004) culture differences in cross-border M&As may make acquisition integration a difficult, time consuming and expensive process. In addition, cross-border M&As may be likely motivated by managerial motives if managers pursue global reputation by building international firms. For all these reasons, the cross-border effect (for bidders) hypothesis is: the post-bid share price performance of cross-border bidders is poorer than that of domestic ones. To test the hypothesis, a dummy variable 'Cross' is set to 1 if the bidder acquires a foreign firm. A negative sign is expected for this variable.

However, as noted in Chapter 2 (*Literature Review*), some studies (e.g. Sudarsanam, 1995, p. 269) suggest that cross-border M&As may be more synergy-motivated. There are some unique positive factors in cross-border M&As, such as escaping small home market, extending markets served, achieving economies of scale, replacing inefficient management of a foreign firm, and responding to overseas clients' needs. This group of factors provide an argument that synergy motive is more important in cross-border M&As than agency and hubris motives. If this group of factors is true, shareholders may respond positively to cross-border M&As contrasting to the cross-border effect hypothesis noted above.

The cash offer hypothesis

Jensen (1986) suggests that M&As financed by free cash flows are often costly because of a conflict of interest between managers and shareholders. Managers may prefer to retain free cash flow and invest it in projects that increase managerial benefits like compensation or power (and reputation). As a result, Jensen (1986) argues that firms with excess cash flows have a tendency to waste cash flows on unprofitable investments. Therefore cash offers could have a negative impact on bidders' share price performance.

Jensen (1986)'s views are also supported by Harford (1999) and Lang, Stultz and Walking (1991) as I have discussed in Section 2.5.1 of Chapter 2 (*Literature review*).

On the other hand, Heaton (2002) also argues that cash offers may be motivated by 'hubris'. Heaton (2002)'s view has been discussed in Section 2.2.3 and Section 2.5.1 of Chapter 2. It also predicts a negative relationship between cash offers and share price performance.

There are mainly three types of payment methods in Acquisitions Monthly: cash payments, equity swaps and mixed offers combining cash and equity. To test whether cash offers reduce bidders' profitability, a dummy variable 'Payment' is set to 1 if the acquisition is purely cash-financed. The variable 'Payment' is expected to have a negative sign based on Jensen (1986)'s view.

In contrast, as I have discussed earlier in Section 2.5.1 of Chapter 2, Myers and Majluf (1984)'s asymmetric information model suggests that cash offers have positive impact on share price performance. Myers and Majluf (1984) assume that: 1) the acquiring firm's management possesses information about the intrinsic value of the firm which is not reflected in the pre-acquisition share price; and 2) managers are loyal to existing shareholders. Therefore, managers will favour a cash offer if they believe that their firm is undervalued, whereas they will favour a stock offer if they believe their stocks are overvalued. Consequently, a cash offer serves as good news to investors because it signals that the bidder is undervalued. In contrast with the cash offer hypothesis noted above, Myers and Majluf (1984)'s approach suggests that free cash flow is beneficial.

The bidder size hypothesis

The impact of MV could be either positively or negatively related to share price performance. With a bigger bidder, the power of the agents may also be bigger, which makes monitoring agents more difficult and costly. Also, a bigger bidder may have less focus on the acquired firms. If these arguments are true, we may see that lower average abnormal returns are associated with bigger bidders. In contrast, a bigger bidder could also have more bargaining power in the acquisition process, more flexibility in financing the acquisition deal, and more adaptability/experience in absorbing target firms, etc. If these arguments are true, we may find that higher average abnormal returns are associated with bigger bidders.

To actually examine the impacts of MV on share price performance, three dummy variables are introduced as follows: 'MV_Domestic' equal to 1 if acquirers are domestic bidders (bidding into publicly listed target firms) and have 'bigger' market values (see the next paragraph for the definition of 'bigger'); 'MV_Cross-border' equal to one if acquirers are cross-border bidders and have 'bigger' market values; and 'MV_Private' equal to one if acquirers choose to acquire private target firms and have 'bigger' market values.

To define whether a sample firm has a 'bigger' MV, at first I partition all listed firms in the UK market into ten equal sized groups according to the rankings of the MVs of firms at each month. Therefore, firms in Groups 1-5 have MVs bigger than the median MV of all listed firms. Also, firms Groups 6-10 have MVs smaller than the median MV of all listed firms in that market. Second, for each sample firm at the month -1 of the announcement, I define it as a firm with 'bigger' MV if it belongs to Groups 1-5 ranked by the sample firm's MV. In contrast, I define a sample firm as a firm with 'smaller' MV if it belongs to Groups 6-10. Because bidders of cross-border M&As are generally firms with large MVs, I define a cross-border bidder as a firm with 'bigger' MV if it belongs to Groups 1-3, otherwise I define it as a firm with 'smaller' MV. In my study the approach above works well as it divides the parent samples to roughly two equal-sized sub-samples.

Taking into account that Chapter 5 (*Long-run excess returns*) has shown that 'hubris' or managerial motives appear to be important factors in UK domestic (acquiring listed targets) markets, in particular I expect that the dummy variable 'MV_Domestic' has a negative sign because higher agency costs (and/or less focus on targets) may be associated with those 'bigger' firms. At this stage, it is not clear which sign may be associated with UK domestic acquirers of private targets or UK cross-border acquirers.

The tender offer hypothesis

Tender offers are often associated with the view that bidders can replace inefficient management and realize a capital gain by improving operating performance. Bidders uncover value-creating insights about the target firm and seek to avoid giving value up in a negotiation with a target firm. Jensen and Ruback(1983), Gregory (1997), and Loughran and Vijh (1997) all found higher abnormal returns of bidders after tender offers than after mergers. Tender offers are, therefore, expected to have a positive effect on acquiring firms' post-acquisition share price performance. A dummy variable 'Tender' is set to 1 if the bid offer is a tender offer and I expect a positive sign for this variable.

The MTBV effect hypothesis

Acquirers with a high MTBV (glamour stocks) tend to be overpriced reflecting a recent high growth in earnings, and acquirers with a consistent record of bad news tend to be undervalued and have a low MTBV (value stocks) (Barberis, Shleifer and Vishny, 1998). Thus, at the time of the bid announcement, acquirers with a high MTBV tend to have a high share return and vice versa. After a period of time the market corrects the previous over-reaction based of past performance and shareholders of acquirers with a high MTBV at the announcement time will experience low average returns afterwards, and shareholders of acquirers with a low MTBV at the announcement time will subsequently earn superior returns (Lakonishok, Shleifer and Vishny, 1994). Therefore, there are two hypotheses for the MTBV effects: One is, in the short run, shareholders of high MTBV acquirers experience better share price performance than low MTBV acquirers at the announcement time; another is, in the long run, shareholders of high MTBV acquirers experience poorer share price performance than low MTBV acquirers.

To test the MTBV effect hypothesis, a variable 'MTBV' which is the market-to-book ratio of the sample firm is used. It is calculated as: Market value of the firm / Book value of the firm. Market value is determined in the stock market through its market capitalization. Book value is calculated by looking at the firm's accounting value.

The variable 'MTBV' is expected to have a positive sign in the short run analysis and a negative sign in the long run analysis.

6.1.2 Other Possible Determinants

Some other possible determinants of the profitability of M&As are also examined in this chapter. They are listed as follows and will be discussed immediately afterwards.

Hostility

Hostile offers can occur for motives that are similar to tender offers, namely bidding firms exploring synergy gains by installing more efficient management. In this case hostile offers are expected to result in higher post-acquisition abnormal returns to bidders than friendly offers. However, in a hostile offer the initial bid is often revised upwards – therefore the gains to bidding firms will be smaller.

The dummy variable 'Hostility' is introduced to test the mixed effects of hostile offer on post-acquisition share performance. There are mainly three different degrees of hostility in Acquisitions Monthly: 'hostile' offer, 'recommended' offer and offer with no clear degree of hostility (the key words used are 'hostile', 'recommended' and merely 'has acquired' in turn). The dummy variable Hostility is equal to one if the bid is described as 'hostile'. At this stage, the results are expected to be either positive (or negative) or insignificant.

Earlier studies, for example, both Franks and Harris (1989), and Cosh and Guest (2001), found no statistically significant difference of abnormal returns to bidders during the announcement period between hostile and friendly offers indicating a mixed effect of hostility. Gregory and Matatko (2004) also found no statistically significant difference between hostile and friendly offers when controlling for payment methods in their regression tests.

Private Acquisitions

Acquisitions of privately held companies represent more than 80% of all acquisitions (Draper and Paudyal, 2006). Despite their significance, studies of such acquisitions and their impact on the wealth of shareholders are rare. M&As of private target firms are less likely to be associated with managers' own interest, because managers who want to maximize the size of the firm or their control of the firm tend to seek out large and well-known target firms. Also, it may be easier for bidders to absorb a typically smaller private firm. In addition, information on listed target firms is more easily available therefore the market to acquire listed target firms is likely to be more competitive and liquid. All reasons noted above suggest that bidding firms of privately held companies may have higher shareholder wealth gains than those acquiring publicly listed companies.

To test the effect of private offers, a dummy variable 'Private' is set to 1 if the bidder acquires a private target. I expect a positive sign for this variable. The earlier evidence provided by Fuller, Netter and Stegemoller (2002) and Draper and Paudyal (2006) suggest that bidders of private targets earn positive excess returns while bidders of public targets do not.

Total Debt / Common Equity ratio

The Total Debt / Common Equity ratio (TDCE) can have two possible effects: 1) this ratio is an indicator of how aggressive a firm has been in financing its growth with debt. In this case, a high TDCE could be a signal of 'hubris' because the manager has been aggressive; 2) a high TDCE ratio can result in volatile earnings due to the additional interest expense involved. In this case, a high TDCE could either result in investors doubting the firms' future profitability or be seen as a signal of poor management skills. Both of these arguments suggest that investors may respond negatively to bidders with high TDCE ratios.

To test the effects of the TDCE ratio, a variable 'TDCE' is introduced and calculated as Total liability / Shareholder's Equity. A negative sign is expected. Few studies on M&As have examined this ratio.

Dividend Yield

Mature, well-established companies tend to have higher DY, while young, growth-oriented companies tend to have a lower or no DY. Assuming that firms are loyal to shareholders, growth-oriented managers with (or seeking) good future investment opportunities are more likely to pay low dividends because it gives them more discretion with regard to the future use of their financial resources. As a result, bidders with low past dividend yields may meet a positive response from investors. In contrast, bidders with high dividend yields may have fewer future growth opportunities, and bids may be viewed as less desirable. Furthermore, it may be worthy to note that the discussion above is contradictory to Jensen (1986)'s free cash flow hypothesis. Jensen (1986)'s view assumes there is a conflict of interests between managers and shareholders, whereas the discussion above, similar to Myers and Majluf (1984)'s model as noted in Section 2.5.1 of Chapter 2 (*Literature Review*), assumes that managers are loyal to shareholders.

To test the effects of dividend yield, a variable 'DY' which is the dividend yield is introduced and a negative sign is expected for this variable. Dividend yield is calculated as: Dividends per share / Price per share.

