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DO SHAREHOLDERS GAIN FROM CORPORATE ACQUISITIONS? EVIDENCE FROM MARKET VALUATION, MERGER MOMENTUM, AND BIDDING FREQUENCY

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Principal Supervisor: Prof. Antonios Antoniou

Submitted for the Degree of Doctor of Philosophy in Finance

July 2006

To my Father

ACKNOWLEDGEMENTS

Many people have helped me throughout these three years, and I would like to take this opportunity to emphasize my sincere appreciation of my supervisor Professor Antoniou, who led me step by step to understand what finance is and finally get to the completion stage. It is hard to imagine my academic progress without the intensive supervision he has given me during these years. I learned not only knowledge from him but also the ways he has of dealing with academic obstacles and of using different methods to design research questions. I also deeply appreciate Dr. Huainan Zhao who initially inspired me to start my PhD, and helped to shape my research ideas during the meetings we held. I am sure that I will benefit from these three years for my entire life.

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To become a PhD is one of my dreams and my parents have always been there to give me all the support they can no matter how hard it is. Thank you father and mother, you helped me realize my dream.I would also like to thank all my teachers from the very beginning of my education, you taught me knowledge step by step, until I realized my dream in the academic world. Thank you very much!

Do Shareholders Gain from Corporate Acquisitions? Evidence from Market Valuation, Merger Momentum and Bidding Frequency

By Jie Guo

ABSTRACT

In this thesis, many issues relating to bidders' gains from United Kingdom (UK) domestic corporate acquisitions will be investigated. More specifically, the focus will be on various factors that might affect a bidder's acquisition performance. These will include the type of deal (tender offer versus merger, or diversification versus focus enhancement), the method of payment (cash versus stock versus mixed), the type of target (public, private, or subsidiary), and the bidder's, the target's or the market's valuation. An emphasis will also be placed on the relationship between the market valuation and the bidder's outcome from acquisitions, where significant long-run negative relationships have been found. At the same time, frequent bidders and non-public target acquisitions will be examined, as they constitute a large proportion of the takeover deals in the UK market and an examination of their acquisition performance can shed light on many existing theories and hypotheses. This research was developed to investigate the fundamental reasons for the results obtained from bidding firms, and it was found that market valuation affects bidders' decisions and enhances the formation of merger momentums Furthermore, the results show that bidders are subject to various behavioural biases, and these biases are more obvious during high market valuation periods. Overall, the findings suggest that valuations at the firm and market level clearly affect the intensity of merger activity and the subsequent performance of mergers.

The material contained in this thesis has not been previously submitted for a degree in this or any other university.

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CHAPTER 1 INTRODUCTION

In this thesis. the focus is on investigate acquiring firms' shareholders gains from corporate acquisitions by examining their stock performance using both short-run and long-run evaluation methods. The impact of market valuation, merger co-movement and bidding frequency on shareholders' wealth is also considered. The findings provide new evidence and carry implications for the merger and acquisition (M&A) literature, and provide answers to the "big question" from various angles.

Over the past forty years. modern finance theory has provided many rationales for why firms choose to engage in M&As. For example, acquirers may be aiming to create market power so that they can eliminate potential competition, or seeking to improve corporate efficiency and be reacting to deregulation. In other cases. diversification or empire building may be the goal, possibly spurred by managerial hubris. Indeed, empirical research has shown that most of these theories can explain certain types of merger activity. although some theories appear to be more relevant for particular time periods.

The study of mergers has attracted much attention from both financial and industrial organizations. The reasons for this interest are clear. From the point of view of an individual firm. a merger is one of the largest and most significant transactions that a

corporation can undertake. From an aggregate point of view, mergers are an important mechanism through which resources are reallocated across industries and within firms belonging to the same sector. Furthermore, taking a macroeconomic perspective, Jovanovic and Rousseau (2002) argued that mergers are instrumental in spreading technological change.

A small body of literature has recently emerged that aimed to find out the direct link between the causes and consequences of merger, although the conclusions are inconsistent. Within this context, the performance of acquirers buying non-public targets and using different methods of payment has barely been examined in the UK. Furthermore, some recent research shows that market conditions and market-wide valuation levels can alter the bidder's outcome from a merger, thus these deals should exhibit certain types of momentum pattern. Previously however, no evidence has been provided for the UK market regarding this issue. Therefore the goal of this thesis is to fill in these gaps by undertaking an intensive investigation from various angles.

Furthermore, there are still some questions remaining unanswered, even though much attention has already been paid to related areas. The most crucial one is: "Do shareholders actually gain from mergers and acquisitions or not?" According to the previous research, the answer to this question depends on several factors: the type of deal, the method of payment, the type of target, how value improvement is measured, and the bidder's targets, and market's valuation status. Thus, there is no one easy

answers to the big question here; it needs to be decomposed into several aspects and an attempt made to solve them separately.

In order to answer the big question, it is first necessary to identify the measures of value creation, that is, the bidders' gain from M&A. There are two popular ways to measure whether the shareholders have gained from an M&A, the short-run return measure and long-run return measure. The short-run stock performance of the acquirers during the period surrounding the acquisition announcement is the most widely used technique to access the bidding firm's shareholders' gain from an acquisition. Many view short-run stock performance as the most reliable evidence of value creation because in an efficient capital market, stock prices quickly adjust to new information and incorporate any change in value that the acquisition is expected to bring. The second measure of value creation is the long-run stock performance of the acquiring firm for three to five years after the acquisition announcement. Many studies show that certain acquirers significantly under-perform compared to their peers in the long-run, thereby casting doubt on the conventional wisdom that stock prices adjust quickly and fully during the announcement period.

The empirical analysis in this thesis begins by identifying the reasons for mergers, and establishes that the bidder's pre-acquisition price run-up is one of the most important of these. There is no previous empirical research that looks into this issue as regards the UK market, and the results here not only contribute by filling this gap in the

literature, but also reveal the fact that a merger must happen for the right reason, and is actually the outcome of good performance rather than the cause.

In Chapter 2, it is shown that nearly 90% of the bidders exhibited a substantial share price run-up prior to a merger deal, and that the run-up is more significant for stock mergers. This confirms the hypothesis that a merger is actually the result of past good performance. The work moves on to investigate the consequences of merger announcement and it is found that prices continue to go up for a short period of time, followed by a significant long-run reversal for most of the bidders. The rationale lying behind this is that bidding firms must have done well in the past and accumulated either enough capital or experience to be in a position to acquire. However, because of this good performance, managers are in general prone to hubris and their share prices are thus overvalued compared to their peers. Hence, in the longer run, high market expectation towards bidders will eventually be replaced by reality and long-run reversal is observed. At the same time, an examination was made of bidders' performances in both the short-run and long-run by different types of portfolios defined by method of payment, target ownership status, and bidding frequency. Another very interesting finding is that firms tended to have better performance when many small acquisitions were made rather than a small number of large deals. Most likely is because the acquirer accumulates experience and learns from past mistakes.

From the previous studies, it is known that there is a close link between merger

activity and the valuation of individual companies. The idea that stock prices affect merger activity is not new; it dates back at least to Ralph Nelson (1959), who noted that merger activity seems to boom when stock prices are high. Jovanovic and Rousseau (2001) confirmed this observation, showing that periods of high merger activity correlate with high market valuations. Furthermore, during these merger waves, firms are more likely to use stock to undertake acquisitions. Thus, Chapter 3 discusses the empirical test conducted to examine whether overall market valuation affects the performance of mergers. Not only were overall market portfolios examined, but there was also a focus on sub-portfolios such as those containing frequent bidders and non-public target groups. From these tests, it was found that market valuation does have an impact on bidders' performances, at least in the long-run, for deals initiated during low market valuation periods significantly out-performed those in high valuation periods. Furthermore, it was found that frequent bidders keen on pursuing non-public targets during high market valuation periods received worse long-run performances. This is probably because their managers are more easily infected by overconfidence when the market is booming. A very important finding is that regarding deals initiated during low market valuation periods where it was found that frequent bidders out-performed infrequent bidders in the long-run. This finding is consistent with the organizational learning and investor sentiment hypotheses, which suggest that the rationality of frequent bidders is in fact more easily infected by market sentiment.

Thus, it can be seen from Chapters 2 and 3 that mergers are the result of bidders' good performances and are also affected by market valuation and other factors. The hypothesis is, therefore, that when all these factors are correlated with each other, and with recent market conditions, certain momentum patterns should be exhibited. Chapter 4 investigates the merger momentum issue, where merger momentum is defined as a correlation between the market reaction to a merger announcement and the recent market conditions. Here, strong evidence was found of merger momentum in high valuation markets, that is, the market reaction to a merger is positively correlated with the response to other mergers in the recent past, especially during a high market valuation period.

In general, the contribution of this thesis has three aspects. Firstly, the research explores the direct link between the causes and consequences of M&A, and establishes that market valuation not only affects merger decisions but also influences bidders' performances. Secondly, the data set used is larger than any previously used in a UK M&A study; this not only avoided the problem of bias in the data selection, but also allowed for the data to be sub-divided into various portfolios in order to examine every detail. Thirdly, the study establishes that the merger momentum effect exists in the UK market, and then supportive empirical evidence is provided for why and when merger deals are correlated with market conditions and momentum patterns exhibited. This finding enables a link to be established between merger activity and fundamental market factors and offers a new explanation for bidders' long-run

under-performance.

The rest of the thesis is organized as follows: Chapter 2 explores the direct link between the causes and consequences of corporate takeover activities, while Chapter 3 empirically examines the relationship between stock market valuations and bidding firms' performances. Chapter 4 examines the effects of merger momentum and the correlation with high market valuations, and Chapter 5 offers a final conclusion and a proposal for future investigation. Each chapter includes a literature review, and tables and figures can be found at the end of each.

CHAPTER 2 THE CAUSES AND CONSEQUENCES OF CORPORATE TAKEOVER-----UK EVIDENCE

"In an efficient economy, there would be a direct link between causes and effects, and mergers would happen for the right reasons"

---------Andrade et. al.,(2001, p.118)

2.1 INTRODUCTION

In this chapter, the aim is to explore a more direct link between the causes and consequences of corporate takeover activities. Based on a large data set comprising 6,423 completed UK domestic takeover deals, the results of this research show that there is a substantial price run-up for all acquirers prior to announcement. This suggests that corporate acquisition is the consequence of good performance rather than the cause. At the same time, both the short and long-run performances of the bidders in the different types of portfolios, including the method of payment, target's public status, and bidding frequency, were examined. Most of the results are in line with previous literature, and notably, it is found that the best acquisition strategy for a firm to achieve growth is by making many small acquisitions rather than a small number of large acquisitions. In general, these findings are consistent with recent arguments and evidence regarding the behaviour of management and the

overconfidence led by hubris or overvaluation in their acquisition pursuit.[1]

The motivation of this study is very straightforward. As regards the takeover battle, the literature has generally found that the bidder loses and the target wins. However, by looking below the surface and examining the fundamental factors that determine the success of a takeover it can be seen that this is not the whole picture. If bidding firms are generally the losers in this battle, then why are an increasing number of merger deals being observed? Surely, there must be some link between the bidder's gain and merger incentives that have yet to be discovered. Has the bidder's pre-takeover performance something to do with their merger decisions? Is the bidder's merger frequency the factor that determines their post performance? Furthermore, will the outcome of the "battle" be different if non-public acquisitions are taken into consideration? Very few previous studies have examined these three issues as organic components, and this research aims to fill these gaps.

In this chapter, the aim is to answer these questions by examining whether acquirers' pre-takeover performances drive acquisitions, or whether particular acquisition strategies drive performances. Moreover, the relationship between the bidder's gain and their acquisition frequency is tested. Furthermore, an examination is made of whether the shareholders of acquiring firms gain when acquisition announcements are made of public firms, non-public firms, and subsidiaries.

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[1] For previous empirical evidence, please refer to the literature review section.

Previous research offers rich literature regarding the causes and consequences of M&A.[2]However, less attention has been paid to non-public target acquisitions. Although public target acquisitions account for a significant portion of the total dollar value of acquisitions, they account for a relatively small proportion of the number of acquisitions that take place. Recently, the increased focus on non-public target acquisitions has shown that there is a big difference between the acquisition performance of public acquisitions and non- public acquisitions[3]. Thus, it was important to include non-public and subsidiary targets in the sample in order to understand the whole picture and obtain an unbiased result.

Based on the conventional wisdom of the merger literature, it is known that, on average, the target's shareholders gain from takeover transactions, while the acquirer's shareholders lose. The level of the acquirer's under-performance also depends on the method of payment and other deal specific factors and it is found that bad acquirers often become takeover targets themselves. In general, most of the research has found that it is very difficult for the acquirer to create value. However, the level of the acquirer's performance could dramatically change if the bidder's pre-takeover price run-up is taken into consideration.

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[2] For 1970s evidence see Jensen and Ruback (1983), for 1980s evidence see Jarrell, Brickley, and Netter (1988), for 1990s evidence see Loughran and Vijh (1997), Rau and Vermaelan (1998), and Andrade, Mitchell and Stafford (2001)

[3] See Chang (1998), Fuller, Netter, and Stegemoller (2002), and Moeller, Schlingemann, and Stulz (2003) for recent evidence on non- public target acquisitions.

As stated at the beginning of this chapter, it is believed that there is a direct link between the causes and consequences of a takeover. In other words, takeovers must happen for the right reason. Clearly, chief executive officers (CEOs) are paid to ensure shareholder's value growth, and to correctly identify the takeover target either for diversifying corporate risk or for better potential growth. If it is assumed that CEOs are more rational than ordinary investors[4], or at least will learn from previous mistakes, then the deals should reflect the interest of all shareholders, thus we should expect to see a positive market reaction to merger announcements with no long-run reversals. However, previous evidence shows that bidders' long-run performances are mixed, implying that there must be some important factors that have yet to be identified to explain bidders' returns.

Roll's (1986) hubris hypothesis, Jensen's (2000, 2004) agency cost hypothesis, and Shleifer and Vishny's (2004) market misevaluation driven acquisition hypothesis each offer a partial explanation, but there must surely be a more direct link between the causes and consequences of takeovers.

Bradley and Sundaram (2005) found that firms that undertake acquisitions exhibit a substantial stock price run-up prior to their acquisition announcement. When examining the acquiring firms control portfolio from the United States of America (US) takeover market, they found that this portfolio out-performed the New York

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[4] Because CEOs are more informed than outside investors.

Stock Exchange (NYSE) market index by 50%. In other words, their results suggest that these were performance driven acquisitions, and this could explain the cause of acquisitions.

It is possible that the acquisition announcement might convey information unrelated to the merger itself, and the market incorrectly anticipates the benefits and costs of acquisitions for the acquiring firm's shareholders. This could be due to subsequent events affecting the value of acquisitions, or because, for whatever reason, the market has made a biased assessment of the value of the acquisitions. To allow the market sufficient time to absorb the merger announcement and filter out other irrelevant information, the long-run stock performances of acquiring firms have been investigated here in order to examine this issue.

From this empirical analysis, acquirer's loss is dramatically decreased if the bidder's prior price run-up is taken into consideration and non-public target acquisitions are included in the sample. Also, the level of under-performance varies according to the types of acquisition strategy, the characteristics of the bids and targets, the method of payment, and the size of the target relative to the size of the acquirer. The research was constructed based on all these issues in order to shed light on the puzzle of why so many corporate acquisitions take place despite much of the previous research having documented the "bidder's curse".

Much of the previous literature has focused on public acquisitions, and less attention has been given to non-public target deals. Recently, however, there have been some studies that have started to investigate this area[5], and they have found much evidence that differs from the conventional results relating to public target acquisitions. For instance, acquirers' stock price reactions to announcements of non-public target acquisitions are positive; the difference in the announcement effects of cash versus stock is not significant. These findings suggest that more effort is needed in this area in order to reach an unbiased understanding of bidders' performances.

Another issue that has recently attracted the interest of many researchers is the serial acquisition strategy of firms over time. These studies have found that there is a difference between growth achieved by making many small acquisitions versus that achieved by making a small number of large acquisitions.[6] The typical arguments advanced to support this include the following: smaller acquisitions are easier to integrate, are more likely to involve related businesses, and are more likely to benefit acquirers as they gain experience from learning by doing. They are less likely to be undertaken for reasons of hubris and empire building, and are more likely to be capable of exploiting information asymmetries, and are more likely to be acquired with cash rather than stock.

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[5] It is only recently that the evidence on acquisitions of non-public targets has begun to be examined in detail. See Hensen and Lott (1996), Chang (1998), Fuller, Netter, and Stegemoller (2002), and Moeller, Schlinggemann, and Stulz (2004).

[6] See Frick and Torres (2002), and Harding and Rovit (2002).

In this chapter, an examination is made of the interaction between the bidder's pre-acquisition price run-up and post-acquisition performance, for both non-public acquisitions and public acquisitions, their acquisition strategies over time, the characteristics of the targets they acquire, and the returns realized by their shareholders. The portfolios were constructed based on the different characteristics of the targets and the bidders' acquisition strategies over time to shed light on the actual gain realized by the acquiring firm's shareholders.

For the empirical analysis, a sample was constructed from the Securities Data Corporation (SDC) data-base ranging from 1985 to 2003. All completed public, non-public, and subsidiary acquisitions made by publicly-traded UK acquirers were included. After matching with DataStream to obtain the share prices and other accounting information, the data set consisted of 6,423 completed acquisitions, worth a total of 147.18 billion pounds, undertaken by 1,367 publicly listed acquirers. Both an event study analysis and a time series analysis were carried out of this sample.

The rest of the paper is organized as follows. Section 2 presents the relevant literature regarding this area of study. Section 3 provides theoretical arguments and the research design. Section 4 presents the data and methodology used in this study. Section 5 presents the results of the empirical analysis and interprets the findings. A conclusion is given in Section 6

2.2 LITERATURE REVIEW

Much of the conventional literature regarding acquirer performance casts doubts on a firm's ability to create shareholder value by undertaking acquisitions. It is generally believed that the takeover process suffers from agency problems, especially for the acquiring firms. CEO hubris and empire building must certainly play a role.[7]Jensen (1986) suggested that acquisitions represent opportunities for corporate managers to use free cash flows to enhance their welfare to the detriment of their firm's shareholders. In a similar vein, Murphy (1999) found that acquisitions may well be driven by CEOs wanting to increase their remuneration, since acquisitions increase firm size and there is a strong positive relationship between CEO remuneration and firm size. Even if agency problems are not present, competition among bidders ensures that acquirers pay "full value" for the targets they acquire.[8] Furthermore, even if there is no competition, the bidder may find it difficult to exploit information asymmetries in acquiring publicly traded targets since financial market participants can bid away the potential gains from an acquisition. And finally, the use of stock as a medium of payment sends negative signals about the intrinsic value of the acquiring firm.[9] There is much evidence to suggest that it is very difficult for an acquirer to gain from an acquisition. These results are however inconclusive because the benefits

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[7] See Roll (1986).

[8] See Bradley, Desai, and Kim (1988).

[9] See Asquith, Bruner, and Mullins (1987), Huang and Walking (1987), and Travlos (1987). Mitchell Pulvino, and Stafford (2004) found that roughly one-half of the negative announcement effects for acquirers in stock based acquisitions reflected downward price pressures caused by short selling undertaken by risk arbitragers.

from acquisitions will be affected by the method of payment, the frequency of bids, the target's public status etc.

There follows an in-depth review of the relevant literature regarding the above issues, that is, several theories related to the motivation and consequences of M&As and how we measure the profitability of M&As. Also the nature of non-public target acquisition, the wealth effect of frequent bidders versus infrequent bidders, the cause and consequences of management overconfidence, and the method of payment hypothesis are reviewed in depth. Besides these issues, the knowledge accumulation issue for frequent bidders is also examined, as this could be one of the reasons for different performances.

2.2.1. Review of the Literature on the M&A Success Paradox

For more than thirty years, scholars have researched M&A. Early empirical work sought to identify the characteristics of successful mergers, especially as they relate to diversification theory. Results were mixed, but most agreed that, on average, M&As fail to generate above normal returns for the acquiring firm's shareholders. Why, then do corporate CEOs continue to employ this strategy? And what can they do to improve the odds of success? Attention has also focused on understanding the variables that managers can manipulate to bolster a given transaction's probability of success: ways to improve the quantity and quality of information gathered during due diligence, and potential impediments to the integration of two firms.

The following will focus on related literature regarding takeover development and takeover theories, in order to give a better understanding of the present position and the direction to be taken.

2.2.1.1 Measuring M&A Success

It is widely agreed that the "success" of a merger or acquisition may be defined as the creation of synergy: the value of the combined firms is greater than that of the two firms operating separately. This reflects the simple observation that the price paid for a strategic asset must be lower than its expected value if it is to add economic value to the acquiring organization. Because the efficacy of a corporate combination is, at least in part, a function of how its outcome is calculated, close attention should be paid to it. This section reviews the empirical literature with respect to measuring success in M&A. Four principle methodologies have been employed: event studies, accounting-based measures, data surveys, and case studies.

Traditionally, the CAPM has been the primary measuring tool for determining the degree to which M&As create economic value. Utilizing the event study methodology of Fama (1970), the stock prices of both acquiring and acquired firms are examined shortly after the merger announcement. The cumulative abnormal returns (the increase in stock price over and above that which the CAPM would predict without the merger)

are calculated, and the result assessed. The central underlying assumption is that investors are capable of accurately predicting the combined firms' future cash flow.

2.2.1.2 Event Study Methodology

The event study methodology has several attractive features. Firstly, the data is publicly available, permitting empirical studies to be carried out on large data samples. Secondly, it relies upon the well-respected efficient market hypothesis. Thirdly, because the abnormal returns are calculated, the data is not subject to industry sensitivity, enabling a broad cross-section of firms to be studied.

These studies have provided support for the view that M&As create economic value (Jensen and Ruback, 1983; Seth, 1990; Singh and Montgomery, 1987.) Later studies examined the distribution of this new wealth, and concluded that the stockholders of acquired firms capture most of the gains (Chatterjee, 1986; Seth, 1990; Singh and Montgomery, 1987; Sirower, 1997.) Indeed, the stock price performance of acquiring firms raises serious concerns: only about 35% of acquirers report positive stock market gains on the announcement date.[10]

These event study results, however, may be due to its reliance on the assumption that investors can accurately predict the combined firms' future cash flows. This assumption embodies the attractive feature of ensuring that non-M&A related factors are not influencing the incremental stock behaviour. Abandoning this assumption represents a direct challenge to the efficient market hypothesis (Morck, Shleifer, and

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[10] For a useful review of these analyses, see Sirower (1997).

Vishny, 1990).

2.2.1.3 Accounting Based Measures and Data Surveys

Over the past fifteen years, scholarly attention has shifted to exploring different dependent variables. Perhaps the issue was not one of M&A success, but rather with the event study methodology's assumptions regarding success. Studies began using accounting-based measures of performance, market share data, and survey responses, and regressed these against various factors hypothesized to drive financial performance. The definition of success began to take on a longer-term perspective: perhaps it took three to five years to fully reap the benefits of the combined firm. [11]

But accounting measures are subject to some of the same limitations as are long-term stock price measurements: factors other than the M&A may be driving the numbers. In addition, accounting measures reflect the past, rather than present financial performance expectations. Nor do they reflect changes in the firm's risk profile. Some academics have opted to use survey measures to elicit the management team's views on whether or not the merger was a success (Cannella and Hambrick, 1993; Capron, 1999; Chatterjee, Lubatkin, and Weber, 1992.) In theory, an M&A should be deemed a success if the objectives identified during the due diligence process are met. In other

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[11] Krishman, Miller, and Judge (1997), for example, hypothesized that the ability of top management teams to work effectively together would drive M&A success, measured by returns on assets. Ramaswamy (1997) explored the impact of strategic similarity in mergers occurring in the banking industry. Again, returns on assets were used to measure performance over a three-year period.

words, the key question may be, Did we accomplish what we set out to accomplish, regardless of other exogenous or endogenous factors simultaneously at work? Capron's recent survey-based work claims: "...traditionally available financial data are too gross to permit differentiation between the types of fine-grained value-creating mechanisms..." (Capron, 1999) While these approaches rely on self-reported perceptions of long-term performance, they reduce some of the noise that may accompany publicly available information.

2.2.1.4 Case Studies

Because every M&A is a unique event, occurring in a unique environment that is subject to innumerable influences, case studies have also provided a rich stream of research (Haspeslagh and Jemison, 1991; Marks and Mirvis, 1998; Shanley and Correa, 1992.) While it is not possible to generalize to other specific situations, the case study methodology does enable one to generalize to theoretical constructs. This analytic device enables the analysis of the processes of value creation, rather than simply the events seeking to create value.

These results, combined with the observation of continued growth in M&A activity, give rise to the M&A success paradox. If it is assumed that managers are rational, and that corporate governance structures serve as a check and balance on poorly conceived strategic actions, the level of M&A activity should taper off, which has not been observed. To date, scholars have been unable to unravel this paradox.

2.2.2. Takeover Theories and Motivations

Many theories have been put forward to explain why mergers and other forms of restructuring take place. Efficiency theories imply social gains from M&A activity in addition to the gains for participants. The differential efficiency theory states that more efficient firms will acquire less efficient firms and realize gains by improving their efficiency; this implies excess managerial capabilities in the acquiring firm. Differential efficiency would most likely be a factor in mergers between firms in related industries where the need for improvement could be more easily identified. The related inefficient management theory suggests that the target's management is so inept that virtually any management could do better. which could be an explanation for mergers between firms in unrelated industries.

There are various sources of value increase from M&As, such as the efficiency increases mentioned above, others. such as operating synergy, diversification, and financial synergy, could all contribute to the M&A value increase source. These value-increasing sources will now be reviewed in turn.

2.2.2.1 Operating Synergy

The operating synergy theory postulates that there are economies of scale, or of scope. and that mergers help achieve levels of activities at which these economies can be obtained.

The theory based on operating synergy assumes that economies of scale exist in the industry and that prior to the merger the firms are operating at levels of activity that fall short of achieving the potential for economies of scale. Economies of scale arise because of indivisibilities, such as people, equipment, and overheads, that result in lower costs if spread over a large number of units of output. Thus, in manufacturing operations, heavy investments in plant and equipment typically produce such economies.

2.2.2.2 Financial Synergy

The financial synergy hypothesizes merging firms complement each other, not in their management capabilities but in matching the availability of investment opportunities to internal cash flows. A firm in a declining industry will produce a large cash flow because there are few attractive investment opportunities. A growth industry has more investment opportunities than cash with which to finance them. The merged firm will have a lower cost of capital due to the lower cost of internal funds as well as possible risk reduction, saving in flotation costs, and improvements in capital allocation.

Previous empirical findings appear to support this internal funds effect. Nielsen and Melicher (1971) found that the rate of premiums paid to the acquired firm as an approximation to the merger gain was greater when the cash flow rate of the acquiring

firm was greater than that of the acquired firm. This implied that there was redeployment of capital from the acquiring to the acquired firm's industry. The investment literature also indicated that internal cash flows affect the rate of investment of firms. (Nickell, 1978). Another proposition is that the debt capacity of the combined firms can be greater than the sum of the two firms' capacities before their merger, and this provides a tax saving on investment income. Still another possible dimension is economies of scale in flotation and the transaction costs of securities (Levy and Sarnat, 1970).

2.2.2.3 Diversification Motives

Diversification as a motive for mergers differs from shareholder portfolio diversification. Shareholders can efficiently spread their investments and risk among industries, so there is no need for firms to diversify for the sake of their shareholders. Managers and other employees, however, are at greater risk if the single industry in which their firm operates should decline; their firm-specific human capital is not transferable. Therefore, firms may diversify to encourage firm-specific human capital investments that make their employees more valuable and productive. Diversification may also serve to increase the probability that the organization and reputation capital of the firm will be preserved by transferring it to another line of business owned by the firm in the event of its initial industry declining.

Diversification can be achieved through internal growth as well as mergers. However, mergers may be preferred to the internal growth avenue under certain circumstances. The firm may simply lack internal growth opportunities owing to a lack of requisite resources or to potential excess capacity in the industry. Timing may be important, and mergers can provide diversification quickly.

Empirical studies have found that the average diversified firm is worth less than a portfolio of comparable single-segment firms (Berger and Ofek, 1995; Lang and Stulz, 1994). A number of explanations have been offered to explain the discount. One is that external capital markets allocate resources more efficiently than internal capital markets. Competitive capital markets generate price signals to guide the flow of resources. Without such price information managers make inferior decisions in internal allocations. A second reason could be that there are political influences that result in subsidizing under-performing divisions within a firm. A third explanation for the diversification discount is that managers of multiple activities are not as well informed about each activity as the managers of a single product firm. Fourthly, securities analysts are said to be less likely to follow multi-segment firms because of inadequate information on the individual segment.

A recent empirical study by Lamont and Polk (2002) found that excess values do forecast future returns. "Firms with discounts have higher subsequent returns than firms with premia. The diversification discount puzzle is, at least in part an expected

return phenomenon as well as an expected cash flow phenomenon"

While the event study literature demonstrates that the acquired firm's shareholders reap above-normal returns (due to the payment of a premium for the firm), this represents value capture, not value creation (Seth, 1990). The newly combined entity is left with the task of creating value in excess of the premium paid. Strategy theory states that value is created in an M&A through the identification and exploitation of synergy. While different terminology is used, three broad classes of synergy are the usual focus of researchers. First, operating synergies arise when economies of scale or scope are captured across a variety of the firm's activities. Financial synergies are driven by reductions in the cost of capital due to a reduction in bankruptcy risk, an increase in the size of the firm, or internal funding of the target's investment projects at a cost lower than that available in the capital markets. Collusive synergies, sometimes called market power, enable the firm to either extract a higher price for its products or services or pay suppliers a reduced price (Chatterjee, 1986).

Diversification theory claims that related acquisitions should have greater potential for synergy creation than unrelated acquisitions (Rumelt, 1974; Salter and Weinhold, 1978). Most likely is because the greater the points of contact and overlap between two firms' value chains, the higher the potential for capturing operational synergy. Singh and Montgomery (1987) hypothesized that because all three forms of synergy are theoretically available in related acquisitions, and that because only financial

synergies and administrative efficiencies are available in unrelated mergers, related acquisitions will create more value than unrelated ones.

Given this model of value creation possibilities, scholars have sought to understand what types of mergers might lead to above normal shareholder value. While the above diversification theory is intuitively appealing, Lubatkin (1983) noted that the concept of synergy had never been tested. Attention therefore focused on measuring the results from related versus unrelated mergers, again using the event study methodology. The presence of a related skill, market, resource, or purpose of two merging firms was the usual definition of relatedness employed (Rumelt, 1974). Researchers operationalized this concept generally by using the US Federal Trade Commission's Standard Industry Classification at either the two or four-digit level.

A review of these empirical studies (all using the event study methodology), reveals conflicting results. For example, Lubatkin (1987) found no statistically different results in related versus unrelated mergers, while Elgers and Clark (1980) found that unrelated mergers out-performed related ones. However, Singh and Montgomery (1987) found that total dollar gains, standardized on the value of acquired assets, showed statistically significant differences between related mergers and unrelated ones at the .05 level, with related mergers out-performing unrelated ones. However, target firms obtained the lion's share of these gains, while the acquiring firms experienced no statistically significant wealth gain.

Chatterjee (1986) attempted to empirically isolate the effects of various sources of synergy. Arguing that the type of synergies captured cannot be classified based on the type of merger due to the potential presence of multiple sources of synergies in, say, a related merger, Chatterjee examined non-horizontal related mergers versus non-related, conglomerate mergers. His hypothesis was that if horizontal mergers were excluded from the study, he could eliminate the impact of any collusive synergies and zero-in on operational and financial synergies. Financial synergies may be present in any type of merger, but operational synergies would only be available to a firm that acquired a related business. Furthermore, Chatterjee argued that the observation that two sources of synergy may be present in a related merger while only one in an unrelated merger does not logically lead to the expectation that the former type of merger will out-perform the latter. Using event study methodology, he found, counter-intuitively, that firms acquired by non-related acquirers fared much better than their counterparts acquired by related firms. Interpreting the results of targets involved in a related acquisition, Chatterjee suggested that operational synergies may prove very difficult to implement.

Seth (1990) built upon Chatterjee's argument that there is no *a priori* theoretical reason to suppose that value creation is a function of the number of potential synergies. She found overwhelming evidence that M&As create value when the target and bidder firms are viewed together, but only limited evidence that this value

creation occurs to a greater extent in related acquisitions versus unrelated. Seth concluded that, "...the finding that related acquisitions do not unequivocally out-perform unrelated acquisitions provides evidence that the sources of value creation associated with unrelated acquisitions provide similar magnitudes of synergy compared with the sources of value creation associated with related acquisitions."

Methodologies other than event studies have also been used to test diversification theory in M&A. In an analysis that controlled for industry, Hopkins (1987) found that all firms pursuing an acquisitive strategy in fact lost market share. This suggests that improving a firm's market position via acquisitions may be an unrealistic goal. He stated, "Managers concerned with the position of their firms may want to consider internal growth as an alternative to growth through acquisitions." [12]However, firms with a strong marketing position (i.e., brand loyalty) lost less market share than those with a particular strength in technology, and in conglomerates. Hopkins hypothesized that this is due to the relative attractiveness of industries that have high marketing related barriers to entry. Supporting this view is Lubatkin's (1987) observation that predicted synergistic benefits are highest for marketing concentric mergers.

Seeking to operationalize certain views of diversification that may be classified under the resource-based view of the firm, Farjoun (1998) argued that the above studies on related versus unrelated acquisitions suffer from too narrow a view of relatedness.

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[12] See Hopkins, (1987).

Examining diversification activity in the manufacturing sector, he explored degrees of relatedness with respect to physical assets (e.g., production lines) and human skills (e.g., similar engineering skills), and how these factors of relatedness might be correlated with financial performance.[13] He found that when viewed separately, neither the existence of physical asset relatedness nor skill relatedness was correlated with financial performance. However, when viewed together, that is with the presence of both related physical and skill bases, and controlling for industry effects, a strong effect on performance emerged. He concluded that the joint effects of relatedness are synergistic in nature: "each base thus extends the other."[14]

Perhaps these conflicting conclusions speak more to measurement and classification problems than to the true economics underlying M&A. Indeed, the above researchers would often group the various FTC classification schemes differently. Hence, an underlying problem may be one of the definition of related versus unrelated acquisitions.

Alternatively, the potential synergy gains available in related acquisitions may be priced out during negotiations (particularly to the extent that it is based on publicly available information) making value creation in horizontal mergers a particularly

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[13] For example, operationalized as returns on assets, returns on sales, the M/B ratio, and Jensen's alpha measure.

[14] See Farjoun, (1998).

difficult task (Barney, 1988). There may in fact be no *a priori* reason to expect greater abnormal returns from a related acquisition than from an unrelated one (Singh and Zollo, 1998).

In summary, the empirical evidence has been conflicting as to what type of diversification strategy can in fact create value for the acquiring firm's shareholders. Diversification theory has not yet been empirically confirmed. Assertions that M&As are a useful and productive method for diversification and growth, and those synergies are more readily and easily captured in related acquisitions do not withstand the empirical test. Difficult as they may be, mergers are often viewed as a more favourable strategy than, say, building the business internally (Singh and Montgomery, 1987), giving rise to the M&A synergy paradox.

2.2.2.4 Undervaluation Theory

The undervaluation theory states that mergers occur when the market value of the target firm's stock for some reason does not reflect its true value or its potential value in the hands of alternative management. The q ratio is also related to the undervaluation theory. Firms can acquire assets for expansion more cheaply by buying the stock of existing firms than by buying or building their own assets when the target's stock price is below the replacement cost of these assets. Some bidders may seek targets with a high q to obtain the capabilities that create value.

2.2.2.5 Agency Problems

Agency problems may result from a conflict of interest between managers and shareholders or between shareholders and debt holders. A number of organizational and market mechanisms serve to discipline self-serving managers, and takeovers are viewed as the discipline of last resort (Manne, 1965). A takeover through a tender offer or a proxy fight enables outside managers to gain control of the board of directors. Manne (1965) emphasized mergers as a threat of takeover if a firm's management lagged in performance either because of inefficiency or because of the agency problem.

Managerialism, on the other hand, views the takeover as a manifestation of the agency problem rather than its solution. It suggests that self-serving managers make ill-conceived combinations solely to increase the firm's size and their own remuneration. The hubris theory is another variant of the agency cost theory; it implies that acquiring firms' managers commit errors of over-optimism in bidding for targets.

Jensen's free cash flow hypothesis states that takeovers take place because of the conflicts between managers and shareholders over the payout of free cash flows. This hypothesis posits that free cash flow, that is, cash flows in excess of investment needs should be paid out to shareholders, reducing the power of management and subjecting managers to the scrutiny of the public capital markets more frequently. Debt-for-stock

exchange offers are viewed as a means of bonding the manager's promise to pay out future cash flows to shareholders.

2.2.3. Non-Public Target Acquisitions: An Overview

Non-public target acquisitions are more likely to be small acquisitions, and include subsidiaries or divisions of larger firms being sold off. Non-public owners might be willing to sell out at a discount for liquidity reasons, which would manifest itself in a greater return to the buyer.[15]

The volume of acquisitions involving non-publicly held targets has far surpassed that of publicly traded firms in recent years. In the US, for instance, of the 6,731 companies that were acquired in the manufacturing sectors during the period 1996 to 1999, more than 63% were non-public companies (Shen and Reuer, 2003). Similarly, Moeller, Schlingemann, and Stulz (2003) studied 8,225 acquisitions of independent targets by public firms in the US between 1980 and 2001, with a transaction value above US $1 million and found that 67% of these involved non-publicly held targets. However, there are very few studies regarding UK non-public target acquisitions, thus, the aim here is to fill this gap. By using a large sample ranging from 1985 to 2004, consisting of 6,424 acquisitions, and almost covering two merger waves[16], this study

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[15] See Fuller, et al. (2002).
[16] The 1980s wave ran from 1986 to 1989 and is often cited as the "hostile takeover wave", the later one runs from 1997 to 2000, this is considered as a strategic merger wave.

found that nearly 88% of the sample consisted of non-publicly held companies. Thus.

these results will. after careful examination. consistent with previous finding and

enrich the literature in this field

The lack of research on acquisitions of non-publicly held firms is largely due to the

unavailability of information regarding such firms and on the terms of these

acquisitions. The study of non-public targets is interesting not only because of the

sheer volume of acquisitions involving these firms, but also because recent research

suggests that they differ greatly from public targets. For instance, Chang (1998) found

that, unlike acquisitions of publicly traded targets. bidders of non-publicly held targets

experience positive abnormal returns in stock offers. Two recent studies (Fuller, et al..

2002) showed that the acquisition of non-publicly held targets yielded substantial

gains for bidders, regardless of the method of payment used. In addition. strategy

research has recently shown that bidders tend to acquire public targets rather than

non-public targets when they face valuation problems due to information asymmetry

in the acquisition process. Notably, bidders are more likely to acquire public targets

than non-public targets when they purchase firms with significant intangible resources.

Acquirers are also more likely to use cash as the method of payment when the target

is a non-public company. There follows an in-depth review of the distinguishing

features of non-public target acquisitions.

2.2.3.1 Bidders' Value Creation of Acquisitions: The Agency View

Those who view mergers from the agency angle argue that acquisitions can be an effective way of reducing agency costs and improving the operations of mismanaged firms. Agency theorists postulate that managers have considerable discretionary power over the use of corporate resources, and exercise it to pursue their own interests rather than to maximize shareholder value. Agency costs arise when the managerial and ownership functions are separated and ownership is dispersed, and contracts are not costless, but written and enforced (Jensen and Meckling 1976). These costs arise because of the difficulty of developing contracts designed to comprehensively spell out the actions that managers are to take in the interest of the firm's owners. Moreover, because it is costly to monitor the performance of managers relative to the actions specified in contracts, decision making agents may engage in value-destroying activities. For example, managers may undertake empire-building acquisitions or continue diversification to increase their social status and recompense, or to secure their own employment. As a result, the optimal size of the firm from the manager's point of view is larger than the optimal size from the shareholder's point of view.

Allen and Gale (2000) suggested that corporate governance is designed to mitigate the potential conflicts of interest between managers and shareholders. Internal mechanisms include board structures, debt financing, and executive director shareholding. Each of these internal mechanisms has its own limitations in aligning shareholder and manager interests. As Fama (1980) and Jensen (1986) suggested, the

key external mechanism is the market for corporate control, which acts as a mechanism of last resort. The probability of replacement following an acquisition provides a direct incentive for top management to perform well.[17]

Earlier work developed by Berle and Means (1933) and Manne (1965), the theory of market for corporate control, posits that as top managers engage in behaviour of self interest their company's performance is likely to increasingly diverge from its maximum potential. This under-performance is reflected in the value of the company's stock. In such circumstances, other management teams are likely to invite shareholders to replace the incumbent management team. The market for corporate control is, therefore, the competition among management teams for the rights to manage corporate resources.

2.2.3.2 The Agency Problem and Non-Public Targets

The higher concentration of ownership often found in non-publicly held companies compared with publicly traded firms should lead to fewer internal agency conflicts. Concentrated shareholders have substantial incentives and power to monitor managers and reduce the problem of professional managers free riding, which is associated with a structure of small and atomistic shareholders. Proponents of leveraged buyouts (LBOs) argue that post LBO corporations, with their highly leveraged capital structure, high percentage of ownership of managers, and close monitoring by

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[17] See Kennedy and Limmack (1996), and Martin and McConnell (1991).

sponsors of the buyout, have a superior incentive structure to pre-LBO corporations (Jensen, 1989). Since agency conflicts are lower with increased inside ownership in non-public firms, it can be argued that non-publicly held companies are more attractive to bidders.

Non-publicly held companies are also often family owned, which can reduce agency problems. Because family members are either directly involved with the management of the firm or have the power to monitor management closely, family controlled firms are more profit-maximization oriented and are less likely to invite a takeover. For example, the kinship and social relations among family members ensure that managers will not expropriate shareholder wealth through the consumption of perks and the misallocation of resources.

In addition, families maintain a long-term presence in their firms. They typically have longer horizons than other shareholders and are therefore more willing to invest in long-term projects. Stein (1998) showed that firms that have shareholders with longer investment horizons suffer from less managerial myopia and are therefore less likely to forgo good investment in order to boost short-term earnings. By anticipating the transfer of the business to a family member in the future, family firm decision makers with an extended horizon mindset may be more likely than non-family decision-makers to make decisions that improve the viability of the company over time.[18]

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[18] See James (1999).

Finally, if the extent of the family's ownership interests is substantial, family-controlled firms are more difficult to takeover because the family has the power to veto unwelcome bids.

There are several empirical studies that provide support for the argument that the value created in takeovers is higher for non-public targets than public targets. Davis and Stout (1992) examined the risk of takeovers by using event-history techniques on time-series data covering all takeover bids for US Fortune 500 firms between 1980 and 1990. They interpreted the results as evidence that a controlling block of ownership in family-controlled firms reduces agency problems.