Time Period

Tse and Soufani (2001) report that abnormal returns are significantly different between high merger activity periods and low merger activity periods. Their results show that bidders in high M&A activity periods on average gain less positive abnormal returns than those in low M&A activity periods. One possible reason for this is that in high M&A activity periods, the competition in M&A markets is also higher, hence bidders are forced to pay higher premiums.

A dummy variable 'Time' is introduced to test the effect of time periods. 'Time' is equal to one if the offer is made between 1995 to the end of 1999, which is a high M&A activity period during the period 1992-2003 as noted in Section 1.2 of Chapter 1 (*Introduction*). A negative sign is expected for this variable.

Industry sectors

In the sample of this study, three industry sectors (based on the 'I/B/E/S' industry classification system of DataStream) were most active in UK M&A markets: Finance (Code 1 in DataStream): Consumer Services (Code 4) and Capital Goods (Code 10). As noted in Section 5.4 of Chapter 5 (*Long-run Excess Returns*), different industry sectors are often associated with different characteristics such as risk ratings and growth opportunities. To control for industry differences, three industry dummies are introduced: 'Ind_1' equal to one if bidders come from the sector 'Finance'; 'Ind_4' equal to one if bidders come from the sector 'Consumer Services'; and 'Ind_10' equal to one if bidders come from the sector 'Capital Goods'. Positive or negative (or insignificant) signs are expected for these three industry dummy variables.

Some other variables were also examined, such as the return on equity, the growth rate of total income and price / earnings ratios. In all regression tests, they were found to be not statistically significant regardless of how the model specifications were changed, and they are omitted from the results reported in this chapter.

6.1.3 Conclusion

As a brief conclusion, Table 6.1 lists all variables that remain in the regression tests of this chapter.

Table 6.1 Hypotheses examined in this chapter

Variables	Expected Sign	Main Possible Reasons	Note
Cross	Negative	Possibly more relevant to 'hubris' than domestic M&As; difficulties of assessing foreign firms	Possibly positive sign if synergy gains (e.g. through extending markets served) outweigh 'managerial'/'hubris' costs

Payment	Negative	'Free cash flow' hypothesis	Possibly positive sign based on Myers and Majluf (1984)
MV dummies	Negative for UK domestic bidders (acquiring listed targets)	'Bigger' bidders more likely to be 'hubris' or 'managerially' motivated than 'smaller' bidders	Possibly positive sign if synergy gains prevail (e.g. through more bargaining power associated with bigger bidders)
Tender	Positive	Bids more likely to be synergy-motivated	
MTBV	Positive in the short run and possibly negative in the long run	Investors' overreaction to bidders' past achievement in the short run which could be reversed in the long run	
Hostility	Possibly positive, may also be negative (or insignificant)	Bids more likely to be synergy-motivated, although bid premium may be higher in contested bids	
Private	Positive	Bids more likely to be synergy-motivated and it may be easier to absorb smaller private targets	
TDCE	Negative	Firms with higher TDCE may be affected by 'hubris' and/or have poorer management skills	
DY	Negative	Assuming managers are loyal to shareholders, a firm may retain cash because they have good investment opportunities	
Time	Negative	Higher competition in periods of high M&A activity may increase bidders' premium	
Industry dummies	Positive or negative (or insignificant)		Dummy variables that control for industry differences

Section 6.2 Methodology

To test these hypotheses for bidders, I ran regression (ordinary least squares) tests with announcement period abnormal returns as well as long-run abnormal returns as dependent variables. A potential problem with using abnormal returns is the choice of share pricing model. There are three choices of share pricing model: 1) using abnormal returns (ARs) derived from the market model as in Chapter 4 (*Short-run Excess Returns*); 2) using ARs derived from the Fama-French Three-Factor model; 3) using ARs derived from a MV/MTBV benchmark, such as the 'Control Firm' (CF) model and the 'Control Portfolio' (CP) model in Chapter 5 (*Long-run Excess Returns*). This chapter uses the third option, namely ARs derived from a MV/MTBV-matched framework. This is because, with option 3, I can conveniently use the I/B/E/S industry classification system of DataStream to adjust the obtained ARs for industry effects. This adjustment offers an alternative benchmark in regression tests. The methodology of adjusting ARs for industry effects has been discussed in Section 5.4 of Chapter 5. Furthermore, the AR calculation is based on the CF model rather than the CP model, because the former avoids the skewness and rebalancing biases (Lyon et al., 1997, 1999) as discussed in Section 3.4.2 of Chapter 3 (*Methodology*).

Either cumulative abnormal return (CAR) or buy-hold-abnormal return (BHAR) can be used as the dependent variable to test the aggregate effects over multiple periods. Barber and Lyon (1997), argue that the mean BHAR is appropriate in measuring long-run abnormal return because it 'precisely measures investor experience in the long horizon'. However, both Mitchell and Stafford (2000) and Fama (1998) argue there is no compelling reason to choose BHARs because BHARs can 'give false impressions of the speed of price adjustment to an event' (Fama, 1998, p. 294). Therefore both two types of abnormal returns have been tested. In general, using CARs as the dependent variable generated stronger results and came with much better fit ($\overline{R}^2$) when the event window was long. Therefore the results using CARs as dependent variables are reported in this chapter. One more reason for Lyon et al. (1997, 1999) to advocate the use of BHARs is because the conventional CAR approach is based on a market index - which can be flawed due to the 'new listing' bias as discussed in Section 3.4.2 of Chapter 3. In this chapter, the ARs were derived from a method free of the use of the market index (the CF model), therefore using CARs as dependent variables over a long-run window is a valid option. Lyon et al. (1997, pp. 362-363, Table 5) provide evidence that CARs derived from a 'size book-to-market matched control firm' model are unbiased throughout the five years after the announcement.

The sample compositions are introduced in the following sections where appropriate. Domestic acquirers of publicly listed targets are included. The regression results are labelled with *, **, *** if they are significant at the 10%, 5%, 1% level, respectively. Section 6.3 reports the short-run regression results, followed by Sections 6.4 and 6.5 reporting the long-run regression results. The sample compositions and event windows to be studied are introduced in the corresponding sections.

Section 6.3 Regression Analysis in the Short Run

Table 6.2 below shows us the sample composition (by industry) for the announcement period regression analysis.

Table 6.2 Sample composition (by industry) for the short run regression tests

Sector I/B/E/S Code	*Sector mnemonic appearing in datatype*	*Sector description*	*Number of Bidders (Total=367)*
1	FINANCE	Finance	51
2	HEALTH	Health	9
3	CONSNO	Consumer non-durables	28
4	CONSSVC	Consumer services	110
5	CONSDUR	Consumer durables	10
6	ENERGY	Energy	6
7	TRANSP	Transportation	5
8	TECHNOL	Technology	18
9	BASIC	Basic industries	31
10	CAPITAL	Capital goods	83
11	UTILITY	Public utilities	4
99	UNDESIGN	Unclassified	12

Table 6.2 shows that, as I have discussed, bidders mainly come from sectors Finance (Code 1), Consumer services (Code 4) and Capital goods (Code 10).

In Chapter 4 (*Short-run Excess Returns*) the abnormal returns are calculated based on the market model. Table 6.3 reports the (cumulative) abnormal returns calculated based on the MV/MTBV framework.

Table 6.3 Short run excess returns based on the MV/MTBV framework

	Month 0	Month +1	Month (0M, +1M)
AR / CAR (MV/MTBV benchmarked)	0.010 *(t=1.543)*	0.012 ** *(t=2.114)*	0.021 ** *(t=2.308)*
AR / CAR (Industry/MV/MTBV benchmarked)	0.006 *(t=1.021)*	0.008 *(t=1.320)*	0.014 *(t=1.461)*

The (cumulative) abnormal returns in Table 6.3 are benchmarked by MV/MTBV and industry-adjusted MV/MTBV, respectively. Using the MV/MTBV benchmark or the industry-adjusted MV/MTBV benchmark involves valuing the firm's share price at a market-wide level or an industry-wide level. The advantage of the MV/MTBV benchmark is the choice of control-firm is much wider because it selects control firm at the market-wide level. It will be easier for a sample firm to find a control firm that is similar in both MV and MTBV. The advantage of the Industry/MV/MTBV benchmark is that there are more similar elements between the control firm and the sample firm since they are from the same industry sector. Therefore it is worthwhile to consider results using both benchmarks.

In Table 6.3 we can see the MV/MTBV benchmark presents positive and statistically significant (cumulative) ARs in Month +1 and the event window (0M, +1M). The timing of statistically significant results is consistent with the findings in Chapter 4 (Short-run Excess returns). The industry-adjusted MV/MTBV benchmark reduces ARs by 0.4% for Month 0 and Month +1. The industry-adjusted MV/MTBV benchmark presents positive (cumulative) ARs but they are statistically insignificant.

Both sets of results in Table 6.3 show that, in Month 0, UK acquiring firms experience insignificant ARs which is consistent with the results in Chapter 4.

Tables 6.4 and 6.5 present the short-run regression results, based on the original CARs and the industry-adjusted CARs as dependent variables, respectively. The short-run event windows are defined as Month 0, Month +1 and a combined window Month (0, +1). The regression model for Tables 6.4 and 6.5 is:

$$CAR_i\ (t_1, t_2) = \alpha_i + \beta_1 Cross_i + \beta_2 Payment_i + \beta_3 Tender_i + \beta_4 Hostility_i + \beta_5 Private_i + \beta_6 DY_i + \beta_7 MTBV_i + \beta_8 TDCE_i + \beta_9 MV\_Domestic_i + \beta_{10} MV\_Cross\text{-}border_i + \beta_{11} MV\_Private_i + \beta_{12} Time_i + \beta_{13} Ind\_1_i + \beta_{14} Ind\_4_i + \beta_{15} Ind\_10_i + \varepsilon_i$$

In the short run tests, Private, MTBV and TDCE are found to have no explanatory power as indicated by both Table 6.4 and Table 6.5, but I kept them in the short run regression models to make comparisons with the long run regression results. Removing or keeping variables Private, MTBV and TDCE from the regression models does not have any fundamental impact on the generated results.

Table 6.4 reports the results based on the MV/MTBV benchmark. The results are disappointing. There is a lack of statistically significant relationship in the three regression tests. In the period Month +1, both the 'Cross' and 'Tender' dummies are positive and statistically significant. These show the superior share price performance of cross-border bids and tender offers shortly after the announcement time. The adjusted-R^2 is 0.0142. The announcement month window, Month 0, and the combined event window, Month (0M, +1M), show no statistically significant results.

The positive sign of the 'Cross' dummy is inconsistent with the cross-border (for bidders) hypothesis developed earlier. It is also inconsistent with some earlier studies such as Danbolt (1995) who finds that UK domestic bidders outperform cross-border ones in 1986-1991. My result appears to suggest that synergy-related motives such as escaping small home market and responding to overseas clients are the driving factors of cross-border M&As for the UK bidders in 1992-2003. On the other hand, the positive sign of the 'Tender' dummy is consistent with the tender offer hypothesis developed earlier. The result supports the view that tender offers are more likely to be

Table 6.4

Table 6.4 is the report of short-run regression tests. The dependent variables are cumulative abnormal returns calculated on the basis of the original MV/MTBV matched control firm model.

Independent Variable	Month 0	Month +1	Month (0M, +1M)
Constant	0.0411	0.0058	0.0506
	1.2074	*0.1900*	*1.0225*
CROSS	-0.0310	0.0590	0.0129
	-0.7860	*1.6688* *	*0.2254*
Payment	0.0014	0.0054	0.0094
	0.1066	*0.4450*	*0.4807*
Tender	-0.0197	0.0570	0.0370
	-0.7641	*2.4579* **	*0.9884*
Hostility	-0.0042	-0.0132	-0.0168
	-0.1542	*-0.5419*	*-0.4290*
PRIVATE	0.0032	-0.0046	0.0054
	0.0960	*-0.1513*	*0.1098*

Independent Variable - continued	Month 0	Month +1	Month (0M, +1M)
DY	-0.0025	-0.0028	-0.0050
	-0.8680	*-1.0902*	*-1.2136*
MTBV	-0.0005	0.0006	0.0001
	-0.3255	*0.3673*	*0.0454*
TDCE	0.0000	0.0000	0.0000
	-0.0970	*0.7168*	*0.3171*
MV_Domestic	-0.0342	-0.0284	-0.0625
	-1.0679	*-0.9842*	*-1.3412*
MV_Cross-border	0.0309	-0.0375	0.0077
	0.9228	*-1.2575*	*0.1575*
MV_Private	0.0026	0.0010	-0.0016
	0.1617	*0.0658*	*-0.0693*
TIME	-0.0204	0.0161	-0.0092
	-1.2620	*1.1071*	*-0.3882*
IND._1	0.0035	0.0041	0.0045
	0.1650	*0.2172*	*0.1467*

Independent Variable - continued	Month 0	Month +1	Month (0M, +1M)
IND._4	-0.0156	-0.0101	-0.0302
	-0.9727	*-0.6959*	*-1.2914*
IND._10	0.0002	-0.0170	-0.0234
	0.0095	*-1.0732*	*-0.9089*
Adjusted R^2	-0.0108	0.0142	-0.0114
N=367			

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

synergy-motivated. It is in line with some earlier studies such as Gregory (1997) who studies UK bidders in 1984-1992 and reports superior share price performance for tender-offer bidders.

To test how the variables in the table are correlated and whether the correlations have any impact on the regression results, a correlation matrix derived from the independent variables is presented in Table A6.1. In Table A6.1 we can observe some relatively high correlation coefficients although many are quite low. On the basis of this, I tested a large number of model specifications, but no further significant effects were observed in these regressions. Also, Table A6.2 shows simple regression results between the dependent variable and each variable in turn. This also shows no significant relation in any of the variables used.[1]

Table 6.5 reports the results based on the industry-adjusted MV/MTBV benchmark. In this case, the regression results are more significant.

Table 6.5 shows that, in the announcement month and in (0M, +1M), the dummy variable 'Payment' is positive and statistically significant at the 5% level. It does not provide evidence for the cash offer hypothesis discussed in Section 6.1.1. In contrast, it is more in line with Myers and Majluf (1984)'s asymmetric information model which suggests that managers are loyal to shareholders and cash offers convey good news to investors. The finding of a positive relationship between 'Payment' and the short run abnormal returns is consistent with some earlier studies, e.g. Peterson and Peterson (1991) and Franks, Harris and Mayer (1988) as I have discussed in Section 2.5.1 of Chapter 2 (*Literature Review*).

In Table 6.5 I again can find the significant role of 'Tender'. The positive sign of 'Tender' is realized at Month +1 (statistically significant at the 1% level) and in the event window (0M, +1M) (statistically significant at the 5% level). This suggests that tender offers are perceived to be more profitable by the market.

[1] For the rest of Chapter 6, the regression results presented in the tables are generally tested for robustness by dropping or adding variables to the regression models. If multicollinearity is found to be a major issue, it will be clearly specified.

Table 6.5

Table 6.5 is the report of short-run regression tests. The dependent variables are cumulative abnormal returns calculated on the basis of the Industry-adjusted MV/MTBV matched control firm model.

Independent Variable	Month 0	Month +1	Month (0M, +1M)
Constant	0.0312	-0.0017	0.0228
	0.9550	*-0.0529*	*0.4438*
CROSS	-0.0430	0.0460	0.0145
	-1.1590	*1.2420*	*0.2467*
Payment	0.0280	0.0185	0.0439
	2.2003	*1.4628*	*2.1794*
	**		**
Tender	0.0002	0.0831	0.0840
	0.0098	*3.4338*	*2.1923*
		***	**
Hostility	0.0233	-0.0065	0.0162
	0.9027	*-0.2534*	*0.4006*
PRIVATE	-0.0143	-0.0038	-0.0273
	-0.4477	*-0.1205*	*-0.5411*

Independent Variable - continued	Month 0	Month +1	Month (0M, +1M)
DY	-0.0030	-0.0046	-0.0078
	-1.1097	*-1.7410*	*-1.8362*
		*	*
MTBV	-0.0008	0.0013	0.0005
	-0.4986	*0.8586*	*0.2231*
TDCE	0.0000	0.0000	0.0000
	-0.3733	*0.9230*	*0.3619*
MV_Domestic	-0.0627	-0.0242	-0.0877
	-2.0542	*-0.7982*	*-1.8276*
	**		*
MV_Cross-border	(0.0187)	-(0.0252)	-(0.0173)
	(0.5910)	-(0.7932)	-(0.3433)
MV_Private	-0.0114	-0.0022	-0.0078
	-0.7396	*-0.1475*	*-0.3214*
TIME	0.0073	0.0241	0.0405
	0.4701	*1.5598*	*1.6370*
IND._1	0.0199	-0.0140	0.0104
	0.9976	*-0.7112*	*0.3315*

Independent Variable - continued	Month 0	Month +1	Month (0M, +1M)
IND._4	-0.0334	-0.0161	-0.0435
	-2.1742	*-1.0576*	*-1.8017*
	**		*
IND._10	-0.0018	-0.0143	-0.0066
	-0.1043	*-0.8533*	*-0.2456*
Adjusted R^2	0.0221	0.0353	0.0292
N=367			

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

The role of dividend yield has a negative sign in the period Month +1 (statistically significant at the 10% level)[2] and in the event window (0M, +1M) (statistically significant at the 10% level). The negative sign is consistent with the hypothesis that, for low dividend bidders, managers remain loyal to shareholders and that they retain cash for good future investment opportunities. In contrast, bidders with high past dividend yield may be seen as having fewer future growth opportunities, and bid announcements may be viewed as less desirable news. It might be worth noting that both the 'Payment' and 'DY' dummies do not provide evidence for Jensen (1986)'s free cash flow hypothesis. The results suggest that the 'free cash flow conflicts between managers and shareholders' are not a major motive for M&As in UK markets.

In the last chapter it has been shown that, in the long run, UK domestic acquisitions (not including private offers) reacted negatively to the scale of the acquirers' MVs. Table 6.5 suggests this conclusion may also be true in the short run. The dummy variable MV_Domestic is negative and statistically significant at the 5% level in the announcement month, and it is negative and statistically significant at the 10% level in the period (0M, +1M). The results are consistent with the bidder size hypothesis which predicts a negative sign for the 'MV_Domestic' dummy because higher agency costs (and/or less focus on targets) may be associated with 'bigger' acquiring firms. It is also in line with Moeller, Schlingemann and Stulz (2004) who studied US M&As and report lower average abnormal returns for larger bidders. The other two MV dummies, MV_Cross-border and MV_Private are not statistically significant.

Additionally, the dummy variable Ind_4 shows a negative sign and is statistically significant in the announcement month at the 5% level and in the period (0M, +1M) at the 10% level. The results suggest that the shareholders of bidding firms in the most active acquisition market, Consumer Services, did less well in the announcement period. No significant effect is found for the other industries considered in Table 6.5.

Table 6.4 and Table 6.5 show different results. As I have discussed, using the MV/MTBV benchmark or the industry-adjusted MV/MTBV benchmark involves

[2] This result is slightly weakened in some different regressions tried.

valuing the firm's share price at a market-wide level or an industry-wide level. Both have advantages therefore it might be hard to say which benchmark is superior given these different factors. Combining Table 6.5 and Table 6.6, we can see that the variables 'Cross', 'Payment', 'Tender', 'DY', 'MV_Domestic', and 'Ind_4' are statistically significant (depending on the benchmark used). By analysing the results, *I can make the following points as a conclusion for this section*:

1. The cross-border (for bidders) hypothesis is not supported in the data. My results do not support the view that cross-border M&As are less profitable than domestic M&As due to greater information asymmetry in cross-border M&As (Seth, Song and Pettit, 2000). In contrast, the positive sign of the 'Cross' dummy seems to suggest that cross-border M&As are more influenced by some synergy-related reasons such as escaping small home markets and responding to overseas clients.

2. The cash offer hypothesis, or similarly Jensen (1986)'s free cash flow hypothesis, is not supported in these data. The regression results are more in line with Myers or Majluf (1984)'s asymmetric information model which suggests that managers make cash offers because they believe their shares are undervalued.

3. Tender offers are found to have higher profitability than negotiated offers. This is consistent with the view that synergy-motivated acquirers uncover potential gains of M&As and seek to avoid giving value up in a negotiated offer with a target firm.

4. Based on the industry-adjusted MV/MTBV benchmark, it is found that, in the short-run domestic acquirers (acquiring publicly listed target firms), bidders with 'bigger' MVs perform less well than 'smaller' bidders. The results suggest that managerial motives and higher agency costs are important in this context. In contrast, cross-border and private acquisitions do not react to MVs in the short run.

Section 6.4 Regression Analysis in the Long Run

The table below shows the sample composition (by industry) for the long-run regression analysis (up to 5 years after the announcement). Again, we can see the sample is dominated by firms from the sectors Finance, Consumer Services and Capital Goods.

Table 6.6 Sample composition (by industry) for the long run regression tests

Sector I/B/E/S Code	***Sector mnemonic appearing in datatype***	***Sector description***	***Number of Bidders (Total=75)***
1	FINANCE	Finance	16
2	HEALTH	Health	3
3	CONSNO	Consumer non-durables	3
4	CONSSVC	Consumer services	15
5	CONSDUR	Consumer durables	3
6	ENERGY	Energy	1
7	TRANSP	Transportation	1
8	TECHNOL	Technology	1
9	BASIC	Basic industries	6
10	CAPITAL	Capital goods	22
11	UTILITY	Public utilities	1
99	UNDESIGN	Unclassified	3

Tables 6.7 and 6.8 report the regression analysis for a number of event windows as shown in the tables. In both tables, Month +1 is omitted to avoid any short-run effect. The dependent variables in Table 6.7 are based on the original MV/MTBV matched control firm model. In Table 6.8 the dependent variables are based on the industry-adjusted MV/MTBV matched control firm model. The dependent variables are calculated as cumulative abnormal returns over each period. For example, the dependent variable for the event window (+2M, +12M) is calculated as:

$CAR_i(+2M,+12M) = \sum_{t=2}^{12} AR_{it}$, where t = Months 2, 3, … , 12 ; AR_{it} is the average abnormal return of firm *i* at time *t*.