These results are in line with studies that show that non-public firms tend to be better managed than public firms (Anderson and Reeb, 2003), and therefore can produce more synergy when being taken over. Capozza and Seguin (2003) found that managerial expenses are lower as inside ownership increases. Similarly, Durand and Vargas (2003) found that, within a sample of non-public firms, owner-controlled firms were more efficient than agent led firms. This suggests that the closer the alignment of ownership and management, the lower the likelihood of a self-serving attitude and inefficient use of resources. To sum up, agency theory suggests that non-publicly held family-controlled firms should suffer less from profit maximization behaviour. Thus, they are very healthy in structure, and have a great growth potential when integrated

into the bidder's business with the benefit of more professional management.[19]

2.2.3.3 The Non-Public Target and Asymmetric Information

Gaughan (1999) argued that the information asymmetry problem is likely to be more severe in the context of the acquisition of a non-publicly held target, as compared with a publicly held target acquisition, because the equity market reduces information asymmetry by listing rules and information disclosure requirements. There are several reasons that can be highlighted to explain why publicly held targets should exhibit fewer asymmetric information problems. Firstly, the greater amount of information disclosed on public targets can directly mitigate information asymmetry problems. Public companies are required to disclose information for registration and subsequent listing, and produce financial statements audited according to generally accepted accounting principles. Investors and analysts also exert pressure on public companies to produce detailed financial statements. In contrast, non-publicly held companies are not subject to either government public disclosure requirements or to the pressure of public equity markets. The financial statements of non-public companies are subject to more distortion because independent third-party auditing is not required, and also because non-public firms tend to produce financial statements in a way which is apt to minimize the taxable income.

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[19] Please note that, in the context of this chapter, the issue of fewer restructuring opportunities for non-public held firms stemming from their lack or lower level of professional management compared to public firms is not addressed, as it is believed that this is mainly associated with the size factor. Bigger firms tend to be endowed with higher professional managers (with public targets being on average of greater size than non-public targets).

Secondly, the publicly observable share prices of public targets reveal the collective judgment of dispersed investors (Hayek, 1945) and important information about the business. The equity market serves to place a price on the public firm. The price aggregates heterogeneous information and incorporates the collective judgment of investors. The price can therefore help buyers calibrate their bids. Stock markets play a monitoring role in revealing information and disciplining managers' behaviour. It has been suggested that share prices offer performance information that cannot be extracted from a firm's current or future accounting data.[20]

In summary, the reduction in asymmetric information associated with the fact that a target firm is publicly listed can help acquirers screen targets with high value creation potential from targets with low value creation potential, and thus calibrate their bids, which increases the likelihood of recouping the acquisition premium. This is even more important for the purchase of firms with high intangible assets, where valuation problems are severe. When firms need to buy intangible resources, they are likely to be more reassured when buying a public firm than a non-public target. It is therefore expected that public targets will provide safer opportunities for trading intangible resources than non-public targets.

2.2.3.4 The Difference in Value Captured from Public and Non-public Targets

Chatterjee (1992) suggested that higher value creation potential doesn't necessarily lead to higher returns for bidders. The proportion of the value created by the

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[20] See Holmstrom and Tirole (1993)

acquisition that the acquirer can capture to a great extent depends on the respective

bargaining power of the target and the acquirer. It has been argued that it is harder for

the acquirer to capture value from a publicly held target than from a non-publicly held

target. In the light of the functioning of the market as a mechanism for corporate

control, publicly held targets are more visible and liquid. Publicly held targets are thus

generally more powerful than non-public targets, relative to their buyers, and are able

to command a higher control premium.

An acquirer can capture value from a merger deal when the takeover market is not

highly competitive. In many cases, even when the merger creates value thanks to a

good recourse fit between the target and acquirer, the market allocates the full

synergistic gains to the target's shareholders rather than to the acquirer's shareholders.

Many studies show that strategic relatedness (a proxy of synergy) is not a sufficient

condition for an acquirer's shareholders to earn abnormal returns.[21]

Value creation does not ensure value capture by the acquirer when the competition

among potential bidders drives up the target price until the net present value for the

successful bidder is close to zero, that is, the synergies are equal to the premium paid.

As a result, even in a synergistic deal, acquirers can earn abnormal returns only when

the market for corporate control is imperfectly competitive (Mitchell and Capron,

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[21] Synergy is here defined as the increase in the merging firm's competitive strengths and resulting cash flow beyond which the two companies are expected to accomplish independently. See also Barney (1988), Lubatkin (1988), Seth (1990), and Sirower (1997),

2002). In a competitive acquisition market, multiple bidding tends to increase control premiums and reduce bidder returns, which is consistent with the lack of significant positive abnormal returns on average for acquiring firms found in many finance studies.[22]

2.2.3.5 Bidding Competition for Non-Public and Public Targets

Bidders of publicly held targets are likely to face more competition in the market for corporate control, and therefore are likely to make overpayments for their targets, with the result of long-run stock price under-performance. However, this is not the case for non-public target acquisitions, simply because the competition for these targets is much lower than for public targets. Furthermore, public targets are more visible to buyers, and thus can benefit from a more competitive bidding process. For instance, firms that go public engage in an intensive marketing exercise through road shows, subsequent registrations, and offerings. They not only present themselves to the investment community and attract media attention, they also tap into the underwriter's business relationships.

Furthermore, Zingales (1995) found that sales of public targets are auction-like in that they usually involve frequent bidders in open markets, while non-public targets are typically sold through negotiation based on voluntary exchange. A target firm in a relatively poor bargaining position to their potential acquirer can benefit from the auction process inherent in the stock market. Bulow and Klemperer (1996) showed

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[22] See Asquith (1983), Jarell, Brickley and Netter (1988) and Mandelker (1974)

that an auction is almost always preferable to a negotiation when selling a company. No amount of bargaining power is as valuable to the seller as attracting one extra bidder. The value of negotiation skills is small, compared to the value of additional competition. Note that large non-public targets can organize auctions that increase competition among bidders. Yet, in many cases, non-public targets tend to be smaller and cannot afford the costs associated with setting up an auction process.

Bidding for a publicly held target can lead to herding behaviour and intense competition among bidders that are under the scrutiny of the media and the financial community. Most bidders tend to bid more aggressively as the number of competing bidders increases.[23] As a result, bidders for public targets are more likely to be subject to the winner's curse. The winner's curse is the notion that the winner of a sealed-bid auction for a hard-to-value company tends to be the one who fails to recognize this adverse selection effect and is likely to be "cursed" by having paid too much for the target.

Finally, acquirers of public targets are prone to overpaying as a result of the free-rider problem of shareholders. Grossman and Hart (1980) showed that most likely is because in the case of a tender offer, each shareholder has an incentive to hold on to their shares and wait for a higher return if the tender offer is successful. The winning bidder may have to pay the full price for the possible synergistic gain; otherwise,

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[23] See Kagel and Levin (1986).

mutually beneficial takeover transactions will not occur. In a nutshell, each shareholder's best strategy is to hold on to their shares because they can get a higher price if the tender offer succeeds. However, if every shareholder thinks this way, no shares will be sold and the tender offer will fail. Most likely is because every shareholder wants to free ride on other shareholders' sell-offs; the shareholders of a public target may thus get a better deal in an acquisition than shareholders of a non-public firm. Furthermore, it may be the case that with acquisitions of non-public firms, the owners are eager to sell for liquidity or other reasons, such as wanting to exit, or needing extra financial or human resources in order to grow, and hence are willing to sell at a discount price. In summary, as a result of a more competitive market for the corporate control of public firms, publicly held targets are expected to have greater bargaining power than non-public firms, which reduces the potential value that can be captured by the acquirer.

2.2.4 Review of Literature on Frequent Bidders

An investigation of the frequent bidder issue could shed light on the large increase in the number of series acquisitions that have been observed recently[24]. Previous research on frequent bidder acquisitions has shown that frequent bidders under-performed compared to their peers. However, there are different hypotheses suggesting that frequent bidders yield positive returns indicating that the "learning by doing effect" may play a very important role in explaining the positive excess returns

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[24] This study shows that more than 62% of the bidders were frequent bidders, making more than four acquisitions during the sample periods.

of frequent bidders. A recent study by Conn, et al. (2004) found that for acquirers whose first acquisition is unsuccessful, the bid order effect is positive, that is, later deals by the same acquirer yield better performances compared to earlier ones. These results are consistent with the "learning by doing hypothesis".

2.2.4.1 Theoretical Hypotheses

There are several hypotheses relating to the impact of the number of acquisitions on the bidder's performance. These are the learning by doing hypothesis, the monopolization hypothesis, the indigestion hypothesis, the hubris hypothesis, the overvaluation hypothesis, the accounting manipulation hypothesis, and the merger programme announcement hypothesis.

According to one view of the learning by doing hypothesis, both the number and order of acquisitions will have a positive impact on performance. The fundamental idea behind this hypothesis is that there is an "acquisition learning curve" and that the "experienced acquirer" will be more successful than the less experienced one. Cisco's acquisition programme is the most commonly quoted example to have developed and refined a complete methodology for carrying out acquisitions. This hypothesis predicts that the returns to acquisitions should rise over time. Variations on the learning by doing hypothesis argue that the type of acquisition is important and so there are several learning curves to go down. There could be one for related

acquisitions and another for unrelated, one for domestic and another for cross-border, one for public acquisitions and another for non-public acquisitions. This means that the performance effect of any acquisition depends on how many of that type of acquisition have been carried out previously.

Multiple acquisitions may also result in a sequential improvement in acquirer performance if they bestow upon acquirer companies a sequential increase in market power. For example, Kamien and Zang (1993) showed that a sequence of endogenously formed mergers will eventually lead to monopolization of the industry. However, it can be argued that with the present-day global enforcement of competition policy, this type of monopolization is a rarely observed phenomenon.[25]

Other hypotheses postulate that serial acquisitions do not enhance the bidding firm's shareholder wealth. The indigestion hypothesis argues that the acquirer is unable to successfully integrate subsequent acquisitions because of the short time period between acquisitions. Each subsequent acquisition therefore results in worse performance than the previous one.

Roll (1986) suggested another way of explaining bidding firms' under-performance, which also holds for series acquisition activity. The hubris hypothesis states that worsening performance may be explained by less care being taken with the next merger due to over-confidence drawn from the success of the previous. This could

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[25] See Nilssen and Sorgard (1998).

manifest in several ways, such as a less careful choice of targets, a higher price paid for those targets, or higher leverage being taken on to pay for subsequent acquisitions. Under this hypothesis, it may be expected that the decline will be much more acute for acquirers whose initial acquisition is successful. Furthermore, the subsequent acquisition may tend to be value destructive.

The overvaluation hypothesis takes the view that mergers occur when the acquirer is in a temporarily good position. The acquirer might find that its stock price is high owing to a change in market sentiment or recent good performance. As mentioned before, this could also be due to the agency costs arising in acquisitions of overvalued firms.[26] Such acquirers tend to use stock as the medium of exchange in a merger deal, and these deals are more likely to boost the stock price in the short-run and result in under-performance in the long-run. Recent empirical evidence is consistent with this view.[27] Furthermore, Shleifer and Vishny (2003) argued that this applies to multiple acquirers as well as single acquirers. For example, the market may like the acquirer's acquisition activity initially, but this reaction deteriorates over time as the unrealistic expectation is replaced by reality that leads to the original temporary overvaluation declining, or vanishings altogether.

The accounting manipulation hypothesis argues that the accounting manipulations associated with mergers may fool the market only initially. The more managers

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[26] See Jensen (2004).
[27] See Dong, et al. (2003), Ang and Cheng (2003), and Bouwman, et al. (2003).

manipulate the accounting in order to keep their jobs or gain greater benefits, the more likely they are to be found out. One accounting explanation for declining performance is the PE game that focuses on increasing EPS through purchases of targets with relatively low PE ratios. This popular motive has the qualities if being completely irrational, short-sighted, and unsustainable.

The merger programme announcement hypothesis explains performance decline by arguing that on the announcement of the first acquisition the market both reacts favorably to that event and also to the fact that it is part of a merger programme. This leads to the first acquisition being looked on very favorably. When a second acquisition is announced there will be some announcement gain since it is now a known event, but part of the value has already been discounted in the share price. This theory predicts a zero effect on the share returns of later acquisitions. It makes no prediction about a decline in profitability associated with subsequent acquisitions.

2.2.4.2 Empirical Evidence of the Frequent Bidder Effect

In the last few decades, there have been various studies that have examined both short-run and long-run returns, and the profit effect in terms of the general performance impact of single bidders compared to frequent bidders. For example, Stegemoller (2001) examined the long-term performance of 542 US firms making five or more public, non-public, or subsidiary acquisitions from 1990 to 1999. The

evidence shows that frequent acquirers out-performed comparable firms in both accounting and stock return measures. This evidence is robust to method of payment and the public status of the target. Stegemoller (2001) also presented results consistent with relatively large takeover programmes being substantially more successful than smaller ones. Baker and Limmack (2001) found similar evidence for the UK although Gregory (1997) found that both single and regular acquirers experienced significant negative returns.

Some early studies, such as that of Schipper and Thompson (1983), examined the returns of frequent bidders using an early sample period, and found positive abnormal returns of 13% for the twelve months up to and including the announcement of the acquisition programme. However, they found little stock price reaction to subsequent acquisition announcements. They argued that most likely is because most of the benefits of a merger programme are capitalized on at the announcement of the programme.

At the same time, a number of early studies examined how the performance of frequent bidders changed with each acquisition in order. Asquith, et al. (1983) found that most of the bidding firms in their sample made multiple bids, 45% making four or more subsequent bids throughout the seventeen-year sample period (1963 -1979). They analysed the abnormal returns for successive merger bids of 156 firms that initiated merger programmes in the period 1963 to1979 after eight years without a bid.

They also found that bidder returns remained positive at roughly 2.5% through the fourth bid.

Subsequently, Loderer and Martin (1990) examined the impact on the short-run returns of 1,538 acquirers of 5,172 targets from 1966 to 1984. They found that first acquisitions led to significantly larger announcement effects than subsequent acquisitions. They also found that first acquisitions tended to cause significantly more positive announcement effects when they were the only acquisitions in the series than when they were the first of two acquisitions. They interpreted these results as suggesting that acquisitions are profitable and that partial anticipation causes an estimation bias, because frequent acquirers experience a positive revaluation while announcing the first acquisition in a series, and then weaker positive revaluations when announcing subsequent acquisitions.

Haleblian and Finkelstein (1999) examined the announcement returns to 449 US acquisitions occurring between 1980 and 1992, and compared these to the experience of acquirers between 1948 and 1979. They found a significant negative relationship between acquisition experience and performance. Hayward (2002) examined 350 acquisitions by 100 US firms between 1990 and 1995, and related the acquirer announcement returns of these focal acquisitions to the characteristics of previous non-focal acquisitions made by the same acquirers between 1985 and 1989. He found that the number of non-focal acquisitions had a negative effect on announcement

returns. In a nutshell, these two authors argue that this pattern may reflect the fact that firms tend to continue making similar acquisitions and therefore are not learning from experience.

The milestone research by Fuller, et al. (2002) examined the short-run returns to 539 acquirers that had carried out at least five acquisitions over a three-year period from 1990 to 2000. They did not look at any takeover activity prior to this period and found that first bids were associated with significant positive returns, whereas returns to fifth and subsequent bids were insignificant and sometimes negative. They argued that one explanation for this finding is that after making many quick acquisitions, bidders either negotiate less efficiently or create less synergy in later deals. They found that the shorter the time period surrounding acquisitions, the lower the acquirer's returns, which is consistent with their explanation.

Rosen (2004) examined the short and long-run effects where the acquisition was the first acquisition by a sample firm over a three-year period. He found that the short-run reaction was independent of whether the announcement was the first to be made by a firm in the previous three years, but that first time announcers did better than other bidders in the long-run. Rosen also found that the announcement effects were positively related to the firm's previous merger announcement effect.

In summmery, there is some evidence that frequent bidders do better than single bidders.

There is also evidence that the short-run performance of acquisitions declines with each subsequent acquisition. Although several hypotheses offer theoretical support to these patterns, the learning by doing hypothesis has received the most attention. In the next section, there is an in-depth review of the literature on the learning by doing hypothesis to facilitate a better understanding of this issue.

2.2.5 Learning to Acquire: the Knowledge Accumulation Mechanism

Much of the research has found that in a series of acquisitions, bids that come later in the process yield better performances for frequent bidders. Many researchers attribute this effect to the learning by doing hypothesis. The fundamental idea behind this is very straightforward; bidders learn from the past and accumulate knowledge from each bidding. In other words, if the acquirer selects the appropriate integration approach from among the available alternatives, invests sufficient time and effort in extracting valuable lessons from its own past acquisition experiences and uses this knowledge to constantly improve its management of the integration process, then the post acquisition performance of its transactions should be systematically superior to that of its competitors that either select sub-optimal integration approaches, or invest less time in introspection and learning. If it is assumed that the bidder is rational or at least semi-rational, then the same mistake will not be repeated twice, hence the later bidding should generate better performance compared to the previous one.

For the purpose of reviewing prior work, the findings of research that has used financial market measures as dependent variables will be briefly highlighted. This will be followed by a summary of the research on post-acquisition management. The principal elements underlying a knowledge-based view of the acquisition management process are then presented. Research on stock market reactions to different types of acquisitions has been very useful in emphasizing the challenge that acquirers face in creating value beyond the premium paid to gain control of the target firm. Research on post-acquisition management has been relatively less extensive, in part because of the greater difficulty in finding rich data on post-acquisition practices and consequences for large samples of transactions. Each of these streams is reviewed briefly, and their findings reported to show how they relate to this thesis.

In taking a knowledge accumulation based view of acquisitions, it is suggested that decisions to integrate acquired units are influenced by practices developed as the firm gains experience from previous transactions. Nelson and Winter (1982) suggested that organizational routines are significant repositories of knowledge within the firm. They further argued that these routines have to be replicable in comparable settings for the firm to benefit from its prior knowledge. In the contest of acquisitions, then, the organization develops a practice, or re-utilizes behaviour, which incorporates past experience in tacit or explicit forms.

Leshchinskii and Zollo (2002) found that two constructs can be developed which

underlie the firm's ability to process the knowledge it may accumulate from prior experiences. These constructs are essentially vehicles for the firm to accumulate and embody the knowledge it gains from prior acquisitions. The first construct is process routinization which is the degree to which knowledge from previous experiences accumulates in tacit forms and results in quasi-automatic, uniform response behaviour to varied stimuli. The second construct is so-called knowledge codification, that is, the degree to which the accumulated experience is codified in manuals, blueprints, computational models etc., which provide the "know what" and eventually the "know how" for the execution of a certain task. The two constructs are clearly not orthogonal and some degree of correlation can be expected between the two, given that they are both products of the same knowledge accumulation process. However, the mechanisms of process routinization and knowledge codification are separable, in that the former is more tacit in its character, while the latter is explicitly codified.

Leshchinskii and Zollo (2002) argued that knowledge codification might have a positive influence on the performance of acquisition processes for several reasons. First of all, these tools serve as repositories of organizational memory; they provide a trace of what was decided and done in past instances, particularly useful in relatively infrequent and complex processes such as acquisitions. Second, they facilitate the diffusion of knowledge to parts of the organization different from the one where the higher level of understanding is achieved. For example, a manual provides a fast and effective training for people new to the process. Thirdly, they clarify the roles,

responsibilities and deadlines for all the people involved in the execution of large numbers of inter-dependent tasks, thereby facilitating the coordination of the entire process. Finally, the process by which these tools are created and developed necessitates collective cognitive efforts to identify the links between decisions, actions and performance implications. It is by creating and updating these tools that acquirers figure out what worked and what did not work in their past experiences and formulate ideas for the improvement of future integration processes.

2.2.6 Management Overconfidence and Merger Outcome

"Much management apparently was overexposed in impressionable childhood years to the story in which the imprisoned handsome prince is released from a toad's body by a kiss from a beautiful princess. Consequently, they are certain their managerial kiss will do wonders for the profitability of Company T[arget]...We've observed many kisses but very few miracles. Nevertheless, many managerial princesses remain serenely confident about the future potency of their kisses-even after their corporate backyards are knee-deep in unresponsive toads."

------Warren Buffet, Berkshire Hathaway Inc.

Annual Report, 1981[28]

Previous literature has defined overconfident managers as those that over estimate their ability to generate returns, both in their current firm and in potential takeover targets. Thus, these managers undertake mergers that destroy value. Overconfidence

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[28] Quotes taken from Weston, Chung, and Siu (1998).

also implies that managers view their company as undervalued by outside investors and, therefore, the impact of overconfidence is strongest when CEOs can finance mergers internally. The following is a review of the literature that has looked at the question of why managers tend to be overconfident when engaging in merger deals and the consequences of such overconfidence.

Roll's (1986) hubris hypothesis suggests that managers engage in acquisitions with an overly optimistic opinion of their ability to create value. A number of papers have documented evidence supporting this hypothesis.[29] However, one important question remains unanswered, which is how do managers become overconfident? Managers could simply be born overconfident. Alternatively, they may develop overconfidence through experience. The psychology and behavioural economics literature documents one common source of overconfidence: the self-attribution bias.[30] Individuals subject to the self-attribution bias tend to overly credit their ability for good outcomes and overly credit external factors for bad outcomes. Hirshleifer (2001) summarized the relationship between overconfidence and the self-attribution bias, he argued that overconfidence and self-attribution bias are static and dynamic counterparts; self-attribution causes individuals to learn to be overconfident rather than arriving at an accurate self-assessment.

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[29] See Hietala, Kaplan, and Robinson (2003), and Malmendier and Tate (2003) for direct evidence supporting the hubris hypothesis.

[30] See Baker, Ruback, and Wurgler (2004), and Gilovich, Giffin, and Kahnemann (2002), and Kahneman and Tverskey (2000) for reviews of the literature.

Billett and Qian (2005) explored the managerial self-attribution bias in M&As by looking at the sequence of deals made by individual acquirers. They argued that if managers mistakenly attribute past acquisition success to skill rather than good luck and develop hubris through acquisition experience, the pattern of deals will exhibit three characteristics. First, compared to their first deals, acquirers will do worse in their subsequent acquisitions because of the developed overconfidence. Second, acquirers who become overconfident from successful acquisition experiences will be more likely to acquire again. Third, acquirers who become overconfident from successful acquisition experiences may also exhibit the same optimism when trading their companies' stock. Using a large US sample comprising 3,702 acquisition bids from 1985 to 2002, they found supporting evidence for all three conjectures.

In a similar vein, Malmendier and Tate (2003) analyzed the impact of manager overconfidence on M&As. By classifying managers into overconfident and rational groups they found that overconfident managers were more likely to conduct a merger at any point in time than rational mangers. They argued that this is probably because overconfident managers are likely to overvalue the acquisition of a target company because they overestimate the returns they can generate in the combined firms. They are also likely to overvalue their contribution to their own company. Malmendier and Tate also constructed a model of merger decision for managers who are overconfident in their ability and made three predictions. First, overconfident managers are more likely to conduct mergers when they have access to sufficient sources of internal

finance. In this case, they avoid the perceived loss in value from issuing undervalued equity to finance the merger. Second, overconfident managers are more likely to conduct bad mergers.[31] Thirdly, the announcement effect will be lower for overconfident managers, on average, than for rational managers, since overconfident managers are more likely to make value destroying bids. Furthermore, Malmendier and Tate (2003) explored the market's reaction to merger announcements using standard event study methodology and the empirical results were consistent with their predictions.[32]

Another explanation for the relationship between overconfidence and merger activity is the non-public information that managers have. Differences in information over time might account for these observed differences in managerial behaviour, even within a firm. Specifically, a manager who has positive non-public information about a potential merger might find it profitable not only to merger, but also to hold his options in anticipation of the merger's return. To address this possibility, Malmendier and Tate (2003) calculated the hypothetical returns to the manager from exercising his (or her) options earlier, rather than holding to expiration. They found that these gains are, on average, positive. Moreover, they found that such managers are no more likely to conduct mergers during the years in which they could have exercised options (that

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[31] That is, mergers that either have no value or destroy value for the acquiring firm's shareholders.

[32] Malmendier and Tate (2001) exploited time series data on the managers' holdings of company stock options to construct a measure of managerial overconfidence. They found that overconfidence has a positive impact on managerial acquisitiveness between overconfident and rational managers even within the same firm. Thus, their results are robust to alternative interpretations that rely on cross sectional variations among firms.

they instead hold to expiration) than in the remainder of their years as manager. Overall, the higher acquisitiveness of overconfident managers, even on average, suggests that overconfidence is an important determinant of merger activities.

In summary, previous studies have explored the role of overconfidence in the merger decision-making process. Overconfidence could arise from self-attribution of past success leading to hubris in future decision making. Investigation of the announcement effect revealed that acquisition by an overconfident bidder is value destructive.

2.3 HYPOTHESIS AND RESEARCH DESIGN

In this paper, the aim is to explore more direct links between the causes and consequences of corporate takeover. Many previous studies have suggested that bidding firms suffer losses from corporate takeover activities, on the other hand M&A has become one of the most important means by which firms implement their strategies for growth. Many researchers have developed different theories to explain the persistence of these transactions.   Roll (1986) posited that M&A occurs because of the hubris and overconfidence of managers. Jensen (2000) argued that excessive cash flows permit firms to waste corporate assets on over-priced acquisitions. He later (2003) expanded this idea to argue that market-wide overvaluation leads to similar effects. Shleifer and Vishny (2003) argued that firms with overvalued stock prices pursue acquisitions using stock as the method of payment to take advantage of the window of opportunity offered by temporary market inefficiencies.

As discussed above some studies have found negative, long-run post-acquisition returns associated with particular types of acquisitions. Perhaps it is indeed hubris, agency costs, or temporary market overvaluation that drive corporate acquisitions. However, this is surely not the whole picture; it seems highly probable that the above arguments only provide partial explanations. As Andrade, et al. (2001) suggested, there must be a more direct link between the causes and effects of mergers. Thus, the challenge of identifying and understanding these reasons remains.

In short, this paper explores a more direct link between the causes and effects of corporate acquisition activity. As a result of the research it has been established that there is a significant price run-up of the bidder prior to an acquisition, thus the bidder's pre-takeover performance could be the main determinant of its acquisition strategy.

H1: In order to be in a good position to take over other firms to achieve growth, bidding firms should have superior performance prior to an acquisition and thus should exhibit a substantial price run-up prior to acquisition.

The relationship between the pre-acquisition and post-acquisition performance of acquiring firms was examined to find the empirical support for this hypothesis. This concept is very easy to follow, it could be the case that firms that have done well in the past are in the best position to acquire other firms, and those that are able to assimilate their acquisitions more easily will continue to do well afterwards. However, if managers are unable to resolve any conflicts between target and acquirer, or if the acquisitions are partially driven by the hubris of the managers, then a long-run decrease in the bidder's stock price should be expected. It doesn't matter how good the bidder's post acquisition performance is, the results here show that it is the case that performance drives acquisition.

H2: Bidders using stock as the method of payment exhibit a more significant price

run-up prior to an acquisition. However this will result in worse performance in the long-run than where the bidders pay by cash.

Previous researchers have found that bidders using stock as the method of payment send out a negative signal to the market that their stock is overvalued,[33] the market then adjusts its expectations regarding the bidder, with the result that the bidder's stock price declines. From the bidder's point of view, it is more profitable in the short-run to use their overvalued stock as the method of payment when buying an undervalued target or a target with stock less overvalued than theirs. However, once the market absorbs this information, it will automatically discount the bidder's stock price, which results in losses over time. Thus, using stock as the method of payment indeed reflects the trade off between short-run benefits and long-run performance, and also reflects the bidder's vision of long-term growth. In a nutshell, the empirical results of the present research is consistent with most of the previous studies in showing that stock bidders experience a worse performance in the longer run compared to those using cash. In addition, it was found that the price run-up of stock bidders is also more significant which suggests their stock is probably overvalued.[34]

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[33] Asquith, Bruner, and Mullin (1983), and Schipper and Thompson (1983) examined the effects of acquisition programmes announcements, and found a positive acquirer market effect. Jensen (1986) found that a stock offer sends a signal to the market of overvaluation.

[34] To justify whether a stock is overvalued or not, the real value must be identified as it is the benchmark of the price; the assumption that the price is overvalued can only be made by comparing it with other firms using cash. For a detailed analysis of stock price overvaluation please refer to Chapter 3.

H3: Bidders that pursue non-public targets should out perform those that pursue public targets in both the short-run and long-run.

Non-public target acquisitions are the most likely to be small. The non-public target includes subsidiaries or divisions of larger firms being sold off. Non-public owners might be willing to sell out at a discount for liquidity reasons, which would manifest itself in a greater return to the buyer. A great deal of the literature on M&A has concerned itself with publicly traded targets. However, this traditional focus on public targets has meant that a significant portion of corporate acquisition has been somewhat neglected in academic research. Some recent studies on non-public acquisition have found that acquirers' stock price reactions to announcements of non-public target acquisitions are positive; the difference in the announcement effects of cash versus stock all but disappear and, in some instances, the relationship is reversed. The empirical findings of the present research are similar to those of previous researchers. Most importantly, it was found that bidders involved in non-pubic target acquisitions yielded better performance in both the short-run and long-run.

It can be argued that there are at least four reasons why non-public acquisitions should out-perform public targets. First of all, small acquisitions are less prone to agency problems. Most likely is because they feed hubris less and consume less cash flow, and hence are not an effective means of building empires or increasing the

remuneration of CEOs. Second, there are likely to be greater information asymmetries, which make it more likely that an acquirer can exploit non-public information to its advantage. Third, less public information is available and hence there are fewer bidding competitors. Fourth, non-public targets might be willing to sell out at a discount for liquidity reasons, which would manifest itself in a greater return to the buyer. Finally, cash as the most popular method for small acquisitions will eliminate the negative signal that is conveyed to the market when stock is used as the medium of exchange.

H4: *It is better for a firm to grow through a large number of small acquisitions than through a small number of large acquisitions.*

Corollary:

The returns to the acquiring firm will be positively related to the number of acquisitions and negatively related to the relative size of the assets acquired.

Many researchers believe that there is a difference between growth attained through making a small number of large acquisitions and that attained through many small acquisitions. Firms of consultants that sell M&A advice argue that relative size and frequency can affect the success or failure of an acquisition programme. Harding and Rovit (2004) studied many cases of M&A undertaken by different consulting firms, and they suggested that frequent acquirers that build skills and experience through a host of small deals come out on top and therefore executives should make a 'big deal

doing a lot of little deals'. Cools, et al. (2004) similarly concluded that the highly acquisitive firms in their sample out-performed those that made few or no acquisitions by 29% during the course of a decade. Typical arguments advanced for this include the following: smaller acquisitions are easier to integrate; more likely to be in a related business; are more likely to benefit acquirers from learning by doing; less likely to be done for reasons of hubris and empire-building; more likely to be able to exploit information asymmetries; and are more likely to be acquired with cash rather than stock.

2.4 DATA AND METHODOLOGY

2.4.1 Data Selection

The initial data on acquisitions was taken from the SDC M&A database of Thompson Financial. It includes all completed domestic acquisitions made by publicly listed UK firms, with deal values and acquirer names or ticker symbols available for the period January 1985 through December 2004. The sample contains all disclosed value mergers and acquisitions including LBOs, tender offers, and acquisitions of remaining interest. It excludes other transactions that are included in the SDC M&A database that is, spin-offs, recapitalizations, carve-outs, self-tenders, repurchases, exchange offers, privatizations, and minority stake acquisitions. The SDC was also used to collect M&A targets' identities, and determine whether their stocks were publicly traded, the deal's initial announcement date, dollar value, method of payment, legal form, and whether it was friendly or hostile. For the purposes of this research a merger is defined as an acquisition of equity where one firm purchases at least 50% of another and after the purchase the bidder owns at least 90% of the target. After this initial screening, complete information was obtained for 8.752 acquisitions undertaken by 2,125 UK firms publicly listed on the London Stock Exchange.

Second, in order to be included in the sample, the bidder's financial statements for the year-end prior to the offer must have been reported in Worldscope. Although the SDC

provides data fields for bidder and target accounting information, they are often missing for UK bidders.

Third, bidder stock price information at the year-end prior to the announcement had to be available in DataStream. Thus, all the financial data was collected from the DataStream database, and then the SDC was matched with DataStream using the SEDOL code. Subject to the availability of the SEDOL code all the acquisitions that could not be matched in DataStream were excluded. To minimize any loss of data from merging these databases, Lexis-Nexis, Extel Financial, and Worldscope were used to identify company name changes. All acquisitions with a transaction value of less than 50,000 pounds were also excluded. After this screening process, 6,423 UK acquisitions, undertaken from 1985 to 2004, by 1,367 publicly listed acquirers for which all the information was available comprised the data sample.

2.4.2 Sample Description

Tables 2.1 to 2.5 summarize the characteristics of the events and firms in the sample. As can be seen from Table 2.1, nearly 60% of the acquisitions were clustered in the boom merger periods (1987 to 89 and 1997 to 2000). The number of acquisitions during these periods averaged nearly 320 per year, compared to an annual average of less than 230, the peak year being 1998 with 603 acquisitions. Nearly 90% of the acquisitions involved non-public targets. Only 10% of the sample represents

acquisitions of publicly traded targets. These proportions are roughly constant throughout the decade. Related acquisitions account for about 50%.[35] 47% of all acquisitions were made using cash as the sole medium of exchange, while only 5% of the transactions were solely financed using stock, the remainder used both method of payments, although the average proportion of cash in the mixed offers was over 70%. Previous researchers that have focused on the US market have pointed out that the role of cash as a medium of exchange fell slightly during the 1990s and that of stock increased substantially. However, this pattern was not observed in the UK where cash offers dominated the market throughout the sample period. The average deal value in the sample was 26.08 million pounds, while the average deal value during the merger boom period was 36 million pounds, which suggests that large deals cluster around merger boomperiods.

Table 2.2 contains a summary of the statistics regarding the cash value of the deals in the sample. The total cash value of all acquisitions over the period was about 147 billion pounds. Average deal values steadily rose during the sample period. Before 1990 the average deal value was about 4 billion pounds, but by 1999 the average had exceeded 18 billion pounds. Reflective of this trend, the merger boom period accounted for nearly 60% of the value of all acquisitions, despite the fact that only 45% of all acquisitions occurred in this period. Although publicly traded targets accounted for less than 12% of the acquisitions, they accounted for 53% by value. The

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[35] For the purposes of this research related acquisitions are defined as acquisitions where the target and acquirer share the same two-digit primary SIC code.

proportion of public acquisitions slightly increased from the early sample period to the late sample period. Over 55% of acquisitions according to value are related, with no discernible pattern throughout the sample period. Although cash only acquisitions were 47% by number, they accounted for only 41% by value; stock only acquisitions accounted for 5% by number, but over 16% by value.

Table 2.3 shows the distribution of acquirers according to the frequency of acquisitions made during the sample period. While the average acquirer made four acquisitions, about 25% of all firms made only one acquisition during this time period. In fact 72% of all acquirers made five or less acquisitions during the sample period, which accounted for about 67% of all acquisitions. The most frequent acquirer in the sample was Capita Group PLC, which made fifty-four acquisitions during the sample period. The second most frequent bidder was Emap PLC, which acquired fifty-three targets in seventeen years.

Table 2.4 presents the data regarding the acquisition of public targets. Of the 709 acquisitions of public targets during the sample period, over 48% were related acquisitions. Nearly 20% of the deals were financed by stock only, and 38% of the deals used cash as the sole medium of payment. The deal value for typical public targets was about 109 million pounds. The total number of acquirers was 609, of the total number of deals most were carried out by different bidders, perhaps this was because the deals were larger than those involving non-public acquisitions. The proportion of where stock was used for the public target acquisitions increased during

the merger boom period, which is consistent with the overvaluation hypothesis.

The acquisitions of non-public targets (Table 2.5) tell a different story. While cash only deals accounted for 38% of the public target acquisitions, they accounted for nearly 48% of the non-public target acquisitions. Stock only deals comprised 20% of the public target acquisitions and 4% of the non-public targets. The average value of a non-public acquisition during the sample period was only 15% of the size of the public target acquisitions. In summary, compared to the public targets acquisitions, the non-public target acquisitions during this time period were more unrelated, used less stock and more cash, were more technology driven, and were much smaller, at about 15% of the size.

2.4.3. Methodology

An event study analysis of the 6,423 individual firm events in the sample, and a time series analysis of each firm's sequential acquisition strategy were conducted. The purpose of these analyses was to examine the relationship between the pre-acquisition and post-acquisition performance of the acquiring firms, their acquisition strategies over time, the characteristics of the targets they acquired, and the returns realized by their stockholders.

2.4.3.1 The Event Study

To analyse market reaction to the announcements of the acquisitions in the sample, standard even study methodology was employed to measure the pre-announcement, announcement, and post-announcement returns to acquirers. The excess returns were calculated by using a standard market model.[36] The calculations are based on Market-Adjusted Returns (MARs) and Cumulative Market Adjusted Returns (CMARs):

$$MAR_{i,t} = R_{i,t} - R_{M,t} \qquad (1)$$

$$MAR_{P,t} = \left(\frac{1}{N_t}\right)\sum_{i=1}^{N}\left(R_{i,t} - R_{M,t}\right) \qquad (2)$$

$$CMAR_{P,T} = \sum_{t=1}^{T}\left(MAR_{P,t}\right) \qquad (3)$$

$$\sigma_{P,T} = \sigma\sqrt{T} \qquad (4)$$

where $R_{i,t}$ is the return to the ith firm on day (month) t, $R_{M,t}$ is the return to the equally-weighted market portfolio on day (month)t, N_t is the number of firms in the portfolio on day (month) t, T is the end of the accumulation period as well as the

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[36] Before choosing the models, the standard market model was compared with the Fama French three-factor model, the monthly return was regressed to an equally weighted prescient portfolio of the acquirer to the right hand side factors of the market model and the FF 3 factor models. The statistics of the regression indicate that both models fit the data well, the R^2 of the FF 3 factor model is 0.86, and the standard market model is 0.91. The Durbin-Watson statistics reveal no first order serial correlation. The fact that the FF model tracks the market so closely indicates that the characteristics of the firms in the portfolio of acquiring firms are not dissimilar to the market as a whole. Thus, acquirers cannot be typecast by their size or M/B ratio. Since the standard market model has a higher R^2 and the estimated Beta is insignificantly different from 1, the standard market model was chosen as the main estimation.

number of periods, and σ_p is the time series standard error of the MAR, estimated from the returns data prior to the event window. The data was centered on the day or month of the acquisition announcement as appropriate, and an average abnormal return to the acquiring firms was calculated relative to this event date.

2.4.3.2 Conventional parametric Student t-test

The t-statistics are estimated using cross-sectional variation of abnormal returns. More specifically, the test statistic of the null hypothesis that the mean CMARs is equal to zero for a sample of n firms is as follows:

$$t_{CMAR} = \frac{CMAR_{i,t}}{\sigma(CMAR_{i,t})/\sqrt{n}}$$

(5)

Where CMAR i,t is the sample average and $\sigma(CMAR_{i,t})$ is the cross-sectional sample standard deviations of abnormal returns for the sample of n firms.

2.4.3.3 The Time Series Analysis

To investigate whether it is better for a firm to grow through many small acquisitions or through a small number of large acquisitions, the value index (VI) methodology was applied. A VI portfolio was formed according to the merger sample over the sample period 1985 to 2004, each acquirer's return was converted into a VI, and logged to smooth away any price shocks, and minimize the effects of the extreme

values of VI from some firms. Some firms in the sample had VIs greater than 10. By using this methodology the negative effects of non-normal distribution of each firm's return were minimized, and the return time series made more consistent, helping to bring about a more significant result. The log of the twenty-year VI for acquirer i is calculated as:

$$LVI_i = LN\left\{\prod_{t=1}^{T}(1+R_{i,t})\right\} \qquad (5)$$

where T is the last month in the calculation (December, 2004), the first month is January 1985, and $R_{i,t}$ is the return to the ith acquirer in month t. An acquirer is defined as a firm that made at least one acquisition during the period January 1985 to December 2004.

In order to test the hypothesis that it is better for a firm to grow through a large number of small acquisitions than through a small number of large acquisitions, the relationship between the acquirer's return was directly tested with the number of acquisitions and relative size (RS) of the assets acquired. If the hypothesis holds, then a positive relationship between the returns of acquirers with a number of acquisitions and a negative relationship between the returns of acquirers with the relative size of the asset acquired, should be seen. A cross-sectional regression was conducted of the log of a firm's VI on the number of acquisitions it made, and the relative size of the assets it acquired during the sample period. The relative size of the acquired asset for each firm was measured by tabulating the deal value and pre-bid value of the acquiring firm for each acquisition, made by each firm. The sum of the

value of the deals was taken and divided by the sum of the values of the acquiring firms at the time of each transaction, thus giving a average of the RS.

In general, the hypothesis is empirically supported, that is, that the bidder's performance is better when many small deals are made.

2.5 RESULTS AND DISCUSSION

2.5.1 Overview

In this section the main empirical findings are outlined and the rationale behind these

findings is explained. First of all, from the large UK takeover sample, some distinctive features of nonpublic acquisitions are revealed. There are two types of non-public target: sales by non-public owners and sales of subsidiaries by larger companies. Compared with public target acquisitions, non-public target acquisitions are less related, use less stock and more cash as methods of payment, are more technologically driven, and are much smaller, at about 15% of the size of public target acquisitions.

Secondly, it was found that frequent acquirers that pursue small targets yielded the best returns. Depending on the relative size of the acquisition, buy and hold portfolios of frequent acquirers returned substantially more than the equivalent portfolios of infrequent acquirers during the twenty-year period under study. The portfolio of firms that acquired targets in the smallest relative size quintile returned 50% more than the portfolio of acquirers in the largest relative size quintile. The portfolio of frequent acquirers of targets in the smallest relative-size quintile out-performed the portfolio of infrequent acquirers of targets in the largest relative size quintile by 180%.

If the analysis stops there then the conclusion may be drawn that bidders' acquisition strategies and the public status of the target are the determinants of better performance. Is it therefore the case that acquisition will drive performance? However, a closer examination suggests that this is not the whole picture. It was found that during a period of up to two years prior to the acquisition month, the average acquirer's stock

increased dramatically relative to the market benchmark, with the run-up being much higher for acquisitions undertaken with stock rather than cash. Moreover, the pre-acquisition excess returns to nonpublic targets that used stock as consideration were significantly higher than the excess returns to acquirers of public targets that used stock as the medium of exchange. Consistent with previous literature, it was found that a bidder's post acquisition performance exhibited a long-run downward drift.

As regards the announcement period, it was found that the average announcement period return for acquirers of publicly traded targets was negative. However, acquirer announcement period returns of non-public acquisitions were not only positive and significant, but also economically meaningful. When public targets were acquired with stock, it was found that the announcement period return was more negative the larger the relative size of the target. However, it was found that the market responded positively to acquisitions of public targets when the deal was made in cash. When non-public targets were acquired, the positive announcement period return increased with the relative size of the target and was higher when the deal was a related acquisition, and where the acquisition was stock based.

In summary, these empirical results shed light on the different theories as to why merger occurs. Clearly, merger is not the driving force of good performance, because there is a long-run downward drift. It can, however, be argued that merger is the result of good performance. Secondly, the merger outcome also depends on the method of

payment, acquisition strategy and the choice of target. Thirdly, the conventional conclusion that "targets win and acquirers do not lose" is much too simplistic. As the results here show, the vast majority of acquisitions actually result in positive market reactions. The majority of the sample studied here involved non- public targets, and the acquisition of these non-public targets resulted in statistically and economically significant positive announcement period returns regardless of their size, method of payment, or relatedness. Even in the case of public targets, negative announcement period returns were observed only when the target was relatively large and when stock was used as the medium of exchange rather than cash. Fourthly, consistent with Antouniou, Guo and Pemezas's (2006) market overvaluation and merger momentum hypothesis, the research here found that hubris; overconfidence and overvaluation are no doubt attributes that afflict some acquirers. Hence, it can be seen that there were many acquisitions during the merger boom period, many of which exhibited negative long-run performances. Finally, these results give broad support to the performance driven acquisition hypothesis, which is consistent with the prevailing evidence that acquisitions are pro-cyclical and occur in "waves" in specific industries as well as in the aggregate.