In the tests, the variables 'Hostility' and 'Tender' are not in the long-run regression models because there are not sufficient firms of these types in the long run sample. Among three industry dummies, Ind_10 was found to be not statistically significant. Among three MV dummies, MV_Cross-border was found to be not statistically significant. Both variables have no impact on the results regardless of model specification changes. Therefore, I only keep Ind_1 and Ind_4 as well as MV_Domestic and MV_Private in the equation to save degrees of freedom. The regression model for Tables 6.7 and 6.8 is:

$$CAR_i\ (t_1, t_2) = \alpha_i + \beta_1 Cross_i + \beta_2 Payment_i + \beta_3 Private_i + \beta_4 DY_i + \beta_5 MTBV_i + \beta_6 TDCE_i + \beta_7 MV\_Domestic_i + \beta_8 MV\_Private_i + \beta_9 Time_i + \beta_{10} Ind\_1_i + \beta_{11} Ind\_4_i + \varepsilon_i$$

Table 6.7 reports the results based on the original MV/MTBV benchmark.

The results indicate that the role of the 'Cross' dummy appear to be an important positive factor over the event window up to the 2nd year after the announcement. Once again it provides no evidence for the cross-border (for bidders) hypothesis developed earlier. Similarly as the last section, the result suggests that cross-border M&As are more influenced by synergy-related motives such as responding to global clients than by 'hubris' (and/or managerial reasons) such that greater information asymmetry may be associated with cross-border M&As.

In the test, the 'Private' dummy showed no statistically significant results in the selected event windows. This result is inconsistent with the view, as noted in Section 6.1.2, that acquisitions of private targets may have better share price performance because they are less likely to be motivated by managerial reasons than acquisitions

Table 6.7

Table 6.7 is the report of long-run regression tests. The dependent variables are cumulative abnormal returns calculated on the basis of the original MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
Constant	-0.2749	-0.4147	-0.3377	-0.6040	-0.6423	-0.0781	-0.3437
	-1.0797	*-1.0247*	*-0.7053*	*-1.1150*	*-1.1514*	*-0.2023*	*-1.2357*
CROSS	0.6333	0.9961	0.6131	0.4132	0.2573	-0.0430	-0.1829
	2.4079	*2.3832*	*1.2349*	*0.7337*	*0.4411*	*-0.1075*	*-0.6288*
	**	**					
PAYMENT	-0.0933	-0.2378	-0.2091	0.1279	0.1867	-0.1238	0.1951
	-0.5971	*-0.9580*	*-0.7124*	*0.3765*	*0.5241*	*-0.5236*	*1.0984*
PRIVATE	0.0233	0.0839	-0.2488	-0.2005	-0.3333	-0.2795	-0.1981
	0.0935	*0.2118*	*-0.5322*	*-0.3782*	*-0.6091*	*-0.7419*	*-0.7260*
DY	-0.0218	-0.0302	-0.0095	-0.0175	-0.0052	0.0150	0.0081
	-0.6466	*-0.5629*	*-0.1496*	*-0.2385*	*-0.0684*	*0.2929*	*0.2145*
MTBV	-0.0211	-0.0237	-0.0684	-0.1532	-0.1397	-0.0340	-0.0617
	-0.7534	*-0.5343*	*-1.0835*	*-2.1268*	*-1.8825*	*-0.6686*	*-1.6665*
				**	*		
TDCE	-0.0009	-0.0034	-0.0040	-0.0031	-0.0025	-0.0031	0.0015
	-1.0020	*-2.3599*	*-2.2773*	*-1.5910*	*-1.2141*	*-2.2434*	*1.4832*
		**	**			**	

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
MV_Domestic	0.0029	-0.1010	-0.4420	-0.2410	-0.3266	-0.4495	0.1453
	0.0132	*-0.2884*	*-1.0700*	*-0.5178*	*-0.6815*	*-1.3506*	*0.6080*
MV_Private	0.2846	0.1105	0.4294	0.6357	0.9183	0.1235	0.6337
	1.6052	*0.3920*	*1.2743*	*1.6213*	*2.2486*	*0.4549*	*3.1122*
					**		***
TIME	0.3462	0.5073	0.6750	0.7875	0.9051	0.3248	0.2318
	1.8917	*1.7445*	*1.9678*	*2.0356*	*2.2724*	*1.1752*	*1.1675*
	*	*	*	**	**		
IND._1	0.0928	0.4186	0.4469	0.6351	0.5575	0.3481	0.1400
	0.6042	*1.7153*	*1.5510*	*1.9466*	*1.6573*	*1.4989*	*0.8350*
		*		*	*		
IND._4	0.0612	-0.0414	0.2630	0.8692	0.8092	0.2145	0.4924
	0.3523	*-0.1502*	*0.8042*	*2.2587*	*2.0319*	*0.8143*	*2.4798*
				**	**		**
Adjusted R^2 N=75	0.0595	0.0840	0.0739	0.1442	0.1668	0.0080	0.2030

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

of public targets. Under some circumstances, the 'Private' dummy could become statistically significant in some different regressions tried, but not consistently so. [3]

The importance of MTBV on long-run share returns is shown in Table 6.7. The sign of the variable 'MTBV' is negative as expected, and statistically significant over the (+2M, +48M) and (+2M, 60M) event windows. Since the time that Rau and Vermaelen (1998), based on the US bidders in 1980-1991, found that 'value acquiring firms' (low MTBV) outperform the 'glamour acquiring firms' (high MTBV) in the long-run, MTBV has been a popular variable in studies of long-run acquiring firms' share returns. However, some of these studies only considered the post-acquisition share performance up to 3 years after the announcement and in some of these studies the relationship claimed by Rau and Vermaelen (1998) was not observed. My results provide evidence that high MTBV acquirers under-perform low MTBV acquirers in the long run, but the effect takes a relatively long time to take effect. In my regression tests, the impact of the variable 'MTBV' cannot be observed until at least 4 years' abnormal performance has accumulated.

The 'Total Debt to Common Equity' ratio has rarely been examined in the earlier M&A event studies. In my results, the coefficients of this ratio are consistently negative and statistically significant over the periods (+2M, +24M), (+2M, +36M) and (+12M, +36M). As I have discussed, this ratio has two implications. One is it can be looked at as an indicator of how aggressive a firm has been in financing its growth with debt, another is a high TDCE can result in volatile earnings as a result of the additional interest expense. Both effects may have negative impacts on investors' expectation on M&A profitability. For example, a high TDCE could be a signal of 'hubris' because the manager has been too aggressive and/or a high TDCE could result in investors doubting managers' abilities as well as the firm's future profitability. In short, the negative sign of the variable 'TDCE' in the regression model suggests bidding firms that may have been affected by 'hubris' and/or poor management skills (as reflected by TDCE) are more likely to have poorer performance in the long run.

[3] This may be a case where multicollinearity may have been a factor in the regressions given the correlations between 'Private' and other variables in Table A6.1.

The dummy variable 'MV_Private' is positive and statistically significant. In Table 6.7 it is statistically significant at the 5% level for the event window (+2M, +60M) and at the 1% level for the event window to (+36M, +60M). Few earlier studies have reported significant impact of MVs on the long run share price performance. My results show that for the acquisitions of private targets larger acquirers outperform smaller acquirers in the long run. As I have discussed earlier in Section 6.1.1, the positive sign of 'MV_Private' seems to suggest that the positive synergy factors, such as 'bigger' bidders may have more bargaining power in M&As and more management experience, are more important to acquirers of private targets than the possible agency costs associated with 'bigger' bidders. On the other hand, 'MV_Domestic' and 'MV_Cross-border' are not statistically significant in the regressions based on the original MV/MTBV benchmark.

The dummy variable 'Time' shows positive coefficients which are consistently statistically significant in many event windows. The positive sign indicates that the acquirers making acquisitions during the high acquisition activity period (as noted in Section 1.2 of Chapter 1, *Introduction*) outperform in the long run those making acquisitions during the low acquisition activity period. It is inconsistent with some previous studies (e.g. Tse and Soufani, 2001) that claim the wealth gains are lower in high acquisition activity periods because acquirers may face higher competition in acquisition markets.

'Ind_1' and 'Ind_4' are dummy variables identifying acquirers in the Finance and Consumer Services sectors, respectively. Table 6.7 shows that both the 'Ind_1' and 'Ind_4' dummies are significant when the effects are cumulated over the (+2M, 48M) and the (+2M, +60M) event windows. The coefficients are consistently positive for both dummy variables. My results suggest that acquisitions in the financial and consumer service markets have superior long run share price performance (although in the short run there is some evidence of poorer performance for bidders in the consumer service market as discussed earlier).

Table 6.8 reports the regression analysis where the dependent variable is based on the industry-adjusted MV/MTBV benchmark. Comparing Table 6.8 with Table 6.7, some results in Table 6.8 appears to be different from Table 6.7:

Table 6.8

Table 6.8 is the report of long-run regression tests. The dependent variables are cumulative abnormal returns calculated on the basis of the Industry-adjusted MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
Constant	0.0728	0.4108	0.6504	0.1097	0.1667	0.5386	-0.5349
	0.3822	*1.1636*	*1.7639*	*0.2533*	*0.3427*	*1.7091*	*-1.8559*
			*			*	*
CROSS	0.2382	0.3026	-0.0180	-0.3998	-0.4542	-0.2869	-0.2545
	1.2089	*0.8298*	*-0.0478*	*-0.8927*	*-0.9021*	*-0.8897*	*-0.8531*
PAYMENT	0.0707	-0.0372	0.0474	0.4754	0.5348	-0.0362	0.3035
	0.5976	*-0.1698*	*0.2100*	*1.7083*	*1.7016*	*-0.1876*	*1.6298*
				*	*		*
PRIVATE	0.0132	0.0530	0.0144	-0.1375	-0.4993	-0.0236	-0.6507
	0.0702	*0.1526*	*0.0400*	*-0.3206*	*-1.0223*	*-0.0768*	*-2.2483*
							**
DY	-0.0538	-0.1055	-0.1232	-0.0637	-0.0649	-0.0635	0.0584
	-2.1272	*-2.2483*	*-2.5211*	*-1.0788*	*-0.9694*	*-1.5194*	*1.4723*
	**	**	**				
MTBV	-0.0189	-0.0688	-0.1001	-0.1234	-0.1144	-0.0607	0.0005
	-0.9007	*-1.7713*	*-2.0767*	*-2.1392*	*-1.7652*	*-1.4722*	*0.0121*
		*	**	**	*		
TDCE	-0.0007	-0.0013	-0.0021	-0.0015	-0.0025	-0.0016	-0.0003
	-1.0403	*-1.0285*	*-1.5753*	*-0.9003*	*-1.3845*	*-1.3841*	*-0.2361*