2.5.2 The Results of the Time Series Analysis

In this section the hypothesis that it is better for a firm to grow through many small acquisitions rather than through a small number of large acquisitions is tested. This

hypothesis predicts that the returns to acquiring firms will be positively correlated with the number of acquisitions undertaken and negatively correlated with the relative size of the assets acquired.

Table 2.6 presents the results of the cross sectional regression of the log of each firm's VI on the number of acquisitions it made, and the relative size of the assets it acquired during the twenty-year sample period. To measure the relative size of acquired assets for each firm two methods were used. If the target was a public listed company, its market value in the month of the merger announcement was used as a proxy for its size. For non-public companies the deal value from each transaction multiplied by the percentage of the asset acquired was used as a proxy for its size. The sum of the values of the deals were divided by the sum of the values of the acquiring firm at the time of each transaction, thus giving a average of relative size. The empirical results show that the log of the acquirer's twenty-year VI was positively correlated with the number of acquisitions and statistically significant with a t value of 2.54. At the same time, it was found that it was negatively correlated with the relative size of the acquisition, and again the result was significant.

These results suggest that if a firm wants to grow through taking over other firms then it should do it step by step, that is, through small acquisitions. This is understandable because, as mentioned above, it is easier for bidders to integrate smaller targets and explore any asymmetric information from the deal. Furthermore, the non-public

owner might wish to sell out at a discount price for liquidity reasons. All these issues will bring success to the bidding firms of non-public target acquisitions. Again, frequent bidders can accumulate the experience and capital gained from many previous acquisitions, that is, with a series of smaller acquisitions the acquirer has the opportunity to gain experience and learn from its mistakes as well as its successes.

In order to have a better understanding of this issue, the hypothesis of whether it is better to grow through many small acquisitions or through a small number of large acquisitions was tested, and a categorical analysis of the data was conducted. Firms were classified based on the number of acquisitions made and the relative size of assets acquired. Table 2.7 consists of five rows corresponding to the quintiles of the relative size of the whole sample. The columns are all acquirers, infrequent acquirers, frequent acquirers, and the difference between the latter two. Frequent acquirers are defined as firms that made four or more acquisitions during the sample period and this group comprises 595 bidders. Infrequent acquirers are defined as firms that made three acquisitions or less during this period and this group comprises 772 bidders.[37] The cells of the table contain the average logged VI and the number of firms falling into that category.

By performing this analysis, strong evidence was found that supported the hypothesis

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[37] The analysis was also replicated categorizing frequent acquirers as firms undertaking three or more acquisitions, and five or more acquisitions. The results using these classifications also support the hypothesis.

that it is better for a firm to grow through many small acquisitions than through a small number of large acquisitions. The average logged VI for all acquirers was found to decrease monotonically as the relative size increased. This is consistent with the findings reported in Table 2.6 that the gain to the acquirer is negatively related to the relative size of the target. The data also shows that for each quintile, the returns to infrequent acquirers were significantly less than the returns to frequent acquirers. Furthermore, for frequent acquirers, all the returns were found to be positive except for the largest relative size quintile, and for infrequent acquirers most of the returns were negative. This could be explained by the learning by doing hypothesis, whereby frequent bidders gain experience through many small acquisitions, and learn from their past, including the mistakes they have made, and thus have a greater in-depth knowledge of the merger programme. As a consequence, they will be less prone to the hubris problem and thus yield better performances. Notably, the portfolio that yielded the best performance was that of the frequent bidders that pursued the smallest targets, whereas the portfolio of infrequent bidders that pursued the largest targets yielded the worst performance; the difference between these two portfolios is highly significant.

In general, the results in Table 2.7 provide strong support for the inference drawn from the data in Table 2.6 that growth through many small acquisitions generates better gains than growth through a small number of large acquisitions. Except for the third quintile of relative size, the t statistics of the difference between the top and bottom quintile are all significant. This result could shed light on existing theories of

the merger programme, and provide theoretical backup for firms that are involved in many small acquisitions to achieve growth.

2.5.3 The Results of the Event Study Analysis

In this section, the results from the event study analysis are presented. The analytical focus now shifts from a firm time-series perspective to a firm-event perspective. To test the main hypothesis that acquisition activity is performance driven, a standard event study methodology was employed to measure pre-announcement and post-announcement returns to acquirers in both the short-run and long-run. Firstly, the results of the differences in the performances of the bidders based on the public status of the target firms are presented. Then an examination is made of the differences arising from the choices of methods of payment. The results of the announcement period returns are given at the end of this section.

2.5.3.1 The Results of the Bidders' Long-run Performances According to the Mode of Acquisition

From the previous analysis, it can be seen that there are significant differences in the returns to and characteristics of acquisitions of pubic targets and acquisitions of non-public targets. These differences will be discussed here in detail.

Figure 2.1 plots the Cumulative Monthly Market-Adjusted Returns (CMMAR) to the

portfolios of all acquirers, acquirers of non-public targets, and acquirers of public targets, and the statistics are reported in Table 2.8. Panel A plots the statistics from the twenty-four months before the acquisition announcement to the twenty-four months after, based on the monthly data. Panel B reports the statistics from the twelve months before through the twelve months after the acquisition announcement. It can be clearly seen that there is a dramatic stock price run-up prior to the event month for each of the portfolios.

The CMMAR to the portfolio of all firms in the two years prior to the event month is 11.8% (not shown in the graph), and is highly significant with a t-value of 8.48. The CMMAR to the portfolio of acquirers of non-public targets is 13.84% with a t value of 8.61, and the CMMAR for the acquirers of public targets is 10.52% with a t value of 7.38. The data shows that the pre-announcement run-up over this two-year period is significantly greater for acquirers of non-public targets than it is for those of public targets. From the results in Panel B (Figure 2.1, Table 2.8) it can be seen that there are also some clear trends of pre-announcement price run-up. For all acquirers, there is a 7.13% (t = 4.61) price run-up, and for public acquirers the run-up is 4.38% (t = 2.48). The same is found for the twenty-four month analysis, where non-public acquirers exhibited a higher prior announcement run-up of 7.65%(t = 3.21).

The two-year post-announcement return was significantly negative for both groups and significantly greater for the acquirers of non-public targets. Similar patterns are found in the 12-month period results. In general, the long-run study according to the

mode of acquisition shows that acquisitions of non-public targets yielded better returns in both the twelve-month and twenty-four month event windows. Despite the price decrease in the post-announcement period, most acquisitions still exhibited a significant price run-up prior to the merger announcement. Hence, these results provide strong support for the hypothesis that performance drives acquisition. In other words, if a firm wants to be in a good position for taking over other firms to achieve growth, it should have superior performance prior to an acquisition, and thus should exhibit a substantial price run-up prior to the acquisition. Consistent with most previous empirical research, negative long-run performance was found in both event windows, which suggests that merger is not the direct cause of a firm's good performance.

2.5.3.2 The Results for the Bidders' Short-run Performance According to the Mode of Acquisition

The event windows for the short-run study are 60 days (pre, post) and 20 days (pre, post), respectively. The cumulative daily market adjusted returns (CDMARs) are plotted in Figure 2.4 and the statistics are reported in Table 2.9. Statistics for the CDMARs from day -60 to day 60 and from day -20 to day 20 are reported for both the acquirers of public and those of non-public firms. Similar to the results for the one-year window, both the sixty-day and twenty-day pre-announcement stock price run-ups are significant, but not statistically different from each other. It can be seen from the sixty-day windows that the public target acquisitions had even higher price

run-ups prior to the acquisition announcements. This is probably because there is more information available about public targets, which leads more investors and analysts to focus on this type of acquisition, thereby pushing up the price. Unlike the findings from the long-run post-announcement returns, positive post-announcement returns were seen for all of the portfolios, which suggests that over a short period of time merger can indeed push up the stock price and yield a better return. Notably, an abnormal price movement is seen around the announcement period. For both the sixty-day and twenty-day event windows, it was found that a non-public acquisition announcement can boost the stock price very efficiently around the announcement period. However, it seems that public target acquisition announcements will discount the bidder's stock price immediately, as a clear downward movement is seen after the announcements of public target acquisitions. This may be because there are more stock or mixed offers in public target acquisitions, sending a negative signal about the bidder's stock overvaluation. On the other hand, it could be because there is a decrease in asymmetric information as more information becomes available when the merger is announced, and the market automatically discount's the bidder's price as the unrealistic expectation is replaced by real information after the announcement.

The CDMARs to the portfolio of all firms for the sixty days prior to the event day was 2.91%, and is highly significant with a t-value of 4.52. The CDMARs to the portfolio of acquirers of non-public targets was 2.75% with a t value of 3.47, and the CDMARs for the acquirers of public targets was 3.01% with a t value of 5.27. The data shows

that the pre-announcement run-up over this sixty-day period was significantly greater

for acquirers of public targets than for those of non-public targets. From the results in

Panel B (Figure 2.4, Table 2.9) it can be seen that there are also some clear trends of

pre-announcement price run-up for the twenty-day event windows. For all acquirers

the run-up was 0.58% (t = 3.66), and for public acquirers it was 0.45% (t = 3.18).

Unlike for the findings for the sixty-day windows analysis, the non-public acquirers

exhibited higher   pre-announcement   run-ups of 0.60% (t = 2.24).

The size and significance of the pre-announcement run-up casts doubt on the notion

that acquisition drives performance. If acquisition can indeed stimulate a bidder's

performance, post-acquisition price decreases would not be observed. Rather, the

implication of this data is that firms with a higher market valuation are more apt to

pursue acquisitions. In other words, acquisitions appear to be the result of good

performance, rather than the cause.

2.5.3.3 The Results of the Bidders' Long-run Performance According to Method of Payment.

In this part, the results of the long-run performance of the bidders according to the

different methods of payment are presented. In general, these findings are consistent

with the previous literature in showing that stock-based acquisitions are not as

profitable as those based on cash.

Figure 2.3 presents the CMMARs of acquisitions involving cash and stock, for the

twenty-four and twelve-month event windows based on monthly data. The data is presented in Table 2.8. The most striking feature of Figure 2.3 is the big jump in returns for stock-based acquisitions during the twelve months surrounding the acquisition announcement. Both the cash and stock-based acquisitions exhibited a significant price run-up prior to the announcement. However, from the graph it can be seen that the stock-based acquisitions experienced serious price decreases after the announcement for both the twenty-four and twelve-month event windows. These drops in price not only wiped away the pre-announcement gains, but also brought the returns further downwards. Another distinctive trend that can be seen from the graph is that for the cash bidders the overall return was positive for both event windows.

The CMMAR to the portfolio of acquirers using cash as the method of payment was 12.36% with a t value of 9.03; for the acquirers using stock as the method of payment it was 20.62% with a t value of 1.48. These numbers show that stock bidders exhibit a significant price run-up prior to announcements. These results are consistent with the overvaluation hypothesis, which is that stock bidders will consider their stock overvalued compared to the target stock, and by using stock as the method of payment they can take advantage of this overvaluation. The data also shows that the pre-announcement run-up over this two-year period was significantly greater for the stock bidders than it was for the cash bidders. However, the situation after the acquisition announcement was dramatically different, with the stock bidders in general experiencing a very significant price drop, to -35.91% (t =-1.74) for the

twenty-four month event windows, and -22.61%(t = -3.52) for the twelve-month event windows; this is consistent with most of the previous research. The reason for this sudden price decrease is mainly the negative signal conveyed in stock offers. The post-announcement performance is much better for cash bidders. For the twenty-four month event window, the cash bidders' return decreased to -10.64% (t = -8.01), and for the twelve-month event window, the return was -4.52% (t = -2.85).

2.5.3.4 The Results of the Bidders' Short-run Performance According to the Method of Payment

The results of the bidders' short-run performance according to he methods of payment are illustrated in Figure 2.4 and the supporting statistics are presented in Table 2.9. As with the findings of the long-run studies, the pre-announcement run-ups were found to be larger for the stock-based acquisitions.

These results are consistent with the hubris and overvaluation hypotheses because, notably, for both stock bidders and cash bidders, the post-announcement returns were all positive. This is in line with much of the previous research, which found that merger activities can indeed boost the bidder's return over a short period of time.

The CDMARs to the portfolio of acquirers that used stock as the method of payment was 8.11% with a t value of 5.12, and the CDMARs for the cash acquirers was 2.69% with a t value of 6.55. The data shows that the pre-announcement run-up over the sixty-day period was significantly greater for acquirers using stock than it was for

cash acquirers. From the results in Panel B (Figure 2.4, Table 2.9) it can be seen that there are also some clear trends of pre-announcement price run-ups for the twenty-day event windows. Distinctively, it shows that both stock bidders and cash bidders exhibited positive post-announcement price run-ups for the twenty-day event windows. For the stock bidders the run-up was the greater at 1.15% (t = 5.52), while for the cash bidders the run up was 0.89% (t = 1.35).

2.5.3.5 The Results of the Bidders' Returns During the Announcement Period

According to the previous literature, the bidder's announcement period returns are subject to many influences, and exhibit different trends from the long-run studies. Thus, an empirical test was carried out that specifically focused on the announcement period.

Table 2.10 reports the cumulative announcement period market-adjusted returns for the event days −2 to +2 for all of the acquisitions in the sample according to the year and type of target. The announcement period return to the entire sample was significantly positive in each of the eleven years reported, and the announcement return over the entire time period was 1.45% (t = 17.27). The average announcement return for the sample of acquirers of public targets was negative in ten of the eleven years, and the negative return was statistically significant in four of those ten years. The overall announcement return for this sub-sample was −0.71% (t = −3.89). In

contrast, all of the announcement returns to the non-public target acquisitions were positive and statistically significant. The overall announcement returns to the acquirers of non-public targets over the period of 1990 to 2000 was 1.95% (t = 20.66). Finally, in eight of the eleven years, the announcement returns were significantly greater for the sample of acquisitions of non-public targets than for the sample of public target acquisitions. The overall difference for the entire period was 2.66% (t = 12.31).

In order to investigate the role that the relative size and method of payment plays in acquirers' announcement returns, a categorical analysis of the data was conducted. Table 2.11 presents the results of the announcement returns to acquirers according to whether they were acquisitions of public and non-public target, by the quintiles of the relative size of the target.

The results suggest that for public target acquisitions, the returns are lower the larger the size of the target, while for non-public target acquisitions the returns are greater the larger the size of the target. Notably, most of the results in Table 2.11 are statistically significant. The results for the sample of public targets are consistent with the hubris theory of acquisitions as well as the overvaluation hypothesis. The results for the sample of non-public targets, however, are consistent with the simple notion of wealth maximizing behaviour on the part of acquiring firms, at least those who acquire non-public targets.

Table 2.12 presents the announcement period returns according to type of target, medium of exchange, and relative seize of target. In general, it can be seen that there was a monotonic increase for cash offers as the relative size increased for both public and non-public acquisitions. In contrast, for the stock based acquisitions of public targets, the larger the relative size, the more negative was the announcement period return. The portfolio with the largest gain to the stockholders of acquirers of public targets was the fifth relative size quintile of cash-based acquisitions with a 1.72% five-day accumulated return with a t value of 2.66. However, the portfolio with the largest losses for acquirers of public targets was the fifth quintile of stock-based acquisitions with -1.45% (t = -3.73). For the group of acquirers of non-public targets, it can be seen that in the case of both cash and stock-based acquisitions, the announcement period returns increased monotonically as the relative size increased. Finally, it was found that the announcement period returns monotonically increased in the fifth quintile as movement was made across the medium of exchange from cash deals, to mixed deals, to stock deals. The biggest gain across all the portfolios lay in the fifth quintile of stock-based acquisitions of non-public firms, with a return of 2.79% (t = 3.55). The portfolio that yielded the lowest return was the fifth quintile of stock-based acquisitions of public targets, with a return of -1.45% (t = 3.73).

In summary, these findings provide empirical support for the hypothesis that, in general, performance can indeed stimulate merger activity, and that the outcome of an acquisition also depends on the mode of acquisition and the choice of target.

2.6 CONCLUSION

In this chapter, an attempt has been made to resolve several empirical and theoretical issues concerning the characteristics, strategies, and performance of bidding firms undertaking M&As. By constructing and utilizing a large database, covering virtually all of the UK domestic acquisitions undertaken by publicly traded acquirers from 1985 to 2004, it has been possible to re-examine, confirm, or contradict a great deal of the accumulated evidence in the M&A literature.

The main contribution of this research is that it establishes that there is generally a significant pre-acquisition price run-up for acquirers in the UK market, which suggests that mergers are the outcome of good performance rather than the cause. At the same time, the study has found that firms tend to perform better in both the short and long-run through making many small acquisitions compared to those that are involved in just a small number of big targets. As regards the merger announcement, it was found that there is a subsequent downward revision in the value of acquirers, and is highest for acquisitions involving public targets. Another major finding of this study is that there is a greater pre-acquisition price run-up for acquisitions in which the medium of exchange is stock rather than cash. This result holds for both public and non-public targets, although the run-up is particularly high for firms that use stock to acquire non-public targets.

Consistent with most of the previous research, these findings show that for public

target acquisitions, the announcement effect is normally negative, whereas it is positive for non-public target acquisitions. When the sample was divided into groups according to method of payment, further interesting patterns were observed. The announcement return was greater for mergers based on stock than for cash deals. It was also the case that the larger the relative size of the deal, the larger the announcement return. This holds true for both the cash and stock sub-samples of non-public targets. For the public target acquisitions, the announcement effect was positive for cash only deals and the larger the cash deal, the more positive the effect. In contrast, the announcement effect of stock only deals was negative, and more so the larger the transaction. These results give a very good indication that the overall negative announcement returns to acquirers is probably due to a few large deals involving public targets and using stock as the method of payment.

The empirical testing verifies that the bidding firm's performance not only depends on the method of payment, and the ownership status of the target, but also on other factors such as the acquirers previous bidding frequency, the manager's attitude, and market-wide valuation levels. Even though the results here appear to be consistent with much of the previous , a greater emphasis is placed on pre- acquisition price levels, and a close link is revealed between causes and consequences in the merger market, and this relationship could be influenced by the factorsidentified above. Also, some previous research offers explanations of how and why this link varies with

different types of deals.[38]

Throughout the empirical investigation of the bidder's performance issue, some interesting points came to light that may be fruitful areas for future study. One of these is the market's reaction to non-public acquisitions. Given that the M&A landscape is dominated by acquisitions of non-public targets and given the persuasive evidence that the market reacts very differently to this group, arguably more time should be devoted to the study of this type of acquisition. There are still quite a lot of puzzles regarding non-public acquisitions that remain unsolved, especially the influence of market-wide overvaluation of non-public acquisitions This issue will be investigated in detail in the following chapter.

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38 Roll's (1986) hubris hypothesis, Jensen's (2004) agency cost of market overvaluation hypothesis, and Shleifer and Vishny's (2004) stock price driven acquisition theory.

$$CMMAR = \sum_{t=-K}^{K}(R_{P,t} - R_{M,t})$$ where $R_{P,t}$ is the monthly return of an equally-weighted

portfolio of firm-events, $R_{M,t}$ is the monthly return of the equally weighted FTSE all share index, for month t, and K is 24 (panel A) or 12 (panel B). Month zero is the event month. Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available: "Public target" is as defined by SDC, and "Non-public targets" is a target that is not publicly traded.

Panel A: Months (-24,+24)
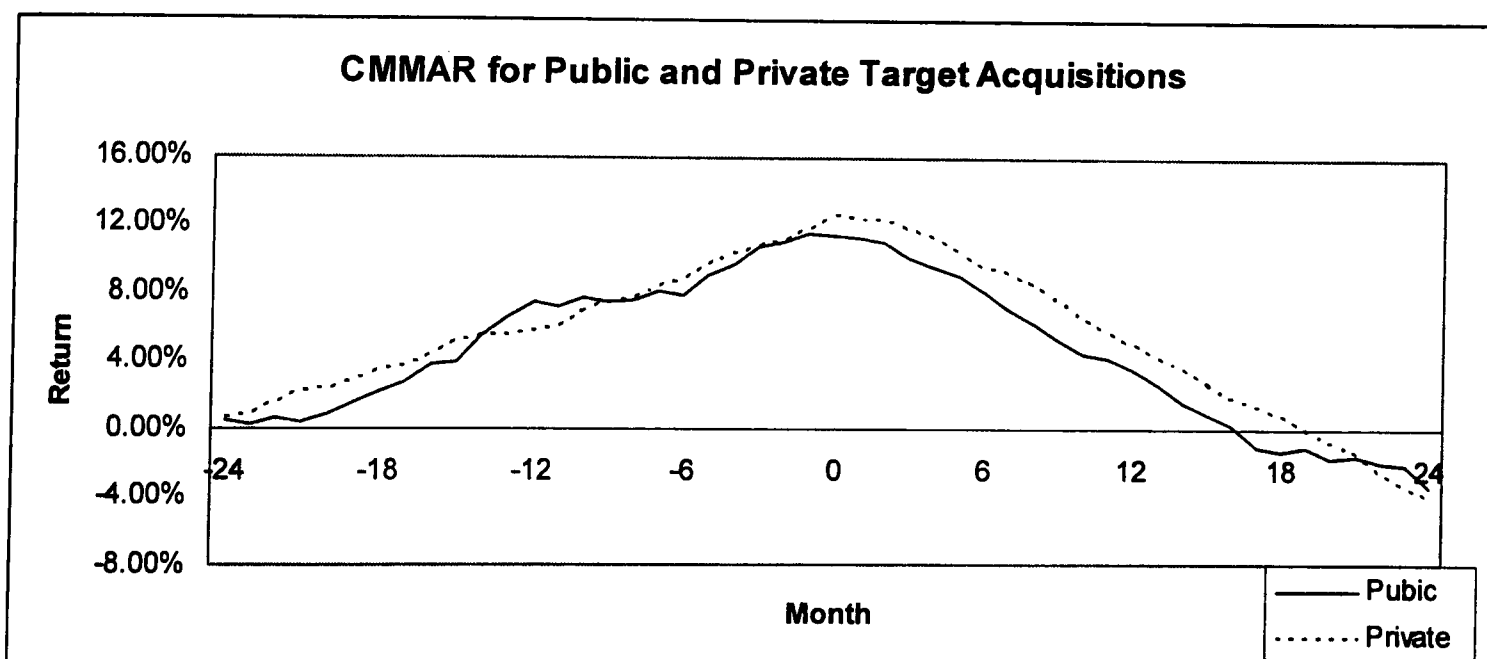
Panel B: Month (-12,+12)
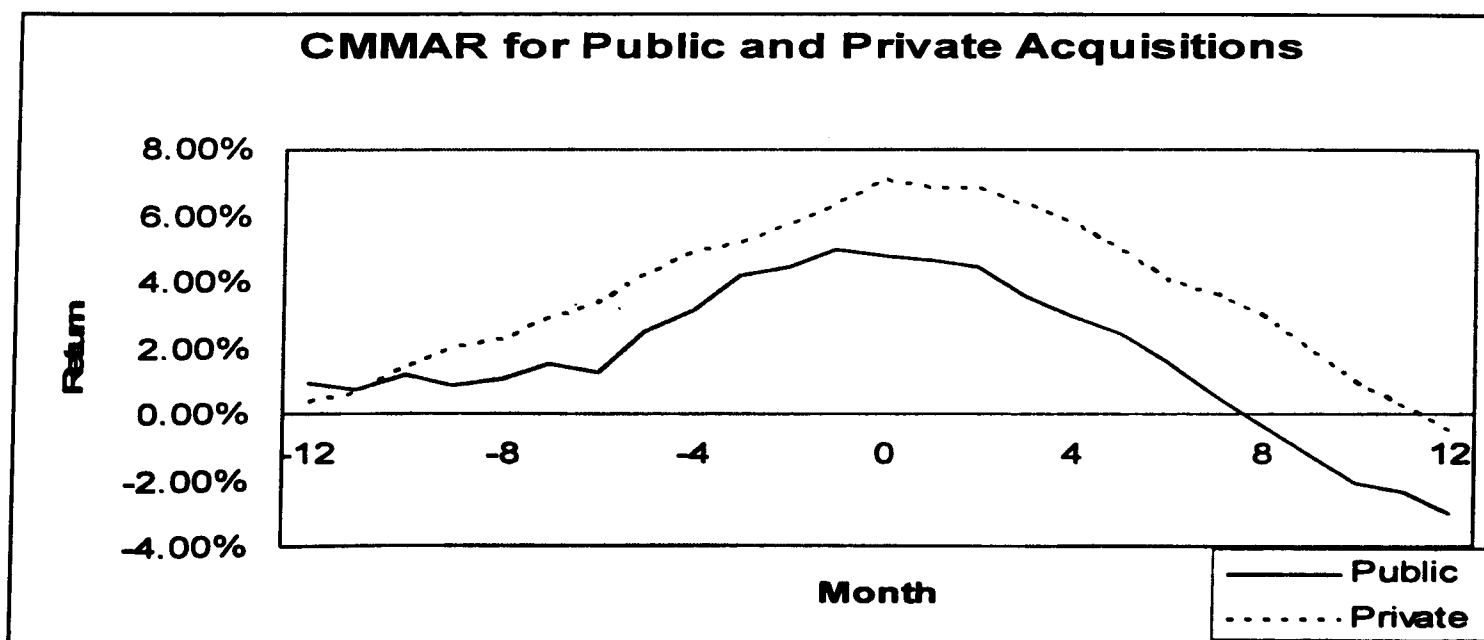
Figure 2.2: Cumulative Daily Market-Adjusted Returns for Acquirers of Public Targets and Non-public Targets

$$CDMAR = \sum_{t=-K}^{K} (R_{P,t} - R_{M,t})$$ where $R_{P,t}$ is the monthly return of an equally-weighted

portfolio of firm-events, $R_{M,t}$ is the monthly return of the equally weighted FTSE all share index, for day t, and K is 60 (panel A) or 20 (panel B). Day zero is the event day. Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. "Public target" is as defined by SDC, and "Non-public targets" is a target that is not publicly traded.

Panel A: Days (-60,+60)

Panel B Days (-20,+20)

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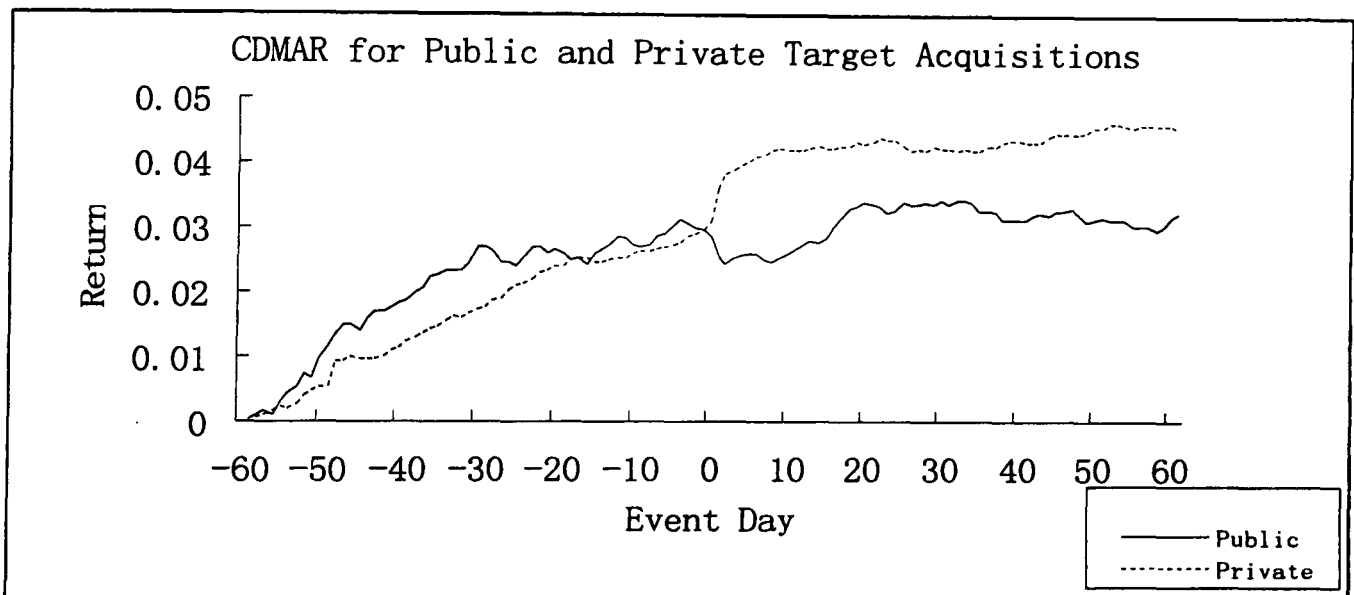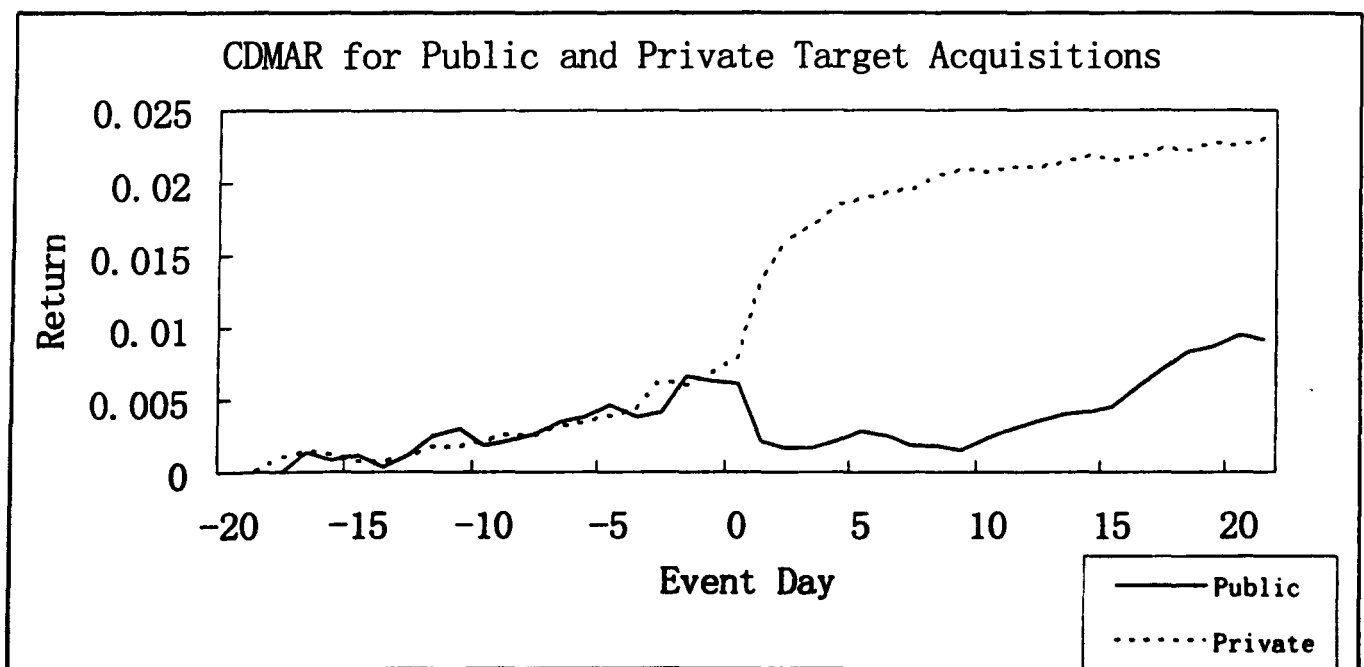
Figure 2.3: Cumulative Monthly Market- Adjusted Returns (CMMAR) for

Acquirers Using Stock payment and Cash Payment

$$CMMAR = \sum_{t=-K}^{K}(R_{P,t} - R_{M,t})$$ where $R_{P,t}$ is the monthly return of an equally-weighted

portfolio of firm-events, RM,t is the monthly return of the equally weighted FTSE all share index, for month t. and K is 24 (panel A) or 12 (panel B). Month zero is the event month. Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available." Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively.

Panel A: (-24, +24)

CMMAR for Cash and Stock Payment

Panel B (-12, +12)

CMMAR for Cash and Stock Payments
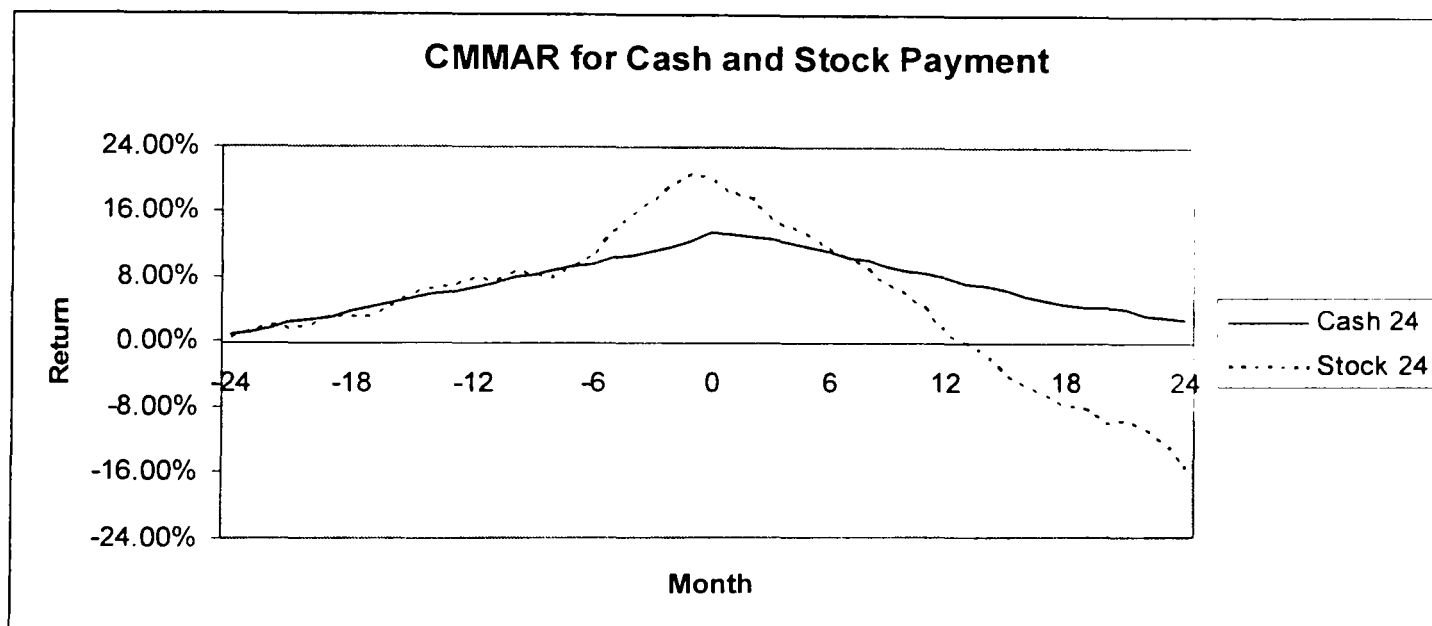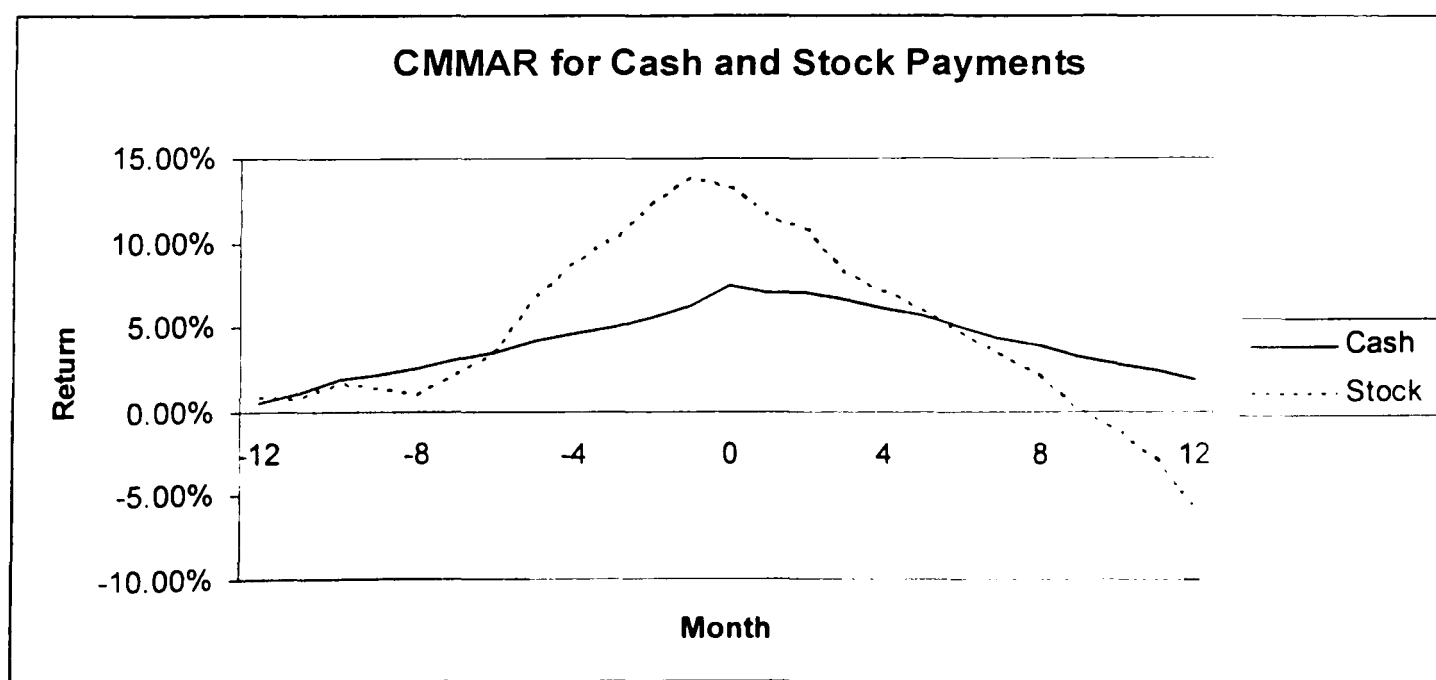
Figure 2.4: Cumulative Daily Market-Adjusted Returns (CDMAR) for Acquirers

Using Stock Payment and Cash Payment

$CDMAR = \sum_{t=-K}^{K}(R_{P,t} - R_{M,t})$ where $R_{P,t}$ is the monthly return of an equally-weighted

portfolio of firm-events, $R_{M,t}$ is the monthly return of the equally weighted FTSE all share index, for day t, and K is 60 (panel A) or 20 (panel B). Day zero is the event day. Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively.

Panel A: Days (-60,+60)

Panel B: Days (-20,+20)

106
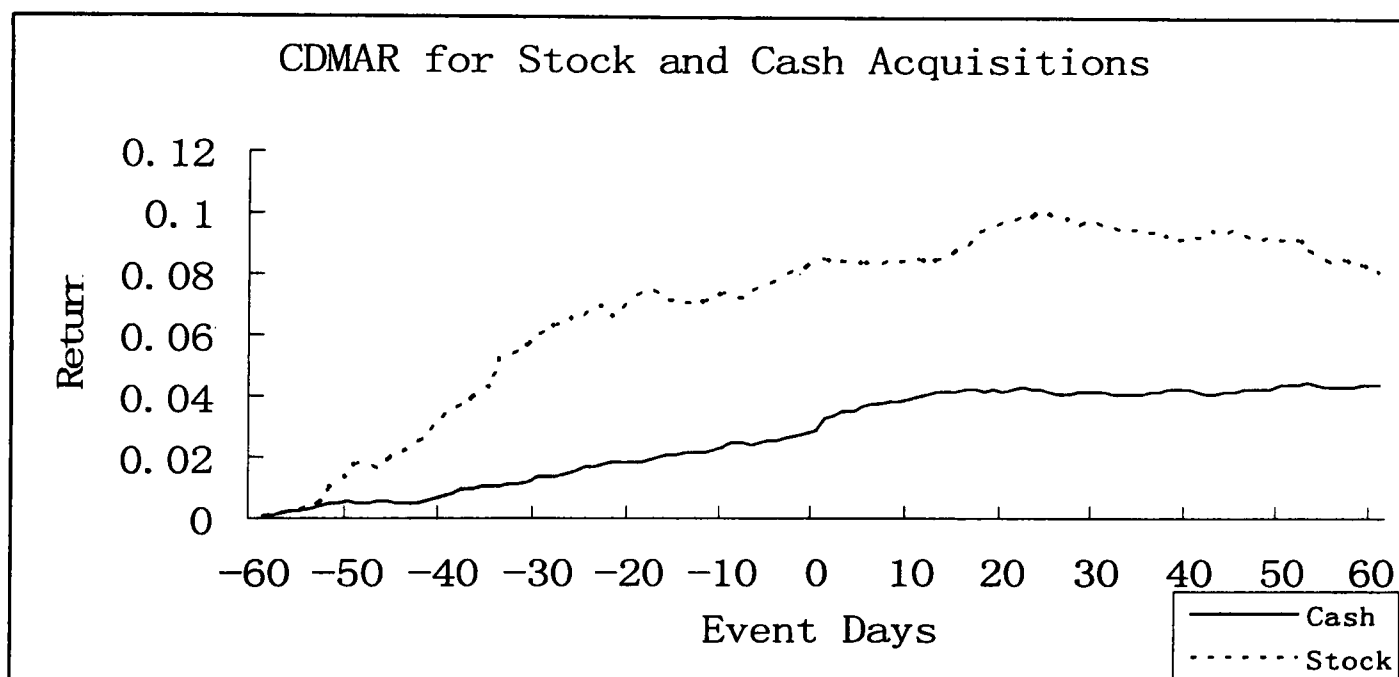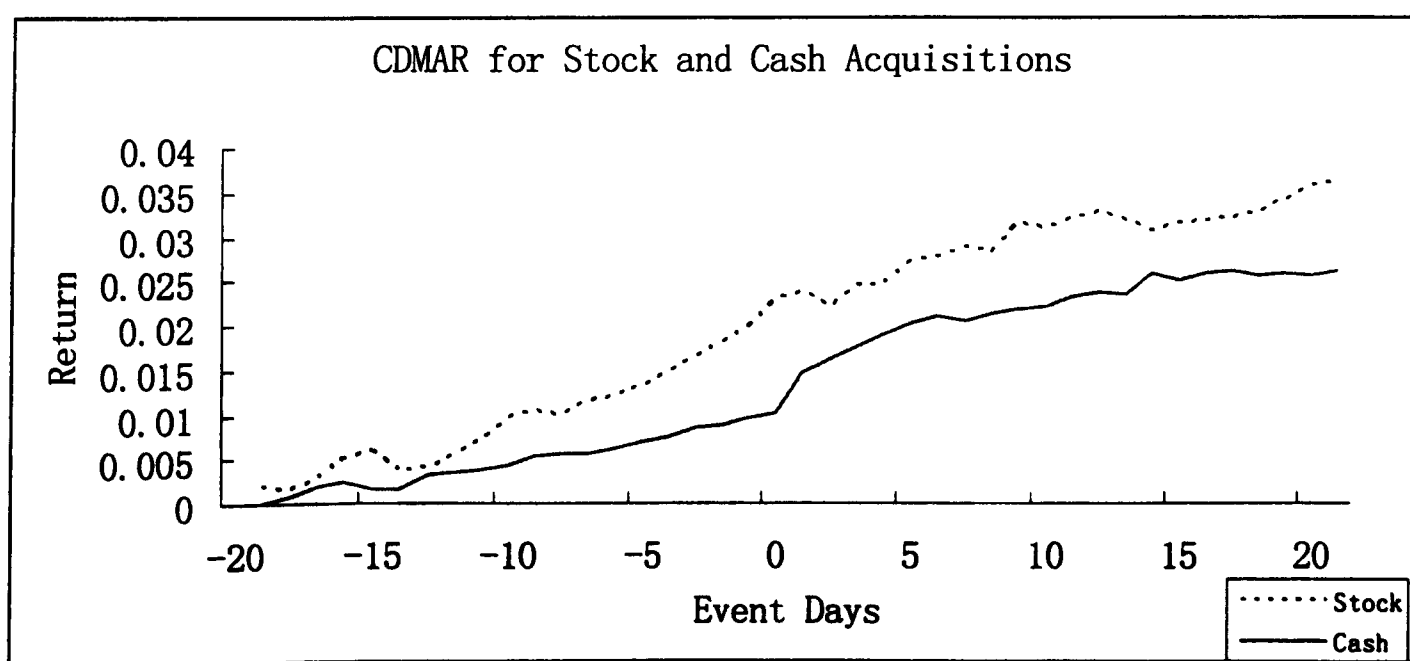
Table 2.1 Descriptive Statistics

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2003 by 1367 publicly listed acquirers for which deal values are available. "Public targets" is defined by SDC. "Related Acquisition" is defines as an acquisition in which the acquirer and target have the same two-digit primary SIC code. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC.

Year	Number of Targets	Number of Public Targets	Number of related Acquisitions	Number of Cash Only	Number of Stock Only	Average Deal Value (Million Pound)	Average Number of Bidder
1985	20	5	3	13	3	22.1	17
1986	65	12	27	40	8	35.3	44
1987	191	35	77	109	26	33.2	133
1988	306	48	123	177	12	23.4	194
1989	289	65	109	131	26	22.3	185
1990	231	21	90	122	7	15.5	166
1991	223	38	88	117	12	28.2	136
1992	231	27	103	111	18	16.6	155
1993	245	28	104	116	19	14.7	134
1994	329	44	162	160	20	16.1	223
1995	343	48	173	149	20	14.4	236
1996	358	32	156	163	21	20	244
1997	499	46	277	230	28	37.4	309
1998	603	46	328	314	26	23.4	340
1999	542	61	285	235	19	42.5	315
2000	571	48	323	220	35	37.8	332
2001	438	32	221	132	32	19.2	286
2002	344	25	182	161	16	25.9	240
2003	273	25	173	127	15	36.6	185
2004	322	23	173	159	11	37	193
85 to 04	6423	709	3177	2986	374	26.08	203

Table 2.2 Summary statistics on sterling value of acquisition activity and acquisition characteristics of UK acquirers: January 1985 to December 2004 (In UK billion pounds)

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. "Public targets" is defined by SDC. "Related Acquisition" is defines as an acquisition in which the acquirer and target have the same two-digit primary SIC code. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC. Acquirer market value is the beginning- of month Market value of acquirer's equity during the month in which an acquisition took place. and this data is from DataStream database.

Year	All Targets	Non-Public Targets	Public Targets	Related Acquisitions	Cash Only	Stock Only
1985	1. 06	0. 70	0. 35	0. 16	0. 43	0. 19
1986	1. 80	0. 42	1. 38	0. 59	1. 39	0. 33
1987	5. 18	2. 86	2. 32	2. 80	2. 67	1. 68
1988	6. 10	2. 74	3. 36	2. 11	4. 81	0. 18
1989	5. 45	2. 03	3. 42	2. 71	3. 24	0. 53
1990	2. 87	1. 65	1. 22	1. 65	0. 92	0. 20
1991	5. 22	2. 96	2. 26	0. 99	1. 96	0. 13
1992	3. 20	1. 88	1. 32	0. 61	1. 14	0. 11
1993	3. 18	1. 41	1. 77	1. 80	1. 24	0. 44
1994	4. 66	2. 27	2. 39	2. 12	2. 49	0. 22
1995	4. 27	1. 31	2. 96	1. 64	2. 02	0. 53
1996	6. 17	2. 04	4. 13	3. 55	2. 84	1. 47
1997	16. 59	12. 08	4. 50	13. 66	3. 62	10. 21
1998	11. 70	6. 15	5. 54	6. 14	7. 12	0. 90
1999	18. 44	7. 17	11. 27	11. 50	8. 62	0. 27
2000	18. 09	8. 33	9. 76	8. 77	6. 56	4. 96
2001	7. 13	2. 61	4. 53	3. 92	2. 52	0. 59
2002	7. 35	1. 80	5. 55	5. 18	4. 56	0. 55
2003	8. 24	4. 94	3. 30	5. 94	2. 64	0. 80
2004	10.48	4.06	6.42	5.68	5.33	0. 61
85 to 04	147.18	69.43	77.74	81.50	66.12	24. 91

Table 2.3 Acquisition frequency of UK public acquirers; January 1985 to December 2004

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. The number of acquisition indicated the quantity of acquisition any firm had made during 1985 to 2004 period. Percent of bidder is defined as the percentage of bidders in each category among total sample.

Number of Acquisitions	Number of Bidders	Percent of Bidders	Cumulative Percent
1	348	25. 46%	25. 46%
2	228	16. 68%	42. 14%
3	203	14. 85%	56. 99%
4	104	7. 61%	64. 59%
5	112	8. 19%	72. 79%
6	77	5. 63%	78. 42%
7	52	3. 80%	82. 22%
8	41	3. 00%	85. 22%
9	36	2. 63%	87. 86%
10	32	2. 34%	90. 20%
11	27	1. 98%	92. 17%
12	12	0. 88%	93. 05%
13	23	1. 68%	94. 73%
14	11	0. 80%	95. 54%
15	11	0. 80%	96. 34%
16	9	0. 66%	97. 00%
17	2	0. 15%	97. 15%
18	3	0. 22%	97. 37%
19	4	0. 29%	97. 66%
20	3	0. 22%	97. 88%
21-60	29	2. 12%	100. 00%

Table 2.4 Summary statistics on public target acquisition

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. We specially focus on public target acquisitions, and we present the acquisition activity and characteristics of public target acquisition only. "Public targets" is defined by SDC. "Related Acquisition" is defines as an acquisition in which the acquirer and target have the same two-digit primary SIC code. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC.

Year	Number of Targets	No. of Public Targets	No. of Related Acquisitions	No. of Cash Only	No. of Stock Only	No. of Acquirers	Avg. Deal Value (Million Pounds
1985	20	5	1	3	1	5	140. 56
1986	65	12	5	2	2	10	83. 32
1987	191	35	12	12	10	30	102. 03
1988	306	48	14	31	5	45	68. 60
1989	289	65	21	24	12	49	41. 52
1990	231	21	10	10	3	20	86. 92
1991	223	38	12	19	6	28	87. 20
1992	231	27	12	13	2	21	75. 35
1993	245	28	10	10	5	22	54. 12
1994	329	44	24	13	6	38	64. 95
1995	343	48	30	12	8	41	27. 91
1996	358	32	16	11	10	27	70. 41
1997	499	46	28	17	13	43	281. 01
1998	603	46	30	21	10	40	143. 07
1999	542	61	32	23	9	53	125. 74
2000	571	48	29	17	12	39	177. 20
2001	438	32	15	13	10	30	86. 93
2002	344	25	21	9	3	22	78. 46
2003	273	25	17	5	8	21	205. 82
2004	322	23	8	9	4	22	193. 49
85 to 04	6423	709	347	274	139	606	109. 73

Table 2.5 Summary statistics on non-public target acquisition

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. We specially focus on non-public target acquisitions, and we present the acquisition activity and characteristics of public target acquisition only. "Public targets" is defined by SDC. "Related Acquisition" is defines as an acquisition in which the acquirer and target have the same two-digit primary SIC code. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC.

Year	Number of Targets	No. of Non-Public Targets	No. of Related Acquisitions	No. of Cash Only	No. of Stock Only	No. of Acquirers	Avg. Deal Value (Million Pounds
1985	20	15	2	10	2	13	29. 43
1986	65	53	22	38	6	37	30. 06
1987	191	156	65	97	16	113	18. 14
1988	306	258	109	146	7	165	15. 20
1989	289	224	88	107	14	156	18. 17
1990	231	210	80	112	4	153	7. 33
1991	223	185	76	98	6	119	14. 94
1992	231	204	91	98	16	138	7. 85
1993	245	217	94	106	14	122	9. 34
1994	329	285	138	147	14	196	9. 37
1995	343	295	143	137	12	203	11. 83
1996	358	326	140	152	10	227	14. 79
1997	499	453	249	213	15	279	11. 26
1998	603	557	298	293	16	319	12. 16
1999	542	481	253	212	10	286	29. 90
2000	571	523	294	203	23	315	22. 64
2001	438	406	206	119	22	262	13. 31
2002	344	319	161	152	13	222	21. 18
2003	273	248	156	122	7	166	16. 42
2004	322	299	165	150	7	182	24. 49
85 to 04	6423	5714	2830	2712	234	3673	16. 89

Table 2.6 Regression of the log of acquirer's Twenty-year value index (LVI) on the number of acquisition from January 1985 –December 2004 and the relative size of acquisition

The log of the twenty-year value index for acquirer i is calculated

as $LVI_i = LN\left\{ \prod_{t=1}^{T}(1 + R_{i,t}) \right\}$, where T is the last month in the calculation (December,

2004), the first month is January 1985, and $R_{i,t}$ is the return to the ith acquirer in month t. An acquirer is defined as a firm that made at least 1 acquisition during the period January 1985 to December 2004. The number of acquisitions is from the SDC Mergers and Acquisitions database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. Relative size is the value-weighted average of the ratio of the acquisition value to the market value of the acquirer in the month prior to the acquisition of all acquisitions made by Firm I during this period. t –statistics in parentheses.

Dependent Variable: Log of the Acquirer's Ten Year Value Index	
Independent Variables	*Co-efficient (t-statistic)*
Constant	0.06(3.10)**
Number of acquisition	0.065(2.54) **
Relative size of acquisitions	-0.26(-4.23)**
No. of observations	1367
Adj. R²	3.95%
F-statistic	27.91

(** represents the significant at 1% level)

Table 2.7: Categorical analysis of the log of the acquirer's twenty-year value index

(LVI) for all acquirers, frequent acquirers, and infrequent acquirers grouped by

quintiles of relative size of acquisition

The numbers in the cells are average LVI, the log of the twenty-year value index for

acquirer *i* is calculated as $LVI_i = LN\left\{\prod_{t=1}^{T}(1 + R_{i,t})\right\}$, where T is the last month in the

calculation (December, 2004), the first month is January 1985, and R$_{i,t}$ is the return to the ith acquirer in month t. An acquirer is defined as a firm that made at least 1 acquisition during the period January 1985 to December 2004. The number of acquisitions is from the SDC Mergers and Acquisitions database and consists of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. Relative size is the value-weighted average of the ratio of the acquisition value to the market value of the acquirer in the month prior to the acquisition of all acquisitions made by Firm *i* during this period. Frequent acquirers are defined as firms that made four or more acquisitions during this period which contain 595 bidders and infrequent acquirer are defined as firms that made three acquisitions or less during this period which there are 772 bidders. t –statistics in parentheses (** represent the significance at 1% level. * represent the significance at 5%)

Table 2.7 (Continue)

Relative Size Quintile	All Acquirers	Infrequent Acquirers	Frequent Acquirers	Difference between frequent and infrequent acquirers
Smallest quintile	0.421	0.239	1.193	0.125
Number	272	154	117	(1.81)*
Range	<0.026			
Second quintile	0.254	0.192	0.646	0.519
Number	273	155	118	(2.49)**
Range	0.026			
Third quintile	0.173	-0.057	0.431	0.225
Number	271	154	116	(0.61)
Range	0.026-0.065			
Fourth quintile	0.039	-0.133	0.119	0.72
Number	275	156	118	(1.78)*
Range	0.065-0.10			
Largest Quintile	-0.077	-0.215	-0.164	-0.897
Number	275	153	116	(-2.98)**
Range	>0.10			
Difference between smallest and largest quintile	0.238 (4.92)**	0.192 (0.65)	0.962 (2.92)**	
Difference between smallest/frequent and largest/infrequent quintile	0.964 (3.02)**			

Table 2.8: Pre and post- event cumulative monthly market-adjusted returns for all acquirers, acquirers of public targets, non-public targets, and acquirers using stock or cash as the method of payments

$$\mathrm{Pr}\, e - CMMAR = \sum_{t=-T}^{-1} (R_{P,t} - R_{M,t}) \quad \text{and} \quad Post - CMMAR = \sum_{t=1}^{T} (R_{P,t} - R_{M,t})$$

where $R_{P,t}$ is the monthly return of an equally-weighted portfolio of firm-events. $R_{M,t}$ is the monthly return of the equally weighted FTSE all share index. for month t. and T=12,24 respectively, Month zero is the event month . Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. "Public target" is as defined by SDC. and "Non-public targets" is a target that is not publicly traded. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. The significant level is reported as *t*-value.

Table 2.8 (Continue)

	Pre-event	Post event
	Month (-24 to -1)	Month (+1 to +24)
All acquirers	11.80% (8.48**)	-16.47% (-7.48**)
Acquirers of public targets	10.52% (7.38**)	-14.75% (-8.18**)
Acquirers of non public targets	13.84% (8.61**)	-15.70% (-7.38**)
Acquirers of cash payments	12.36% (9.03**)	-10.64% (-8.01**)
Acquirers of stock payment	20.62% (1.48)	-35.91% (-1.74*)
Difference: non-public vs. public	3.43% (1.83*)	-3.77% (-3.17**)
Difference: Cash vs. stock	4.35% (3.21**)	-3.98% (-1.72*)
	Month (-12 to -1)	Month (+1 to +12)
All acquirers	7.13%(4.61**)	-8.43%(-3.22**)
Acquirers of public targets	4.38%(2.48**)	-6.65%(-2.12**)
Acquirers of non public targets	7.65%(3.21**)	-7.78%(-1.71*)
Acquirers of cash payments	6.14%(5.22**)	-4.52%(-2.85**)
Acquirers of stock payment	14.17%(2.67**)	-22.61%(-3.52**)
Difference:	3.42%(2.67**)	-1.69%(-2.13**)
non-public vs. public Difference:	7.58%(3.69**)	-16.33%(-1.87*)
Cash vs. stock		

*, **. indicate statistical significance at the 5% and 1% levels respectively

Table 2.9: Pre and post- event cumulative daily market-adjusted returns for all acquirers, acquirers of public targets, non-public targets, and acquirers using stock or cash as the method of payments

$$\text{Pr}\,e - CDMAR = \sum_{t=-T}^{-3}(R_{P,t} - R_{M,t}) \quad \text{and} \quad Post - CDMAR = \sum_{t=3}^{T}(R_{P,t} - R_{M,t}) \quad \text{where } R_{P,t}$$

is the daily return of an equally-weighted portfolio of firm-events for Day t. $R_{m,t}$ is the daily return of the equally weighted FTSE all share index, for day t. and T=20.60 respectively. The window of days (-2,+2) zero is the event window. Data are from the Securities Data Corporation's (SDC) Merger and Acquisition database and consist of. 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. "Public target" is as defined by SDC. and "Non-public targets" is a target that is not publicly traded. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. The significant level is reported as *t*-value.

Table 9 (Continue)

	Pre-event Day (-60 to -3)	Post event Day (+3 to +60)
All acquirers	2.91%(4.52**)	0.64%(1.74)
Acquirers of public targets	3.01%(5.27**)	0.72%(4.66**)
Acquirers of non public targets	2.75%(7.47**)	0.63%(2.24*)
Acquirers of cash payments	2.69%(6.55**)	0.93%(7.38**)
Acquirers of stock payment	8.11%(5.12)**	-0.35%(-2.36**)
Difference: non-public vs. public	0.33%(1.12)	0.23%(3.17**)
Difference: Cash vs. stock	-3.97%(-13.57**)	0.16%(1.22)

	Day(-20 to -3)	Day (+3 to +20)
All acquirers	0.58%(3.66**)	0.61%(2.37**)
Acquirers of public targets	0.45%(3.18**)	0.82%(2.49**)
Acquirers of non public targets	0.60%(2.24**)	1.24%(3.41**)
Acquirers of cash payments	0.84%(3.72**)	0.89%(1.35)
Acquirers of stock payment	1.80%(5.22**)	1.15% (5.52**)
Difference:	-0.11%(-1.26)	-1.31%(-3.90**)
non-public vs. public Difference:	-0.53%(-4.18**)	0.42%(3.89**)
Cash vs. stock		

*, **, indicate statistical significance at the 5% and 1% levels respectively

Acquisition data are from the Securities Data Corporation's (SDC) Mergers and Acquisitions database and consist of 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. Announcement effects are measured by the Cumulative Daily Market Adjusted returns (CDMARs) during the five days surrounding the day of the announcement (Day -2 to Day 2). Abnormal returns are measures by the difference between the return to the security and the return to the FTSE all share index. "Puclic targets" and "Non-public targets" are as defined by SDC. The significant level is reported as *t*-value in parentheses.

Year	All		Public Targets		Non-Public Targets		Non-Public minus Public	
1985	1.23%	(2.12)**	-0.45%	(-0.76)	1.29%	(3.73)**	1.74%	(2.89)**
1986	1.36%	(3.17)**	-0.16%	(-0.39)	1.39%	(2.84)**	1.55%	(1.04)
1987	1.85%	(2.16)**	-0.77%	(-1.26)	1.78%	(5.73)**	2.55%	(5.39)**
1988	1.76%	(4.75)**	1.02%	(2.05)**	2.25%	(4.83)**	3.27%	(3.42)**
1989	1.92%	(3.66)**	1.16%	(1.15)	1.54%	(3.27)**	2.70%	(3.07)**
1990	1.21%	(2.81)**	0.39%	(0.71)	2.19%	(6.48)**	2.58%	(5.92)**
1991	1.13%	(3.59)**	-0.26%	(-0.88)	1.34%	(5.37)**	1.66%	(1.85)
1992	1.02%	(2.65)**	-0.05%	(-1.96)*	1.56%	(2.84)**	1.61%	(4.91)**
1993	1.45%	(4.49)**	0.80%	(0.46)	1.84%	(3.62)**	2.73%	(1.82)*
1994	1.54%	(4.23)**	0.38%	(0.29)	1.29%	(2.83)**	1.67%	(3.77)**
1995	1.39%	(3.64)**	-0.64%	(-0.28)	1.37%	(2.23)**	2.01%	(3.17)**
1996	1.72%	(2.71)**	0.41%	(1.07)	1.92%	(6.48)**	2.33%	(6.82)**
1997	2.35%	(4.85)**	1.21%	(2.19)**	2.33%	(6.16)**	3.54%	(2.63)**
1998	2.17%	(6.79)**	1.03%	(3.02)**	1.67%	(4.33)**	2.70%	(4.61)**
1999	1.89%	(2.28)**	-1.34%	(-0.26)	2.31%	(2.61)**	3.65%	(5.03)**
2000	1.84%	(4.65)**	-0.76%	(-0.73)	1.87%	(4.48)**	2.63%	(2.56)**
2001	1.46%	(2.76) **	0.89%	(0.31)	1.69%	(2.31)**	2.58%	(3.85)**
2002	1.29%	(5.76)**	-0.52%	(-0.71)	1.26%	(1.92)*	1.78%	(1.02)
2003	1.47%	(2.97)**	0.39%	(0.85)	1.72%	(5.98)**	2.02%	(2.53)**
2004	1.29%	(4.65)**	-0.77%	(-0.36)	1.39%	(8.41)**	2.16%	(5.38)**
All Years	1.52%	(3.24)**	-0.67%	(-4.81)**	1.71%	(15.06)**	2.38%	(11.72)**

*, **, indicate statistical significance at the 5% and 1% levels respectively

Table 2.11   Categorical Analysis of Acquirer Announcement Effects for Day (-2,+2) for Acquisitions of Public and Non-Public Targets by Size of Targets

Acquisition data are from the Securities Data Corporation's (SDC) Mergers and Acquisitions database and consist of 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. Announcement effects are measured by the Cumulative Daily Market Adjusted returns (CDMARs) during the five days surrounding the day of the announcement (Day -2 to Day 2). Abnormal returns are measures by the difference between the return to the security and the return to the FTSE all share index. "Puclic targets" and "Non-public targets" are as defined by SDC. Target size is measured by target firm's market value, for those non-public targets we gather use the deal value divided by percentage of the shares acquired to obtain target size. The significant level is reported as t-value in parentheses.

Relative Size Quintile (RS)	Range		Announcement Effects for Day (-2,+2)		
			All Targets	Public Targets	Non-Public Targets
Smallest Quintile	RS<2%	CDMAR	0.21%	0.16%	0.23%
		t-stat	(2.85)**	(1.61)	(3.18)**
		N	272	141	1142
2nd Quintile	2%<RS<4%	CDMAR	0.37%	0.27%	0.43%
		t-stat	(1.98)**	(1.87)*	(2.04)*
		N	273	141	1140
3rd Quintile	4%<RS<10%	CDMAR	0.85%	0.12%	0.82%
		t-stat	(3.16)**	(2.76)**	(3.49)**
		N	271	142	1139
4th Quintile	10%<RS<25%	CDMAR	1.27%	-0.49%	1.48%
		t-stat	(2.83)**	(-1.31)	(3.71)**
		N	275	143	1141
Largest quintile	RS>25%	CDMAR	1.71%	-1.15%	2.19%
		t-stat	(3.55)**	(-2.61)**	(4.76)**
		N	275	142	1142

*, **,   indicate statistical significance at the 5% and 1% levels respectively

Table 2.12 **Categorical Analysis of Acquirer Announcement Effects for Day (-2,+2) for Acquisitions of Public and Non-Public Targets by Size of Targets and by method of payment**

Acquisition data are from the Securities Data Corporation's (SDC) Mergers and Acquisitions database and consist of 6423 U.K acquisitions undertaken from 1985 to 2004 by 1367 publicly listed acquirers for which deal values are available. Announcement effects are measured by the Cumulative Daily Market Adjusted returns (CDMARs) during the five days surrounding the day of the announcement (Day -2 to Day 2). Abnormal returns are measures by the difference between the return to the security and the return to the FTSE all share index. "Puclic targets" and "Non-public targets" are as defined by SDC. Target size is measured by target firm's market value, for those non-public targets we gather use the deal value divided by percentage of the shares acquired to obtain target size. All stock and All cash refer to acquisitions were 100% of the was in the form of stock and cash respectively, Mixed refers to the sum of acquisition in SDC categories "some stock", "some cash", and "combination of stock and cash" The significant level is reported as t-value in parentheses.

Relative Size Quintile (RS)	Range		Announcement Effects for Day (-2,+2)								
			All Targets			Public Targets			Non-Public Targets		
			Cash	Stock	Mixed	Cash	Stock	Mixed	Cash	Stock	Mixed
Smallest Quintile	RS<2%	CMAR	0.17%	0.41%	0.24%	0.31%	0.23%	0.14%	0.18%	0.38%	0.12%
		t-stat	(2.34)*	(3.51)**	(0.77)	(1.15)	(2.01)*	(2.68)**	(3.13)**	(4.19)**	(1.33)
		N	597	74	612	54	27	59	542	46	553
2nd Quintile	2%<RS<4%	CMAR	0.19%	0.27%	0.55%	0.47%	0.15%	0.21%	0.22%	0.51%	0.47%
		t-stat	(2.89)**	(2.11)*	(4.41)**	(2.87)**	(0.69)	(1.02)	(2.62)**	(1.91)*	(2.91)**
		N	596	75	613	54	27	59	542	47	553
3rd Quintile	4%<RS<10%	CMAR	0.42%	0.35%	0.73%	0.88%	-0.36%	-0.19%	0.45%	0.88%	0.72%
		t-stat	(3.69)**	(1.61)	(3.25)**	(0.71)	(-1.44)	(-2.77)**	(1.96)*	(1.37)	(2.18)*
		N	597	75	613	55	28	60	543	47	554
4th Quintile	10%<RS<25%	CMAR	0.71%	0.27%	1.45%	1.25%	-0.81%	0.46%	0.79%	1.46%	1.07%
		t-stat	(1.98)*	(3.62)**	(2.12)*	(1.97)*	(-2.99)**	(0.89)	(4.86)**	(2.72)**	(3.54)**
		N	598	74	612	55	28	59	542	47	554
Largest quintile	RS>25%	CMAR	1.89%	0.11%	1.76%	1.72%	-1.45%	-0.52%	1.94%	2.79%	2.13%
		t-stat	(3.26)**	(2.74)**	(4.34)**	(2.66)**	(-3.73)**	(-2.91)**	(4.18)**	(3.55)**	(4.81)**
		N	598	76	613	56	27	59	543	47	556

*, **,   indicate statistical significance at the 5% and 1% levels respectively

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CHAPTER 3   MARKET PRICE DRIVEN ACQUISITIONS:

THE UK EVIDENCE

"Understanding merger cuisine is important as investors re-evaluate companies that became addicted to acquisition in the 1990s. Tyco, AutoNation, U.S. Office Products, and AT&T each bought more than 100 companies between June, 1995, and August, 2001. All have badly lagged their peers' return."

----- Henry, David 2002, "Addicted to Acquisitions", Business Week, October 14

3.1 INTRODUCTION

In this chapter, the relationship between stock market valuation and the performance of bidding firms is examined. In particular, the focus is on the interaction between bidding frequency and target ownership status.   By using universal UK domestic takeover samples ranging from 1985 to 2003, it was found that market valuation does have an impact on bidder performance, that is, in the long-run the deals initiated during low market valuation periods significantly out-performed those carried out in high valuation periods. Furthermore, because frequent bidders are usually more easily infected by market sentiment, an emphasis has also been placed on the performance of frequent bidders during periods of differing market valuations. A very important finding regarding acquirers' bidding frequency was that the frequent bidder was not always out-performed by the infrequent bidder. For deals initiated during low market valuation periods it was found that frequent bidders out-performed the infrequent

bidders in the long-run. This finding is consistent with the organizational learning and investor sentiment hypotheses which suggest that frequent bidders learn from their past mistakes and are more careful when evaluating the target and combining synergy when the market valuation is low. This pattern is robust to controlling for bid characteristics that are known to impact takeover performance.

The study of mergers has attracted a significant amount of attention both in finance and industrial organizations. One of the most active, but still open areas of research is the issue of why mergers occur and the market's reaction to different factors that drive merger activities. Several theories have been advanced to explain the origin of mergers. Each theory seems to be relevant for explaining partially why merger waves occurred in the last century, but it is hard to argue that there is yet a solid unified explanation of what drives acquisition.[39]

Some previous studies have suggested that the volume of merger activity is positively correlated with market valuation; the relationship is more pronounced during high market valuation periods[40]. Recently, researchers have found a significant positive

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[39] In the previous literature, the usual way of classifying theories that explain the causes of mergers was by grouping them according to the assumption they made regarding market efficiency and managerial rationality. They are normally grouped as: a. neoclassical theory explanation (efficiency enhancing), b. agency problem explanation (Jensen 1986), c. hubris hypothesis (Roll 1986), d. stock price driven acquisition hypothesis (Shleifer and Vishny 2004).

[40] See Dong, Hirshleifer, Richardson, and Teoh (2003), Ang and Cheng (2005), and Rhodes- Kropf and Viswanathan (2004) for empirical evidence. Similar evidence has been found in the IPO market, where issuers timed the market to cater for the investor's preference. Pagano, Panetta, and Zingales (1998), Lerner (1994), and Loughran, Ritter, and Rydqvist (1994) all found that aggregate IPO volume and stock market valuations are highly correlated.

correlation between market valuation and the quality of mergers and this relationship is especially strong for stock-financed deals. One interpretation of these findings is that managers try to time the market by paying with stock when they believe their firm is overvalued. Furthermore, as discussed in the previous chapter, frequent bidders that pursue non-public targets reveal a strong tendency to engage in market timing activity. Conn, et al. (2004) found that the overvaluation hypothesis explained a large proportion of multiple acquirers' abnormal performance. However, their results do not explain why multiple bidders are so keen on acquiring non-public targets, or the different outcomes associated with changes in market valuation.

In this chapter, it is proposed that frequent bidders who engage in non-public target acquisitions are subject to many behavioural biases when market is over-heating (overconfidence, herding behaviour, etc.) and more easily infected by market sentiment when market valuation is changing over time. There are three main reasons for this phenomenon. Firstly, the unique characteristics of non-public targets makes them a perfect medium for frequent bidders to employ and overshoot their serial acquisition strategy, which results in them making too many deals.[41] Secondly, when the market valuation is high, herding behaviour and hubris play a critical role in the frequent bidder's decision-making process, they become very optimistic about the

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[41] Non-public targets are usually small companies with great potential, hence there is less financial analysis regarding these firms, and less overvaluation compared to public targets. Furthermore, small non-public firms have less bargaining power, and leave more profit on the table for acquirers. Thus, acquirers are very optimistic about their ability to manage such "under-valued" targets, and hence overshoot the number of targets.

future outcome of the deal and hence very active during high market valuation periods. Thirdly, the bidder's stock price will further increase, in the short-run, due to the "good news" of the merger. This will further boost the bidder's confidence resulting in an overconfidence bubble that will lead to more acquisitions. In the longer run, the overconfidence will eventually be replaced by reality because bidders in fact cannot gain sufficient earnings to support the nonrealistic stock prices of these bad mergers, with the result that there are significant losses.

Conversely, it has been found that frequent bidders can be very rational during low valuation periods. When the market valuation is low, frequent bidders are more conservative than infrequent bidders. This is probably because the loss of reputation will be much higher if they make bad deals during cold periods, and because the experience gained from previous failures make them much more careful in choosing targets and evaluating the combining synergy from the deal during such periods. Thus, the deals made by frequent bidders during low market valuation periods will out perform those made by infrequent bidders in the long-run.

A number of papers have formally recognized this link between mis-pricing and acquisition activity. Shleifer and Vishny (2004) proposed that overvalued firms engage in stock financed acquisitions in order to obtain hard assets at an effective discount. This discount comes at the expense of the target's long-term shareholders,

so this theory relies on different horizons for the managers of the two firms.[42]

Rhodes-Kropf and Viswanathan (2004) developed another model to predict misevaluation driven mergers. In this case, it is the inability of the target managers to distinguish between errors that are market-wide and those that are firm-specific that leads to the irrational acceptance of offers from overvalued acquirers.

Based on these theoretical predictions and on their empirical work, Bouwman, Fuller, and Nain (2005) investigated whether the overall stock market valuation affects acquisition decisions. They found that the market valuation at the time the acquisition is initiated affects both the announcement returns and long-run performance of the acquirers. Specifically, announcement day returns are significantly positive for acquisitions undertaken in high valuation markets and insignificantly negative for acquisitions undertaken in low valuation markets. Their findings suggest that the market rewards acquisitions made in high valuation periods but not those made in low valuation periods. By dividing the sample according to bidding frequency, the results of the current study give a new insight into the work of Bouwman, Fuller, and Nain. It was found here that the market rewarded frequent bidders during low valuation periods, whereby they significantly out-performed in the long-run compared to infrequent bidders in the same period, and also out-performed themselves compared

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[42] One way to shorten the horizon of the target firm's managers is to remunerate them for successful deals. Hartzell, Ofek, and Yermack (2004) reported that targets received lower acquisition premiums when their CEOs enjoyed extraordinary payouts. Another option is to choose target firms whose shareholders have short investment horizons. Gaspar, Massa, and Matos (2005) documented that firms with short-term shareholders were more likely to get offers, but earned lower premiums.

to their results in high market valuation periods.

Proceeding from what has been outlined above; the main objective of this research is to resolve three issues. Firstly, the issue of whether or not there is a close link between market-wide valuation status and the quality of mergers in general will be investigated. By doing this, an insight will be gained into how valuation level changes influence merger outcomes, and at the same time this research will test market reactions to different factors (such as bidding frequency, target ownership status, and method of payment) when the valuation changes. Secondly, it will be interesting to know how frequent bidders react to different market valuation levels, and whether or not the outcomes differ compared with infrequent bidders during same period. This is important because it has been found that frequent bidders are subject to series merger programmes, and are easily infected by market sentiment. However, very little work has been done in the past to examine the impact of frequent bidders, thus the aim here is to reveal whether frequent bidders display any unique characteristics when changes in market valuation take place. Thirdly, it was found that about 90% of the samples were non-public target acquisitions, thus it is necessary to investigate why these targets are so popular in the market, and how they fit into the bidders' merger programme when the market valuation changes.

From the above discussion, two testable hypotheses can be constructed:

H1: Where the deal is initiated during a high market valuation period, the bidder

should receive a better announcement period return than where the deal is initiated during a low market valuation period as the investor sentiment is very high towards merger announcements during high market valuation periods.

H2: Where the deal is initiated during a high market valuation period, the bidder should receive a worse long-run return than where the deal is initiated during a low market valuation period as deals made during low market valuation periods have better quality, which is revealed over time.

Three of the contributions made by this research are presented here. Firstly, a sample comprising universal UK takeovers (nearly 90% of which involved non-public targets) during the period 1985 to 2003 was used to examine the overall correlation between acquirer performance and market valuation. . This is by far a very large sample used in a study of UK takeovers and covers several merger waves, thereby avoiding the data mining problem and yielding unbiased results. Secondly, it was found that the rationality of frequent bidders changes over time; they are subject to more behavioural biases during high market valuation periods and are more rational when the market valuation is low. Thirdly, a contribution is made to the behavioural corporate finance literature by providing evidence of the impact on bidders' rationality of valuation changes at the market level. Most of the previous studies have focused on the relationship between bidder performances and the valuation at the corporate level only. This work, however, looks at the whole picture by intensively examining the impact

of the valuation at the UK market level, with the results giving more support to the manager sentiment hypothesis, as they show that the manager's rationality can change over time as the market valuation changes.

There are several theoretical hypotheses that are in line with this research: the market overvaluation hypothesis, the hubris hypothesis, the investor sentiment hypothesis, and the bounded rationality hypothesis.

Some of the recent literature links market-wide valuations to merger activity and suggests that managers' rationality is influenced by the overall state of the market and not just by the valuations of their own firms. From Jensen's (2004) point of view, overvaluation influences firms' acquisition decisions, as the managers of bidding firms attempt to prolong the mis-pricing. To do so, they have to maintain the market's perception of the firm's prospects, and in the process they engage in value-destroying activities, such as earning management, unwarranted acquisitions, unprofitable investments, and even outright fraud. Hence, many firms begin to implement their series acquisition strategy (becoming frequent bidders) during high market valuation periods not only to dilute their overvalued shares, but also in an attempt to manipulate the earnings to support their inflated stock price. At these times, the small company with good prospects will be very attractive to the frequent bidder. Thus, the proposal is that more frequent bidders will be observed trading during high market valuation periods than in low market valuation periods.

As mentioned above the hubris hypothesis lends theoretical support to this research. Many previous researchers have found that managers are more likely to suffer from hubris and undertake acquisitions that lack sufficient synergies when the market is booming. [43] These hubris driven acquisitions, undertaken during high market valuation periods, are likely to be driven by management overconfidence and hence will likely destroy the firm's value in the long-run. On the other hand, when the market valuation is low, both investors and managers are more likely to be skeptical of acquisition deals, hence market valuation is critical to assessing the combining synergies from the deal. During a low valuation period, managers afflicted with hubris will suffer more from the market's punishment if they overestimate their ability to generate the combining synergy. At these times frequent bidders will be particularly careful when choosing targets because the low market valuation period is simply not a good time for them to implement their serial acquisition strategy. Thus, they need to be very certain of the outcome of any acquisition deal, and will prefer small targets to large public targets to avoid any loss of reputation if they make a mistake while others do not.

Besides managerial hubris, the investor sentiment hypothesis also serves as theoretical support to this research. When market sentiment is bullish, not only do investors welcome merger deals but also corporate managers feel encouraged to make acquisitions because they believe that the market expects firms to undertake

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[43] See Roll (1986), and Bouwman et al. (2003).

growth-enhancing activities such as M&As. In a similar vein, managers who initiate

merger deals during low market valuation periods need to be very certain that the

synergy is large enough to offset market sentiment and expectation, simply because

the market does not expect acquisitions when the sentiment is bearish. Another

possible reason for why so many non- public target deals are observed during periods

when the market is booming is that the target's resistance is lower when the stock

prices are high due to the fact that small targets are receiving premiums that are over

and above their already high valuation. Another reason that non-public targets are

very popular is that they are normally very small in size, and it is easier to integrate

them into the frequent bidder's serial acquisition programme.

The bounded rationality hypothesis has been receiving more and more attention

recently and it provides a good explanation for the facts that have been observed from

the behavioural corporate finance angle. Introduced by Simon (1955), the bounded

rationality hypothesis assumes that some types of cognitive or information-gathering

costs prevent agents from making fully optimal decisions. Bounded-rational managers

cope with complexity by using rules of thumb that ensure an acceptable level of

performance.[44] Under high market valuation conditions, managers are influenced by

over optimism just like other investors; hence they are less rational than during low

market valuation periods. Additionally, rules of thumb are hardly uncommon in

financial management during high market valuation periods. For example, the net

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[44] See Simon (1955), Conlisk (1996), and Baker, Ruback, and Wurgler (2005).

present value criterion (NPV) is the optimal capital budgeting rule, but several recent papers have documented that managers prefer to use the IRR rule because it avoids a cost of capital calculation.[45] It can be expected that during market overvaluation periods, when over-optimism is predominant in the market, managers will use the most unsophisticated rule, that is their "self-confidence" to guide their investment decisions. Thus, more acquisition deals should be observed during hot market valuation periods simply because both managers and investors are much more irrational, and create a large "confidence bubble" for themselves, it is just like the fairy tale the "Emperor's New Clothes".

The empirical evidence presented by this research is consistent with the stated hypothesis. In short, there is strong evidence to show that bidders who initiate their deals during low market valuation periods out-perform those who make their deals during high market valuation periods. At the same time, the evidence also shows that the market welcomes acquisition announcements during high market valuation periods in the short-run, but the fortunes are reversed in the long-run. Most importantly, it can be seen that frequent acquirers who make their deals during high market valuation periods under-perform compared to infrequent bidders in the long-run, but the opposite is found for those deals made during low market valuation periods. This suggests that the levels of rationality of frequent bidders changes when the market valuation changes and is more volatile than the rationality of infrequent

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[45] See Graham and Harvey (2001), and Welch (2004).

bidders.

The remainder of this chapter is organized as follows: Section 2 reviews the relevant

literature. Section 3 describes the data and the methodology. Section 4 discusses the

results and issues of robustness. A conclusion is given at the end.

3.2 LITERATURE REVIEW

The theoretical and empirical literature exploring possible links between firm overvaluation and merger activity is growing very fast and some recent papers have already addressed the importance of the additional link with market-wide valuation levels. In this section, the relevant literature is intensively reviewed and the gaps identified. Firstly, the development of the market valuation hypothesis and different measures of market valuation are discussed. Secondly, there is a review of the recent debates regarding the determinants of market valuation. Thirdly, the main measurement of market valuation used in this research is introduced, which is the price to earning ratio. Finally, there is a review of the literature on irrational manager behaviour, which provides the main theoretical support for the construction of the stated hypothesis.

3.2.1 Market Valuation and Merger Activity

The theoretical literature on M&A takes several different approaches. These can be broadly divided into two general approaches. Roughly speaking, the first approach emphasizes that the market is, in general, less than fully rational, whilst the second considers managerial behaviour to be less than fully rational. The first approach relates most closely to the research topic here, which supposes a link between market valuation and merger activity.

3.2.1.1 The Irrational Market Approach

Consistent with managerial hubris and market irrationality hypotheses, Shleifer and Vishny (2004) proposed the market valuation hypothesis, which is a market timing model of acquisition. They assumed that acquirers are overvalued, and the motive for acquisitions is not to gain synergies, but to preserve some of their temporary overvaluation for long-run shareholders. They asserted that stock is used to pay for acquisitions by overvalued acquirers of relatively less overvalued targets, and that a cash bid for the target would only occur if the target was undervalued even at the bid price. Both the decision to acquire and the means of payment derive from market timing. Stock acquisitions are used by overvalued bidders who expect to see negative long-run returns on their shares, but are attempting to make these returns less negative. Schleifer and Vishny's model also predicts merger waves in which managers will make stock-based acquisitions in high market valuation periods and cash transactions will be used in low market valuation periods. A corollary is that the pace of stock mergers should be higher in industries and markets with a large dispersion of valuations. The market timing approach to mergers helps to unify a number of stylized facts. The defensive motive for the acquisition, and the idea that acquisitions are further facilitated when catering gains are available, help to explain the time-series link between merger volume and stock price. The model also predicts that cash acquirers earn positive long-run returns while stock acquirers earn negative long-run returns, which is consistent with the findings of Loughran and Vijh (1997) and Rau and Vermaelen (1998).

In the same theoretical category, but with a different mis-valuation based explanation to merger volume and stock price, Rhodes-Kropf and Viswanathan (2004) modelled a market where the market values for bidders and targets can both deviate from the true value. They defined mis-valuation as having two possible components, firm-specific and market-wide. Bidders in their model have private information about the value of their firm and the potential value of the target firm. On the other hand, the managers of the target firms have difficulty assessing the potential synergies since they only have private information about the value of their firm and limited information about the components of mis-valuation. In this setting, market overvaluation tends to make bids look more attractive to the target, while firm-specific overvaluation tends to make the bids look too low. In Rhodes-Kropf and Viswanathan's model, the chance that a merger will occur increases with market overvaluation. Overvaluation can trigger merger waves in the absence of any underlying reasons for the acquisitions, such as synergy. On the other hand, undervaluation may result in the halting of the merger wave even if an underlying reason, such as inefficiency, suggests that assets should be redeployed.

Recent papers have found further evidence for market timing mergers. Dong, Hirshleifer, Richardson, and Teoh (2003), and Ang and Cheng (2005) found that market level mis-pricing proxies and merger volume were positively correlated, and that acquirers tended to be more overpriced than targets. They also found evidence

that offers for undervalued targets are more likely to be hostile, and that overpriced acquirers pay higher takeover premiums. Bouwman, Fuller, and Nain (2003) found evidence suggestive of a short-term catering effect, which is where in high valuation periods, investors welcome acquisition announcements, but the long-run performance following such acquisitions are the worst. All these patterns are consistent with overvaluation driven merger activity.

According to Baker, Ruback and Wugler's (2005) survey on behavioural corporate finance, there are still some questions waiting to be explored in this area. One unresolved question in the Shleifer and Vishny theoretical framework of overvaluation is why do managers prefer a stock for stock merger to an equity issue if the market timing gains are similar? In the case of the UK, the question is why do managers prefer debt financed mergers to seasonal equity offerings (SEO)s? One explanation is that a merger more effectively hides the underlying market timing motive from investors. Baker, Coval, and Stein (2005) considered another mechanism that could explain a generic preference for equity issues via merger. First of all, they proposed that the acquiring firm faces a downward sloping demand curve for its shares, as in Shleifer (1986) and Harris and Gurel (1986). Their second proposition was that some investors follow the path of least resistance, passively accepting the acquirer's shares as consideration even when they would not have actively participated in an equity issue. With these two assumptions, the price impact of a stock financed merger can be much smaller than the price impact of an SEO. In the

UK, it is much easier for an acquiring firm to access debt financing than a SEO, thus many more cash offers than stock offers are observed.

3.2.1.2 The Irrational Manager Approach

This approach manly focuses on the interaction between managerial irrationality and merger activities.[46] Roll (1986) developed the hubris hypothesis of acquisitions and suggested that successful acquirers may be optimistic and overconfident in their own valuations and fail to properly account for the winner's curse. The present research is in line with this hypothesis, with the proposal that frequent bidders are subject to more serious overconfidence problems because each acquisition within their serial takeover plan will temporarily boost their share price and result in more overconfidence on the part of the manager.