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
MV_Domestic	-0.1533	-0.4665	-0.8363	-0.7799	-0.9318	-0.6978	-0.0818
	-0.9316	*-1.5163*	*-2.5821*	*-2.0565*	*-2.1912*	*-2.5208*	*-0.3245*
			**	**	**	**	
MV_Private	0.0936	-0.0297	-0.0083	-0.0993	0.0765	-0.1317	0.2096
	0.6970	*-0.1194*	*-0.0323*	*-0.3134*	*0.2117*	*-0.5961*	*0.9791*
TIME	0.1967	0.2210	0.2461	0.6998	0.7633	0.0633	0.5596
	1.4388	*0.8688*	*0.9077*	*2.1609*	*2.1004*	*0.2733*	*2.5992*
				**	**		**
IND._1	-0.0461	-0.0029	0.1576	0.2301	0.3417	0.1982	0.1989
	-0.4006	*-0.0138*	*0.7130*	*0.8807*	*1.1620*	*1.0492*	*1.1413*
IND._4	-0.1000	-0.1725	0.1194	0.3576	0.4161	0.2407	0.2438
	-0.7686	*-0.7148*	*0.4776*	*1.1635*	*1.2052*	*1.1267*	*1.1914*
Adjusted R^2 N=75	0.1069	0.0635	0.1696	0.1904	0.1579	0.0912	0.0489

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

First, there is weak evidence that the 'Payment' dummy is positive and statistically significant in the long-run within the 5 year post-acquisition period, which is not found in Table 6.7. Rarely has a study provided evidence that the means of payment is also a determinant factor for the long-run post-acquisition share price performance. For example, Megginson, Morgan and Nail (2004) based on US data report the cash dummy (equal to one if the offer is purely cash-financed) is not statistically significant in the long run.[4] My results show weak evidence that cash-financed acquisitions are better performers (statistically significant at the 10% level) in the long run over the period (+36M, +60M). Together with my short-run result that the 'Payment' dummy is positive and statistically significant, this long-run result is consistent with the view of Myers and Majluf (1984) in that bidder managers may favour cash offers if bidding firms' share price is undervalued.

Second, there is a negative sign for the 'Private' dummy over the period (+36M, +60M) which is statistically significant at the 5% level.[5] This result is inconsistent with the view that acquisitions of private targets are less affected by to managerial factors and may have better share price performance than acquisitions of public targets.

Third, another finding in Table 6.8 is the variable 'DY' becomes statistically significant for up to 3 years after the announcement. Based on the Industry/MV/MTBV benchmarked abnormal returns, the DY variable has a consistent negative sign as I expected. My results suggest that a high DY has significant adverse effects on the long-run share price performance for up to 3 years. This result is consistent with the view that for low dividend bidders, managers remain loyal to shareholders and seek out good future investment opportunities. In contrast, bidders with high past dividend payout may have less growth opportunities, and the bid announcement may be viewed as less desirable.

[4] They only show that cash-financed focus-increasing mergers outperform equity-financed focus-decreasing mergers in the long run. For the overall sample, the cash dummy is insignificant.

[5] However, under some circumstances, the 'Private' dummy could be not statistically significant in some different regressions tried.

Fourth, the coefficients of the 'MV_Domestic' dummy in Table 6.8 are consistently negative and statistically significant at the 5% level for the (+2M, +36M), (+2M, +48M), and (+2M, +60M) event windows. We see that, based on the industry-adjusted MV/MTBV benchmark, the 'MV_Domestic' dummy is negative and statistically significant in both the short (Table 6.5) and the long run (Table 6.8). As noted earlier in Section 6.3, these results suggest that managerial motives and higher agency costs are important factors for 'bigger' acquirers of public targets. It is consistent with the view that managers who want to maximise their own utility tend to seek well-known publicly-listed target firms.

Finally, in comparison with Table 6.7, results in Table 6.8 show that the impact of the variable 'MTBV' becomes stronger, and the impacts of the variables 'Cross', 'TDCE', 'MV_Private' and Industry (both 'Ind_1' and 'Ind_4') are weakened. On the other hand, the 'Time' dummy remains positive and statistically significant,

In a conclusion by examining both Tables 6.7 and 6.8, [6] I find that the variables 'Cross', 'Payment', 'MTBV', 'TDCE', 'DY', 'MV_Domestic', 'MV_Private', 'Time', 'Ind_1' , and 'Ind_4' appear to be statistically significant factors in determining the long run share price performance, although depending on the benchmark selection. There are a number of points that may be worth distinguishing as follows:

1) Based on the original MV/MTBV benchmark, the positive sign of 'Cross' in the long run as well as in the short run (Month +1) regression analysis suggests that cross-border bids are more influenced by synergy-related reasons such as responding to overseas clients and escaping small home market than by 'hubris' (or managerial reasons).

[6] As noted in Footnote 1, the results reported in Tables 6.7 and 6.8 were tested for robustness by dropping and adding variables to the regression model. Apart from the 'Private' dummy variable, the results were broadly robust to alternative model specifications and no evidence that multicollinearity was a problem was observed.

2) Based on the industry-adjusted MV/MTBV benchmark, 'Payment' has a positive sign as suggested by Myers or Majluf (1984) and 'DY' has a negative sign in both the long and the short run regression analysis. Once again this suggests that Jensen (1986)'s 'free cash flow hypothesis' is not a major motive for M&As in the UK market in this period.

3) Based on the original MV/MTBV benchmark, the result that 'TDCE' is a significant and negative factor in the long run seems to suggest the existence of the 'hubris' factor in M&As. Bidders that were overly aggressive or poorly managed (as reflected by high TDCE ratios) tend to have poor long run share price performance.

4) Depending on the benchmark used, 'MV_Domestic' has a negative sign in the long run as well as in the short run regression analysis, whereas 'MV_Private' has a positive sign in the long run regression analysis. In addition, MV appears to have no influence on share price performance of cross-border M&As. These results seem to suggest that the strength of managerial motives are different among domestic, cross-border and private M&As, with the private type least likely to have been affected by managerial factors associated with 'bigger' bidders and acquisitions of public targets most likely to have been affected.

Section 6.5 Sub-sample Analysis

Different types of acquisition could be motivated by different considerations therefore the determinants of the source of profitability could be different, too. For this reason, this section runs long-run regression tests on different sub-samples of the sample as a whole. The original sample is divided to three sub-samples:

(Group 1) bidders making domestic acquisitions (of publicly listed target firms)
(Group 2) bidders making cross-border acquisitions
(Group 3) bidders acquiring private target firms.

A vast majority of private offers in Acquisitions Monthly are domestic acquisitions. Therefore, all bidders in Group 3 are also domestic bidders.

Table 6.9 and Table 6.10 report the regression results for the restricted sub-sample of Group 1. The sample size is shown in the tables. The regression model is:

$$CAR_i\ (t_1, t_2) = \alpha_i + \beta_1 Payment_i + \beta_2 DY_i + \beta_3 MTBV_i + \beta_4 TDCE_i + \beta_5 MV\_Domestic_i + \beta_6 Time_i + \beta_7 Ind\_1_i + \beta_8 Ind\_4_i + \varepsilon_i$$

Table 6.9 is based on the MV/MTBV benchmark, and Table 6.10 is based on the industry-adjusted MV/MTBV benchmark. Both Table 6.9 and Table 6.10 indicate that three variables ('TDCE' with a negative sign, 'MV_Domestic' with a negative sign and 'Time' with a positive sign) may be important factors to the long run profitability of UK domestic acquirers of public targets. As noted earlier, a high 'TDCE' could be a signal of 'hubris' and a high MV could be associated with high agency costs. The results seem to suggest the co-existence of 'hubris' and 'managerial reasons' is important in UK domestic M&As of public targets. On the other hand, the positive sign of 'Time' suggests than UK domestic M&As of public targets experienced higher returns in high M&A activity periods. Other variables in Tables 6.9 and 6.10 are not statistically significant.

The sub-sample analysis on the restricted sample of UK cross-border acquirers in general shows insignificant results and therefore is not reported. Only the variable 'DY' generates negative and weakly statistically significant results for up to 2 years after the announcement (based on the industry-adjusted MV/MTBV benchmark). Megginson, Morgan and Nail (2004) find that culture differences (as measured by 'Herfindahl Index') has a statistically significant impact on the long run share price performance of cross-border M&As, and Gregory and McCorriston (2005) find that the exchange rate is a significant factor in determining event period abnormal returns for cross-border bidders. This suggests future research on long-run performance of cross-border acquirers may need to focus on other factors such as macroeconomic factors or cultural differences in examining cross-border M&As.

Table 6.9

Table 6.9 is the report of long-run regression tests for the restricted sub-sample. The acquirers in the sub-sample were domestic acquirers and acquired publicly listed target firms. The dependent variables are cumulative abnormal returns calculated on the basis of the MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
Constant	-0.2489 *-0.6297*	-0.4389 *-0.8813*	-0.4370 *-0.7262*	-0.6208 *-0.8231*	-0.8981 *-0.9692*	-0.1881 *-0.3559*	-0.4611 *-0.8089*
PAYMENT	-0.2468 *-0.5072*	-0.1722 *-0.2809*	0.2126 *0.2870*	0.2284 *0.2460*	0.8408 *0.7369*	0.4595 *0.7060*	0.6282 *0.8950*
DY	-0.0040 *-0.0576*	0.0092 *0.1061*	0.0554 *0.5291*	0.0153 *0.1164*	0.0774 *0.4796*	0.0594 *0.6456*	0.0219 *0.2211*
MTBV	-0.0544 *-0.4087*	0.0393 *0.2344*	0.1968 *0.9710*	0.1367 *0.5382*	0.2283 *0.7314*	0.2512 *1.4112*	0.0315 *0.1640*
TDCE	-0.0011 *-0.9848*	-0.0041 *-2.7840* **	-0.0050 *-2.8373* **	-0.0038 *-1.6950*	-0.0040 *-1.4721*	-0.0039 *-2.4939* **	0.0010 *0.6020*
MV_Domestic	0.0337 *0.1607*	-0.0636 *-0.2411*	-0.4663 *-1.4621*	-0.3602 *-0.9011*	-0.3685 *-0.7503*	-0.4999 *-1.7848* *	0.0978 *0.3236*
TIME	0.1966 *0.8485*	0.3833 *1.3128*	0.5025 *1.4244*	0.8952 *2.0246* *	0.8171 *1.5042*	0.3059 *0.9871*	0.3147 *0.9416*

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
IND._1	0.0964	0.1725	-0.0502	-0.0506	0.1110	-0.1466	0.1611
	0.3561	*0.5060*	*-0.1219*	*-0.0981*	*0.1749*	*-0.4051*	*0.4130*
IND._4	0.3277	-0.4289	-0.0212	0.4586	0.5446	-0.3490	0.5658
	0.8854	*-0.9199*	*-0.0377*	*0.6494*	*0.6276*	*-0.7051*	*1.0601*
Adjusted R^2 N=24	-0.2489	0.2306	0.2896	0.2507	0.0789	0.2606	-0.1294