More recently, Malmendier and Tate (2003) developed this argument and used their proxy for CEO optimism. They found a number of patterns that were consistent with the optimism and overconfidence theory. Firstly, optimistic CEOs complete more mergers, especially diversifying mergers, which are perhaps of more dubious value. Secondly, optimism has its biggest effect among the least equity dependent firms.[47] Thirdly, investors are more skeptical about bid announcements when the bids are made by optimistic CEOs.

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46 As this literature has been reviewed in Chapter 2, it will only be briefly outlined here.
47 That is, when managers do not have to weigh the merger against an equity issue that they, as optimists, would perceive as undervalued.

In summary, there is enough evidence to support the notion that periods of high merger activity are indeed correlated with high-market valuations. However, there are still some questions that remain unsolved, and which require further investigation. The main focus here is on how frequent bidders and non-public targets interact with market valuations. The following gives an introduction to the measurement used to detect market valuation levels.

3.2.2 Choosing an Appropriate Measurement of Market Valuation

The eagerness of acquirers to use their stock as acquisition currency during times of high market valuation raises the question, does overvaluation affect merger activity? In order to answer this question, one must find a reliable way to detect overvaluation. One way is to measure overvaluation ex-post, by looking at long-run abnormal stock returns.[48] Another way is to use accounting multiples like the market-to-book (M/B) ratio or price to earning (P/E) ratio.[49] However, both of these methods have their limitations. There are strong debates regarding whether evidence of abnormal long-run post-event average returns implies stock market inefficiency with respect to the event. Accounting multiples might be a proxy for effects other than mis-valuation. For example M/B ratios may also capture risk, growth opportunities, information

48 See Frank, Harris, and Titman (1991), Loughran and Vijh (1997), and Rau and Vermaelen (1998).
49 Rhodes-Kropf, et al. (2004) use the M/B ratio as a measure of misvaluation whereas Dong et al. (2003) use the price to book value of equity (P/B) ratio and the price to residual income model value (P/V) ratio. Bouwman (2003) use the (P/E) ratio to measure market valuation.

asymmetry, or managerial discipline.[50]

Many recent studies have relied on indirect estimates of the true fundamental value of a firm. For example, Dong, Hirshleifer, Richardson, and Teoh (2005) used accounting information and analysts' forecasts to calculate such a proxy, and found that richly-valued bidders were much more likely to use stock to finance acquisitions, pay higher premiums, and have lower announcement returns. Ang and Cheng (2004) used similar inputs, and reported that, once overvaluation is taken into account, merged firms do not under-perform. Rhodes-Kropf, Robinson, and Viswanathan (2005) relied on a regression-based approach utilizing accounting information as inputs, and documented that low long-run value to book firms buy high long-run value to book firms, reversing the usual results that acquirers are more overvalued than targets. Friedman (2004) used accounting information and pre-event abnormal returns, and showed that the acquirer's overvaluation predicts the bid premium, but only in stock deals. Akbulut (2005) used managerial insider trading, and found that overvalued firms are more likely to engage in stock mergers and have high pre-announcement and low post-announcement long-term abnormal returns. Because of the problematic estimation of firm-level overvaluations, it is not possible to rely on just one of these methods to distinguish firm-level overvaluation. However, on an aggregate level, using the P/E ratio to detect market- wide valuation status seems to

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50 In this chapter, the P/E ratio is used as the main proxy for market valuations, and the market valuation is divided into cold, hot, and neutral periods. Later on, the rationale behind this choice will be fully explained.

be more reasonable. Bouwman, Fuller, and Nain (2003) used such a method to classify markets into high, neutral, and low valuation periods, and concluded that deals initiated during low market valuation periods can yield better long-run performances compared to those initiated during high market valuation periods.[51]

3.2.3 Proxies for Detecting Market Valuation Level

3.2.3.1 The P/E Ratio

A commonly used technique for valuing shares is the P/E ratio, which is a measure of the esteem in which the company is held by the investors. Since the interest here is in examining overall market valuations, the UK TOATL market index P/E ratio has been used as a proxy for market valuation, in the same way as a firm's P/E ratio is used by investors as a measure of firm-level valuation status.

One reason for this is that it is easy and convenient for investors to calculate using all known or past information. Ball (1978) found earnings announcements resulted in excess returns that led him to conclude that the P/E ratio can be used as a proxy for future returns. Recent studies have found evidence to the contrary, where companies with a low P/E ratio out-perform those with a high P/E ratio in the long-run. Levis (1989) found that in the UK, a portfolio of the companies with the lowest P/E ratio had a monthly return of 1.48% compared to 0.90% for the portfolio of those with the

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[51] The using of the P/E ratio will be reviewed in the following part.

highest P/E ratio. Strong and Xu (1997) found similar results, with a monthly difference of 0.6% between the highest and lowest P/E deciles.

In the case of the USA, Fama and French (1992) and Lakonishok, Shleifer, and Vishny (1994) found differences of 9% and 4% respectively between the lowest and highest P/E portfolios, with the former out-performing the latter. Even in long-run studies, such as that of Jaffe, Keim, and Westerfield (1989), for the period 1951 to 1986, there appears to be a strong negative relationship between the P/E ratio and abnormal returns. In an international study of France, Germany, the Netherlands, and the UK, Brouwer, et al. (1996) found that a portfolio of companies with the lowest values out-performed one with the highest P/E values by 5%. The above studies show that for a sample of low and high P/E ratio companies the share price performance is very different. This performance is conditioned by the firm's pre-event financial profile being relevant to the post-acquisition performance of the acquirer.

At an aggregate level, the market's P/E ratio shares the same properties as those of individual firms. As mentioned above, Rau and Vermaelen (1998) put forward the extrapolation hypothesis to explain the differential performance of glamour and value acquirers. Acquirers commanding a high market rating due to their recent past performance may act out of overconfidence or hubris in making acquisitions. The stocks of such companies may also be overvalued. The managers may be aware of such overvaluation but the stock market may not. The acquirer managers capitalize on

this information asymmetry, but over time during the post-acquisition period the overvaluation is corrected and glamour stocks are rated down leading to significant value decline. The opposite rationale applies to the value acquirers with low pre-bid market ratings. This hypothesis is consistent with the empirical evidence reported by Rau and Vermaelen. The P/E ratio is perhaps more widely used as a valuation tool in stock markets than MTBV. Thus, by using this tool, the overall market valuation patterns can be captured, and unbiased estimations yielded.

3.2.3.2 The Volume of Takeover Activity and the Market Index

In order to check for robustness, other proxies were used to detect market valuation levels. The takeover volume and market index were two of the other proxies used. The tendency for investor over-optimism might be more pronounced during "hot takeover markets". As with hot IPO markets, where private firms issuing IPOs are in high demand, there might also be periods during which investors perceive such target firms as "hot tickets" to enhance the growth of the acquiring firms (see Ritter, 1984, 1991). This positive investor sentiment would translate into a distinctly favourable market reaction at the time of the merger announcement. Such reaction during these high volume periods may reflect temporary phases of excess enthusiasm, which would have negative implications for the future performance of mergers occurring during these periods. Thus, the volume of takeover activity can serve as a creditable proxy for the market valuation level. At the same time, the market index itself can

serve as a proxy for market sentiment; it is a more direct proxy but contains market information other than purely the market valuation. However, the results yielded from the takeover volume classification and market index classification are all consistent with the results from the P/E ratio classification.

3.2.4 Investor Sentiment and Market Valuation

Recent research suggests that traders in the UK stock market respond more to the actions of other traders than any notion of fundamental value. Thus, current price movements have a greater impact on the course of future price movements than the relationship between price and fundamental value.

McMillan (2002) examined the nature of the relationship between UK stock prices and the notion of fundamental value determined by the dividend discount model. His results suggest that:

1.While over the long-run, prices do follow a fundamental trend path, there can be substantial departures from the fundamental value.

2. Most notably, the pull back to the fundamental value when share prices are overvalued is particularly weak, while there is a stronger association when share prices are undervalued.

3. Furthermore, it appears that current price movements (and market sentiment) have a greater impact on determining the course of future price movements than the current state of the relationship between price and fundamental value.

4. Thus, price overvaluations can exhibit persistent behaviour.

The recent course of stock price movements has been a source of much academic, practitioner, and media interest. This has led to a debate concerning the pull on prices to a notion of fundamental value, and implicitly whether the long-held belief in market efficiency remains valid.

In the USA, leading economists Campbell and Shiller have been the main advocates arguing that stock prices during the late 1990s were merely overvalued, such that a 'bubble'-like phenomena occurred and the basic stock market fundamentals had not changed. Furthermore, even as late as mid-2000, and the following three years of bear market conditions, the dividend yield, which measures prices relative to fundamental value, remained above its forty-year historical average, above a trend measure that allowed for a slow change in the position of the relationship, and above a measure that captured bear market regime change, all of which suggests that prices remained overvalued. However, there is no prospect of an immediate fall in prices as evidence presented in McMillan's (2002) study suggests that future price movements are more influenced by current price movements than the pull of fundamentals. That is, traders respond more actively to the actions of other traders than any notion of fundamental value.

To conclude, market sentiment is more important in determining future price movements than the current state of fundamentals and whether prices happen to be overvalued, thus prices can indeed persist in a state of overvaluation. The above

research does not cast doubt on the belief that prices are linked to fundamental value.

but on the belief that markets efficiently ensure that prices accord with fundamental

value most of the time.

3.3 DATA AND METHODOLOGY

3.3.1 The Data Selection

In order to obtain reliable results, a large UK domestic takeover sample was used in this study. The sample period ranges from 1985 to 2003, and consists of 4,591 completed acquisition deals. The sample was gathered from the SDC UK Merger and Acquisition Database, which contains completed tender offers and mergers. In addition to the identities of the involved parties, the database provides information on whether the deal succeeded, whether it was friendly, hostile or neutral, the mode of payment, and the relevant dates in the history of the transaction (announcement, revision, rejection, failure, and completion). Acquisitions were included in the sample if the following criteria were met:

1. The acquirer was a UK firm listed on the London Stock Exchange.

2. Relevant data on the acquirer was available from DataStream.

3. The target was UK based, being public, private, or a subsidiary.

4. The transaction value was 100,000 UK pounds or more.

5. The acquirer had obtained at least 50% of the shares of the target.

6. As is usual practice, financial, governmental, and utility firms were excluded.

7. The market value of the target's equity was at least 3% of the acquirer's market value. The employment of such a screen is a standard approach in the previous literature; it ensures that the proposed deal has a material impact on the acquirer's future. The inclusion of bids for very small firms might add noise to the results. In

any case, none of the findings changed with alternative thresholds, regardless of whether they were more or less restrictive.

3.3.2 Description of the Data

Table 3.1 shows the descriptive statistics of the sample. After the sample screening process, 4,591 samples were gathered over the nineteen-year study period. From the table it can be seen that only about 10 % of the target firms are public companies, the rest are private or subsidiary companies. This choice of sample was based on the notion that previous research that has focused only on public target acquisitions neglected the majority of takeovers. Furthermore, it can be seen that there are only 294 deals (6% of the sample) that were financed purely by stock. This figure does not necessarily mean that UK bidders are less overvalued in general compared to US bidders, it is just because UK bidders can easily get access to "overvalued cash", which is the junk bond market, whenever they need it.[52]

3.3.2.1 The P/E Ratio and Market Valuation Classification

It is common practice to use the P/E ratio as a proxy for the market valuation level; similar proxies include B/M ratio, the market index, merger numbers and so on. This study follows Bouwman, et al. (2003) in using the P/E ratio as the main proxy. However, the results are rendered more robust by also using other proxies.

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[52] This issue is explained in greater depth in the section dealing with the hypothesis construction.

Before carrying out the classification procedures, it was necessary to remove the trend from the market P/E ratio because the P/E ratio had trended upwards. Not removing the trend would result in a systematic classification of more recent acquisitions as high-valuation acquisitions and older acquisitions as low-valuation acquisitions. Figure 3.1 shows the original P/E index and the detrended P/E index. From the graph it can be seen that the detrended P/E index has a zero mean but all the patterns remain the same as with the original P/E index.

After removing the best straight line fit from the P/E of the month in question and the five preceding years, each month was classified as a high, neutral or low valuation period. The monthly Total UK P/E data range from January 1980 to December 2003 was used to position the price level that existed in each month.[53] Each month was placed in an above (below) average group if the detrended P/E of that month was above (below) the past five-year average. Then the months were ranked in order of the detrended P/E. The top half of the above average months were classified as high valuation months and the bottom half of the below average months as low valuation months. All other months were classified as neutral valuation months.

Table 3.2 gives a description of the event study samples. During the period 1985 to

[53] The FTSE All Share and FT 100 P/E only became available in 1996, thus the Total UK P/E index was used to capture the valuation level. For reasons of robustness, the correlation between the Total UK P/E and FTSE All Share P/E were also checked, the correlation coefficient is about 0.99, hence the Total UK P/E index can be taken as a reliable proxy for the UK market.

2003, of the 4,591 acquisitions in the sample, 1,374 occurred during high valuation months, 2,133 during neutral valuation months, and 1,082 during low valuation months. Of the 1,374 high valuation acquisitions, 719 were cash acquisitions, 93 stock acquisitions, and 564 mixed payment offers. Of the 2,133 neutral valuation acquisitions, 1,123 were cash acquisitions, 139 stock acquisitions, and 871 mixed payment acquisitions. Finally, of the 1,082 low valuation acquisitions, 621 were cash acquisitions, 63 stock acquisitions, and 398 mixed payment acquisitions. In general, it can be seen that cash payments were more popular in the marketplace; cash was used to finance 53.7% of the deals, and only 6.4 % were financed by stock. This finding is consistent with most previous research done for UK market. Similar to the US results, it was found that most of the deals were initiated during neutral market valuation periods, even though the difference between high and low market valuation periods is still very significant. One explanation could be that compared with US bidders, UK bidders have greater access to free cash on the market, thus timing for market overvaluation and the use of overvalued stock as the medium of exchange is not so essential for making deals.

From the previous literature it is known that acquisitions involving non-public targets exhibit very different characteristics in terms of acquisition strategy, method of payment, and the bidder's announcement return and long-run performance. Thus, to get a clear picture of the impact of market valuation it was important to sub-divide the sample according to the targets' public status. Table 3.3 presents the number of

acquirers and the transaction value according to the target's public status. From the table it can be seen that only 438 of the 4,591 acquisitions involved public targets, the rest of the sample were private companies or subsidiaries. It can be clearly seen that non-public acquisitions dominated the takeover market not only in terms of numbers but also in terms of transaction value. 1,266 non-public acquisitions were observed during the high valuation periods, and only 945 during the low valuation periods. At the same time, there were more public acquisitions during the low market valuation periods. These findings suggest that non-public targets are favoured during high valuation periods and vice versa for public targets. The underlying rationale is quite straight forward: the public target's valuation increases when the market valuation is high, this leads to a much higher offer price when the deal is initiated, especially with cash offers being more popular in the UK. Hence, acquiring a public target during a high market valuation period will significantly increase the bidder's cost. Thus, bidders will prefer non-public targets when the market valuation is high. However, if they want to acquire a public company, the best option is to hold their acquiring offer until a low market valuation period comes. Again, this finding is consistent with the market-timing hypothesis.

Besides the target's public status, the bidder's bidding frequency is also a very important factor that determines merger outcome. Thus, Fuller's (2002) method for screening out multiple bidders was followed for this sample. Multiple bidders were defined as those that had made four or more bids within three years, and infrequent

bidder as those making three or less bids within three years. Table 3.4 shows all the details of the number of acquirers and the value of the transactions according to bidding frequency. After screening, 1,453 deals were found to fall into the category of frequent bidder acquisitions, which amounts to 31.6% of the total sample; the transaction value associated with these multiple acquisitions amounted to 28% of the total deal value.

From Table 3.5 it can be seen that of the 1,231 bidders in the sample, about 44% were frequent bidders. When combined with Table 3.4, it can be seen that 44% of the bidders are responsible for 28% of the transaction value; this suggests that frequent bidders are particularly keen on small non-public targets. It was also found that frequent bidders are more active during high valuation periods, there being 411 deals made during these periods compared to only 313 deals during low valuation periods. According to the overvaluation hypothesis, such mergers occur when the acquirer is in a temporarily good position. The acquirer might find that its stock price is high owing to changing market sentiment or some recent (but temporary) good performance. Such acquirers exercise their series acquisition plans during hot market periods by using either overvalued equity or cash from the junk bond market. Such acquisitions should receive a positive market reaction in the short-run, but will get a worse reaction over time as the factors that led to the temporary overvaluation decline, or disappear altogether. At the same time, the bubble will eventually be replaced by reality. Thus most deals done by frequent bidders during high market valuation

periods will result in negative returns in the long-run.

The empirical results shown here are consistent with the overvaluation hypothesis, and at the same time support the merger programme announcement hypothesis (MPAH).[54] The fundamental idea behind the MPAH is that on the announcement of the first acquisition the market both reacts favourably to that event and also to the fact that it is part of a merger programme being carried out by a frequent bidder. This leads to the first acquisition being looked on very favourably. When a second acquisition is announced there is some announcement gain since it is now a known event, but part of the value has already been discounted in the share price. This hypothesis makes no prediction about a decline in profitability associated with subsequent acquisitions.[55]

Jensen's (2004) overvaluation hypothesis states that acquiring firms that are engaged in serial merger programmes usually exhibit overvaluation in their share price, and it is known that share prices need to have substantial earnings to support them. Thus, undertaking serial acquisitions can provide instant cash flow and earnings to temporarily boost the share price, and realize short-run returns. Based on this hypothesis, the bubble will get bigger and bigger and eventually burst resulting in significant losses. [56]

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[54] Summarized from Cosh, et al. (2004).

[55] Cosh, et al. (2004) found the serial decline only occurs for acquirers whose first acquisitions are successful. For acquirers whose first acquisition is unsuccessful, the bid order effect is positive.

[56] David (2002) stated that "Understanding merger cuisine is important as investors re-evaluate companies that became addicted to acquisition in the 90s. Tyco, AutoNation , US Office Products, and

In summary, after carrying out the data screening process, there remained a sample comprising 4,591 deals undertaken in the period 1985 to 2003. In order to carry out the event study, the bidders obtained from the SDC were matched with their share prices and accounting data from Datastream by using the SEDOL code. The sample was then sub-divided into different portfolios according to the target's public status, method of payment, and bidding frequency. The methodology used in the event study will be introduced in the following part of this work.

3.3.3 Methodology

3.3.3.1 The Short-Run Abnormal Return Calculation

The cumulative abnormal returns (CAR) from the announcement of an M&A event are calculated relative to the expected returns for windows of different lengths around the announcement date. Basically, the methodology as laid out in the previous chapter was used to calculate the CAR.

The market model was not used here because over 30% of the acquirers in the sample were frequent bidders, which suggests a high probability of other bid announcements occurring in the estimation period. Any abnormal returns caused by these

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AT&T each bought more than 100 companies between June, 1995 and August, 2001. All have badly lagged their peers' return".

announcements would bias the estimation.[57] The CAR was calculated for a five-day

event window around the announcement day (-2, 2). That is, the five-day CAR is:

$$CAR = \sum_{t=-2}^{2} (R_{it} - R_{mt})$$

Where R_{it} is the firm's daily stock return on date t and R_{mt} is the return for the

capitalization weighted FTSE All Share index on date t.

Different windows were used in the calculation of the CAR measures to obtain some

insight into the timeframe within which CARs were on average generated and to

check for the robustness of the results to the specified window. The results gained

from different event windows revealed a similar pattern to the main interval

measurement.[58] The results of the short-run event study are presented in Sections

3.4.1, 3.4.2, and 3.4.3.

3.3.3.2 The Long-run Abnormal Return Calculations

The aim here was to investigate the relationship between market valuation and merger

outcome in the long-run. Thus, it was necessary to choose an appropriate

methodology. This entailed becoming involved in the controversial area of long-run

return measurement. Many advocate the use of buy-and-hold abnormal returns

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[57] Fuller, Netter, and Stegemoller (2003) did not use the market model for the same reason. Brown and Warner (1985) showed that weighting the market return by a firm's beta does not significantly improve the estimation.

[58] Other intervals checked for robustness were (-5,5), (-1,1), and all the results were consistent with the main measurement.

(BHARs) to estimate long-run performance (for example, Rau and Vermaelen, 1998, Lyon, et al, 1999, and Loughran and Ritter, 2000), but others suggest a portfolio approach (for example, Mitchell and Stafford, 2000). The debate, in essence, reflects different tradeoffs of type one versus type two errors. Using BHARs gives the hypothesis tests a lot of power, but may reject too many nulls (type one errors). On the other hand, the portfolio approach, by aggregating individual events into calendar-time portfolios, excludes valuable information, thereby reducing the power of any hypothesis tests (type two errors).

As the previous literature has documented, mergers normally come in waves, hence the main concern should be to try to avoid the serial correlation between each acquirer's return. However, as many previous researchers have advocated, estimating statistical significance with a buy and hold methodology is problematic because standard t-statistics do not adequately account for potential cross-sectional dependence in returns. In particular, standard errors will be biased downwards and t-statistics will be biased upwards.[59] Lyon (1999) recommended the use of the calendar- time portfolio approach because of the cross-sectional dependence in event performance in general. Furthermore, corporate events such as M&A have been documented to occur in waves, and the calendar-time portfolio approach understates the extent of "abnormal" returns since it smoothes them over the hot and cold periods. Moreover, this approach is better for measuring the return to an investor who holds a

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[59] See Fama (1998), and Mitchell and Stafford (2000).

security for a long post- event period. Based on all these concerns, the calendar-time portfolio approach was adopted for this study.

The construction of the calendar-time portfolio of the bidders' returns was done by taking the average return of all firms that had made an acquisition in the prior three years for each month, but not including the current month. Each bidding firm stayed in the portfolio for thirty-six months[60], and the portfolio was rebalanced on a monthly basis. For each calendar month, a portfolio of event firms was formed, and the average cross-sectional abnormal return for that month was taken. The average abnormal return for the entire sample was the time-series average. Mitchell and Stafford's (2000) methodology was used to calculate the statistical significance, where the t-statistic was obtained by using the mean and standard deviation of the standardized calendar-time portfolio approach. The equation is as follows:

$$CTP_{j(t),t} = \sum_{i=j(t)} \frac{R_{i,t}}{N_{j(t)}}$$

Where j(t) consists of acquisitions in group j for the months 1, through month 36 and where $N_{j(t)}$ is the number of acquisitions in j(t). Mitchell and Stafford's (2000) standard methodology was followed to construct the calendar-time portfolio. In addition, any portfolio month with fewer than ten firms was dropped.[61]

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[60] Based on the sample period limitation, the acquirer's post acquisition performance is calculated by using the twenty-four month returns if the deals took place between February, 2003 and December, 2003. The result remains unchanged if the sample is cut off in these periods.

[61] Mitchell and Stafford (2000) suggested that there should be at least 10 firms in each month's portfolio, in order to avoid sample selection bias problems.

After the calendar-time return series for each group had been obtained, they were

regressed on the Fama-French three factors to get calendar- time abnormal returns for

each group; the equation is as follows:

$$R_{cpt} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + \varepsilon_{i,t} \tag{5}$$

Where $Rcpt$ is the simple monthly return on the calendar-time portfolio (either equally

weighted or value-weighted), Rft is the monthly return on three month treasury bills,

Rmt is the return on a market index, $SMBt$ is the return of the portfolios of small

stocks and big stocks, and $HMLt$ is the difference in the returns of the portfolios of

high B/M stocks and low B/M stocks.[62] For reasons of robustness, the standard

capital asset pricing model was used to calculate the abnormal returns. Both results

are reported in Sections 3.4.4, 3.4.5, and 3.4.6.

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[62] The calendar-time portfolio approach was first used by Jaffe (1974) and Mandelker (1974). It was advocated by Fama (1997) and implemented in recent work by Loughhran and Ritter (1995), Brav and Gompers (1997), and Brav, Geczy, and Gompers (1995). When using this approach, the calendar-time abnormal returns are calculated for sample firms. Inference is based on a t-statistic derived from the time-series of the monthly calendar-time portfolio abnormal return.

3.4 RESULTS AND DISCUSSIONS

In this section, the empirical results and robustness issues of this research are discussed in depth. In general, the results are in line with the hypothesis, that is, that the deals initiated during hot market periods receive better short-run market reactions than those initiated during cold market periods, although in the long-run, hot market mergers exhibit the worst performance. Furthermore, the results suggest that frequent bidders are more easily infected by market sentiment; the volatility in returns is much higher for frequent bidders, and deals done in hot market valuation periods significantly under-perform those done in cold market periods in the long-run.

3.4.1 The Short-run Abnormal Returns According to Target Type and Market Valuation Status

The five-day cumulative abnormal returns are recorded by target type and market valuation status in Table 3.6. For each of the sample portfolios, it can be seen that the five-day CAR is significantly positive. The private and subsidiary target acquisitions yielded significantly positive returns, while the public target acquisitions yielded negative returns. The highest CARs among all the portfolios were to the acquirers who initiated their deals during high valuation periods and chose private targets. These yielded a statistically significant 2.09% return over the five-day announcement period. By contrast, acquirers who chose public targets during low market valuation periods yielded the worst performance at -0.77%. This result is generally consistent

with previous findings.[63]

For the total sample portfolio over all the market valuation periods, there are 4,591 observations, which is by far the largest sample in a UK takeover study, and a statistically significant positive return was found of 1.53% with a t = 14.22. The deals initiated during high market valuation periods out-performed those done in low market valuation periods (1.95% to 1.33%). Furthermore, it was found that acquisitions of private and subsidiary targets all yielded positive abnormal returns, which shows that the market's reaction is positive to these two types of acquisition in the short-run in all market valuation conditions. However, for public targets it was found that all the returns were negative. There are three possible explanations for this finding. Firstly, the larger the target is relative to the bidder, the stronger the target's negotiating position and its ability to extract more of the gain from the transaction. Usually the public target is relatively large in size, thus -0.72% returns to public target acquisitions in general were found. Secondly, bidding firms may find it more difficult to integrate larger public targets into their business, hence the market's expectation. The third explanation is that there are fundamental differences in the division of gains and or synergies between takeovers involving public and private targets, and these differences are magnified the greater the relative size of the merger. This can be considered as partially a liquidity effect. [64]

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[63] See Antoniou and Petmezas (2005).

[64] See Fuller, Netter, and Stegemoller (2002), "Private firms and subsidiaries cannot be bought and sold as easily as publicly traded firms. The lack of liquidity makes these investments less attractive and thus less valuable than similar, more liquid investments. Sales of public targets are typically

There is another very distinctive finding in Table 3.6, in that the announcement period returns during high valuation periods all out performed the returns in low valuation periods throughout all public, private, and subsidiary portfolios. Most likely is because the market sentiment is bullish among all managers and investors when the market valuation is high, thus the market is more welcoming to acquisition deals and vice versa. When the paired variables t test was performed between the returns series of high valuation mergers and low valuation mergers, it was found that, except for the public target acquisitions, all the differences between the high and low portfolios were significant.

3.4.2 The Short-run Abnormal Returns According to Method of Payment and Market Valuation Status

Table 3.7 presents the acquirer's short-run abnormal returns according to the method of payment classification. When the sample was divided according to method of payment and valuation, it was found that across all the acquisitions, all the portfolios of high and neutral acquisitions had significant positive results. However, during the

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auction-like in nature, with full disclosure required by the SEC. Professional arbitrageurs take positions in both target and bidder stocks, thus, providing more market feedback in the prices of both securities. In contrast, the sales process can vary substantially for private targets. At best, if the targets have a financial advisor, they can promote an auction-like atmosphere, with participation by a large number of qualified bidders. More realistic scenarios include limited auctions or a small number of interested bidders in a negotiated sale. The bidders are likely to have a bargaining advantage, at least relative to their position in bids for public targets."

low valuation periods, the stock and mixed payment portfolios had an insignificant result. Notably, for all the portfolios a descending return was found according to the market valuations. Acquirers gained higher returns in the high valuation markets. and lower returns in the low valuation markets. These findings are consistent with the market sentiment hypothesis, which assumes markets more easily absorb good news and give positive reactions when valuations are high and vice versa.

In this table, it can be seen that stock mergers made during high valuation periods yielded the highest abnormal return, at 3.22% over the five-day announcement period. A portfolio of stock mergers also showed the lowest return (0.9%), but this was during a low valuation period. This suggests that market reaction towards merger announcements is more volatile for stock offers.

Similar to the findings in Table 3.6, significant t statistics between the returns of high valuation and low valuation periods were found for all portfolios. Again. this indicates that the markets are more welcoming to merger deals during high valuation periods, rewarding them with high abnormal returns. When the deal is initiated during a low valuation period, the acquirer must be very certain of the combining synergy in the long-run simply because a big profit will not be made for the announcement period.

3.4.3 The Short-run Abnormal Returns According to the Bidding Frequency of the Acquirer and the Market Valuation Status

In Table 3.8, the results are presented according to the acquirer's bidding frequency and the market valuations. Frequent bidders are defined as those making four or more bids within three years, and infrequent bidders as those making three or less bids within three years.[65] The first patterns to be found show that frequent bidders under-perform compared to infrequent bidders in general.[66] and the returns also follow a descending order as the market valuation changes from high to low. According to this classification, the frequent bidders earned a 1.49% abnormal return, while the infrequent bidders earned 1.56% for all the sample portfolios. The sample was then sub-divided by market valuation status. For high valuation and neutral valuation periods the pattern remained the same as for the total sample, that is, frequent bidders under-performed, however, a very interesting finding was seen for the low market valuation periods. The frequent bidders in the low market valuation portfolio yielded a 1.41% return, and the infrequent bidders yielded a 1.28% return. This finding suggests that frequent bidders actually accumulate experience over serial acquisitions and use it for choosing better targets and developing better takeover techniques. When the market valuation is low, the market is not expecting any acquisitions, thus both frequent and infrequent bidders show a much lower performance. However, based on their past experiences. frequent bidders can time the

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[65] These results are robust to the use of different classifications of frequent bidder, please refer to the Appendix for the robustness results.

[66] This finding is consistent with Cosh et al.'s (2004) empirical findings for UK samples.

market even during low valuation periods and choose the right target to cater for market sentiment.

It may be easier to understand the rationale underlying this if it is looked at from another angle. The relative size between target and bidder plays a very important role here. Frequent bidders are more prone to acquiring non-public targets simply because it is easier to integrate small targets into their series merger programmes. Consistent with the present hypothesis, the frequent bidders under-performed compared to the infrequent bidders by 0.07% when market valuation was high. most likely is because frequent bidders are in general more easily afflicted with hubris, which results in overpayment for the targets. In contrast, when the market sentiment is bearish during low valuation periods, these small targets are even more favorable to the investor, simply because they are very easy to integrate into the acquirer's business and do little harm even where they fail. This can also be seen in Table 3.6, where the acquirers of public targets during low valuation periods yielded a -0.77% negative return, whereas significant positive announcement returns can be observed for both private and subsidiary target acquisitions.

3.4.4 The Long-run Abnormal Returns According to Target Type and Market Valuation Status

Table 3.9 shows three-year long-run results according to the target's public status

classification using the calendar-time portfolio approach. Panel A, presents the regression results from the Fama-French three factor model, and Panel B presents the results from the standard capital asset pricing model. Notably, except for the private target acquisitions, statistically significant returns can be seen for the three years following the acquisition announcement, whilst no significant abnormal returns were found among any of the other portfolios across the entire sample. This is consistent with most of the previous research that used the calendar-time portfolio approach. In order to shed light on the long-term impact market valuation has on different types of acquisition it is necessary to find out the difference between deals made in high valuation periods and those made in low valuation periods, and the different outcomes of the bidders' long-run performances.

As can be seen, after controlling for size and the B/M effect, the results still show that deals made during high valuation periods significantly under-performed compared to those made during low valuation periods (0.12% for high, 0.41% for low). Furthermore, the difference between these two return series is statistically significant (t = -2.48). Notably, stock offers made during high market valuation periods yielded the worst long-run performance (-0.24%), and this result is statistically significant (t = -2.32). This is consistent with the stated hypothesis, that is, stock mergers convey the signal of bidder overvaluation, and overvaluation will be replaced by reality in the long-run.

Across the sample, cash, stock, and mixed offer portfolios, there was a clear trend of deals initiated during low market valuation periods having better performance compared to high valuation deals. All returns for the deals made during the low valuation periods were positive across all the portfolios, and again, this pattern confirms the relationship between bidder performance and market valuation when the deal is initiated.

From Panel B it can be seen that all the abnormal returns are negative, most likely is because only the market return was considered as the benchmark. The intercept term in the regression captures more dynamic changes in the returns. The reason for doing this is it makes it possible to see a clearer trend of the changes in bidders' abnormal returns when the market valuation varies. Consistent with that found using the Fama French three-factor model, here the stock mergers made during high valuation periods were found to yield the worst return, which was -1.08% with a t value -2.31. Again, it can be seen that cash offers yielded better performances than stock offers in all the portfolios, this finding is similar to that which Bouwman et al. (2004) found using US data.

Except for the mixed offers, the results for all the other portfolios suggest that the difference between high valuation returns and low valuation returns is very significant. The last column of both panels shows that the difference between cash offers and stock offers was also significant, which suggests that cash offers are more rational

investments and hence show superior performance in the long-run.

3.4.5 The Long-run Abnormal Returns According to Method of Payment and Market Valuation Status

Table 3.10 presents the three-year long-run results according to the method of payment and market valuation status using the calendar-time portfolio approach. From this table, it can be seen that the cash offers significantly out-performed the stock offers in all valuation periods. Consistent with the findings in Table 3.9, where the deals were initiated during low valuation periods, a positive abnormal return is found in the three years following the acquisition announcement for all portfolios. Stock offers made during high valuation periods yielded the worst returns at -0.24%, which is statistically significant. It is not hard to understand why this is the case. The market receives a signal of the bidder's valuation status according to the bidder's choice of method of payment. If stock is used, the perception of the market will be that the bidder is overvalued in some sense, thus the market will discount this overvaluation in the long-run unless the bidder has substantial earnings to support its overvaluation.

The bottom of Table 3.10 shows the difference between the long-run results of high valuation mergers and those of low valuation mergers, except for the mixed offer portfolio, all the portfolios showed significant results. Across all the acquisition portfolios of the sample, the t value was -2.48. This result suggests that deals made in

low valuation periods statistically out-performed those made in high valuation periods.

Consistent with the findings of Franks, Harris. and Titman (1991). this research found that cash offers out-performed stock offers in the long-run. Across all the acquisition portfolios of the sample the cash offers yielded a 0.17% return, while the stock offers yielded a -0.08% return. Even though all these returns are insignificant, the mean difference between them is statistically significant, with t = 3.4.

Panel B presents the results from the standard capital asset pricing model (CAPM). All the abnormal returns when using the CAPM were negative. but the trends were similar to those observed in panel A. Firstly. the returns increased when the valuation moved from high to low. Even though the results from the low valuation periods were insignificant, the mean differences between the high and low valuation portfolios were very significant. By using the CAPM, it is proved that the results are robust to different models.

3.4.6 The Long-run Abnormal Returns According to Bidding Frequency and Market Valuation Status

Table 3.11 presents the three-year long-run results according to the acquirer's bidding frequency. In general. it was found that the frequent bidders under-performed

compared to the infrequent bidders in the long-run following acquisition announcement. Panel A presents the results from using the Fama French three-factor model, and it can be seen that across all the acquisition portfolios of the sample the frequent bidders yielded a 0.21% return. The infrequent bidders yielded a 0.25% return, and even though the results for the infrequent bidder portfolio is insignificant the mean difference between the two portfolios is significant. This finding suggests that bidding frequency is an important factor in explaining the long-run returns of bidders.

However, when the results were classified according to market valuation status, something very interesting was found. For the high valuation periods, it is seen that the frequent bidders yielded a -0.28% return, while the infrequent bidders realized a positive return of 0.31%. Moreover, the mean difference result also shows that the difference is significant. However, for the deals made during low valuation periods, the frequent bidders yielded a positive return of 0.68%, while the infrequent bidders only yielded a 0.37% return. Again, in panel B, similar patterns were found, in that the frequent bidders in the low valuation portfolios out-performed the infrequent bidders, and the difference is significant.

These findings suggest that frequent bidders do not always under-perform compared to infrequent bidders in the long-run; when the market valuation was taken into consideration, the whole scenario changed dramatically. Again, this finding is in line

with the hypothesis that frequent bidders are more easily infected by market sentiment. When the market is hot, they are encouraged to make more acquisitions, at the same time they are more likely to be overconfident. Thus, deals initiated during hot market valuation periods significantly under-perform. However, when the market sentiment is bearish during low market valuation periods, frequent bidders will be even more conservative. They are more careful in choosing their target and in accessing the combining synergy simply because everybody knows that low valuation periods are not a good time to realize short-run gains, and the deal must have some long-run compensation to cover the short-run losses. Frequent bidders use their experience accumulated from the past. Thus, it is clear that market timing is one of the key issues in determining whether a merger deal will be successful or not. Timing in merger refers specifically to the financing decisions intended to capitalize on temporary mis-pricing, generally via the issuance of overvalued securities and the repurchase of undervalued ones. When the market valuation is low, managers in bidding firms face critical decisions regarding the selection of targets and timing. Unless they are quite certain about the merger outcome they will not initiate the deal, because there will be a great loss in reputation if others have not made the same mistake. In this case, frequent bidder managers are more experienced in choosing their target and are more prone to exercising their merger programme during low valuation periods simply because the target share will be cheaper during these periods.

In summary, this research shows that the more experienced and more conservative the

sentiment during low valuation periods. the more frequent bidders out-perform infrequent bidders in the long-run. If a bidder initiates a deal. as part of a large merger programme, during a low valuation period there should be less cost in capital and it should result in a better performance in the long-run.

3.5 ROBUSTNESS

In this section there is a discussion of the robustness of the results of this research to the different classifications of high, neutral, and low valuation markets, and to the different event windows used to calculate the short-run and long-run returns.

3.5.1 Robustness for Merger Activity Classifications and Different Event Windows in both the Short-run and Long-run

The results that are presented above used the P/E ratio classification of the UK total market index to classify the months into high, neutral, and low valuation periods. An alternative method used here is the merger activity classification. From the work of Holmstrom and Kaplan (2001), and Jovanovic and Rousseau (2001) it is known that the volume of acquisitions is positively correlated with periods of high market valuation. Given this, acquisitions undertaken when there are many acquisitions are more likely to be influenced by market sentiments, hence the bidding firms' managers are more likely to be overconfident compared to when deals are initiated during low merger activity periods.

Using this classification the merger activity ratio was calculated as the ratio of total merger transaction volume to total market capitalization for each month from 1985 to 2003 using the SDC data. As with the P/E classification, five years of historical merger data was used to classify each month into an above (below) average group if the merger activity ratio of that month was above (below) the average ratio of the past

five years. Then the months with merger activity ratios in the top (bottom) half of the above (below) average group were classified as high (low) valuation periods. All remaining months were classified as neutral valuation months. Because the SDC data for the UK only became available in 1985, and it was necessary for the classification to have data for the five previous years, the total sample for estimation runs from 1990 to 2003. Using this classification, the sample is smaller than that used for the P/E classification, and contains 3,881 complete takeover deals. Among these deals, 1,289 were initiated during high market valuation periods, 1,871 during neutral valuation periods, and 721 during low market valuation periods.

Panel B of Table 3.12 presents the short-run results based on three different classifications, using the same event window. It can be seen that when using the merger activity classification, the abnormal returns for the overall sample are less than when using the P/E method. This is probably due to the smaller sample size, and also because the period from 1987 to 1989, which was a very high period of takeover activity, was excluded. However, the results using this classification are still consistent with the main measurement, which shows that in the short-run, the deals initiated during periods of high merger activity out-perform those done in low merger activity periods, and the mean difference between these two return series is significant with t =1.81. Classification by market index alone revealed the same pattern as observed from the main P/E classification.

Panel A reports the results based on an eleven-day event window, and Panel C reports the results based on a three-day event window. The reason for doing calculations for different event windows is to check whether the results are affected according to the event window selection. In Panel A it can be seen that for the eleven-day window there was a much bigger CAR in general. For the P/E and Index classifications there were 2.47% and 2.41% abnormal returns respectively; apart from the larger abnormal return, the pattern is the same as for the five-day event window. For Panel C, the abnormal returns of each of the three classifications are all less than the for the five-day event window result. However, they showed a similar trend when the market valuation or volume of merger activity changed. For the merger activity classification, the three-day announcement return was 0.62%, and is highly significant. Again, consistent with the five-day event window result, the abnormal return decreased from 1.05% to 0.19% when the merger activity moved from high to low, and the mean difference between them was statistically significant.

In Table 3/13, Panel A, the second column presents the three-year long-run results according to the merger activity classification. They are consistent with the results from the P/E classification. It can be seen that for deals made in high merger activity periods, the bidders realized a negative return of -0.07%, and this result is significant. This suggests that if an overconfident manager follows the market sentiment and makes a merger during a high merger activity period, it is more likely they will suffer from significant losses in the long-run. Moreover, it can be seen that the difference

between high and low is also significant, which shows that the deals made in low merger activity periods significantly out-performed those that were not.

The second column of Panel B shows the results based on the two-year event windows. It can be seen that the result is slightly better than the three-year returns. This is simply because from month 24 to 36 following a merger announcement, there were more negative returns. Notably, the acquirers that made their deals during high merger activity periods yielded a positive return of 0.15%, and the difference between this month 24 group and the month 36 group is statistically significant with the coefficient at 0.22% and t = 2.84 (these results are not shown in the table). This finding suggest that the losses from month 24 to 36 offset all the gains to the bidder from the acquisition announcement.

Overall, similar evidence has been found from the merger activity classification that managers make poorer acquisitions when they expect more acquisitions to be undertaken. When merger activity is high, each manager may be more inclined to acquire another company and be less careful in assessing synergies. Roll's (1986) bidding competition hypothesis, also serves as a creditable explanation for these findings. When competition among bidders during high merger activity periods is high, they will automatically wipe out potential gains to bidders and result in losses in the long-run.

3.5.2 Robustness for UK Total Market Index Classification and Different Event Windows in both the Short-run and Long-run.

The second classification used to check the robustness of the short-run and long-run

results was based on the UK total market index itself and the P/E ratio of the index.

For the market index classification, the de-trended UK total market index (UKTMI)

was used as the proxy for market valuations[67]. The index level for each month was

classified as above or below the previous five-year average UKTMI level. The

months in the top half of the UKTMI levels in the above average group were

classified as high valuation months, while those in the bottom half of the UKTMI

levels in the below-average group were classified as low valuation months. All other

months were classified as neutral valuation months. The data for this classification ran

from 1985 to 2003. The short-run results for this classification are presented in Table

3.12.

From Table 3.12 it can be seen that, based on the market index classification, 1,529

deals were initiated during high market valuation periods, 2,017 during neutral

valuation periods, and 1,045 during low market valuation periods. It is known from

the numbers that during high market valuation periods the market welcomes merger

deals. Panel B shows the results for the five-day event window, where bidders in high

valuation periods yielded a return of 1.57%, and those that made their deals during

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[67] The best straight line fitting the linear trend was removed from the UKTMI level before classifying each month as above or below the previous five-year average. The de-trending procedure used was the same as described for the P/E ratio. Since the UKTMI level had trended upwards, failure to remove the trend would result in a systematic classification of more recent acquisitions as high valuations and older acquisitions as low valuations.

low valuation periods yielded a return of 1.10%. From the differences in the means test, it was found that in the short-run, bidders in high valuation periods out-performed those in low valuation periods by 0.47%, and this result is significant with $t = 2.72$. Panel B presents the three-day event window results, which are consistent with the five-day window results, that is, 0.82% for high valuation mergers, and 0.27% for low valuation mergers, the difference in the means is still very significant with $t = 3.51$.