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

Table 6.10

Table 6.10 is the report of long-run regression tests for the restricted sub-sample. The acquirers in the sub-sample were domestic acquirers and acquired publicly listed target firms. The dependent variables are cumulative abnormal returns calculated on the basis of the industry-adjusted MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
Constant	-0.2558	-0.1454	0.5155	-0.0058	-0.4004	0.7242	-0.9159
	-1.0173	*-0.4156*	*1.0301*	*-0.0088*	*-0.4750*	*1.4363*	*-1.5175*
PAYMENT	-0.1224	0.1084	0.5966	0.9345	1.0217	0.7014	0.4252
	-0.3954	*0.2596*	*1.0146*	*1.2119*	*1.0318*	*1.1840*	*0.5996*
DY	0.0178	0.0060	-0.0902	-0.0530	-0.0148	-0.0962	0.0755
	0.4065	*0.0970*	*-1.0290*	*-0.4611*	*-0.1000*	*-1.0890*	*0.7136*
MTBV	-0.1023	-0.1101	-0.1808	-0.1860	-0.0914	-0.0571	0.0895
	-1.2085	*-0.9220*	*-1.0759*	*-0.8437*	*-0.3228*	*-0.3372*	*0.4413*
TDCE	-0.0004	-0.0016	-0.0027	-0.0017	-0.0024	-0.0022	0.0003
	-0.5084	*-1.6377*	*-1.9068*	*-0.9256*	*-1.0019*	*-1.5531*	*0.1818*
			*				
MV_Domestic	-0.0926	-0.3269	-0.8383	-0.7957	-0.9077	-0.7162	-0.0694
	-0.6952	*-1.7780*	*-3.1131*	*-2.2531*	*-2.0015*	*-2.6400*	*-0.2138*
		*	***	**	*	**	
TIME	0.2993	0.4226	0.4638	1.1427	1.2064	0.1955	0.7426
	2.0307	*2.0360*	*1.5316*	*2.8770*	*2.3653*	*0.6407*	*2.0333*
	*	*		**	**		*

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+36M, +60M)
IND._1	0.0623 *0.3622*	0.1816 *0.7227*	0.2596 *0.7129*	0.3249 *0.6802*	0.6874 *1.1209*	0.1336 *0.3642*	0.4279 *0.9743*
IND._4	0.3437 *1.4598*	-0.3582 *-1.0710*	-0.1768 *-0.3684*	-0.0900 *-0.1431*	0.0323 *0.0399*	-0.5903 *-1.2209*	0.2091 *0.3613*
Adjusted R^2 N=24	-0.0559	0.2718	0.3786	0.4521	0.2712	0.2856	-0.0146

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

Table 6.11 and Table 6.12 reports the regression results for the restricted sub-sample of Group 3. The sample size is shown in the tables. The regression model is:

$CAR_i\ (t_1,\ t_2) = \alpha_i + \beta_1 Payment_i + \beta_2 DY_i + \beta_3 MTBV_i + \beta_4 TDCE_i + \beta_5 MV\_Private_i + \beta_6 Ind\_1_i + \beta_7 Ind\_4_i + \varepsilon_i$

Table 6.11 is based on the MV/MTBV benchmark and Table 6.12 is based on the industry-adjusted MV/MTBV benchmark. The event window in the last column is changed to (+24M, +60M) because the results are stronger in this event window.

By examining Tables 6.11 and 6.12, it seems that the post-acquisition performance of acquirers of private target firms is very sensitive to the benchmarks. In Table 6.11 (based on the original MV/MTBV benchmark) some statistically significant results are observed as follows: 1) the variable 'MTBV' is negative and statistically significant at the 5% or 1% level for many periods examined. This suggests that the 'market overreaction' effects of MTBV, as noted in Section 6.1, is most strongly reflected in acquisitions of private targets for the periods examined; 2) surprisingly the variable 'TDCE' has a positive sign over the periods (+24M, +60M) and is statistical significant at the 1% level. This contrasts with the view that a high TDCE is a signal of 'hubris' such that bidder shareholder wealth following the announcement of a M&A may be reduced. One possible reason could be that, for UK M&As of private targets, the hypothesized 'hubris' side of the TDCE ratio is neutralised, and a more positive side of the TDCE ratio prevails; 3) consistent with my earlier results, the variables 'MV_Private' and 'Ind_4' are positive and statistically significant. There is some weak evidence that 'Ind_1' may be positive (at the 10% level) over the period (+2M, +24M) but later becomes negative (at the 10% level) over the period (+24M, +60M).

On the other hand, as shown in Table 6.12 (based on the industry-adjusted MV/MTBV benchmark), only the variable 'DY' shows weak evidence of negative and statistically significant results over the (+2M, +12M) period. The negative sign of 'DY' is consistent with view that for low dividend bidders, managers remain loyal to shareholders and seek out good future investment opportunities. In contrast, bidders

Table 6.11

Table 6.11 is the report of long-run regression tests for the restricted sub-sample. The acquirers in the sub-sample were domestic acquirers and acquired private target firms. The dependent variables are cumulative abnormal returns calculated on the basis of the MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+24M, +60M)
Constant	0.1198	0.0669	0.3152	-0.1108	-0.0103	0.1664	-0.1771
	0.3605	*0.1018*	*0.4502*	*-0.1486*	*-0.0147*	*0.2667*	*-0.4989*
PAYMENT	-0.1201	-0.3764	-0.4671	-0.1866	-0.0738	-0.3607	-0.0075
	-0.6367	*-1.0087*	*-1.1763*	*-0.4546*	*-0.1869*	*-1.0193*	*-0.0372*
DY	-0.0088	-0.0132	-0.0629	-0.0842	-0.0980	-0.0443	-0.0483
	-0.1798	*-0.1362*	*-0.5999*	*-0.7408*	*-0.9183*	*-0.4735*	*-0.8939*
MTBV	-0.0412	-0.0684	-0.1996	-0.3291	-0.3452	-0.1268	-0.1610
	-1.1963	*-1.0042*	*-2.1186*	*-3.3175*	*-3.7143*	*-1.5104*	*-3.4207*
			**	***	***		***
TDCE	-0.0031	-0.0049	0.0005	0.0050	0.0094	0.0027	0.0100
	-1.3879	*-1.1084*	*0.1062*	*0.9590*	*1.9101*	*0.5919*	*4.0444*
					*		***
MV_Private	0.2985	0.0913	0.3930	0.4975	0.7677	0.0723	0.9161
	1.6273	*0.2516*	*1.0135*	*1.2287*	*2.0114*	*0.2091*	*4.7386*
					*		***

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+24M, +60M)
IND._1	0.3899	1.0159	0.7328	1.1865	0.6695	0.3171	-0.5232
	1.3636	*1.7956*	*1.2156*	*1.9621*	*1.1823*	*0.5903*	*-1.8245*
		*		*			*
IND._4	0.1815	0.4552	0.8948	2.2162	2.0297	0.6743	0.8898
	0.5726	*0.7257*	*1.3351*	*3.0966*	*3.0315*	*1.1291*	*2.6238*
				***	***		**
Adjusted R^2 N=34	-0.0032	-0.0731	-0.0038	0.2515	0.3278	-0.1662	0.6333

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

Table 6.12

Table 6.12 is the report of long-run regression tests for the restricted sub-sample. The acquirers in the sub-sample were domestic acquirers and acquired private target firms. The dependent variables are cumulative abnormal returns calculated on the basis of the industry-adjusted MV/MTBV matched control firm model.

Independent Variable	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+24M, +60M)
Constant	0.3195	0.8062	1.3351	0.5603	0.2912	0.9733	-0.9169
	1.0764	*1.2494*	*2.1887*	*0.7326*	*0.3240*	*2.0307*	*-1.4186*
			**			*	
PAYMENT	0.0220	-0.2878	-0.2227	0.1539	0.3237	-0.2625	0.3835
	0.1357	*-0.8182*	*-0.6716*	*0.3782*	*0.6961*	*-1.0076*	*1.1469*
DY	-0.0741	-0.1113	-0.1359	-0.0461	-0.0286	-0.0510	0.1077
	-1.7303	*-1.1953*	*-1.5209*	*-0.4043*	*-0.2213*	*-0.7269*	*1.1604*
	*						
MTBV	-0.0154	-0.0816	-0.0948	-0.1185	-0.1224	-0.0506	0.0290
	-0.5342	*-1.3019*	*-1.2282*	*-1.2472*	*-1.1389*	*-0.8331*	*0.3759*
TDCE	-0.0027	-0.0042	-0.0053	-0.0032	-0.0044	-0.0036	-0.0032
	-1.3851	*-0.9856*	*-1.2354*	*-0.6177*	*-0.7396*	*-1.0596*	*-0.7502*
MV_Private	0.1511	0.0667	0.0582	-0.0001	0.1907	-0.1082	0.4591
	0.9648	*0.1960*	*0.1815*	*-0.0001*	*0.4186*	*-0.4293*	*1.4016*

Independent Variable - continued	(+2M, +12M)	(+2M, +24M)	(+2M, +36M)	(+2M, +48M)	(+2M, +60M)	(+12M, +36M)	(+24M, +60M)
IND._1	0.1331	0.1224	0.0070	0.2751	0.3077	-0.1361	0.3396
	0.5229	*0.2212*	*0.0134*	*0.4552*	*0.4340*	*-0.3333*	*0.6662*
IND._4	-0.0721	0.0162	-0.0239	0.6625	0.6970	0.0251	0.4276
	-0.2608	*0.0269*	*-0.0422*	*0.9629*	*0.8695*	*0.0565*	*0.7419*
Adjusted R^2 N=34	0.1106	-0.0322	0.0531	-0.058	-0.0581	-0.0067	-0.1114

Numbers in italic are t-statistics. ***, **, * represent significance at the 1%, 5%, 10% level.

with high past dividend payout may have less growth opportunities, and the bid announcement may be viewed as less desirable.

Section 6.6 Conclusion

This chapter has examined the impact of some variables on both the short and long run share price performance for UK M&As. A number of variables were identified to be important factors of determining the profitability of M&As. Depending on the benchmark used: in the short run, it has been shown that factors such as cross-border, means of payment, tender offer, dividend yield, market values (for domestic acquirers of listed targets), and industry (for the consumer service sector) are important determinants; and in the long run, it has been shown that factors such as cross-border, means of payment, tender offer, market to book value, dividend yield, market value (not for cross-border bidders), and industry (for the Finance and Consumer Service sectors) are important determinants of share price performance of bidders. Some main findings are summarized as follows.

The results show that, in the long run, cross-border M&As may have better share price performance. This suggests that cross-border bids are more influenced by synergy-related reasons, such as responding to overseas clients and escaping small home markets, than by 'hubris' and the possible greater information asymmetry in cross-border than in domestic M&As.

The results also suggest that Jensen (1986)'s 'free cash flow hypothesis' is not a major factor in the UK M&A market. This is shown in the positive sign of 'Payment' and the negative sign of 'DY' in many of the regression tests contrary to the prediction of the 'free cash flow' hypothesis. The positive sign of 'Payment' is in line with the view of Myers and Majluf (1984) as noted earlier.