Table 3.13, Panel A and Panel B present the three-year and two-year long-run results following the merger announcement respectively. These results continue to provide strong support for the notion that low-valuation acquirers make better purchases than high-valuation acquirers. For the three-year event windows, low valuation acquirers on average significantly out-performed high valuation acquirers by 0.22%. For the two-year event windows, low valuation acquirers on average out-performed high valuation acquirers by 0.36%, with $t = 1.99$.

In summary, using both the market index and merger activity classifications and choosing different event windows served to prove that results were not caused by chance when using a particular market valuation classification method. The robustness test reinforces the findings that high valuation acquirers out-perform low valuation acquirers in the short-run, but perform less well in the long-run as the market eventually learns about the quality of the acquisition decisions.

3.6 CONCLUSION

The objective of this study is to explore the possible linkage between overall stock market valuation and merger outcome, and the unique characteristics of frequent bidders and non-public targets, by applying different market valuations. In this way, the performance test was conducted on different bidder portfolios. Taking a large UK domestic takeover sample ranging from 1985 to 2003, the main findings are that the short-run and long-run performance of bidders are both highly correlated with the market valuation level at the time the deal is initiated. More specifically, the results show that the announcement period returns are much higher for the deals undertaken in high valuation markets compared to those made in low valuation markets. In addition, long-run reversal has been found for both portfolios and acquirers initiating their deals in high valuation markets significantly under-performed in the long-run compared to those deals initiated in low valuation markets.

Similar to other studies undertaken in this field, a further question is asked: "What is the market reaction towards frequent bidder acquisition and non-public target acquisition, given the condition of different market valuation levels"? In most cases, the findings are consistent with the conventional results, which suggest that frequent bidders perform less well than infrequent bidders in general. However, something different was found in the long-run study, that is, frequent bidders out-performed infrequent bidders where the deals were initiated during low market valuation periods in the long-run. As discussed in Chapter 1, growth through many small acquisitions

over a long period of time will yield better performance than growth through a small number of large acquisitions. Most likely is because frequent bidders are not only afflicted by hubris, but will also gain from the experience of making many small acquisitions. When the market is hot, such bidders will be encouraged to make more acquisitions and are likely to be more overconfident in general, thus deals initiated during hot market valuation periods will significantly under-perform. However, when the market sentiment is bearish during low market valuation periods, frequent bidders will be even more conservative simply because they need to be more careful in choosing their target and assessing the combining synergy. Most likely is because it is well known that low valuation periods are not a good time to realize short-run gains, thus the deal must have some long-run compensation to cover any short-run losses.

Consistent with previous findings, the results show that non-public target acquisitions yield better performance in both the short-run and long-run. Moreover, the private target acquisitions made during high market valuation periods yielded the best short-run returns of all the portfolios, these being 2.09% for the five-day event window.

In summary, in the UK market, strong evidence has been found of the linkage between market valuation and merger outcome, and the results also suggest that frequent bidders exhibit different characteristics during different market valuation periods. Most importantly, it has been found that there are long-run performance

reversals among deals initiated during both high and low market valuation periods. Some recent studies have suggested that these reversals are probably due to a combination of market irrationality and managerial hubris. Shleifer and Vishney (2004) suggested that inefficient capital markets and differences in managers' time horizons drive merger activity. Rhodes-Kropf and Viswanathan (2004) have suggested that merger activity is high during stock market booms because more targets accept acquirer bids. The conclusion of these various research streams is that stock prices matter; both firm and market valuations clearly affect the intensity of merger activity and the subsequent performance of mergers.

This chapter has also raised some interesting questions for further research. As the results suggest that market valuations do affect merger outcomes, it may be suspected that there will be some sort of correlation between individual merger deals when the overall market valuation level changes. Thus, the outcome of the merger deals should correlate with previous deals and exhibit a certain momentum pattern. The notion of this momentum pattern will be investigated in more detail in the following chapter.

Figure 3.1. Total Market P/E Ratio and De-trended P/E ratio Diagram

The original UK Total Market Index P/E ratio is obtained from DataStream range from 1980 to 2005. In order to classify each month into a valuation group we first de-trend the market P/E by removing the best straight-line fit from the P/E of the month in question and the five preceding years. It is necessary to remove the trend from the market P/E ratio because P/E ratio have trended upwards as shown in the graph below (the top line), so that not removing the trend would result in a systematic classification of more recent acquisitions as high –valuation acquisitions and other acquisitions as low acquisitions.
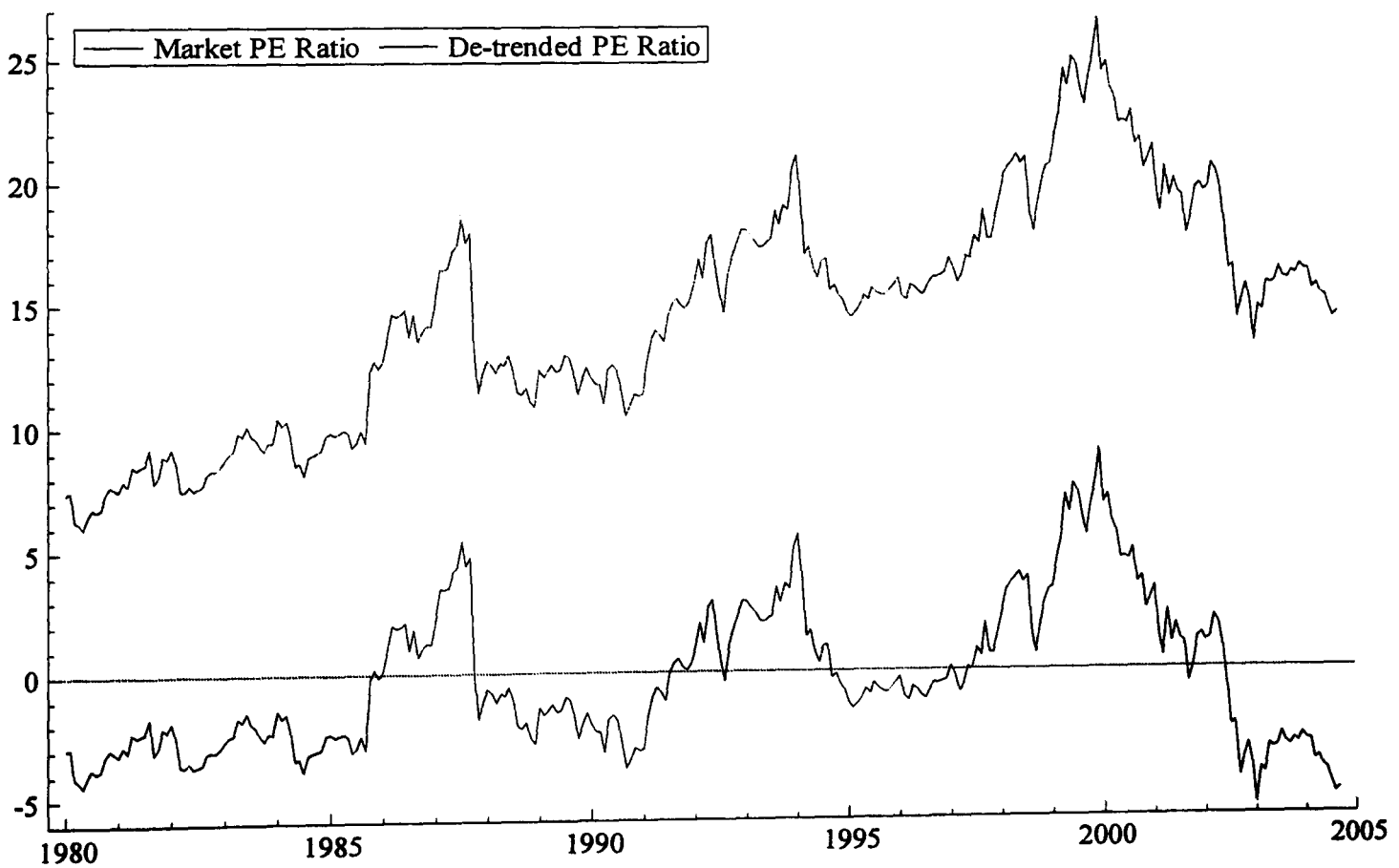
Table 3.1 Data Description

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 4,591 U.K acquisitions undertaken from 1985 to 2003 by 1,231 publicly listed acquirers for which deal values are available. "Public targets" is defined by SDC. "Related Acquisition" is defines as an acquisition in which the acquirer and target have the same two-digit primary SIC code. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC.

Year	Number of Targets	Number of Public Targets	Number of related Acquisitions	Number of Cash Only	Number of Stock Only	Average Deal Value (Million Pound)
1985	16	4	2	12	3	25.6
1986	45	4	19	35	8	45.4
1987	143	19	57	97	25	30.4
1988	247	30	99	164	12	24.1
1989	259	36	82	117	23	23.9
1990	173	16	63	112	7	16.3
1991	148	21	58	89	15	33.2
1992	151	9	61	85	13	18.5
1993	179	20	75	115	15	16.9
1994	232	22	116	121	17	19.0
1995	230	22	111	131	21	17.6
1996	300	18	130	154	14	22.4
1997	381	40	237	194	22	42.0
1998	436	38	240	272	15	26.4
1999	409	45	203	240	14	37.0
2000	395	31	239	167	25	34.2
2001	301	27	212	102	23	22.2
2002	336	16	155	135	11	31.0
2003	201	20	128	112	11	39.7
85 to 03	4591	438	2288	2464	294	27.9

Table 3.2: *Acquirer Number and Transaction Value by Form of Payment and Acquisition Type*

This Table shows the mean and median market value of equity of the acquirer and the mean and median transaction value of the acquisition. The summary statistics are based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Acquiring firms are included in this sample if they are UK firms listed on London Stock Exchange. Using monthly data from 1985 to 2003, each month from 1985 to 2003 is classified as a high, neutral, low valuation month if the de-trended market P/E of that month belongs to the top (bottom) half of all de-trended P/Es above (below) the past five year average. "Cash only" "Stock only" is defines as the method of payment is 100% by cash or stock respectively. Deal value is from SDC. (Unit: Million Pounds)

	No. of Acquisition	Mean Deal Value	Median Deal Value	Total Deal Value	Percentage of Total Deal Value	Percentage of Total No. of Acquisitions
All Acquisitions	4591	28.47	4.50	130717.84	100.0%	100.0%
High Valuation Acquisitions	1376	31.27	5.00	43002.40	32.9%	29.9%
Neutral Valuation Acquisitions	2133	25.67	4.10	54772.18	41.9%	46.5%
Low Valuation Acquisition	1082	30.45	4.63	32943.26	25.2%	23.6%
Cash Acquisitions	2464	24.24	4.00	59739.41	45.7%	53.7%
Stock Acquisitions	294	84.33	7.36	24792.06	19.0%	6.4%
Mixed Payment Acquisitions	1833	25.20	4.85	46186.37	35.3%	39.9%
High Valuation Cash Acquisitions	719	26.20	4.25	18836.87	14.4%	15.7%
High Valuation Stock Acquisitions	93	85.91	10.55	7903.75	6.0%	2.0%
High Valuation Mix Acquisitions	564	28.83	5.36	16261.78	12.4%	12.3%
Neutral Valuation Cash Acquisitions	1123	21.05	3.70	23661.72	18.1%	24.5%
Neutral Valuation Stock Acquisitions	139	100.23	6.56	13931.72	10.7%	3.0%
Neutral Valuation Mix Acquisitions	871	19.72	4.50	17178.74	13.1%	19.0%
Low Valuation Cash Acquisitions	621	27.76	4.20	17240.82	13.2%	13.5%
Low Valuation Stock Acquisitions	63	46.93	6.79	2956.59	2.3%	1.4%
Low Valuation Mix Acquisitions	398	32.02	5.25	12745.85	9.8%	8.7%

Table 3.3: *Acquirer Number and Transaction Value by target public status*

This Table shows the mean and median market value of equity of the acquirer and the mean and median transaction value of the acquisition. The summary statistics are based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Acquiring firms are included in this sample if they are UK firms listed on London Stock Exchange. Using monthly data from 1985 to 2003, each month from 1985 to 2003 is classified as a high, neutral, low valuation month if the de-trended market P/E of that month belongs to the top (bottom) half of all de-trended P/Es above (below) the past five year average. The definition of "Public Target", "Private Target" and "Subsidiaries" and data of Deal Value is from SDC. (Unit: Million Pounds)

	No. of Acquisition	Mean Deal Value	Median Deal Value	Total Deal Value	Percentage of Total Deal Value	Percentage of Total No. of Acquisitions
All Acquisitions	4591	28.47	4.50	130717.84	100.0%	100.0%
Public Target Acquisitions	438	30.51	4.85	13363.13	10.2%	9.5%
Private Target Acquisitions	2624	29.22	4.50	76680.39	58.7%	57.2%
Subsidiaries Target Acquisition	1529	26.60	4.25	40674.32	31.1%	33.3%
High Valuation Pub. Acquisitions	109	28.46	5.00	3101.70	2.4%	2.4%
High Valuation Priv. Acquisitions	863	27.72	4.80	23921.13	18.3%	18.8%
High Valuation Sub. Acquisitions	403	39.65	5.00	15979.57	12.2%	8.8%
Neutral Valuation Pub. Acquisitions	193	20.06	4.26	3870.83	3.0%	4.2%
Neutral Valuation Priv. Acquisitions	1202	29.90	4.25	35942.71	27.5%	26.2%
Neutral Valuation Sub. Acquisitions	739	20.24	4.00	14958.64	11.4%	16.1%
Low Valuation Pub. Acquisitions	136	46.99	5.95	6390.60	4.9%	3.0%
Low Valuation Priv. Acquisitions	559	30.08	4.50	16816.55	12.9%	12.2%
Low Valuation Sub. Acquisitions	387	25.16	4.50	9736.11	7.4%	8.4%

Table 3.4 Acquirer Number and Transaction Value by Bidding Frequency

This Table shows the mean and median market value of equity of the acquirer and the mean and median transaction value of the acquisition. The summary statistics are based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Acquiring firms are included in this sample if they are UK firms listed on London Stock Exchange. Using monthly data from 1985 to 2003, each month from 1985 to 2003 is classified as a high, neutral, low valuation month if the de-trended market P/E of that month belongs to the top (bottom) half of all de-trended P/Es above (below) the past five year average. We define frequent bidder as those bidder taken four or more bids within three years, infrequent bidder as those bidder taken 3 or less bids with three years. Deal value is from SDC. (Unit: Million Pounds)

	No. of Acquisition	Mean Deal Value	Median Deal Value	Total Deal Value	Percentage of Total Deal Value	Percentage of Total No. of Acquisitions
All Acquisitions	4591	28.47	4.5	130717.84	100.00%	100.00%
All Frequent Bidder Acquisition	1453	25.47	4.4	37013. 98	28.32%	31.65%
All Infrequent Bidder Acquisition	3138	29.86	4.5	93703. 86	71.68%	68.35%
High Valuation Frequent bidder Acquisitions	411	27.15	5.6	11156. 74	8.53%	8.95%
High Valuation Infrequent bidder Acquisitions	964	33.03	4.73	31845. 66	24.36%	21.00%
Neutral Valuation Frequent bidder Acquisitions	729	21.14	4.08	15411. 29	11.79%	15.88%
Neutral Valuation Infrequent Acquisitions	1405	28.01	4.1	39360. 89	30.11%	30.60%
Low Valuation Frequent bidder Acquisitions	313	33.37	3.9	10445. 95	7.99%	6.82%
Low Valuation Infrequent Acquisitions	769	29.26	4.9	22497. 31	17.21%	16.75%

Table 3.5   Acquisition frequency of UK public acquirers; 1985 to 2003

This table presents the data from Securities data corporation (SDC) Merger and Acquisition database and consists of. 4,591 U.K acquisitions undertaken from 1985 to 2003 by 1,231 publicly listed acquirers for which deal values are available. The number of acquisition indicated the quantity of acquisition any firm had made during 1985 to 2003 period. Percent of bidder is defined as the percentage of bidders in each category among total sample.

Number of Acquisitions	Number of Bidders	Percent of Bidders	Cumulative Percentage
1	339	27. 54%	27. 54%
2	202	16. 41%	43. 95%
3	148	12. 02%	55. 97%
4	214	17. 38%	73. 35%
5	76	6. 17%	79. 53%
6	66	5. 36%	84. 89%
7	42	3. 41%	88. 30%
8	31	2. 52%	90. 82%
9	29	2. 36%	93. 18%
10	18	1. 46%	94. 64%
11	14	1. 14%	95. 78%
12	11	0. 89%	96. 67%
13	7	0. 57%	97. 24%
14	4	0. 32%	97. 56%
15	3	0. 24%	97. 81%
16	3	0. 24%	98. 05%
17	2	0. 16%	98. 21%
18	4	0. 32%	98. 54%
19	3	0. 24%	98. 78%
20	4	0. 32%	99. 11%
21-60	11	0. 89%	100. 00%

Table 3.6 Short run cumulative abnormal returns (CAR) by target public status and market valuation status

This table contains short-run cumulative abnormal returns (CARs) for all acquisitions undertaken during high, neutral and low valuation months, based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Using monthly data from 1985 to 2003, each month is classified as a high(low) valuation month if the de-trended market P/E of that month belongs to the top(bottom)half of all de-trended P/E above (below) the past five year average. All remaining months are classified as neutral valuation month. CARs for each firm are calculated as the following formula:

$$CAR = \sum_{-2}^{+2} (R_{it} - R_m)$$, which we use 5 day event windows, day 0 is the announcement day of an acquisition. The definition of "Public Target", "Private Target" and "Subsidiaries" are from SDC. t –statistics are provided in the parenthesis.

	All		Public		Private		Subsidiaries	
	Number	CAR	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	1. 53%	438	−0. 72%	2625	1. 69%	1528	1. 48%
		(14. 22)**		(−2. 09)**		(11. 3)**		(8. 74)**
High valuation acquisitions	1375	1. 95%	136	−0. 51%	779	2. 09%	460	1. 74%
		(9. 72)**		(−2. 74)**		(7. 5)**		(5. 56)**
Neutral valuation acquisitions	2135	1. 37%	186	−0. 60%	1247	1. 52%	702	1. 30%
		(8. 72)**		(−1. 01)		(7. 1)**		(5. 4)**
Low valuation acquisitions	1081	1. 33%	116	−0. 77%	599	0. 93%	366	1. 47%
		(6. 07)**		(−0. 72)		(1. 94)*		(4. 11)**
High Val- Low Val		0. 62%		0. 26%		1. 16%		0. 27%
		(3. 08)**		(1. 33)		(2. 65)**		(3. 13)**

(**, * indicate the significance level at 5%, and 10% respectively, "Val" refer to "Valuation")

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Table 3.7 Short run cumulative abnormal returns (CAR) by method of payment and market valuation status

This table contains short-run cumulative abnormal returns (CARs) for all acquisitions undertaken during high, neutral and low valuation months, based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Using monthly data from 1985 to 2003, each month is classified as a high(low) valuation month if the de-trended market P/E of that month belongs to the top(bottom)half of all de-trended P/E above (below) the past five year average. All remaining months are classified as neutral valuation month. CARs for each firm are calculated as the following formula: $CAR = \sum_{-2}^{+2} (R_{it} - R_m)$, which we use 5 day event windows, day 0 is the announcement day of an acquisition. "Cash" refers to 100% cash offer, "Stock" refers to 100% stock offer, "Mixed" refers to the mixture of both cash and stock offer in one deal. t –statistics are provided in the parenthesis.

	All		**Cash**		**Stock**		**Mixed**	
	Number	CAR	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	1. 53%	2486	1. 50%	289	2. 11%	1816	1. 49%
		(14. 22)**		(11. 03)**		(3. 66)**		(8. 44)**
High valuation acquisitions	1375	1. 95%	730	1. 95%	89	3. 22%	556	1. 73%
		(9. 72)**		(7. 84)**		(3. 07)**		(5. 25)**
Neutral valuation acquisitions	2135	1. 37%	1134	1. 37%	137	1. 94%	864	1. 38%
		(8. 72)**		(6. 87)**		(2. 08)**		(5. 29)**
Low valuation acquisitions	1081	1. 33%	622	1. 33%	63	0. 90%	396	1. 31%
		(6. 07)**		(4. 43)**		(1. 09)		(1. 04)
High Val. – Low Val		0. 62%		0. 62%		2. 32%		0. 42%
		(3. 08)**		(3. 73)**		(1. 89)*		(7. 39)**

(**, * indicate the significance level at 5%, and 10% respectively, "Val" refer to "Valuation")

Table 3.8 Short run cumulative abnormal returns (CAR) by bidding frequency and market valuation status

This table contains short-run cumulative abnormal returns (CARs) for all acquisitions undertaken during high, neutral and low valuation months, based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Using monthly data from 1985 to 2003, each month is classified as a high(low) valuation month if the de-trended market P/E of that month belongs to the top(bottom)half of all de-trended P/E above (below) the past five year average. All remaining months are classified as neutral valuation month. CARs for each firm are calculated as the following formula: $CAR = \sum_{-2}^{+2} (R_{it} - R_m)$, which we use 5 day event windows, day 0 is the announcement day of an acquisition. We define frequent bidder as those bidder taken 4 or more bids within three years, infrequent bidder as those bidder taken 3 or less bids within three years. t –statistics are provided in the parenthesis.

	All		Frequent Bidders		Infrequent Bidders		Freq. - Infreq.	
	Number	CAR	Number	CAR	Number	CAR	Coefficient	t value
All acquisitions	4591	1. 53%	1453	1. 49%	3138	1. 56%	-0. 07%	(-3. 89)**
		(14. 22)**		(3. 18)**		(3. 64)**		
High valuation acquisitions	1375	1. 95%	444	1. 71%	931	2. 07%	-0. 36%	(-7. 51)**
		(9. 72)**		(2. 86)**		(3. 12)**		
Neutral valuation acquisitions	2135	1. 37%	714	1. 36%	1421	1. 42%	-0. 06%	(-3. 07)**
		(8. 72)**		(1. 71)*		(2. 9)**		
Low valuation acquisitions	1081	1. 33%	295	1. 41%	786	1. 28%	0. 13%	(1. 76)*
		(6. 07)**		(2. 87)**		(2. 52)**		
High Val – Low Val		0.62%		0.30%		0. 79%		
		(3.08)**		(8.59)**		(4. 17)**		

(**, * indicate the significance level at 5%, and 10% respectively "Val" refers to "Valuation" "Freq" refers to "Frequent")

This table provides the results of acquirer's 3 years post announcement long run return calculation by using calendar time portfolio approach for all acquisitions undertaken during high, neutral and low valuation months. Using monthly data from 1985 till 2003, each month is classified as a high(low) valuation month if the detrended market P/E of that month belongs to the top (bottom) half of all detrended P/Es above (below) the past five year average. All remaining months are classified as neutral valuation months. The definition of "Public Target", "Private Target" and "Subsidiaries" is from SDC. "Non-public" portfolio is the returns combining private and subsidiary portfolio together. To form Calendar time portfolio, we use the following method: The portfolio return for group j is the average over all months with

at least 10 observations of $CTP_{j(t),t} = \sum_{i=j(t)} \dfrac{R_{i,t}}{N_{j(t)}}$. Where j(t) consists of acquisitions in

group j for the months 1, through month 36 and where $N_{j(t)}$ is the number of acquisitions in j(t)..Panel A present the regression result by using Fama French Three Factor Model, Panel B present the result by using CAPM

FF 3 Factor Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$

Standard Capital Asset Pricing Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \varepsilon$

The values in the brackets are t statistics.

Panel A: Regression result by using Fama-French Three Factor Model:

	All	Public	Private	Subsidiary	Pub.– NonPub. (t-value)
All	0.22%	0.12%	0.28%	0.25%	-0.15% (-2.82)**
	(0.75)	(0.92)	(1.91)*	(0.49)	
High Valuation Acquisitions	0.12%	-0.35%	0.21%	0.19%	-0.55% (-3.49)**
	(1.14)	(-1.65)*	(0.97)	(1.53)	
Neutl Valuation Acquisitions	0.28%	-0.18%	0.19%	0.14%	-0.35% (-3.64)**
	(1.32)	(-1.72)*	(1.11)	(0.69)	
Low Valuation Acquisitions	0.41%	0.28%	0.47%	0.37%	-0.14% (-2.83)**
	(1.29)	(1.55)	(2.33)**	(0.71)	
High – Low (t value)	-0.29% (-2.48)**	-0.63% (-4.61)**	-0.26% (-3.19)**	-0.18% (-3.03)**	

Panel B: Regression result by using Standard Capital Asset Pricing Model:

	All	Public	Private	Subsidiary	Pub.– NonPub. (t-value)
All	-0.37%	-0.85.%	0.32%	0.26%	-1.14 (-2.82)**
	(-1.29)	(-1.49)	(2.44)**	(1.51)	
High Valuation Acquisitions	-0.54%	-1.87%	-0.58%	-0.48%	-1.34% (-3.49)**
	(-1.89)*	(1.37)	(-1.81)*	(-0.93)	
Neutr. Valuation Acquisitions	-0.42%	-0.84%	0.21%	0.13%	-1.01% (-3.64)**
	(-2.23)**	(-1.53)	(2.39)**	(1.77)*	
Low Valuation Acquisitions	-0.16%	-0.29%	0.51%	0.47%	-0.78% (-2.83)**
	(-0.51)	(-2.77)**	(1.80)*	(2.10)**	
High – Low (t value)	-0.38% (-2.48)**	-1.58% (-4.61)**	-1.09% (-3.19)**	0.95% (-3.03)**	

(*, ** represent significance level at 10% and 5% respectively)

This table provides the results of acquirer's 3 years post announcement long run return calculation by using calendar time portfolio approach for all acquisitions undertaken during high, neutral and low valuation months. Using monthly data from 1985 till 2003, each month is classified as a high(low) valuation month if the detrended market P/E of that month belongs to the top (bottom) half of all detrended P/Es above (below) the past five year average. All remaining months are classified as neutral valuation months. "Cash"(stock) means that acquirers using 100% of cash(stock) as the method of payment, "Mixed" means that acquirers use both cash and stock as method of payment. To form Calendar time portfolio, we use the following method: The portfolio return for group j is the average over all months with

at least 10 observations of $CTP_{j(t),t} = \sum_{i=j(t)} \dfrac{R_{i,t}}{N_{j(t)}}$, Where j(t) consists of acquisitions in

group j for the months 1, through month 36 and where $N_{j(t)}$ is the number of acquisitions in j(t)..Panel A present the regression result by using Fama French Three Factor Model, Panel B present the result by using CAPM

FF 3 Factor Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$

Standard Capital Asset Pricing Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \varepsilon$

The values in the brackets are t statistics.

Panel A: Regression result by using Fama-French Three Factors Model:

	All	**Cash**	**Stock**	**Mixed**	**Cash - Stock (t-value)**
All	0.22%	0.17%	-0.08%	0.21%	0.25% (3.40)**
	(0.75)	(0.64)	(-0.21)	(0.63)	
High Valuation Acquisitions	0.12%	0.16%	-0.24%	0.27%	0.40% (3.03)**
	(1.14)	(1.80)*	(-2.32)**	(2.19)**	
Neutl Valuation Acquisitions	0.28%	0.24%	-0.14%	0.22%	0.38% (3.08)**
	(1.32)	(0.88)	(-0.61)	(0.64)	
Low Valuation Acquisitions	0.41%	0.47%	0.35%	0.20%	0.12% (1.72)*
	(1.29)	(0.94)	(1.00)	(0.99)	
High – Low	-0.29%	-0.31%	-0.59%	0.07%	
	(-2.48)**	(-2.17)**	(-2.79)**	(1.22)	

Panel B: Regression result by using Standard Capital Asset Pricing Model:

	All	Cash	Stock	Mixed	Cash - Stock (t-value)
All	-0.37%	-0.18%	-1.07%	-0.56%	0.89% (3.40)**
	(-1.29)	(-0.69)	(-2.67)**	(-1.65)*	
High Valuation Acquisitions	-0.54%	-0.32%	-1.18%	-0.23%	0.86% (3.03)**
	(-1.89)*	(-0.08)	(-2.31)**	(-0.75)	
Neutr. Valuation Acquisitions	-0.42%	-0.14%	-1.07%	-0.63%	0.93% (3.08)**
	(-2.23)**	(-0.54)	(-2.72)**	(-1.81)*	
Low Valuation Acquisitions	-0.16%	-0.11%	-0.63%	-0.31%	0.52% (1.72)*
	(-0.51)	(-1.17)	(-1.50)	(-1.20)	
High – Low	-0.38%	-0.21%	-0.55%	0.08%	
(t value)	(-2.48)**	(-2.17)**	(-2.79)**	(1.22)	

(*, ** represent significance level at 10% and 5% respectively)

This table provides the results of acquirer's 3 years post announcement long run return calculation by using calendar time portfolio approach for all acquisitions undertaken during high, neutral and low valuation months. Using monthly data from 1985 till 2003, each month is classified as a high(low) valuation month if the detrended market P/E of that month belongs to the top (bottom) half of all detrended P/Es above (below) the past five year average. All remaining months are classified as neutral valuation months. We define frequent bidder as the those bidder taken four or more bids within three years, infrequent bidder as those bidder taken 3 or less bids with three years. t –statistics are provided in the parenthesis. To form Calendar time portfolio, we use the following method: The portfolio return for group j is the average

over all months with at least 10 observations of $CTP_{j(t),t} = \sum_{i=j(t)} \dfrac{R_{i,t}}{N_{j(t)}}$. Where j(t)

consists of acquisitions in group j for the months 1, through month 36 and where $N_{j(t)}$ is the number of acquisitions in j(t)..Panel A present the regression result by using Fama French Three Factor Model, Panel B present the result by using CAPM

FF 3 Factor Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$

Standard Capital Asset Pricing Model: $CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \varepsilon$

The values in the brackets are t statistics.

Panel A: Regression result by using Fama-French Three Factor Model:

	All	**Frequent**	**In-frequent**	**Freq. – In-freq.**
All	0.22%	0.21%	0.25%	-0.04%
				(-2.21)**
	(0.75)	(1.70)*	(0.97)	
High Valuation Acquisitions	0.12%	-0.28%	0.31%	-0.59%
				(-2.90)**
	(1.14)	(-1.38)	(1.86)*	
Neutral Valuation Acquisitions	0.28%	0.22%	0.29%	-0.07%
				(-3.07)**
	(1.32)	(1.49)	(1.30)	
Low Valuation Acquisitions	0.41%	0.68%	0.37%	0.31%
				(2.75)**
	(1.29)	(0.95)	(1.51)	
High – Low	-0.29%	-0.96%	-0.06%	
(t value)	(-2.48)**	(-2.40)**	(-4.09)**	

Panel B: Regression result by using Standard Capital Asset Pricing Model:

	All	Frequent	In-frequent	Freq. – In-freq.
All	-0.37%	-0.35%	-0.29%	-0.06%
				(-2.21)**
	(-1.29)	(-1.08)	(-1.79)*	
High Valuation Acquisitions	-0.54%	-0.58%	-0.35%	-0.23%
				(-2.90)**
	(-1.89)*	(-2.37)**	(-1.69)*	
Neutr. Valuation Acquisitions	-0.42%	-0.34%	-0.32%	-0.02%
				(-3.07)**
	(-2.23)**	(-1.44)	(-1.26)	
Low Valuation Acquisitions	-0.16%	-0.12%	-0.21%	0.09%
				(2.75)**
	(-0.51)	(-1.77)*	(-1.95)*	
High – Low	-0.38%	-0.46%	-0.14%	
(t value)	(-2.48)**	(-2.40)**	(-4.09)**	

(*, ** represent significance level at 10% and 5% respectively)

This table contains short-run cumulative abnormal returns (CARs) for all acquisitions undertaken during high, neutral and low valuation months, based on the sample of 4.591 acquisition deals undertaken by 1,231 public listed acquirers. Each month is classified as a high (low) valuation month by different method. "P/E" refers to Market P/E classification: "Activity" refers to merger activity classification. "Index" refers to market index classification. For "P/E" classification, each month is classified as a high (low) valuation month if the de-trended market P/E of that month belongs to the top (bottom) half of all de-trended P/E above (below) the past five year average. All remaining months are classified as neutral valuation month. The data for P/E classification runs from 1985 to 2003. For "Activity" classification, we first calculate the merger activity ratio, the ratio of total merger transaction volume to total market capitalization, as in P/E classification, we use five years of historical merger data to classify each month into an above (below) average group if the merger activity ratio of that month is above (below) the average ratio of past five years. Then, the months with merger activity ratios in the top (bottom) half of the above (below) average group are classified as high (low) valuation period. All remaining months are classified as neutral valuation months. The data for "Activity" classification runs from 1990 to 2003. For "Index" classification, we use detrended UK Total Index(UKTI) as the proxy for market valuations. The index level in each month is classified as above or below that past five year average UKTI level. The top half of UKTI levels in the above-average group are classified as high valuation months, the bottom half of UKTI levels in the below average group are classified as low valuation months. All other months are classified as neutral valuation months. The data for "Index" classification runs from 1985 to 2003. CARs for each firm are calculated as the following formula:

$$CAR = \sum_{-2}^{+2} (R_{it} - R_{m}) $$, which Panel A use 11 days event window (-5,+5), day 0 is the

announcement day of an acquisition. And Panel B use 5 days event window (-2, +2), and Panel C use 3 days event window (-1,+1) t –statistics are provided in the parenthesis.

Table 12

Panel A   Event window (-5, 5)

	P/E		Activity		Index	
	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	2. 47% (11. 09) **	3881	2. 23% (8. 39) **	4591	2. 41% (6. 19) **
High valuation acquisitions	1361	2. 81% (10. 31) **	1289	2. 70% (9. 94) **	1529	2. 77% (7. 81) **
Neutral valuation acquisitions	2153	2. 01% (10. 66) **	1871	2. 13% (8. 65) **	2017	2. 26% (6. 05) **
Low valuation acquisitions	1077	1. 64% (8. 42) **	721	(1. 41)% (2. 59) **	1045	1. 89% (3. 55) **
High - Low		1.17% (4.59)**		1.29% (4.97)**		0. 88% (3. 51) **

Panel B   Event window (-2, 2)

	P/E		Activity		Index	
	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	1. 53% (14. 22) **	3881	1. 36% (7. 37) **	4591	1. 53% (14. 22) **
High valuation acquisitions	1361	1. 95% (9. 72) **	1289	1. 61% (7. 11) **	1529	1. 57% (7. 48) **
Neutral valuation acquisitions	2153	1. 37% (8. 72) **	1871	1. 54% (2. 90) **	2017	1. 44% (6. 97) **
Low valuation acquisitions	1077	1. 33% (6. 07) **	721	(0. 75)% (1. 86) *	1045	1. 10% (5. 89) **
High - Low		0.62% (3.08) **		0.86% (1.81)*		0. 47% (2. 72) **

Panel C Event Window (-1, 1)

	P/E		Activity		Index	
	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	0. 77% (4. 18)**	3881	0. 62% (6. 93)**	4591	0. 77% (4. 18)**
High valuation acquisitions	1361	1. 16% (2. 92)**	1289	1. 05% (7. 01)**	1529	0. 82% (3. 57)**
Neutral valuation acquisitions	2153	0. 67% (3. 55)**	1871	0. 72% (1. 51)**	2017	0. 60% (4. 33)**
Low valuation acquisitions	1077	0. 23% (1. 87)*	721	0. 19% (3. 71)**	1045	0. 27% (3. 51)**
High - Low (t value)		0.93% (2.48) **		0.86% (1.69)*		0. 55% (1. 88)*

(*, ** represent significance level at 10% and 5% respectively)

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Table 3.13 Long-run Robustness Check for Different Market Valuation Classifications and Event Windows by Using Calendar Time Portfolio Approach

This table contains short-run cumulative abnormal returns (CARs) for all acquisitions undertaken during high, neutral and low valuation months, based on the sample of 4,591 acquisition deals undertaken by 1,231 public listed acquirers. Each month is classified as a high (low) valuation month by different method. "P/E" refers to Market P/E classification: "Activity" refers to merger activity classification. "Index" refers to market index classification. For "P/E" classification, each month is classified as a high (low) valuation month if the de-trended market P/E of that month belongs to the top (bottom) half of all de-trended P/E above (below) the past five year average. All remaining months are classified as neutral valuation month. The data for P/E classification runs from 1985 to 2003. For "Activity" classification, we first calculate the merger activity ratio, the ratio of total merger transaction volume to total market capitalization, as in P/E classification, we use five years of historical merger data to classify each month into an above (below) average group if the merger activity ratio of that month is above (below) the average ratio of past five years. Then, the months with merger activity ratios in the top (bottom) half of the above (below) average group are classified as high (low) valuation period. All remaining months are classified as neutral valuation months. The data for "Activity" classification runs from 1990 to 2003. For "Index" classification, we use detrended UK total Index as the proxy for market valuations. The index level in each month is classified as above or below that past five year average UKTI level. The top half of UKTI levels in the above-average group are classified as high valuation months, the bottom half of UKTI levels in the below average group are classified as low valuation months. All other months are classified as neutral valuation months. The data for "Index" classification runs from 1985 to 2003. To form Calendar time portfolio, we use the following method: The portfolio return for group j is the average over all months with at least 10

observations of $CTP_{j(t),t} = \sum_{i=j(t)}^{} \dfrac{R_{i,t}}{N_{j(t)}}$, Where in Panel A j(t) consists of acquisitions

in group j for the months 1, through month 36 and where N $_{j(t)}$ is the number of acquisitions in j(t). In panel B, j(t) consists of acquisitions in group j for the months 1, through month 24. In order to obtain intercept return, we regress CTP by using Fama   French   Three   Factor   Model:

$$CTP_{j(t)} - R_f = \alpha_1 + \beta_1(R_m - R_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$$

The values in the brackets are t statistics.

Table 13

Panel A: (1, 36)

	P/E		Activity		Index	
	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	0.22% (0.75)	3881	0. 28% (1. 35)	4591	0. 22% (1. 70) *
High valuation acquisitions	1361	0.12% (1.14)	1289	-0. 07% (-1. 79) *	1529	0. 15% (1. 26)
Neutral valuation acquisitions	2153	0.28% (1.32)	1871	0. 19% (0. 88)	2017	0. 24% (0. 62)
Low valuation acquisitions	1077	0.41% (1.29)	721	0. 46% (1. 40)	1045	0. 37% (1. 17)
High - Low (t value)		-0.29% (-2.48)**		-0.53% (-3.13)**		-0. 22% (-2. 97) **

Panel B (1, 24)

	P/E		Activity		Index	
	Number	CAR	Number	CAR	Number	CAR
All acquisitions	4591	0.34% (1.28)	3881	0. 30% (1. 54)	4591	0. 34% (1. 28)
High valuation acquisitions	1361	0.09% (1.50)	1289	0. 15% (1. 02)	1529	0. 12% (0. 81)
Neutral valuation acquisitions	2153	0.31% (1.44)	1871	0. 28% (0. 81)	2017	0. 30% (1. 41)
Low valuation acquisitions	1077	0.46% (0.91)	721	0. 39% (1. 79) *	1045	0. 48% (1. 16)
High - Low (t value)		-0.37% (-2.01)*		-0.24% (3.66)**		-0. 36% (-1. 99) *

(*, ** represent significance level at 10% and 5% respectively)

Chapter 4   Merger Momentum and Market Valuation

4.1 INTRODUCTION

In this chapter, there will be an empirical examination of the relationship between merger momentum and high market valuations. As discussed in the previous chapters, mergers are the result of the good performance of bidders and are also affected by market valuation and other factors. The hypothesis follows that they should be correlated with each other, and with recent market conditions, and thus exhibit certain momentum patterns. Merger momentum is defined here as a correlation between the market reaction to a merger announcement and the recent market conditions. Previous studies have found that the merger market reacts positively to the market conditions. However, for the large UK domestic sample used in this research, it was found that this correlation is more pronounced during high market valuation periods than at other times. Overall, these results are consistent with the stated hypothesis, and show that merger momentum does exist and may explain a large proportion of bidders' returns.

Recent studies on takeovers have documented that merger momentum plays an important role in explaining the stock returns of bidding firms. For example, Rosen (2005) found that when a merger is announced during a "hot" period, the long-run returns of bidders tended to be lower than those deals announced at other times.

However, less attention has been paid to examining the relationship between market-wide high valuation and the quality of mergers. In this research, the returns to bidding firms over different market valuation periods was used as an indicator of merger quality, which can shed light on the different theories of when and why acquisitions occur in conditions of market-wide high valuation. Thus, this study especially examined whether market-wide high valuations influenced the reaction to a merger announcement. It was found that the market reaction to a merger was positively correlated with the response to other mergers in the recent past, especially during a high market valuation period. In addition, similar to the finding in previous chapter, significantly long-run reversals were seen for merger deals announced in hot merger markets. These findings are consistent with Jensen's (2004) agency cost hypothesis of merger activity. Furthermore, it was found that the tendency of merger momentum varies over different valuation periods. This indicates that merger momentum not only results from investor sentiment, but also from the hubris of managers that have sufficient external resources during high valuation periods. This could be due to the direct impact of market valuation on the market's reaction towards a merger announcement (Rhodes-Kropf, et al., 2003).

If market valuations do influence manger's decision on acquisition activities, two obvious questions arise: Do these impacts on acquisition decisions have consequences for the performance of the acquirer? and, Does market valuation also have an impact on merger momentum? The goal of this chapter is to shed light on these two

questions.

Based on the UK sample, this research shows that there exists a form of merger momentum during high valuation periods, that is, the short-run market reaction to a merger announcement is positively related to the response to recent market conditions and other merger deals in the recent past. Good market conditions are defined here as when the market reaction to a merger deal has been favourable. This study also examines whether or not market factors influence the reaction to a merger announcement and the long-run performance of the acquirer.

Many previous studies have evaluated the quality of a merger based on the short-term market reaction to the merger announcement as well as on the long-run returns to the merger (e.g. Asquith, et al., 1983 and Loughran and Vijh, 1997). In order to have a clear picture of the sources and consequences of merger momentum, both short-run and long-run methodologies were used here to compare the announcement reaction to long-run returns. A cross-sectional analysis of 1,957 acquisitions completed by UK public firms announced between 1985 and 2002 was used to determine the factors that affect both short-run and long-run market reactions to merger announcements in high valuation periods and in normal valuation periods.

This chapter examines three theories that are all in line with the notion of merger momentum, although each gives different predictions regarding bidders' long-run

returns. The hubris hypothesis of merger assumes that irrational managers misevaluate the target's intrinsic value, which results in overpayment. According to this theory, merger momentum may result from a group of managers being afflicted with hubris or overconfidence when they have sufficient external resources to finance a merger. The merger will temporarily push up the bidder's share price, but will result in a loss in the long-run due to the initial over payment. These types of mergers can usually be seen during high valuation periods, simply because the high valuation provides more external resources and more takeover opportunities, which increases the hubris of the bidding firm's manager.

The second theory is the neoclassical theory of mergers, which assumes that managers act to maximize shareholder value. The idea here is that the merger is an efficiency-improving response to various industry shocks, such as antitrust policy or deregulation (Mitchell and Mulherin, 1996; Jovanovic and Rousseau, 2002). According to this theory, merger momentum may result from shocks that increase the synergies for a group of mergers. Mergers announced following these shocks should be better on average than other mergers in both the short-run and long-run, and merger momentum might result from the correlated announcement returns leading from these industry shocks.