The results seem to suggest that 'hubris', as reflected by the TDCE ratio, may be a factor in UK domestic M&As of public targets. This is shown by the negative sign of 'TDCE' in the long run regression tests for the sub-sample of acquisitions of public targets. However, the variable 'TDCE' has a positive sign in the long run regression tests for the sub-sample of domestic acquisitions of private targets. One possible reason could be there is less 'hubris' in acquisitions of private targets, and a more positive side of the TDCE ratio prevails in UK acquirers of private targets.

Finally, as noted in Section 6.1, the impact of MV could be either positively or negatively (or insignificantly) related to bidders' share price performance. A 'bigger' bidder may be associated with greater agency costs, however, it may also be associated with greater bargaining power (or management experience, etc). Depending on the benchmark used, 'MV_Domestic' has a negative sign in the long run as well as in the short run regression analysis, whereas 'MV_Private' has a positive sign in the long run regression analysis. In addition, MV appears to have no influence on share price performance of cross-border M&As. These results seem to suggest that the strength of managerial motives are different among domestic, cross-border and private M&As, with the private type least likely to have been affected by managerial factors and acquisitions of public targets most likely to have been affected.

Appendix: Chapter 6

Table A6.1 Correlation matrix for Table 6.4[1]

	CRO-SS	PAY-MENT	TEN-DER	HOS-TILITY	PRI-VATE	DY	MTBV	TDCE	MV_D.	MV_C.	MV_P.	TIME	IND_1	IND_4	IND_10
CROSS	1.00	0.37	0.06	-0.01	-0.02	0.29	0.11	0.04	-0.01	0.69	-0.02	0.12	0.07	0.17	0.18
PAY-MENT	0.37	1.00	0.20	0.14	0.59	0.63	0.33	0.10	0.23	0.27	0.41	0.64	0.24	0.39	0.42
TEN-DER	0.06	0.20	1.00	0.40	-0.02	0.25	0.10	0.07	0.58	0.06	-0.01	0.17	0.18	0.17	0.05
HOS-TILITY	-0.01	0.14	0.40	1.00	-0.02	0.20	0.12	0.12	0.58	-0.01	-0.01	0.20	0.21	0.15	0.05
PRI-VATE	-0.02	0.59	-0.02	-0.02	1.00	0.67	0.36	0.08	-0.02	-0.02	0.69	0.79	0.22	0.45	0.43
DY	0.29	0.63	0.25	0.20	0.67	1.00	0.27	0.19	0.30	0.20	0.43	0.72	0.28	0.41	0.42
MTBV	0.11	0.33	0.10	0.12	0.36	0.27	1.00	-0.42	0.13	0.04	0.34	0.33	0.09	0.27	0.16
TDCE	0.04	0.10	0.07	0.12	0.08	0.19	-0.42	1.00	0.16	0.04	0.03	0.13	0.25	-0.02	0.04
MV_D.	-0.01	0.23	0.58	0.58	-0.02	0.30	0.13	0.16	1.00	-0.01	-0.02	0.27	0.26	0.22	0.07
MV_C.	0.69	0.27	0.06	-0.01	-0.02	0.20	0.04	0.04	-0.01	1.00	-0.01	0.11	0.08	0.16	0.12
MV_P.	-0.02	0.41	-0.01	-0.01	0.69	0.43	0.34	0.03	-0.02	-0.01	1.00	0.50	0.21	0.34	0.23
TIME	0.12	0.64	0.17	0.20	0.79	0.72	0.33	0.13	0.27	0.11	0.50	1.00	0.31	0.45	0.37
IND_1	0.07	0.24	0.18	0.21	0.22	0.28	0.09	0.25	0.26	0.08	0.21	0.31	1.00	-0.02	-0.01
IND_4	0.17	0.39	0.17	0.15	0.45	0.41	0.27	-0.02	0.22	0.16	0.34	0.45	-0.02	1.00	-0.02
IND_10	0.18	0.42	0.05	0.05	0.43	0.42	0.16	0.04	0.07	0.12	0.23	0.37	-0.01	-0.02	1.00

[1] 'MV_D.' ='MV_Domestic'; 'MV_C.' = 'MV_Cross-border'; 'MV_P.' = 'MV_Private'.

Table A6.2 Simple regression analysis in relation to Table 6.4[2]

Month 0	The dependent variable is cumulative abnormal return based on the original MV/MTBV matched control firm model														
CONSTANT	0.0051	0.0056	0.0100*	0.0086	0.0014	0.0129	0.0054	0.0061	0.0152*	0.0043	0.0003	0.0118	0.0047	0.0093	0.0025
	0.7613	*0.6029*	*1.7213*	*1.4754*	*0.1484*	*1.1185*	*0.7078*	*0.9076*	*1.8407*	*0.6591*	*0.0432*	*1.0143*	*0.7047*	*1.2573*	*0.3494*
CROSS	0.0007														
	0.0404														
PAYMENT		-0.0006													
		-0.0509													
TENDER			-0.0219												
			-1.1666												
HOSTILITY				-0.0072											
				-0.3766											
PRIVATE					0.0104										
					0.9041										
DY						-0.0021									
						-0.7904									
MTBV							-0.0001								
							-0.0326								
TDCE								0.0000							
								0.3745							
MV_D.									-0.0132						
									-1.1876						
MV_C.										0.0137					
										0.5660					
MV_P.											0.0159				
											1.1810				
TIME												-0.0092			
												-0.6686			
IND_1													0.0035		
													0.1948		
IND_4														-0.0139	
														-0.0176	
IND_10															0.0122
															0.8187

[2] Figures in italics are t-statistics. ***, **, and * denotes significant at the 1%, 5%, and 10% level, respectively.

Chapter 7 Conclusions

Section 7.1 Introduction

The purpose of this study has been to undertake an empirical investigation of the profitability of firms after M&As for some major acquisition markets in the EU. The study examined the recent period 1992 to 2003 for the UK, France and Germany. These three markets are the most active M&A markets in the EU and have the best data availability. This period consists of a M&A wave as I have discussed in Chapter 1 (*Introduction*) and was characterised by a large increase in both the number and value of European M&A activity.

The study performed empirical tests on both the short- and long- run (up to 5 years) share price performance of firms after mergers and acquisitions, and also both domestic and cross-border acquisitions for the selected countries. Additionally, this study paid attention to the long-run share price performance of acquirers of private target firms for UK M&As. In the long run tests, the study employed recent developments in event study methodology to ensure empirical results of the profitability of M&As are robust and comparable as possible.

Furthermore, this study explored a number of determinants of the variation in post-acquisition share-price performance for UK acquirers over both the short- and long-run. Also, these determinants may help to further reveal the motives for M&As.

Section 7.2 Key Findings

This thesis mainly focuses on two issues: 1) exploring the profitability of firms after M&As for different types of bidders and targets; and 2) exploring the important factors of determining the share price performance after M&As. I start with the key findings on the first issue.

The short-run tests of the profitability of M&As show little sensitivity to asset pricing models considered. The results are similar between the market-index based models and the MV/MTBV-matched models. In the short run, the empirical results show strong evidence that shareholders of target firms enjoy a profitable experience over a short time period surrounding the announcement date, irrespective of whether they are domestic or cross-border acquisitions. Take the (-5D, +5D) event window as an example: the UK target firms on average receive a statistically significant abnormal return of over 23% in this period, the French target firms on average receive a statistically significant abnormal return of over 6%, and the German target firms on average receive a statistically significant abnormal return of over 14%. On the other hand, the profitability of bidding firms over a short event window is less clear. The shareholders of the French and German bidding firms experience statistically insignificant wealth effects within the event month. However, there is weak evidence that UK bidding firms have superior profitability in the short run. Over the (-5D, +5D) event period, UK domestic acquirers on average experience an abnormal return of over 3% which is statistically significant at the 5% level, and UK cross-border acquirers on average experience an abnormal return of over 2% and statistically significant at the 10% level.

Therefore, for the short run share price performance, we can see that target firms' shareholders have positive wealth effects and bidding firms' shareholders do not lose in line with some earlier studies (e.g. Franks and Harris, 1989). Although most bidding firms make statements about the potential synergies from M&As, the forecasted benefits are frequently not fully achieved by those bidders in the short run. This may be the results of over-optimistic forecasts of the bidding management or the fact that M&As were initiated for reasons such as 'agency' problems or 'hubris'. Both 'agency' problems and 'hubris' may lower the potential 'synergy' gains to bidding firms and deliver premiums to target firms.

Consistent with the 'market effect' hypothesis developed in Chapter 2 (*Literature Review*), the short run results also show that the location of target firms appears to have an important impact on the short-term wealth effects: UK targets generate significantly higher abnormal returns than their Continental European counterparts. Take the (-5D, +5D) event window as an example: the UK target firms on average receive an abnormal return of over 23% whereas the Continental European (France and Germany) target firms on average receive 10% - 11%. The difference is a substantial 12% plus which is statistically significant at the 1% level. Therefore, a feature of this study is that it provides evidence that a market effect may exist. This could be a result of a higher degree of competitiveness of M&As, a more liquid and well-developed equity market and a higher degree of shareholder protection in the UK market than in the French and German markets.

This study has also examined the long run share price performance for the three countries. The long run event study is important because the short run abnormal returns may only provide an incomplete image of the bidding firms' shareholders' wealth effects. The possibility exists that the market does not always accurately predict the future performance of M&As.

Some studies (e.g. Lyon et al., 1999) suggest that the long-run tests of the profitability of M&As are sensitive to model selection and sample selection. Also they suggest that the methodologies commonly used in earlier event studies are flawed in the long run tests. To address these issues, this study employed several methodologies that are robust to the recent criticisms. To reduce the statistical problem of cross-sectional dependence in sample firm share returns, the original samples were divided into non-overlapping and overlapping sub-samples.[1] I start the discussion from the results based on the non-overlapping samples. This study employed the (industry-adjusted) control firm and control portfolio models together with bootstrapped skewness adjusted t-statistics to study non-overlapping sub-samples. These models avoid new listing, re-balancing and skewness biases suggested by Lyon et al. (1997, 1999).

There is evidence that UK domestic acquirers of publicly-listed target firms on average have a less profitable experience in the long-run post-acquisition period. This is shown by the negative and statistically significant mean BHARs up to 2 and a half years after the announcement date. If I take the results based on the '3Y Non-overlapping Sample' as an example, the negative mean BHARs trough at -19.6% (statistically significant at the 1% level) after the end of the 2nd year relative to the

[1] 'Overlapping' mean acquirers make multiple acquisitions within the relevant periods, whereas this is not the case in non-overlapping samples.

announcement date. After approximately 2 and a half years, the mean BHARs gradually become statistically insignificant. The results suggest that negative motives, like 'hubris' or managerial motives, are important factors in the UK M&A markets (mainly for domestic acquirers of listed targets) from a long run share price performance point of view.

The results for UK domestic acquirers of private target firms are more mixed, and dependent on sample selection. Based on the '3Y Non-overlapping Sample', there is evidence that UK domestic acquirers of private targets experience negative and statistically significant BHARs in the long run. However, this is not supported by the '5Y Non-overlapping Sample'. Based on the '5Y Non-overlapping Sample', the mean BHARs in the long run for acquirers of private targets are positive but not statistically significant (except in one case). This suggests that in long run event studies, one should be careful in interpreting results.

Generally speaking, there is no real evidence showing that the long run share price performance for UK cross-border acquirers is statistically significant. This implies that the shareholders of UK cross-border acquirers do not experience further positive or negative abnormal returns in the long run.

Gathering all UK acquirers together, there is evidence that, in the long run, overall acquisitions by UK acquirers yield negative profits. This is supported by any combination of the sampling methods and benchmarks used.

The French sample provides no real evidence of under- or over- performance in the long run (except in one case). On balance, the results suggest there is less 'hubris' or managerial motives in the French than in the UK M&A market. For the German M&A market, results are dependent on the methodology. There is some evidence of underperformance in the German sample for domestic acquirers. If I take the '3Y Non-overlapping Sample' of German domestic acquirers as an example, based on the control firm model, the mean BHARs trough at -28.3% (statistically significant at the 1% level) after two years relative to the announcement date, whereas the mean BHARs trough at -9.2% based on the control portfolio model which is not statistically significant.

When I gather all acquirers from all three countries together, there is strong evidence that overall M&A activity is unprofitable in the long run, which is supported by any combination of the sampling methods and benchmarks used. Overall, the results suggest that that firms (and investors) should be wary of entering into M&As especially from a long run share price performance point of view.

One feature of this study is that it makes a distinction between non-overlapping and overlapping samples in the long run. With the presence of overlapping returns, the BHARs of the original CF/CP model is no longer an appropriate indicator of the long run share price performance. For one reason, the BHARs of an earlier M&A can impact on the BHARs of the subsequent M&As and make the results contaminated; for another reason, test statistics could be mis-specified due to lack of independence in overlapping returns. To tackle these problems, I employed the calendar time approach along with either the Fama-French three-factor or control portfolio model (as suggested by e.g. Fama, 1998, and Mitchell and Stafford, 2000).

The results show that although UK non-overlapping acquirers (of domestic public targets) experience negative and statistically significant mean abnormal returns over the period examined, UK overlapping acquirers (of domestic public targets) only experience insignificant average excess returns over the same period. UK overlapping acquirers (of private target firms) experience positive and statistically significant average excess returns, which are also significantly higher than the average excess return of UK non-overlapping acquirers (of private target firms) over the same period examined. Gathering all UK acquirers together, the entire UK overlapping sample also shows better performance than the entire UK non-overlapping sample. Therefore, this study reveals that the investigation of overlapping samples is important because the overlapping sample firms on average may perform differently from the non-overlapping sample firms. Different performance could occur if 'overlapping' is a sign of experience in handling M&As and if experience is positively correlated with the post-M&A share price performance. Similarly, 'overlapping' could be linked to the bidding firm's ambition, the speed of expansion, etc., which could have an impact on the long run share price performance. Overall the results above suggest superior performance of overlapping bidders for the UK and imply that experience of acquisitions plays an important role in explaining variations of post-acquisition share price performance.

For the French market, the results show that the 'overlapping' effect is not an important factor. However, surprisingly, in the German sample, overlapping domestic acquirers appear to do less well than non-overlapping ones. One possible reason is that 'hubris' or 'agency' has become more significant for German overlapping domestic acquirers and they might have been overly aggressive in corporate expansion.

Another feature of this study is that it distinguishes between domestic and cross-border M&As. Earlier studies (e.g. Harris and Ravenscaft. 1991, and Campa and Hernando, 2002) suggest that for the event period there is a cross-border effect: in a market, in the short run, cross-border targets gain significantly more than domestic targets while cross-border bidders gain significantly less than domestic bidders. My study shows that, within Month 0 for the UK market, targets in cross-border M&As do experience higher share price performance, however, shareholder wealth effects for cross-border bidders are not significantly lower than domestic bidders. This thesis further investigated the cross-border effect in the long run event study environment for the UK market. The results show that based on the (+2M, +24M) period, cross-border bidders experience significantly higher share price performance than domestic bidders.

The available results of my study seem to suggest that synergy gains for cross-border bidders take a long time to develop. As I have discussed, there are two groups of arguments why shareholder wealth effects may be different between domestic and cross-border M&As. One group suggests negative motives may be important factors. For example, the profitability of cross-border M&As for bidders may be lowered by 'hubris' factors such that managers of bidding firms underestimate the impact of culture differences on the success of M&As or overestimate their ability to value foreign firms (e.g. due to different accounting standards). Another group points in the opposite direction. It argues that cross-border acquisitions may be more motivated by positive factors, e.g. escaping a small home market, extending markets served, achieving economies of scale, replacing inefficient management of a foreign firm, and responding to overseas clients' needs. My results appear to suggest that in the short run (e.g. Month 0), cross-border bidders are influenced by 'hubris' in conjunction with those unique 'synergies' of cross-border M&As in similar strength. As a result, we see no under- or over- share price performance for cross-border bidders compared with domestic bidders. In the long run when those positive synergy factors in cross-border M&As start to develop and bidders have more access to targets' information, we can observe the better bidder share price performance of cross-border bidders than domestic ones.

This study also examined some other possible determinants of the post-acquisition share price performance. The tests were performed on the UK sample because its sample size is bigger as well as the UK being a major M&A market in the EU. A number of factors have been discovered that have explanatory power for short- and/or long- run post-acquisition share price performance.

This study shows that Jensen (1986)'s free cash flow hypothesis is not a major factor in the UK M&A market. Jensen (1986)'s free cash flow hypothesis predicts that managers may waste free cash flow on less desired M&A projects rather than dividend payouts because of a conflict of interest between managers and shareholders. In my study, in the short run, cash offers have better share price performance than equity offers which is in contrast with Jensen (1986). My result is more in line with Myers and Majluf (1984) who assume that managers are loyal to shareholders and possess information about the true value of the firm. As a result, cash offers serve as a good signal to investors indicating that the share price of bidding firms may be undervalued. There is also some weak evidence that cash offers have superior performance in the long run (depending on methodology used), which was not found in earlier studies.

This study provides evidence that the MV of acquirers has important explanatory power to the long-run share price performance. The empirical results of this study reveal that, for domestic acquirers of publicly-listed targets, in both the short and long run, 'bigger' acquirers underperform 'smaller' ones. Managers may be more powerful in a bigger firm, which makes monitoring them more difficult and costly. In addition, a bigger bidder may have less focus on the acquired firms. These could be reasons for the negative relationship between MV and share price performance for domestic acquirers of listed targets. It also suggests that managerial motives are significant factors in this type of M&A. In contrast, for domestic acquirers of private target firms, the results show that in the long run 'bigger' acquirers outperform 'smaller' ones. This could be the result of more bargaining power, more financing resources, and more adaptability/experience in absorbing target firms that may be associated with 'bigger' acquirers. It may reveal that there are less managerial motives in domestic acquirers of private targets.

The results in this study suggest that in the short run tender offers have superior share price performance for acquirers. This result is consistent with earlier studies such as Gregory (1997) and Loughran and Vijh (1997). The value-increasing feature of tender offers is consistent with the view that acquiring firms can replace the inefficient management of target firms and realize a capital gain by improving operating performance. The bidder in a tender offer uncovers value-creating insights about the target firm and seeks to avoid giving value up in a negotiation with the target firm.

The 'glamour' versus 'value' firm effect, as found by Rau and Vermaelen (1997) and Sudarsanam and Mahate (2003), are supported in the long run in this study. Consistent with their findings, this study found a negative and statistically significant relationship between long-run post-acquisition share price performance and the MTBVs of acquirers before the announcement. This study further shows that the glamour/value effect of MTBVs mainly exists in acquirers of private targets. The glamour/value effect of MTBV suggests that acquirers with a high MTBV (glamour stocks) tend to be overpriced (see also Barberis, Shleifer and Vishny, 1998, p. 307-314) reflecting a recent high growth in earnings, and vice versa. After a period of time the market corrects the previous over-reaction based of past performance. Shareholders of acquirers with a high MTBV at the announcement time will experience low average returns afterwards, and shareholders of acquirers with a low MTBV (value stocks) at the announcement time will subsequently earn superior returns. Therefore, a negative relationship between MTBV and the long run share price performance is observed. The 'over-reaction' hypothesis above also predicts a positive relationship between MTBVs and the short run share price performance. However, this is not observed in this study.

In this study, there are other factors that are also found to be important in determining post-M&A share price performance. In certain circumstances factors, such as the Total Debt/Common Equity ratio, dividend yield before the announcement, industry sector, and acquisition period, were also found to be able to explain some of the variations in acquirers' share price performance after M&As. These issues have been discussed in Chapter 6 (*Regression Analysis*).

Section 7.3 Contributions

This study contributes to the literature of event studies of M&As in three ways as follows.

First, it examined the long run share price performance after M&As and employed several methodologies that are robust to the recent criticisms of commonly used methodologies in earlier event studies. The long run event study is important because the possibility exists that the short run share price performance does not always accurately predict the future performance of M&As. This is reflected by the results of this study. For example, in the short run, UK domestic acquirers of public targets do not under- or over- perform (except a few cases), whereas there is significant evidence that they do under-perform in longer run, e.g. up to 5 years.

The different share price performance between the short and long run event studies has some wider significance. For one thing, it shows that M&As are long term investments. Some synergy gains may take a long time to develop and are not fully realized in the share price around the announcement period. Also, investors may revise their views/expectations after the M&As when the evidence/performance of the M&As becomes clearer. Similarly, agency costs may be spread over a long time period and not fully realized in the short run share price. For another, it questions the wealth-creation feature of M&As in the short run. The results of this study show that, in certain circumstances (especially for acquisitions of public targets in the UK market), acquirers do suffer wealth losses in the long run.

The long run results for UK acquirers also raise policy concerns for M&As. In this study, on balance there is more evidence to show that UK acquirers of public targets suffer significant wealth losses if the longer post-M&A period is considered. Possible reasons may be acquisitions of public target firms are more likely to be associated with managers' own interests or 'hubris' may be factor. This raises serious question over this type of M&A, in particular, the evidence suggests that from a public policy point of view investors should need to be more cautious in approving this type of M&A.

Second, this study has shown somewhat different results for the French and German M&A markets. Earlier event studies, especially long run event studies, have been largely limited to the UK and US M&A markets, therefore there is a need for the M&A research for the continental EU acquisition markets. This study showed that the profitability of M&A activity (for target firms) is systematically higher in the UK market than in the French and German markets.

Finally, this study investigated three types of acquirers, that is, acquirers of domestic, cross-border and private targets. Few studies have examined all these types of acquisitions together for both the short and long run. This study further shows that the profitability (and the determinants of the profitability) of these three types of acquirers can be different, especially in the long run.

The different results for domestic, cross-border and private M&As also have wider significance as they may reveal that different characteristics and different strengths of motives are associated with these three types of M&As. On balance, the results for the UK suggest that acquirers of private targets (and cross-border targets) are less likely to have negative share price effects in the long run than acquirers of domestic public companies. The results suggest that problems of 'agency' and 'hubris' do not outweigh synergy effects in private and (cross-border) M&As, but may be more of a problem in (especially larger) domestic public M&As.

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