Another theory is that merger momentum occurs in particular periods when over-optimism is predominant the market (e.g. high valuation periods). Helwege and

Liang (1996) found that shareholder reaction to a corporate announcement can be affected by investor sentiment, that is, the reaction of investors to factors other than the value created by the merger. When the merger market is over heating, especially during over valuation periods, a strong merger momentum will be observed because the investor as a group (possibly managers) are more easily infected by over optimism about merger announcements. According to this theory, the long-run stock return reversal should be seen as the optimism eventually being replaced by reality.

Previous studies have shown that merger deals are more frequent when the overall stock market valuation is high. (Dong, et al., 2003; Jensen, 2004; Rhodes-Kropf, et al., 2003; Shleifer and Vishny, 2004). If mergers are driven by a belief to do with something other than synergy or fundamentals, it is very easy to understand why managers make such large numbers of acquisitions during high valuation periods. Firstly, bidders like to take advantage of their overvalued shares when their stock price becomes substantially high, the biggest capital expenditure at those times will be taking over a relatively less overvalued firm by issuing stock at an overvalued price. This raises the question as to why target managers accept such deals if they know that the bidder is overvalued. A credible explanation given by Rhodes-Kropf, et al. (2003) is that target managers are also willing to sell off their stock holdings at the overvalued price. Secondly, when a firm's stock price becomes overvalued, any attempt to eliminate it will be faced with disappointing the capital markets, and managers may risk their careers in the attempt; the only choice left is for them to

embark on takeovers and further push up the price for the purposes of earnings management (Jensen 2004). The consequential overall stock market overvaluation could result in merger momentum; the findings of this research are in line with this argument.

Furthermore, this research found that long-run returns to bidder's portfolios during high valuation periods significantly under-performed whether the deals were categorized by cash or stock, or by pre-announcement financial status (glamour or value bidder). These findings suggest that the mergers made during high valuation periods are dominated by over-optimism, any announcement period return vanishing and leading to further share price reduction as the bubbles are eventually replaced by real results. Gorton, et al. (2002) showed that managers are willing to make non-profitable acquisitions to deter other firms from acquiring their own firm (eat or be eaten), and these defensive merger waves can result from economic shocks, which it could be argued are the same type of economic shocks that create high valuation. If mergers during these waves are more likely to be defensive in nature, then these mergers should be less likely to create value. Thus, market-wide high valuation is highly likely to produce bad acquisitions, and these bad acquisitions should correlate with each other as well as correlating with common market factors.

From the large sample of UK acquisitions, clear evidence was found of merger momentum during high valuation periods. The short-run market reaction towards a

merger announcement was positively related to the reaction to other merger deals in the recent past, and evidence was also found that it is positively related to overall market conditions. Nevertheless, the effects of merger momentum disappear in the long-run, as the over optimistic belief in the merger is replaced by reality as time passes. Firms that announce merger deals during hot merger markets perform significantly worse than mergers announced during other periods. These results also suggest that managerial motivation may influence merger decisions in hot merger markets. The empirical findings further indicate that merger momentum might exist in other forms, such as at the firm level and could be affected by the overall momentum of the stock market.

This chapter is organized in the following sections. Section 1 reviews the relevant literature in this field. Section 2 presents a hypothesis based on the gap identified in the previous literature. Section 3 reveals the data and methodologies incorporated in this study. Short-run results and discussions are presented in Section 4. Section 5 examines the long-run market response to merger announcements, and the final section offers some conclusions.

4.2 LITERATURE REVIEW

A sizeable stream of theoretical and empirical research on the motivation and profitability of M&A has contributed a great deal of knowledge and information and the recently increased focus on merger momentum provides some new insights into various merger theories. It is known that takeover activity comes in waves[68] and that announcement-day returns are significantly positive for target shareholders while bidder shareholders' returns vary depending on the mode of acquisition, method of payment, and type of target. Moreover, recent studies have shown that the market's reaction to a merger is positively correlated with the response to other mergers in the recent past. Nevertheless, previous literature has also shown that post-acquisition returns to acquiring shareholders are higher for cash offers and tenders than for stock offers and mergers. However, the empirical evidence regarding bidders' long-run returns is somewhat mixed, especially where merger deals are made during high market valuation periods.[69]

Recently, researchers have begun to explore the possible link between M&A activity and stock price. Jovanovic and Roussean (2001) have shown that periods of high merger activity are correlated with high market valuations. Rhodes-Kropf and

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[68] See Andrade, Mitchell, and Stafford (2001), Holmstrom and Kaplan (2001), and Richard J. Rosen (2005).

[69] See Bruner (2002), Loughran and Vijh (1997), Agrawal, Jaffe, and Mandelker (1992), Franks, Harris, and Titman (1991), Rau and Vermaelen (1998), Asquith (1983), Jensen and Ruback (1983), Jensen (2004), Dennis and McConnel (1986), Bradley, Desai, and Kim (1988), Bradley and Sundaram (2005), Rosen (2005), Jarrel and Poulsen (1989), and Fuller, Netter, and Stegemoller (2002).

Viswananthan (2004) developed a theoretical model in which both firm-specific and market-wide mis-valuation were shown to cause merger waves. Shleifer and Vishny (2004) theoretically modelled the impact of market valuation on the decision to acquire, the method of payment used, the performance of acquirers, and the occurrence of merger waves. Rosen (2005) defined a new area of merger momentum, and found a positive correlation between the market reaction to a merger announcement and recent market conditions.[70]

This section is organized as follows: because the UK and European countries correlate closely, there is first a history of takeovers in European countries as a whole. Secondly, the area that has recently been most debated, that is, the literature on bidder's long-run performance is presented, followed by a review of the causes and consequences of market-wide overvaluation, which is a very important component of this research. By these means, this section will review two important hypotheses (the hubris hypothesis and stock market driven acquisitions), both of which are in line with this thesis.

4.2.1. Corporate Takeover History Since 1900

It is now well known that M&As occur in cyclical waves. The second industrial revolution culminated in the first European merger wave (1880-1904), which aimed at

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[70] Rosen's (2005) results suggested that a bidding firm's stock prices are more likely to increase when a merger is announced if recent mergers by other firms have been received well or if the overall stock market is doing better, this is evidence of merger momentum. However, there is long-run reversal. Long-run bidders' stock returns are lower for mergers announced when either the merger or stock markets were hot at the time of the merger than for those announced at other times.

creating monopolies. Anti-trust regulation curbed monopoly power, but also initiated a second merger wave (1919-1929) that led to increased vertical integration. The third European merger wave started in the 1950s, and did not reach its peak until the mid-1960s. The focus of this wave was diversification and the creation of large conglomerates to face the global markets. The technological progress in biochemistry and electronics, as well as the development of new financial instruments and markets (e.g. the junk bond market), was behind the fourth merger wave (1983-1989). These financial innovations facilitated the financing of acquisitions and also caused an unprecedented high level of hostile bids. During the past decade, a fifth wave (1993-2000) emerged coinciding with a sustained economic boom, the development of new European stock exchanges, such as the European New Markets and the European Association of Securities Dealers Automatic Quotation System (EASDAQ), and the growth in the Internet and telecommunications industries. In 2001, the collapse of consumer confidence in these industries as well as the overcapacity in the traditional sectors caused an abrupt reduction in merger activity.

The start of the fifth M&A wave was clearly in 1993 as the total dollar value paid for target firms in the US and Europe doubled after four consecutive years of decline in M&A activity. An even steeper rise happened in 1996: the total value of US and European acquisitions rose to USD 1,117 million (with Europe accounting for 37% of the worldwide value of M&A deals). In the following years, the M&A wave gained even more strength with a value of USD 1,574 million in 1997 (35% of which was

realised in Europe), USD 2,634 million in 1998 (33% in Europe), USD 3,319 million in 1999 (47% in Europe), and USD 3,451 million in 2000 (43% in Europe). 1999 was a remarkable year for the European M&A market, as it was now almost as large as the US market. Also, 12% of the total value of the European market was now generated by deals in excess of USD 100 billion. The number of hostile acquisitions was also exceptionally large in Europe in 1999 with 369 hostile bids compared to only fourteen in 1996, seven in 1997, five in 1998, and thirty-five in 2000.

4.2.2 Relevant Literature on Bidder's Long-run Performance

In the 1990s, most of the research into the financial performance of M&As has focused on stock returns surrounding announcement dates. Researchers have paid little attention to the results of long-run returns, perhaps because the strong belief in market efficiency indicated what the result should be. Recently, a steady stream of research has focused on the long-run post-acquisition returns, and most has found that there is a negative long-run return to bidders associated with initial positive announcement returns. In fact, early studies by Jensen and Ruback (1983) noticed this phenomenon, and they stated, "These post-outcome negative abnormal returns are unsettling because they are inconsistent with market efficiency and suggest that changes in stock prices overestimate the future efficiency gains from mergers."

The aim of this section is to answer two questions. Firstly, does the accumulated

evidence suggest that post-acquisition performance is, indeed, negative? The answer

to this question would seem quite important As, in addition to the obvious implication

for market efficiency, an answer would clearly inform the debate on gains from

mergers. Studies focusing on announcement period performance have concluded that

mergers produce wealth gains to the stockholders of the target and acquiring firms

combined. If negative performances after merger are found in the majority of the

empirical research, will it overturn this conclusion? Secondly, what are the possible

explanations for the previous research findings on long-run performance? Of course,

if the long-run performance is insignificant, different from zero, no explanation is

needed. However, based on previous findings, a convincing explanation is necessary

for the documented under-performance.

Because of the differing characteristics of mergers, tender offers, and failed bids, the

empirical findings will be presented. To begin with, a summary of the individual

studies that have examined this issue in its various contexts will be provided.

4.2.2.1 Empirical Findings on Performance Following Mergers

There are several different empirical works in this area, and while they all reported

abnormal returns following acquisition announcements, they came from different

directions. Mandelker (1974) provided the least support for negative post-acquisition

performance. The CAARs, though negative, were not economically significant. In

addition, while no t-statistics were provided for his entire forty-month post-acquisition period, the t-statistics for both the ten-month and twenty-month period were insignificant. At the other extreme, Asquith (1983) reported CAARs of –0.072 in the 240 days following merger outcome. This return is both economically and statistically significant, providing perhaps the strongest evidence against the null hypothesis of zero abnormal returns.

All of the other work is to some extent ambiguous. Using the same data but different methodologies, Magenheim and Mueller (1988), and Bradley and Jarrell (1988) reached opposite conclusions. Magenheim and Mueller found what are most likely significant CAARs over three years, while Bradley and Jarrell found insignificant results over the same time period. More specifically, Magenheim and Mueller (1988) examined seventy-eight New York Stock Exchange and American Stock Exchange (NYSE/AMEX) acquiring firms that completed takeovers worth at least $15 million during the period 1976 to1981. The authors classified fifty-one of the acquisitions as mergers and twenty-six as tender offers. They calculated abnormal returns from the market model, estimating the parameters α and β over one of three periods: months (-60, -4), (-36, -4) or (+13, +36) relative to the initial announcement month. For the first two estimation periods, the authors' Table 11.5 presents CAARs for each of the first three years subsequent to the announcement. The calculations show that the CAARs over the entire three-year post-announcement period are –0.1436 and –0.3896 using the first and second estimation periods, respectively. Only the CAAR over the

first year (-0.0321) is presented using the third estimation period, which runs over the second and third post-announcement years. While the two three-year estimates differ substantially, they both appear to be economically significant. The authors reported no statistical significance over the three-year period. However, they presented z-values (standard normal) of −1.2464 and −4.9307 for performance over months (-3, +36) relative to the month of initial announcement, using the first and second estimation periods, respectively.

The authors presented post-announcement returns for mergers and tender offers separately in Table 11.3, using only the (-60, -4) estimation period. The calculations show CAARs over the first three years after the announcement to be −0.2437 and + 0.0632, respectively, for the two sub-samples. Once again, z-values are reported for the period (-3, +36). They are −2.60 for mergers and 0.56 for tender offers. Magenheim and Mueller appear to be the first to calculate post-acquisition returns for the two types of acquisitions separately. Similarly, subsequent researchers have generally found that returns are higher after tender offers than after mergers.

Bradley and Jarrell (1988) criticized Magenheim and Mueller's methodology stating (p. 255), "It is well known that market model parameter estimates based on monthly data are inefficient and nonstationary." Indeed, financial economists have long pointed out that if the true abnormal performance is non-zero during the estimation period, measurement of abnormal performance in the forecast period will be biased.

Bradley and Jarrel estimated abnormal returns using a method similar, if not, identical to that of Asquith (1983). Here, the daily abnormal return was the difference between the return on the acquirer's stock and the return on a portfolio of securities of similar beta. The authors found a statistically insignificant CAAR of –0.16 over the first three post-acquisition years.

Langetieg (1978) reported CAARs of between -0.223 and -0.2615 over seventy months using four different statistical methods. While these abnormal returns are both economically and statistically significant, his control firm approach yielded insignificant returns.

Malatesta (1983) found statistically significant abnormal returns for the year after the first public announcement of a merger but insignificant results for the year after board/management approval. Limmack (1991) assessed post-acquisition performance over two years, finding significantly negative CAARs for two of his three methodologies. However, Limmack does not separate mergers from tender offers, leaving interpretation somewhat ambiguous.

Thus, taken together, the literature at this point only suggests the possibility of an anomaly. The lack of corroboration across the work, as well as the use of empirical methodologies now considered inadequate for measuring long-run abnormal stock performance, prevents a strong conclusion being drawn at this point.

In the 1990s, a number of studies provided stronger evidence of negative post-merger performance, starting with that of Agrawal, Jaffe, and Mandelker (1992), which found a statistically significant five-year CAAR of -0.1026 under a size and beta adjustment. They completed their work following on the heels of Franks, Harris, and Titman. While Agrawal, Jaffe, and Mandelker employed similar methodology to that of Franks, Harris, and Titman, and even used a sample supplied by Robert Harris, they reached different conclusions. Their sample of 937 mergers and 227 tender offers (p. 1607) "represents nearly the entire population of acquisitions of NYSE and AMEX firms by NYSE firms over the period 1955 to 1987."

Anderson and Mandelker (1993) reported five-year CAARs of –0.0956 and –0.0931, under a size and a size and B/M adjustment, respectively. Their CAARs are statistically significant. However, these two studies should not be viewed as independent. The two datasets greatly overlap, since Anderson and Mandelker used the 1966 to 1987 portion of Agrawal, Jaffe, and Mandelker's (1992) data.

Loughran and Vijh (1997) found a statistically significant five-year buy-and-hold return

relative to a size and B/M control of –0.159. However, when overlapping cases are eliminated, the buy-and-hold return relative to a control becomes –0.142, which is only marginally significant (t=-1.69). Rau and Vermaelen (1998) found a statistically

significant three-year CAAR of –0.0404. However, this CAAR can be viewed as economically insignificant. Finally, Gregory (1997) found two-year CAARs of between -0.1182 to –0.1801 using six different models, all of which are statistically significant. Gregory used UK data, providing an out-of-sample test of the anomaly. While Gregory did not separate mergers from tender offers, the discussion below suggests that post-acquisition performance would have been even worse if tender offers had been removed from the sample.

Taken together, it can be argued that in the 1990s, the empirical findings suggest strong evidence of an anomaly following mergers. Some evidence of statistically significant negative abnormal returns can be found in each of the six works discussed above, and strong evidence of both economically important and statistically significant negative performance in some of them. As a group, the studies covered a lengthy time period and two countries (the US and the UK). A wide variety of statistical techniques were used, all of which go beyond the old-style CAPM/market model approaches. There has been a fair amount of criticism of long-run return studies in general, from for example, Kothari and Warner (1997), Barber and Lyon (1997), and Lyon, Barber, and Tsai (1999). However, the differing results on tender offers (see below), as well as the differing methodologies used in the six studies, suggest that something more than a statistical bias is at work here.

4.2.2.2 Empirical Findings on Performance Following Tender Offers

Acquisitions can be made either via a merger or a tender offer. Mergers are generally friendly agreements between the management of the bidding and target firms, while tender offers involve the purchase of shares without the need for approval from the target's management. This distinction is made mainly because studies have generally found that the market response to tender offers is more positive (or less negative) than the reaction to mergers over both short-term and long-term horizons. In part, this may be due to the prevalence of cash payments in tender offers (Martin, 1996). A better idea of performance following an acquisition will be obtained if the two forms are separated.

To begin with, Doss and Ruback (1977) examined stock return performances both before and after tender offers. They compiled a sample of 124 NYSE firms making successful tender offers, and forty-eight NYSE firms making unsuccessful tender offers over the period of 1958 to 1976. The abnormal returns were calculated using the market model. The study measured the post-acquisition performance of acquirers over two periods, months (+1, +12) and (+13, +60), relative to the first public announcement of the bid. From their Table 4.3, it is calculated that the CAAR for the successful acquirers over this entire sixty-month period was 0.0591. While this performance may be economically important, the t-statistics reported for the two periods were both insignificant. In addition, the abnormal returns are calculated as –0.0262 for unsuccessful acquirers for the same sixty-month period. Again, the

t-statistics were insignificant for each of the two periods. This work also calculated post-acquisition performances following nineteen clean-up mergers, that is, offers where the acquirer owned over one-half of the target firm's shares prior to the merger. Doss and Ruback's Table 4.4 indicates that the CAAR for acquirers over months (+1, +13) was 0.0844, with a marginally significant t-value of 1.60. No results were reported for months (+13, +60).

By contrast, Magenheim and Mueller(1988) found a CAAR of 0.0632 for the three years following tender offers. The statistical significance cannot be assessed for either of these calculations. However, since the CAARs are of opposite signs and of similar magnitudes (though for different post-event time periods), it can be concluded that the null hypothesis of zero abnormal returns following acquisition should not be rejected based on these two empirical findings.

4.2.3 Stock Market Overvaluation

A recent study by Jensen (2004) showed that market-wide overvaluation can seriously damage the health of a corporation. Despite this, few CEO's agree that their company share is overvalued. However, the overvaluation of company stock is at least as common and as harmful as undervaluation. In this section, some recent research on the causes and consequences of overvaluation and how it relates to merger decisions is presented.

According to the previous research, most agree that the mis-valuation of companies leads to the misallocation of resources between companies. The overvalued companies have better access to both equity and debt capital, whereas undervalued companies have difficulties in raising capital. The end result is that the overvalued companies may undertake investments that are not as profitable as the stock market expects. In addition, they may use these overvalued shares as currency for acquisitions. The overvaluation may also lead to misallocation of resources within the company, when company management attempts to fulfil overoptimistic expectations of the stock market on company growth and future profitability. At worst, management finds out from the stock market or financial analysts where to invest and where to divest. Management may achieve growth through acquisitions (by using overvalued stocks), but profitability may be more difficult to attain. The recent trend in financial statements is to show good profitability either by extending accounting principles or using pro forma statements, but profitability cannot be artificially inflated indefinitely. The corrective price changes may be large, causing private investors to lose their trust in the stock market. Overvaluation could be more common than undervaluation, since stakeholders have clear incentives to increase stock prices whereas no-one really has an interest in lowering a stock price even when it is overvalued. Company management benefits from the stock price increase through stock option plans and direct ownership of shares. In addition, the ability to undertake acquisitions with overvalued stock allows them to lead larger companies. In larger companies they are better paid, they gain more respect, and have more power.

Financial analysts have an interest in giving "buy" recommendations in order to maintain good relations with company management, to promote the brokerage function of their employer, and to facilitate the employer's investment banking activities. Furthermore, financial analysts and investment bankers work very closely together. Whenever a company is trying to raise capital, the investment bankers make sure their research firms give favourable ratings to the stock markets. This leads to companies having favourable ratings even where companies are in serious financial trouble. At the same time, managers are working under the impression given by optimistic financial analysts once their firm becomes overvalued. This can be a problem because analysts tend to report "good" news on a firm's financial status, they want high, predictable, consistent, and ideally, constant year-on-year growth. Hence managers have to play the "earning game" to meet analysts' expectations. This will further push up the valuation of the company and might finally result in bankruptcy.[71]

Due to the problems caused by overvaluation, the development of measures to avoid and detect overvaluation should be an imperative. However, so far such action is rare. Some proposals in this area are presented in the chapter on financial disclosure, compensation, and corporate governance. In the future, further research into norms and appropriate practices is needed to improve the accuracy of stock market valuation.

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[71] See Jensen (2004), who presented a theoretical framework of overvaluation based on an agency cost explanation, and pointed out that the current financial system has some shortcomings that could lead to a significant overvaluation effect.

4.2.4 Several Theoretical Hypotheses

4.2.4.1 The Hubris Hypothesis and Merger Momentum

Roll (1986) analyzed the factors that effect takeover activity, postulating that strong market efficiency in all markets, and the prevailing market price of the target already reflects the full value of the firm[72]. The higher valuation of the bidders (over the target's true economic value), he states, results from managerial hubris and excessive self-confidence. Hubris is one of the factors that cause the winner's curse phenomenon to occur, with bidders making mistakes when evaluating target firms and engaging in takeovers even when synergy is absent. Hubris is the main driving force inducing takeover overpayment, and often results in bidders' long-run under-performance.[73]

The winner's curse concept has a long history in the literature on auctions. When there are many bidders or competitors for an object of highly uncertain value, a wide range of bids is likely to result. The highest bidder will bid and typically pay in excess of the expected value of the goods. The winning bidder is, therefore, "cursed" in the sense that its bid exceeds the value of the item, so the firm loses money. Capen,

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[72] We mentioned hubris hypothesis in previous chapter, however, here we focus on the interaction between hubris hypothesis and merger momentum issue.

[73] Morck, Shleifer, and Vishny (1990) presented evidence that some types of bidder systematically overpay, supporting the agency hypothesis. Mitchell and Lehn (1990) found that bidders that reduce their market value are subsequently more likely to be acquired than bidders that do not make bad acquisitions. Trahan and Shawky (1992) investigated acquiring firms based on industry characteristics and found that bidder returns vary across industries. Trahan (1993) suggested that firm size and cash-flow payouts are the major factors in explaining the likelihood of acquisition. Furthermore, Burkart (1995) argued that the ownership of an initial stake induces bidders to overpay.

Clapp, and Campbell (1971), based on their analysis of sealed-bid competitive lease sales, presented a diagram that depicted the ratio of high estimate to true value as a function of the degree of uncertainty

Arguably however, during high market valuation periods, the managers of bidding firms tend to be more afflicted with hubris than at other times, not only because they have more external resources to finance their merger deals, but they are also infected by optimistic beliefs just as most ordinary investors are during a bull market. When market sentiment is bullish, managers may feel encouraged to make acquisitions because they believe the market expects firms to undertake growth-enhancing initiatives like acquisitions. By the same token, when the market sentiment is bearish, the market does not have the same expectations, and managers respond by avoiding acquisitions unless they are reasonably certain that the synergies are large enough to justify going against market sentiment and expectations. This is somewhat similar to Baker and Wurgler's (2003) "catering" argument regarding dividends.

The expectation is that there will be a strong tendency toward market momentum when managers are afflicted with hubris during high market valuation periods. This is simply because where merger deals are initiated not by potential synergies but optimistic belief, then most of these deals should exhibit the same pattern of short-term price run-ups. Once managers see there are short-term benefits associated with merger deals, then they will be infected by the same optimism, and hence start to

initiate their own merger deals. When market-wide sentiment is bullish, the market tends to react favourably to all merger deals made during a certain period of time, and so induce a strong merger momentum, that is, the market reaction to a merger is positively correlated with the response to other mergers in the recent past.[74]

4.2.4.2 The Stock Market Driven Acquisition Hypothesis and Merger Momentum

Shleifer and Vishny (2003) presented a theoretical explanation of merger waves that rests on the assumption that share prices become overvalued during stock market booms. The managers of firms with overvalued shares know that they are overvalued and wish to protect their shareholders from the loss in wealth that will come when the market lowers its estimate of the firm's value to its warranted level.[75] They accomplish this by exchanging their overvalued shares for the real assets of another company, which presumably are correctly priced in the market.[76] The target's managers are assumed to have short time horizons, so they too gain by cashing in their stakes in their firms at favourable terms.

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[74] Bouwman, et al. (2004) argued that acquisitions during booming stock markets are easier than during bearish markets because target resistance is lower when stock prices are high due to the fact that targets are receiving premiums that are over and above their already high valuation. Another possibility that could introduce merger momentum in high valuation markets is herding behaviour by managers. If managers expect more acquisitions to be undertaken during high-valuation periods, each manager may be more inclined o acquire another firm and be less careful in assessing synergies, since the reputation damage from a bad acquisition made as a part of a herd may be smaller than if the manager had made a more isolated decision.

[75] However, Jensen (2004) argued that bidding firms' managers also intend to further push up the overvaluation by meeting the earning target set by financial analysts.

[76] Rhodes-Kropf and Viswanathan (2004) argued that overvalued bidders' wish to use stock is incorrect because targets should not be eager to accept stock. They also showed that private information on both sides can rationally lead to a correlation between stock merger activity and market valuation.

Although mergers are not assumed to generate any wealth-creating synergies, when they occur as a result of firms having overvalued shares they, according to Shleifer and Vishny's (2004) theory, appear to be win-win events. In the Rhodes-Kropf and Viswanathan's (2004) version of the overvaluation theory, the motivation of the acquiring firm's managers is the same as in Shleifer and Vishny's version, although the target's managers are assumed to accept the overvalued shares of bidders because they overestimate the gains from the merger.

However, it can be argued that Shleifer and Vishny's (2004) hypothesis suffers from a logical difficulty. According to their theory, the managers of a company with overvalued shares are assumed to maximize the welfare of their current shareholders at the expense of new ones. Given this objective, it is not obvious why the managers choose to acquire other firms as a way of unloading their overvalued shares. Their shareholders will gain if they trade their overvalued shares for any fairly valued real assets. Since all firm's share prices tend to rise during a stock market boom, any firm that they buy is likely to be overvalued. Thus, Jensen's (2004) argument regarding the agency cost of overvaluation seems to be a creditable explanation to this logical problem. He asserted that the agency costs between managers and shareholders, and managers and financial analysts cause overvaluation. This conflict is impossible to reconcile without there being fundamental reforms of the existing auditing and financial reporting systems.

Jensen's argument and Shleifer and Vishny's hypothesis are both in line with the high market valuation merger momentum hypothesis. Merger momentum occurs when market reaction to a merger is systematically correlated with the response to other mergers in the recent past. In other words, the quality of a merger is not only decided by its own method of payment and estimated synergies, but also by recent mergers that have taken place in related industries, and by market-wide investor sentiment. Shleifer and Vishny (2004) argued that managers acting in overvaluation periods tend to use merger as a tool for unloading their overvalued shares, but this could also be due to the dilemma of meeting the analysts' targets (Jensen, 2004). In both cases, we should expect to see managers react optimistically towards a merger deal and pass this signal to other individual investors, hence producing market-wide bullish investor sentiment. Thus, these strong investor sentiments are more likely to produce merger momentum during high market valuation periods.

4.3 HYPOTHESES AND RESEARCH DESIGN

4.3.1 The Hypotheses Construction

If market valuations do impact on acquisition decisions, and mergers do come in waves, two obvious questions arise: does this impact on acquisitions have consequences for the market's reaction to merger deals? And do these reactions rely on merger deals in the recent past during hot merger waves? The goal of this research is to shed light on these questions.

Merger momentum is defined here by gauging the correlation between the market reaction to a merger announcement and recent market conditions, as well as how it correlates with bidder-specific merger activity, bidder-specific stock momentum, and deal specific control variables. A hot merger market is defined as one where the reaction to recent market conditions has been favourable. Thus, hot merger markets are related to, but not necessarily the same as, merger waves. Waves are traditionally measured by the number of mergers rather than by the market's reaction to merger announcements. According to previous studies, market reaction not only depends on the new information contained in a merger announcement, but also on how the market reacts to this new information.[77] The market's reaction to the same kind of information can also vary over different time periods. Studies have found that firms tend to issue equity when their market values are high relative to book values and tend

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[77] For example, new information could be whether or not a merger is likely to create synergies.

to repurchase equity when market values are low.[78] This market timing appears to have a significant impact on market reaction to announcements as well as an impact on long-term stock performance. In this section, possible origins of momentum are described and the hypotheses tested.

Synergy theory states that the combined firms' value is greater than the sum of two individual stand alone companies, thus, M&A activities are an efficient means to achieve these synergies. Arguably, merger momentum can reflect the most common factors that influence the synergies available from different mergers. Previous studies have suggested that mergers cluster around economic and industry shocks, and most mergers around these shocks are associated with a positive stock market reaction.[79] Hence, it is reasonable to believe that the shocks create common synergies.

However, the perception of common synergies varies among different managers in different industries. It is possible that some managers imbued with hubris or overconfidence in some sectors could initiate merger deals simply because they misperceive the potential synergies from merger. If this is the case, it could lead to increases in merger activity. At the same time, if making an acquisition reduces the probability that a firm is subsequently acquired, then managers can use mergers to

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[78] Secondary equity offerings are related to market valuations according to Taggart (1977), Marsh (1992), Asquith and Mullins (1986), Korajczyk, Lucas, and McDonald (1991), Jung, Kim, and Stultz (1996), and Hovakimian, Opler, and Titman (2001). Initial public offerings coincide with market valuations according to Loughran, Ritter, and Rydqvist (1995), and Pagano, Panetta, and Zingales (1998).

[79] See Mitchell and Mulherin (1996), and Andrade, et al. (2001).

preserve private benefits. Merger waves can arise when managers make acquisitions to deter other firms from acquiring their firm. [80] A manager is willing to acquire defensively even when it is not profitable. Gorton, et al. (2002) showed that defensive merger waves can result from economic shocks. If mergers made during waves are more likely to be defensive in nature, then these mergers should be less likely to create value. Arguably, this could be the case during high market valuation periods, when over optimism and irrational synergy perceptions dominate the market. So, bad acquisitions can cluster in time due to manager hubris and defensive mergers resulting from high market valuation. However, there is no reason to believe that mergers made during waves should be better off in the long-run.

Furthermore, merger waves and merger momentums should be highly correlated, if the neoclassical theory holds and if merger waves are responses to common shocks. Neoclassical theory sees mergers as an efficiency-improving response to various industry shocks, such as antitrust policy or deregulation. [81] If mergers are concentrated around common shocks that positively affect the potential synergies from all mergers, then mergers during waves should, on average, have higher synergies than mergers at other times, and hence should have better performance.

In summary, given the assumption that investors all respond to synergies at some level,

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[80] See Morch, et al. (1990), and Gorton, et al. (2002).
[81] See Mitchell and Mulherin (1996), and Jovanovic and Rousseau (2002).

both the neoclassical theory and hubris hypothesis generate merger momentum, but from different directions. Under the hubris hypothesis, a negative correlation should be seen between merger waves and the market reaction to merger announcements, while if neoclassical theory dominates the correlation should be positive. However, both theories assume that the market reaction contains all the information about the soon to be merged firm, thus it should not be expected that any long-run price reverse will be seen after a merger.

In hot markets, merger momentum could result from optimistic investor sentiment. A large amount of the literature has found that investors tend to be over optimistic in hot markets. Lihngqvist, et al. (2001) found that in hot markets, regular institutional investors are allocated IPO stock at a discount, for the gradual resale to exuberant investors in the after market. Similar studies by Loughran and Ritter (2002) also suggested that substantial mis-pricing occurs in hot IPO markets.[82] The same phenomenon could exist in hot merger markets. If over-optimism influences the market reaction to merger announcements, then an autocorrelation between the returns to bidding firms and merger announcements should be seen. During hot merger markets, when optimism reigns, the market reaction to all announcements should be more positive than at other times. However, price increases should reverse in the

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[82] Other studies include those of Loughran and Ritter (1995) who attributed high returns on seasoned equity offerings to optimistic beliefs on the part of investors, and Helwege and Liang (1996) who found evidence of over-optimism in hot IPO markets. Loughran, et al. (1994) suggested that IPO issuers time their issues to take advantage of the optimism of investors in hot markets, implying that issuances in hot markets may be worse than average.

long-run as optimism is replaced by results.

Investor sentiment can also be affected by financial analysts' unrealistic forecasts. Jensen (2004) argued that the critical role that financial analysts play can seriously damage companies' health, because the analysts want high, predictable, consistent, and ideally, constant year-on-year growth. It can be seen from the data that they penalise companies that do not show consistent, predictable growth. However, when managers change, not just the accruals, but their firm's real operating decisions to achieve that predictable, consistent growth, they are by definition destroying value. Essentially, the analysts are rewarding the managers for doing just that, in the pretence that somehow certainty can be created in an uncertain world.

Furthermore, investor sentiments in hot markets are not only affected by the unrealistic forecasts of analysts, but also by managers as a whole being imbued with the same optimism as the investors. Hence, they are likely to overestimate the synergies from a merger, leading them to make more bad acquisitions during hot markets. If managers are rewarded for temporally increasing share prices, then there is a strong incentive to make non-profit oriented acquisitions, since such bad acquisitions can also temporarily push up the acquirer's share price. This being the case, a pattern should emerge whereby mergers made in hot markets are worse than those made in cold markets.

Recent theoretical work has addressed the observed positive correlation between overall stock valuation and merger activity, which was noted by Golbe and White (1988), among others. Shleifer and Vishny (2004) suggested that clustering in merger activity is seen because a substantial portion of such activity is driven by stock market valuations. They posit that bull markets lead groups of bidders with overvalued stock to use it to buy real assets of undervalued targets through mergers. Coupled with sufficiently highly misperceived merger synergies in the market place, their model allows for less overvalued targets as well, relying mainly on dispersion in valuations. Target managers with short time horizons are willing to accept the bidder's temporarily overvalued equity. Overvaluation in the aggregate, or in certain industries, will therefore lead to wave-like clustering in time[83]. Jovanovic and Rousseau (2001) also found a positive relationship between market valuation and the number of merger activities. Both studies suggested that many of the merger waves are caused by changes in the business environment that both increase overall stock prices and lead to more profitable merger opportunities. If this is the case, and the neoclassical theory of merger holds, bidders should experience higher returns during high valuation periods, and because these returns reflect the real synergies, there should not be any long-run reversals. However, if firms' acquisition decisions are not responses to fundamental factors but to firm-level overvaluations, a rational stock market should react to an announcement negatively as evidence that a firm may think its stock is overvalued.

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[83] Nelson (1959) found that merger waves starting in the late 1800s were associated with stock market booms.

However, the empirical results are mixed for bidders' long-run performances. Hence, it can be argued that investor optimism during high market valuation periods also plays an important role in explaining the correlation between mergers and stock price. If investor sentiment dominates the market during high market valuation periods, more positive reactions to merger announcements should be seen in the short-run, with a significant long-run reversal as optimism is replaced by reality in time.

In summary, the hubris hypothesis, the neoclassical theory of merger, and the investor sentiment hypothesis, taken together can explain why firms make acquisitions under different market conditions, although they offer different explanations regarding merger momentum and how hot markets and mergers might be associated. The market should have a positive reaction to a merger announcement in a hot market when either the synergies or over–optimism reigns. However, the theories differ in their long-run predictions. If mergers are made in order to exploit synergies, then they should add to the firm's value in the long-run, while if optimistic belief dominates, then the bidding firm's long-run performance should be negative, as reality will replace unrealistic expectations in the long-run. Furthermore, it should be noted that if mergers are initiated to meet analysts' forecasts during stock market booms, then this should contribute to a further weakening in performance for mergers in this period.

4.3.2 Model Development

This section sets up the empirical model to be tested, and explains the rationale

behind each variable chosen to proxy merger momentum.

This empirical model has been developed to test how recent merger activity and changes in stock prices affect the market reaction to a merger announcement in both the short-run and the long-run. Furthermore, there is a specific focus on deals made in high valuation periods, and by sub-dividing the sample using a market valuation approach light will be shed on different predictions regarding merger momentum based on different market conditions. The sample has been divided into hot and normal market periods according to the level of transaction intensity in the acquisition market. Thus, the total transaction values have been used together with merger numbers as the proxy for hot and cold markets. In this study, the focus is on bidding firms only. Hence, deals involving private and subsidiary targets have been included. In order to test market reaction as accurately as possible, the pre-takeover financial status (value versus glamour) [84] of the bidder and the specific conditions of the acquisition have been controlled for. The model is as follow:

Market Reaction = F (Merger Momentum, Market Momentum, Bidder-Specific Merger Momentum, Bidder-Specific Stock Momentum, Deal-Specific Control Variables)

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[84] Rau and Vermalen (1998) found that the long-run under-performance of acquiring firms in mergers is predominantly caused by the poor post-acquisition performance of the low B/M 'glamour' firms. They interpreted this finding as evidence that both the market and management over extrapolate the bidder's past performance when they assess the desirability of an acquisition. Specifically, they argued that managers of glamour firms are afflicted with hubris.

The remainder of this section is devoted to giving an in depth explanation of each variable in equation 1. The dependent variable on the left hand side is market reaction, which is measured by the CAR and BHAR over short and long horizons. The short-run market reaction to a merger announcement was examined using the bidding firm's CAR for the five days surrounding the first public announcement. This gives the immediate reaction to the merger. The price reaction incorporates any new information, including synergies created by the merger and the split of synergies between bidder and target, but it also includes the effect of investor sentiments such as over-optimism. [85] The BHAR was used together with the calendar-time portfolio approach to evaluate the bidding firms' long-run reactions to a merger announcement. Based on the research set-up, if the short- run response contains all the information about a merger, the post-announcement abnormal return should be zero on average. Any systematic patterns in the post-announcement abnormal returns may be due to investor sentiment in a hot market valuation period.

The reaction to a merger announcement may depend on recent mergers. For this reason two measures of recent overall merger activity were included: the merger numbers for the last twelve months, and the average five-day CAR on merger announcements made in the twelve months prior to the announcement. The first one

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[85] The results are similar when using a three-day window. The five-day window was chosen because Fuller, et al. (2002) found that a five-day window around the merger announcement data given by the SDC was wide enough to capture the first mention of a merger every time for a sample of 500 announcements. Also, note that if merger discussions are broken off but later resumed, the announcement that discussions were being resumed as the announcement date.

of these is intended to capture waves, while the second is to capture merger momentum. Previous studies have found that there is autocorrelation within merger activity, with the number of mergers in a year helping predict the number of mergers in the next year. Since the factors that lead to an autocorrelation in the number of mergers might also affect the market's reaction to the merger announcements, the number of mergers in the year prior to a particular announcement was included as one measure of merger conditions.

The second measure of recent merger conditions is the main measure of hot merger markets. Merger momentum was measured using the average five-day CAR on merger announcements made in the twelve months prior to an announcement. A hot market is one where recent mergers have generated strong announcement returns.

Bidder-specific merger momentum was controlled for using three variables.

1) The quality of a firm's acquisitions was measured using the five-day announcement return for the last merger undertaken by the bidding firm, as long as the announcement occurred in the previous three years.

2) To measure how active a firm was the number of acquisitions announced by the bidder in the previous three years was used. Some firms in the sample made a series of acquisitions while others made only one.

3) A dummy was included for whether this was the first merger announcement by the acquirer in the previous three years.[86]

Mergers may also be affected by conditions in the broader stock market. As noted above, merger waves generally occur in periods of rising stock prices. The FTSE All Share index was used as a proxy for the general level of stock prices in the market. To examine whether stock prices were rising, the changes in the index during the period starting one year prior to a merger announcement and ending three days before the announcement were used.

Bidder-specific returns in the period leading up to a merger announcement were measured using the BHARs for the period starting one year prior to a merger announcement and ending three days before the announcement. The BHARs were measured relative to the benchmark of the FTSE All Share index.

The targets were divided into three groups: public firms, private firms, and subsidiaries, and separated into two forms of acquisition financing: stock financing and financing that included at least some other type of financing. This was for the purpose of controlling for differences between stock and other financing and between public and other targets.[87] The deal-specific control variables include dummy variables for whether the target is a private firm or a subsidiary (with public targets as

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[86] Schipper and Thompson (1983) and Fuller, et al. (2002) found that frequent acquirers are different from occasional acquirers. Thus, it was thought necessary here to include a first merger dummy.

[87] See Travlos (1987), Asquith, et al. (1987), Servaes (1991), and Fuller, et al. (2002).

the omitted group). In the sample, 2.2% of targets were publicly traded, 57.2% privately owned, and 40.6% subsidiaries. Dummies were included so that interaction between the type of target and a dummy could be examined to see whether a deal was financed using stock, since there is evidence that stock-financed acquisitions may differ by target type. 6.7% of the acquisitions in the sample were financed using solely stock.

Morck, et al. (1990), and Maquieira, et al. (1997) found that returns to bidding firms are lower when the merger is diversifying. To control for this, the firms were divided into seventeen industries using the classification given by Kenneth French on his web site[88]. A dummy was then defined as taking the value 1 if a merger was diversifying, that is, if it involved firms from two different industries.

The financial strength of the bidding firm was controlled for using the B/M ratio and the return on assets (ROA). There is evidence that a high B/M ratio is associated with a higher short-run CAR. The ratio of B/M values also affects long-run returns [89]. The B/M ratio was calculated using data available for the year prior to the merger announcement. The ROA was included to control for the financial performance of a firm. Morck, et al. (1990) suggested that firms with better prior performance make better acquisitions. Here, the income of the year prior to the acquisition announcement was divided by the assets at the end of that year to arrive at the ROA.

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[88] The web address is mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

[89] See Lang, et al. (1989), Servaes (1991), and Rau and Vermaelen (1998).

4.4 DATA AND METHODOLOGY

4.4.1 Data Selection

The focus of this research is on domestic M&As undertaken by UK firms announced between January 1985 to December 2002, as given in the SDC database. For the purposes of this work, a merger is defined as an acquisition of equity where one firm purchases at least 50% of another and after the purchase the bidder owns at least 90% of the target. Acquisitions were included in the sample if the following conditions were met:

1. The acquirer was a UK firm listed on the London Stock Exchange.

2. If daily acquirer return data was available for two days before the announcement date until two days after the announcement date, and if the following acquirer data was available for the three years following the acquisition: market equity (from June each year), the B/M ratio (from December each year) and monthly return data.

3. The target was a publicly traded or private UK firm, or a subsidiary thereof.

4. The transaction value was 1 million pounds or more.

5. As in Loughran and Vijh's (1997) work, a prerequisite was that the closing share price of the acquirer for the month before the announcement was not less than three. This eliminated firms that were very small or in distress.

6. The acquirer was a non-financial, non-utility firm.

As in Fuller, Netter, and Stegemoler's (2002), and Heron and Lie's (2002) work, a

cash acquisition is defined as any acquisition where the total transaction value was paid in cash, non-convertible debt, or non-convertible preferred stock. A stock acquisition is defined as any acquisition where the total transaction value was paid in common stock and options, warrants, rights, or convertible debt. Acquisitions involving a combination of cash and stock are defined as mixed payment acquisitions.

The announcement dates reported in the SDC data were used. Stock market data was collected from the Data Stream data set. Any mergers where there was no Data Stream data for the bidder was dropped.

In order to focus as closely as possible on the effect of general market conditions, a number of cuts were made to the sample. First, tender offers were not included in the basic sample. Acquisitions can be made either via a merger or a tender offer. Mergers are generally friendly agreements between the management of the bidding and target firms, while tender offers involve the purchase of shares without the need for approval from the target's management. Tender offers were excluded for two reasons. First, studies have generally found that the market response to tender offers is more positive (or less negative) than the reaction to mergers over both short-term and long-term horizons. This may be due in part to the prevalence of cash payments in tender offers (Martin, 1996). If the proportion of tender offers is related to market conditions, some of the results could be attributed to market conditions rather than to the mix of tender offers and mergers. The second reason is that there were no tender offers for private

firms or for subsidiaries. Thus, to the extent that there are differences in the market

response to acquisitions of public targets, private targets, and subsidiaries (Fuller, et

al., 2002), the inclusion of tender offers could bias the results. For these reasons, and

since only a small proportion of acquisitions were tender offers, this work focuses on

mergers only. All the results are robust to the inclusion of tender offers.

Many of the mergers in the SDC database involved a target that was much smaller

than the bidding firm. It is unlikely that such an acquisition would have a material

effect on the future earnings of the bidder, and thus, it should have little effect on the

bidder's stock price. To concentrate on the mergers most likely to have a significant

effect on the bidding firm's stock price, there was a prerequisite that the target be at

least 10% of the bidder's size. It is important that there is a relative size cut off, but

the exact minimum target size is less crucial. The main results hold for any cut off

between 5% and 25%.

To measure the relative size of the target and the bidder, the ratio of the market value

of the target to the market value of the bidder was calculated. Where the market value

for the target could not be established (most targets are not publicly traded), the price

paid in the acquisition was used as a proxy. Where the price paid in the acquisition

could not be established, the book values of the equity for both the target and the

bidder were used to estimate relative size. Mergers where the target was much larger

than the bidder were also eliminated. These mergers are not common and may reflect

special circumstances, and therefore any merger where the target was more than 120% of the size of the bidder was dropped.

Finally, outliers were eliminated. Any firm with a negative book value of equity or with a ratio of the B/M value of equity of over 10 was dropped. Firms with returns on assets of below - 100% or above 200% were also excluded. Once this was done, the mergers in the top 1% and the bottom 1% of the abnormal announcement returns were also dropped. This left a sample of 1,957 mergers. Table 4.1 provides some descriptive statistics on this sample.

There are some distinctive trends in the sample. First of all, it can be seen from Table 4.1 that cash was used to finance 55.9% of the deals, while only 6.9% of deals used stock as the method of payment. This could be due to the large proportion of private and subsidiary targets in the sample. Secondly, a clear increasing trend in merger numbers can be observed as time passes. The peak is reached in 2000, when there were 178 deals, while the numbers at the end of the 1980s were similar to those in the 1990s, indicating that a strong merger wave took place at the end of each decade. However, the transaction values indicate that the merger wave of the late 1990s was on a much larger scale than that of the late 1980s.

Table 4.2 presents the descriptive statistics for our sample of 1957 merger deals. All the right hand side variables from our empirical model are described here. Trailing 12

month average cumulative announcement return (CAAR) is the average CAAR for all sample mergers ending 3 days before an announcement together with Trailing 12-month number of mergers are the two variables we used to proxy for merger momentum variables and its mean value is 1.2%, which suggest bidder gain positive announcement return through out the sample. Market momentum variables is proxy by using trailing 12 month return on FTSE all share index that is the return on the FTSE all share index in the year ending three days before a merger announcement and it has a mean value of 13.9%. For bidder specific merger momentum and bidder specific stock momentum variables we using one dummy and the number of mergers by the bidder in the 3 years prior to the announcement to proxy for it, and the mean value is 59.4% and 0.71 respectively. We also controlled for the method of payment and other financial variables that had been found in past literature could significantly influence bidder's performance. We will discuss rest of the table when we introduce our results.

4.4.2 Methodologies

This section presents the methodologies used to calculate the right-hand size variable shown in equation 1, which is used for the calculation of the market's reaction to merger announcements in both the short-run and long-run.

4.4.2.1 The Short-run Returns using the CAR Measure

Following the methodology of Fuller, et al. (2002), a modified market model was used to estimate abnormal returns. The market model was not used because the

presence of frequent acquirers in the sample suggests a high probability of other acquisition announcements in the estimation period, and any abnormal returns caused by these announcements would bias the parameter estimates. The daily abnormal returns for a firm were calculated by deducting the equally-weighted index return from the firm's return. The abnormal returns for a five-day event window around the announcement date (from two days prior to an announcement date until two days after the announcement date) were also calculated. The CARs were calculated by adding the abnormal return between the returns of the bidder and the returns of the benchmark index:[90]

$$CAR = \sum_{t=-2}^{2} (R_t - R_{INDEX,t})$$

Where R_t is the return on the stock of the firm on date t relative to the announcement date, and $R_{index,t}$ is the return on the FTSE All Share index for that date. The results are robust to the use of the market model.

To estimate the CAR, it is necessary to use an index that is highly correlated with what the returns of the bidding firm would be if it had not announced a merger. There are several options. Fuller, et al. (2002) used the market index as the benchmark for measuring the CAR. However, Mitchell and Mulherin (1996) showed that most merger waves are the result of shocks to a specific industry. This suggests that it might be better to use an industry-based index as the benchmark. Alternatively,

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[90] The benchmark index used here was the FTSE All Share value-weighted index, the results hold when using the indexes of different industries.

studies of long-run returns, where the market model is problematic, often create indices by breaking firms into quintiles based on both market equity and the B/M ratio, yielding twenty-five portfolios (Mitchell and Stafford, 2000). The three indices are highly correlated with bidder returns in the year prior to the merger announcement. They also tend to produce the same results as in the empirical tests carried out here. For the sample of 1,957 mergers, the average CAR using the benchmark was 1.2%, which is significantly different from zero.

4.4.2.2 The Long-run Returns using the BHAR Measure

There are some methodological concerns associated with the long-run BHAR methodology that need to be addressed. Barber and Lyon (1997) advocated the use of BHARs where the sample firms are matched to control firms of similar size and B/M ratios. They found that this approach yielded well-specified test statistics because it alleviated the rebalancing, skewness, and new listing biases that other techniques suffer from. Although CARs overcome event-clustering problems, they are subject to the measurement, new listing, and skewness biases described by Barber and Lyon. Another problem with CARs is that they are poor in detecting any long-run abnormal performance. Corporate events such as M&As have been documented as occurring in waves, and the calendar-time portfolio approach will understate the extent of abnormal returns since it smoothes such returns over the hot and cold periods. Moreover, as compared to CARs, BHARs are better able to measure the returns to an

investor who holds a security for a long post-event period. With this concern in mind, the BHARs methodology was chosen as the primary measure of long-run returns. The BHAR is here defined as the value of holding a long position in the stock of the bidding firm and a short position in a benchmark index over the time horizon:[91]

$$BHAR = \prod_{t=1}^{T}(1+R_t) - \prod_{t=1}^{T}(1+R_{index,t})$$

As discussed above, the focus is on one benchmark, the FTSE All Share index, but the results are generally similar when using an industry-based index. Two time horizons were examined, one that included the announcement period and one that focused on the post-announcement period only. The first, which is referred to as the total window, runs from two days prior to a merger announcement to three years after the announcement, while the second starts three days after the announcement day and ends three years after it. The total window captures the total stock market impact of the merger, including the effect of the announcement, which the post-announcement period excludes. Only mergers for which there was post-announcement data for at least one year was included. As is standard, it was assumed that when a firm was de-listed from the London Stock Exchange, it earned the benchmark return for the period after it was dropped.

The average BHAR in the post-announcement period was −4.28%, which is not significantly different from zero. This estimate of long-run under-performance is in

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[91] Including periods before and after the merger is completed.

the range of estimates found in earlier studies.[92]

4.4.2.3 The Long-run Returns using the Calendar-Time Portfolio Measure

In this research, the calendar-time portfolio approach was used for reasons of robustness.[93] Using this approach, the calendar-time abnormal returns were calculated for the sample firms. Inference is based on a t-statistic derived from the time-series of the monthly calendar-time portfolio's abnormal return. It should be noted, that corporate events such as M&As have been documented to occur in waves, and the calendar-time portfolio approach will understate the extent of abnormal returns since it smoothes them over the hot and cold periods. Moreover, this approach is better for measuring the returns to an investor who holds a security for a long post-event period. Since the objective here is a cross-sectional analysis, the sample was divided into five sub-groups, and then the returns for each group were calculated. The returns were compared with the FTSE All Share index as a benchmark, and also calculated using the Fama French three-factor model.

A returns index was created for the sample as a whole, and also for the sub-samples based on quartiles of the key independent variables. These were: the trailing twelve-month average CAR (merger momentum), the trailing twelve-month number of mergers (merger waves), the trailing twelve-month return on the FTSE All Share

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[92] For example, Loughran and Vijh (1997), Rau and Vermaelen (1998), and Mitchell and Stafford (2000).

[93] Jaffe (1974), and Mandelker (1974) were the first to use the calender-time portfolio approach; it was also advocated by Fama (1997) and implemented in recent work by Loughhran and Ritter (1995), Brav and Gompers (1997), and Brav, Geczy, and Gompers (1995).

index (market momentum), the CAR on the bidder's last acquisition (bidder-specific merger momentum), the twelve-month trailing BHAR on the bidder's stock (bidder-specific stock momentum), and the CAR on the acquisition. The quartiles were created using monthly averages of the independent variables.

To construct the calendar-time portfolio of bidders' returns, the average returns were taken of all the firms that had made an acquisition in the three years prior to each month, excluding the current month. Each bidding firm remained in the portfolio for thirty-six months, and the portfolio was rebalanced on a monthly basis. The equation is as follows:

$$CTP_{j(t),t} = \sum_{i=j(t)} \frac{R_{i,t}}{N_{j(t)}}$$

Where j(t) consists of acquisitions in group j for the months 1, through month 36 and where $N_{j(t)}$ is the number of acquisitions in j(t). Mitchell and Stafford's (2000) standard methodology was followed when constructing the calendar-time portfolio, and any month with fewer than ten firms in the portfolio was dropped.[94]

Once the calendar-time return series for each group had been obtained, they were regressed on the Fama-French three factors to find the calendar-time abnormal returns for each group. The equation is as follows:

$$R_{cpt} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + \varepsilon_{i,t}$$

Where *Rcpt* is the simple monthly return on the calendar-time portfolio (either equally

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[94] Mitchell and Stafford (2000) suggested that there should be at least ten firms in each month's portfolio, in order to avoid sample selection bias problems.

or value weighted), R_{ft} the monthly return on three-month Treasury bills, R_{mt} the return on a market index, and SMB_t the return of portfolios of small stocks and big stocks. HML_t is the difference in the returns of the portfolios of high B/M stocks and low B/M stocks.

For the sample as a whole, the portfolio return was -0.06% per month, or -1.99% for the three-year post-announcement period. This result is very similar to that obtained using the BHAR measure.

4.4.2.4 The High Market Valuation Classification Method

The main classification used to form the high market valuation control portfolio was similar to that described in the previous chapter. Each month was classified as a high, neutral, or low valuation period. Monthly FTSE All Share index data from 1985 to 2002 was used to capture the price levels that existed in each month from January 1985 to December 2002. In order to classify each month by valuation the market index was first de-trended by removing the best straight-line fit from the FTSE All Share index of the month in question and the five preceding years. It was necessary to remove the trend from the market index because the FTSE All Share index had trended upwards; not removing the trend would result in a systematic classification of more recent acquisitions as high-valuation acquisitions and older acquisitions as

low-valuation acquisitions.[95]

After de-trending the FTSE All Share index, each month was placed in an above or below average group, according to whether the de-trended index of that month was above or below the previous five-year average. The months were then ranked in order of the de-trended FTSE All Share index. The top half of the above average months were classified as high valuation months and the bottom half of the below average months were classified as low valuation months. All other months were classified as neutral valuation months.[96]

Once each month had been placed in different valuation groups, the high market valuation acquisition portfolio was formed. All acquisitions that had taken place in high valuation months were put into this portfolio so that the cross-sectional regression of the CARs and BHARs could be run on the different factors that induce merger momentum.

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[95] These results are robust to reasonable changes in the length of historical data used in the de-trending.

[96] In the final tables, the results are presented for the case where the top and bottom half are classified as high and low valuation respectively, and are robust to different cut off points such as, the top and bottom 2/3rd, 1/4th etc.

4.5 RESULTS AND DISCUSSION

4.5.1 Results

4.5.1.1 The Short-run CAR Regression Results

Tables 4.3 to 4.7 present the results for the short-run CAR regressions. These regressions include controls for the form of financing, the type of targets, firm-specific financing characteristics, a dummy for whether a merger was diversifying, and industry dummies.

Table 4.3 shows the results of the CAR regression carried out on the merger momentum variables, which were proxied by the trailing twelve-month average CARs and twelve-month number of mergers. The full sample regression indicates that there is evidence of merger momentum at the overall market-level but not at the firm- level. The market –wide merger momentum variable, which is the coefficient for the trailing twelve-month average CAR, is positive and statistically significant. A 1% increase in the trailing CAR can cause the bidder's CAR to move up by 0.2 percentage points. However, the coefficient of the trailing twelve-month number of mergers (which captures merger waves) is insignificant. This is probably due to the fact that there were two merger waves over the whole sample period, and the latter (1997 to 2000) was much greater in both quantities and values, thus, the second wave dominated the effect of first wave. Rosen (2005) also suggested that this may be due to the merger wave in the sample.

The regression based on the high market valuation period portfolio shows that there is a significant positive relationship between merger momentum variables and short-run market reactions. A 1% increase in the trailing CAR can boost the bidders' CARs by 0.41%. This result is in line with the hypothesis that merger momentum is more significant during high market valuation periods simply because investor sentiment plays an important role at these times.

Table 4.4 shows the results of the CAR regression carried out on the market momentum variables that were proxied by the trailing twelve-month returns on the FTSE All Share index. Mergers may also be affected by conditions in the broader stock market. As noted earlier, merger waves generally occur in periods of rising stock prices. To examine whether stock prices were rising, the changes in the index during the period starting one year prior to a merger announcement and ending three days before the announcement were used. The results show that the market index positively effected the bidders' CARs from a merger announcement during high valuation periods. For every percentage point increase in the FTSE All Share index in the twelve months prior to an announcement made during a high valuation period boosted the CAR by 3.5%, and this result is statistically significant. For the rest of the portfolios, the results show that although there are positive relationships they are insignificant.

Table 4.5 shows the results of the regression carried out on the bidder-specific merger momentum variables. The bidder–specific merger momentum was proxied using three

variables. The quality of a firm's acquisition was measured using the five-day announcement return on the last merger undertaken by the bidding firm, as long as the announcement occurred in the previous three years. The number of acquisitions announced by the bidder in the previous three years was used to measure how active the firm was. Previous studies have found that the characteristics of frequent and infrequent bidders differ. Thus, a dummy was introduced where the merger announcement was the first made by the acquirer in the previous three years. There was found to be a statistically significant positive relationship between the bidder's return on the previous announcement and the short-term return on the present one. A 1% increase in the bidder's previous announcement return caused a 4.5% increase in the present announcement return for the high valuation control portfolio. The positive significant relationship between the first merger dummy and the bidder's CAR for the high market valuation control portfolio suggests that bidders gain from previous experience during high valuation periods. However, during other periods this relationship is insignificant and sometimes negative. Results for the regression carried out on the number of mergers that bidders had made in the previous three years shows that the short-run returns of present deals depended on factors other than how active a firm was. Thus, it would seem that the effect of previous mergers on the short-run reactions to a current merger appears to depend on the market's reaction to the earlier mergers, rather than how many there have been.

Table 4.6 shows the regression results for the CAR on bidder-specific stock

momentum. This stock momentum was measured by the bidder-specific returns in the period leading up to the merger announcement using the BHAR for the period starting one year prior to the merger announcement and ending three days before the announcement. The bidder's trailing twelve-month returns were negatively related to its CAR on the current merger announcement; where the previous one-year BHAR increased by 1%, the CAR from the announcement decreased by 0.5%. During the high valuation periods, the magnitude was lower and the results show a more significant negative relationship. This fact could be explained by Roll's (1986) hubris hypothesis, and will be discussed further in the following section.

Table 4.7 presents the results for the regression carried out on the other control variables. The targets were divided into three groups: public firms, private firms, and subsidiaries, and separated by the form of acquisition financing: stock financing, and financing that included at least some other type of financing. The results show that the acquisitions financed with stocks generally had negative announcement returns, although this result is insignificant. On the other hand, deals financed with cash or other forms of payment generated significant positive announcement returns. This result is in line with most previous findings.[97] As Fuller, et al. (2002) suggested, public and private targets have significantly different characteristics. Thus, those in this sample were separated into public and other targets, and it was found that for most of the control portfolios, private target acquisitions yielded significant positive

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[97] See Travlos (1987), Asquith, et al. (1987), Servaes (1991), and Loughran and Vijh (1997).

announcement returns.

Previous studies have found that returns to bidding firms are lower when the merger is diversifying. To control for this, the firms were divided into seventeen industries using the classification given by Kenneth French on his website. A dummy was then constructed that took the value 1 if a merger was diversifying, that is, if it involved firms from two different industries. In the sample under study, 40.3 % of all mergers were diversifying. Compared to other countries, this ratio is relatively high. It was found that for most of the control portfolios, diversifying mergers generated a positive correlation with the announcement returns, although for the high market valuation control portfolio this relationship was insignificant and relatively weak; this is probably due to mergers tending to be concentrated in specific industries during high market valuation periods.

The bidding firms had an average of 101.7 million pounds in assets and a median of 40.2 million in assets. Because of the wide range of bidder size the log of the total assets was included as a control variable. The size was found to negatively relate to the bidder's short-run return across the sample period and during the early period; this result is consistent with that found by Loderer and Martin (1997). However, the bidder's size was found to be significantly positively related to the bidder's short-run return for the high market valuation control portfolio. This may be because larger firms have more access to external finance and have more bargaining power,

especially during high market valuation periods when all firms tend to be overvalued by the market.[98]

The ratio of target to bidder size in the sample had a mean of 24.9% and a median of 14.6%. This ratio was included as a control variable because other researchers have found it to be correlated with the bidder's short-run return. A positive correlation was found for all the control portfolios and was especially significant for the high market valuation portfolios; the reason for this is the same as discussed above.

The financial strength of the bidding firms was controlled for using the B/M ratio. Previous studies have suggested that a high B/M ratio is associated with a higher short-run CAR. The B/M ratio also affects long-run returns.[99] It is calculated using data available for the year prior to the merger announcement. The average ratio in the sample was 0.47, and this is significantly positively related to the CAR.

In summary, it was found that most of the control variables have a significant coefficient in the regression for the high valuation periods. These signs are consistent with earlier literature. This suggests that the factors that affect the momentum variables exist in addition to the factors identified in the previous chapters.

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[98] Rhodes-Kropf, et al. (2004) suggested that small firms tend to cash in their overvalued equity as quickly as possible, even at a discount price.

[99] See Rau and Vermaelen (1998).

4.5.1.2 The Long-run BHAR Regression Results

The BHAR regression results are presented in Tables 4.8 to 4.12. The same control variables were used as when examining the short-run CAR with an additional independent variable, the CAR, for the post-announcement period.

Table 4.8 presents the regression results for the BHAR on the CAR and market momentum variables. As with the short-run regressions, trailing twelve-month returns on the FTSE All Share index were used as the proxy for market momentum. The CAR was included as a control variable in the regression on the post-announcement period. These variables allowed for tests to be made for reversals.

The coefficient of the CAR variable was statistically indifferent to -1, which means the announcement abnormal returns were given back in their entirety during the post-announcement period. For acquisitions that took place during high market valuation periods an even more significant result was found. However, this does not imply that the merger created no synergies, since any benefits accruing to the owners of the target were excluded.

The results for the market momentum variables also showed the reversal of the CAR. The coefficient of the increase in the stock index over the twelve months prior to an announcement was negative and significant for the high market valuation period portfolios. For the total sample portfolio, the post announcement and total window

results also showed that there was a long-run reversal, but the magnitude and significance were less than in the case of the high valuation period portfolio. In general, both results show that an acquisition announced during a high valuation period does worse in the long-run, than one announced in other periods. This is true even when the positive short- run reaction to the announcement of these mergers (i.e. total window returns) is included.

As with the short-run studies, the market-wide merger momentum was proxied using twelve-month trailing average CARs in the market, and to capture merger waves trailing twelve-month merger numbers were used. The results in Table 4.9 show that the measure of market-wide merger momentum is negative and significant, both in the post-announcement period and in the total windows. Notably, for the high market valuation control portfolios there was an even more significant result with an even lager negative coefficient. Most likely is because the deals announced during high valuation periods are most easily infected by hubris and investor optimism. As time passes, the over optimism is replaced by reality, thus a more significant long-run reversal is observed.

These results suggest not only that firms announcing in a hot merger market have a downward drift in their stock price in the post-announcement period, but that the deals announced in cold merger periods also end up with a lower stock price. This can be clearly seen as the coefficient for the total windows regression is negative and

significant. However, when combined with Table 4.10, the results for the merger wave regression do not seem to be very significant, which suggests that the bidder's long-run return depends on the last deal rather than on the quantity of merger deals the bidder has made in the previous year. However, the result for the high market valuation control portfolio is significantly negative. This evidence partially suggests that mergers announced during waves are worse in the long-run than mergers announced at other times.

Table 4.10 presents the regression results for the BHAR on bidder-specific merger momentum. It is difficult to draw the conclusion that firm-level momentum is reversed in the long-run as there is no strong evidence of reversal for the firm specific momentum variables. However, it can be seen that compared to the short-run studies, there is a much more significant coefficient for the long-run results. This suggests that firm-level momentum is more obvious in the long-run, which is probably due to the characteristics of the firm-level momentum variable simply needing time to reveal its function. In summary, no long-run reversal was found for bidder-specific merger momentum.

As in the short-run studies, the bidder-specific stock momentum pattern was proxied using the trailing twelve-month BHARs on the bidder's stock, which is the BHAR on the bidder's stock in the twelve months ending three days before an announcement. Strong evidence was found for the effect of a bidder-specific stock momentum on the bidder's long-run performance, as the coefficient of this control variable was

significant in all portfolios with a negative sign. This evidence strongly supports the hypothesis that bidders' managers tend to be afflicted with hubris or over confidence when their firm is doing well, and have more external resources to finance a merger.

Furthermore, the most significant sign was found for the high valuation post-announcement period control portfolio. This evidence suggests that managers of bidding firms make worse acquisition decisions when their firm is doing better in a high valuation period, this is probably because of the overvaluation effect advocated by Jensen (2004).[100]

Table 4.12 presents the results for the long-run regression on the other control variables. Similar to the findings of the short-run regression, these results are mostly consistent with previous research.

For the private target acquisitions negative coefficients were found for all the holding portfolios, although the magnitude is less than for the short-run studies. This suggests that the performance of bidders involved in private target acquisitions gradually get worse over a period of time. This may be due to the mis-perceived synergies of initial acquisitions and overpayment for private targets. For acquisitions involving subsidiaries, significant positive coefficients were found and this suggests that over a

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[100] Jensen (2004) suggested that agency costs increase surprisingly during overvaluation periods, and one of the major causes is to meet analysts' forecasts. Managers who fail to meet the target set by the analyst will face the problem of disappointing the market. Hence, they will initiate acquisitions even where they are not profitable in the long-run, but can boost their stock temporally.

period of time, the bidder's performance gradually gets better. These results, however, strengthen the point of the bidder's performance long-run reversal.

For the stock financing and other financing control variables, a result similar to that of the short-run studies was found. The bidders that chose stock as the method of payment consistently did worse in the long-run, with a negative coefficient. For those that financed the transaction solely with cash or made a mixed offer there was a different scenario, these were significantly positive. This suggests that bidders are much more careful regarding synergy screening when they are using cash as the method of payment.

Notably, a very significant size effect was found in the long-run study. As noted earlier, the bidder to target size ratio could be an important indicator of the bidder's long-run performance. It was found that with an increased divergence of target to bidder size, the bidders tended to show a positive long-run performance in all the holding portfolios, and this result is also in line with the hypothesis.

In summary, when investigating merger momentum in the long-run, the results are consistent with the hypothesis that momentum is caused by over-optimism, as short-run returns vanish as time passes and there is a strong tendency for long-run reversal over time.

Table 4.13 reports the portfolio's average returns and standard deviations. The pattern of returns is generally consistent with the pattern for the BHAR. The key variables in the regression are the trailing twelve-month average CAR (merger momentum), the trailing twelve-month number of mergers (merger waves), the trailing twelve- month return on the FTSE All Share index (market momentum), the CAR on the bidder's last acquisition (bidder-specific merger momentum), the twelve-month trailing BHAR on the bidder's stock (bidder-specific stock momentum), and the CAR of the acquisition. The quartiles were created using the monthly averages of the independent variables. As mentioned before, it is no surprise to see that the statistical significance is weaker for the calendar-time portfolio approach.[101]

As can be seen from the table, the t-value of the top and bottom quartile deviations is highly significant for most of the key merger momentum variables. For the twelve-month trailing average CAR (the measure of merger momentum) portfolio, the results suggest that acquisitions made in hot merger markets, as measured by the top quartile of the twelve-month trailing average CAR, have significant lower long-run returns than those made in cold markets, as measured by the lowest quartile.

The result for the trailing twelve-month returns on the FTSE All Share index also shows that market-wide momentum factors are significant in explaining the bidders' long-run returns. The results for other variables are generally statistically insignificant,

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[101] Previous studies have suggested that using the BHAR gives the hypothesis tests a lot of power, but may reject too many nulls (type one errors). On the other hand, the calendar time portfolio approach, by aggregating individual events into calendar time portfolios, throws away valuable information, thereby reducing the power of any hypothesis test.

although the pattern of returns is consistent with the pattern for the BHAR.

4.5.2 Discussion

4.5.2.1 Discussion of the Short-run Studies

The results of the short-run regression strongly support the hypothesis that merger momentum plays an important role in explaining bidders' returns during high market valuation periods. This high market valuation period evidence shows that recent history in the merger market affects the CAR from a merger announcement; a bidding firm's stock price increases more when recent mergers have had positive responses from the market; and the market rewards firms whose previous mergers it has preferred. Furthermore, the market-wide momentum factor suggests that a high market valuation leads to better announcement returns.

These results are consistent with the hubris hypothesis, neoclassical theory, and the investor sentiment hypothesis. The hubris hypothesis suggests that bidding firms' managers are easily infected by hubris or overconfidence when they have plenty of external resources to finance the merger, this could arise when the bidder's stock has sufficient run-up before the takeover. When hubris is the case, then there can be a positive autocorrelation in the announcement return. However, there was also a negative coefficient for the trailing twelve-month BHAR on the bidders' stock, which is the measure of bidder-specific stock momentum. This negative coefficient implies that if a bidder is infected by hubris because of good performance in the previous year,

it could lead to a negative market reaction to the merger announcement. If the rationale of the hubris hypothesis is recalled, then it is not hard to understand why this is the case. The hubris hypothesis suggests that the managers of bidding firms that have had recent success may believe that they can create value in situations that the market judges to be negative net present value. The managers thus want to make acquisitions even when they anticipate the announcement will generate a decline in stock prices. They expect they will be proved correct in the long-run.

Neoclassical theory also predicts the correlation between merger momentum factors and bidders' short-run announcement returns. Previous studies show that if mergers are concentrated in periods following economic shocks, then this could also lead to autocorrelation in announcement returns. Since the shocks can boost overall stock prices, the CAR can be positively correlated with recent returns in the stock market. The results here show that a 1% increase in the trailing twelve-month average return on the FTSE All Share index can boost the bidder's CAR by 3.5%, and this result is highly significant.

Investor sentiment theory also predicts the correlation between CARs and recent market conditions, but for different reasons. When market valuation is high, most investors will be imbued with over optimism and this over optimism regarding mergers overall generates a positive autocorrelation in announcement returns, while overall optimism about firms can lead to a positive correlation between the CAR and the returns in the stock market. Jensen (2004) argued that this investor optimism could

also result from financial analysts mis-forecasting or from their unrealistic expectations of the merger deal. It is well known that financial analysts play a critical role in the financial market, they are paid to make up a nice story. When this is the case, and if herding behaviour is taken into consideration, it is not hard to understand why bidders' short-run positive returns are related to recent market conditions during high market valuation periods. However, it is very hard to distinguish these three hypotheses from each other using the short-run regression study. They will be examined in more detail when the long-run results are discussed.

The results of the regression on the market-wide momentum variable further supports our hypothesis that high market valuations lead to merger momentum in both the short and long-run. The negative coefficient for the bidder run-up variable shows that if the bidder's stock has increased alot before a takeover then it is more likely to generate a negative announcement return. Shleifer and Vishny's (2004) overvaluation driven acquisition hypothesis is in line with these findings. Firms are more likely to use stock financing when they feel their stock is overvalued. However, they send a signal to the market when they accomplish the merger deal with stock, and the market will respond immediately to these signals, thus the result is a negative coefficient for the market momentum variable.

In summary, the short-run study results are in line with the hypothesis that the market reacts to merger announcements associated with recent market conditions and

bidder-specific merger momentum variables.

4.5.3 The Long-run Regression Results

Overall, the long-run regression is in line with the hypothesis that merger momentum

is caused by investor sentiment, these results are more obvious for the high market

valuation holding portfolio, but hold for the other control portfolios as well.

As discussed above, investor sentiment results in part from the investor becoming

over optimistic, such investors are influenced by irrational sentiments and this could

lead to a divergence in agreement about the probability distributions of future payoffs

on assets. As Fama and French (2005) suggested, price effects are large when: (i)

misinformed investors, or those with asset tastes, account for a substantial amount of

the invested wealth, and (ii) they are misinformed about, or have tastes for, a wide

range of assets with returns less than perfectly correlated with the returns on other

assets.

Different investors have different tastes regarding the future payoffs of asset, and this

divergence of tastes leads to equilibrium in asset pricing. However, when an over

optimistic investor sentiment predominates in the market during a high market

valuation periods, a systematic bias in the investors' tastes will be seen as most

investors have biased homogeneous beliefs regarding mergers' future payoffs.

As time passes, the real information of the bidder will be revealed to the market, and

the optimism will eventually be replaced by reality, a downward trend in the bidder's long-run return will then be observed. The results here show that hot stock markets, as measured by the trailing twelve-month returns, are also associated with larger short-run announcement effects that reverse themselves in the long-run. If market participants are optimistic about the prospects for a merger they will bid up the stock of the merging firms. However, as the performance of the merged firm is revealed over time, market participants may revise their views of the quality of the merger downward, losing their optimism.

The long-run reversal of the positive short-run momentum in mergers also suggests that the market rationally reallocates the resources as a result of optimism being replaced by reality.

However, while mergers may create synergies, the neoclassical hypothesis does not predict the long-run downward drift in prices following mergers in high valuation markets, according to the findings of this research. The results are more consistent with the hubris hypothesis of merger and with investor sentiment in general. The calendar-time portfolio approach shows similar results, however the magnitude and significance are less compared to the BHAR regression.

4.6 ROBUSTNESS

Previous studies have shown that the different types of target and mergers may influence the market reaction to a merger announcement. Furthermore, different time periods can also affect the market reaction, as discussed in the previous section. This section examines how robust the results are to splitting the sample according to type of merger, type of target, and the presence or not of a merger programme.

To check for robustness, the effect of different types of merger was examined. Tender offers were excluded from the original sample because previous studies have generally found that the market response to tender offers is more positive (or less negative) than the reaction to mergers over both short-term and long-term horizons. In part, this may be due to the prevalence of cash payments in tender offers. Augmenting the sample with tender offers meeting the other sample criteria gave similar results. When looking at Table 4.15, it can be seen that market-wide merger momentum (which was proxied by the trailing twelve-month return on the FTSE All Share index) exists and that a negative bidder-specific merger momentum exists in the short-run studies for the high market valuation control portfolio. Long-run reversals for the main merger momentum variables can also be seen; this is consistent with the original sample results. Previous studies have also documented that the market reaction to stock mergers differs from its reaction to other types of financing, thus the sample was sub-divided into stock mergers and all others. The results (not shown) for the two

sub-samples are qualitatively similar.

Much of the previous literature has focused on the relationship between merger outcome and different types of targets. The objective of this research is to find out the relationship between market reaction and recent market conditions, thus the focus is on the bidders and includes as much as possible the merger deals. Public targets, private targets, and subsidiaries were included in the study. However, to ensure that the results are robust to the types of targets, the original sample was sub-divided into public targets and other targets, giving sub-samples of 1.776 private and subsidiary targets and 181 public targets for the period 1985 to 2002. The regression of CAR and BHAR were then run on the key merger momentum variables based on the sub-samples.

The results are consistent with the earlier findings. although the trailing twelve-month BHAR on the bidders' stock, which is the main measure of bidder-specific stock momentum. is statistically significant for the publicly-traded target sample although not for the other sample. Arguably, this is due to the small size of the sample of publicly-traded targets.

A robustness check was also conducted on the long-run calendar- time portfolios by using different benchmarks. For robustness. a regression of the bidders' monthly abnormal returns on the Fama-French three factors was conducted. By using the

Fama-French three factors, more consistent and more significant results were found for most of the key variables. However, these results are consistent with our regression results when using the BHAR measures.

Overall, the results appear robust to the different classifications of the sample and the different periods of time horizons employed in the research.

4.7 CONCLUSION

The aim of this chapter has been to examine the merger momentum effect that is, the interaction between broad market conditions and the market's response to a merger announcement. To explain the source of merger momentum, the interaction between the market short-run reaction and the bidder's long-run performance was discussed. This research particularly focuses on high market valuation periods and has found that merger momentum is rather strong when the market tends to be overvalued compared to other periods.

Using a large sample of 1,957 UK domestic acquisitions undertaken in the period 1985 to 2002, evidence of momentum in merger markets was found. When the market had been reacting favourably to merger announcements, it tended to continue to do so. Similarly, mergers announced during hot stock markets tended to get a better reaction from the market than those announced during cold markets. Notably, this phenomenon is particularly evident when the overall market valuation is high. This suggests that managers are easily infected by good news and exhibit similar behavioural biases when the market valuation is high.

Three hypotheses have been put forward to explain the source of merger momentum (the hubris hypothesis, the synergy hypothesis, and the investor sentiment hypothesis). The short-run regression results revealed the fact that all three hypotheses provide reasonable explanations. However, the long-run results give greater support to

investor sentiment being the important factor in the market's reaction to merger announcements. If investors' reactions to merger announcements are based on the rational expectation of combined synergy then they will react positively to merger announcements with no long-run drift. If neoclassical theory, which states that industry or economic shocks create synergy holds then more positive market reaction should be seen during high valuation periods as it contains many common shocks. Thus, our results are also consistent with the neoclassical explanation of merger momentum. However, when the majority of investors are infected by optimistic beliefs, the short-run price run-ups caused by a merger announcement are reversed in the long-run as this optimism is eventually replaced by reality. When considering the driving force of investor optimism it can be seen that high valuation periods are most likely to produce this sentiment.

The concerns of financial analysts may operate in addition to investor sentiment. Financial analysts are always optimistic during high market valuation periods (Jensen 2004), hence they will set up unrealistic earning targets for the firm. Managers who fail to meet those targets face punishment by disappointed investors, so they have to boost the share price to manipulate earnings. At the same time, managers are easily infected by optimism resulting from past success in the same way as ordinary investors, and they initiate merger deals involving overpayments in order to meet the analysts' expectations. At the same time managers will make bad choices and misperceive the combined synergy when they are systematically afflicted with hubris

during high market valuation periods, thus it is no surprise to see bidders' long-run reversals. In general, the investor sentiment hypothesis together with the overvaluation hypothesis can serve as two creditable explanations for the findings of this research.

This chapter has covered two aspects of the research. Firstly, the market's reaction to merger announcements has been decomposed into several factors. It was found that merger outcomes not only depend on the bidders, but are also correlated with broader market conditions and stock market price levels, and most importantly, they depend on how other recent deals have been received by the market. Secondly, it was discovered that high market valuation does affect the quality of merger deals, and stimulates the short-run returns, but leads to significant long-run reversal. It seems that mergers are subject to more behavioural biases when market valuation is high and these formulate the merger wave: deals within merger waves tend to be correlated with each other and co-move in the same direction.

Table 4.1   Descriptive statistics for M&A sample

This table describe the characteristics of our UK merger sample from 1985 – 2002. N is the number of deals per year. Transaction values reported in millions of pounds. Cash deals are those that involved 100% cash payment and stock deals are those that involved 100% stock payment. The sample consists of all completed deals listed on the Security Dada corporation (SDC) U.K M&A data base. All the acquirers in our sample are public firms. We define a merger as an acquisition of equity where one firm purchases at least 50% of another and after the purchase: the bidder owns at least 90% of the target. We also require that the target be at least 10% of the bidder's size.

Year	N	Transaction Value (Mean)	Transaction Value (median)	Transaction Value (sum)	Cash offer	Stock offer	Mixed offer
1985	11	36.59	28.23	402.51	58.33%	33.33%	8.34%
1986	26	18.57	11.15	482.75	76.92%	11.54%	11.54%
1987	69	20.05	7.50	1383.56	72.46%	8.70%	18.84%
1988	172	20.72	4.57	3564.14	58.14%	3.49%	38.37%
1989	143	22.28	6.00	3186.60	51.75%	6.29%	41.96%
1990	99	8.84	4.50	874.68	62.63%	3.03%	34.34%
1991	66	25.72	5.10	1697.20	62.12%	4.55%	33.33%
1992	71	14.78	4.05	1049.59	49.30%	8.45%	42.25%
1993	78	19.76	8.50	1541.00	92.27%	6.00%	1.73%
1994	116	14.28	6.80	1656.01	49.14%	2.59%	48.27%
1995	108	14.91	6.19	1609.79	44.44%	9.26%	46.30%
1996	115	26.62	7.10	3061.32	43.48%	0.00%	56.52%
1997	173	16.48	7.00	2851.23	47.40%	5.20%	47.40%
1998	163	15.91	7.50	2593.07	65.64%	3.68%	30.68%
1999	149	34.11	11.00	5082.85	50.34%	4.03%	45.63%
2000	178	32.90	10.80	5855.34	44.94%	3.37%	51.69%
2001	124	18.68	6.80	2334.43	25.81%	4.84%	69.35%
2002	96	41.13	6.00	3907.08	51.04%	6.25%	42.71%
Overall	1957	402.31	148.79	43133.15	55.90%	6.92%	37.18%

Table 4.2 Summary statistics

Summary statistics for the sample of 1957 mergers announced during 1985-2002. Trailing 12-month number of mergers is the number of sample mergers in the 12 months prior to an announcement. Trailing 12-month average cumulative announcement return (CAAR) is the average CAAR for all sample mergers in the 12 months ending 3 days before an announcement. CAAR for the last announcement by the firm is for the most recent merger where the target is at lease 5% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. Stock financing is the percent of mergers that are entirely financed by stock. Other financing is the percent of merger that have some non-stock financing. Target is public, private, and subsidiary refer to the percent of mergers with that type of targets. Diversifying merger is the percent of mergers where the target and bidding firm are in different industries. For the industry classification, we use the SDC industry classification definition.

Variables	Mean	Median	Std. dev
Trailing 12-Month average CAAR	1.2%	1.23%	0.9%
Trailing 12-Month number of mergers	128	127	41
Trailing 12-Month return on FTSE all share index	13.9%	11.3%	22.3%
Dummy that is one if this is the first announcement by the bidder in the prior 3 years	59.4%	1	49.1%
Number of mergers by the bidder in the 3 years prior to the announcement	0.71	0	1.11
Stock Financing	5.2%	0	28.5%
Other Financing	94.8%	1	38.9%
Target is public firm	2.2%	0	14.7%
Target is private firm	57.2%	1	49.5%
Target is subsidiary	40.6%	0	49.1%
Market value of bidding firm (millions pounds)	101.7	40.2	186.2
Book to Market Ratio	0.47	0.42	0.47
Log (bidder market value)	1.63	1.6	0.55
Ratio of target to bidder size	24.9%	15.6%	24.1%
Diversifying merger	40.3%	0	49.2%

Table 4.3   Regression results for the CAR   on merger momentum variable

The sample consists of 1957 U.K mergers announced between1985 to 2002. The dependent variable is the cumulative abnormal return (CAR). The CAR is defined as $\sum_{t=-2}^{2} (R_t - R_{index\ ,t})$ where R_t is the return on the bidding firm's stock and $R_{t,index}$ is the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. Trailing 12 month average cumulative abnormal announcement return (CAR) is the average CAR for all sample mergers in the 12 months ending 3days before an announcement. The significance level is report as t-statistic.

	Dependent variable: CAR		
	Independent variables: Merger Momentum Variables		
	Trailing 12-month average CAR	Trailing 12-month number of mergers/1000	No. of observations
Full Sample (1985 to 2002)	0.20 (2.73)**	-0.008 (-1.62)	1957
Early time period (1985 to 1989)	-0.34 (-1.23)	-0.097 (-1.98)*	421
Later time period (1990 to 2002)	0.27 (2.25)**	-0.003 (-1.56)	1536
High market valuation period (1998-2001)	0.41 (2.82)**	-0.001 (-2.35)**	810

*, **,   indicate statistical significance at the 5% and 1% levels respectively

Table 4.4   Regression results for the CAR   on market momentum variable

The sample consists of 1957 U.K mergers announced between 1985 to 2002. The dependent variable is the cumulative abnormal return (CAR). The CAR is defined as $\sum_{t=-2}^{2} (R_t - R_{index,t})$ where R_t is the return on the bidding firm's stock and $R_{t,index}$ is the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. The market momentum is proxy by Trailing 12-month FTSE All Share index return which is the return on the value-weighted FTSE All Share index in the year ending three days before a merger announcement. The significance level is report as t-statistic.

	Dependent variable: CAR	
	Independent variables: Market Momentum Variable	
	Trailing 12 month return on FTSE all share index	No. of observations
Full Sample (1985 to 2002)	0.023 (0.67)	1957
Early time period (1985 to 1989)	0.011 (1.05)	421
Later time period (1990 to 2002)	0.027 (1.96)*	1536
High market valuation period portfolio	0.035 (3.72)**	810

*, **,   indicate statistical significance at the 5% and 1% levels respectively

Table 4.5   Regression results for the CAR on bidder specific merger momentum variables

The sample consists of 1957 U.K mergers announced between1985 to 2002. The dependent variable is the cumulative abnormal return (CAR). The CAR is defined as $\sum_{t=-2}^{2} (R_t - R_{index,t})$ where Rt is the return on the bidding firm's stock and R t,index is the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. The bidder specific merger momentum is proxy by the CAR on bidder's last announcement, the first merger dummy and the number of mergers by firm in last 3 years. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The first merger dummy is one if the firm has made an acquisition in the three years prior to the announcement and zero otherwise. The significance level is report as t-statistic.

	Dependent variable: CAR			
Independent variables: bidder specific merger momentum variables				
	CAR on bidder's last announcement	First merger dummy	Number of merger by firm in last 3 years	No. of observations
Full Sample (1985 to 2002)	0.052 (1.52)	0.002 (0.41)	0.001 (0.65)	1957
Early time period (1985 to 1989)	0.037 (1.23)	-0.003 (-0.43)	0.001 (1.53)	421
Later time period (1990 to 2002)	0.067 (1.88)*	-0.005 (-0.81)	0.001 (0.61)	1536
High market valuation period portfolio	0.045 (2.73)**	0.008 (3.07)**	0.003 (1.24)	810

*, **,   indicate statistical significance at the 5% and 1% levels respectively

Table 4.6   Regression results for the CAR   on bidder specific stock momentum

The sample consists of 1957 U.K mergers announced between1985 to 2002. The dependent variable is the cumulative abnormal return (CAR). The CAR is defined as

$$\sum_{t=-2}^{2} (R_t - R_{index,t})$$ where Rt is the return on the bidding firm's stock and R t,index is

the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. The bidder specific stock momentum is proxy by trailing 12- month BHAR on bidder's stock. The buy and hold return (BHAR) on bidder's stock is the return in the 12 months ending three days before an announcement, which is calculate as

$$\prod_{t=1}^{T}(1+R_t) - \prod_{t=1}^{T}(1+R_{index,t})$$ where R_t is the return on the bidding firm's stock and

$R_{index,t}$ is the return on FTSE all share value-weighted index. The significance level is report as t-statistic.

	Dependent variable: CAR	
	Independent variables: bidder specific stock momentum	
	Trailing 12-month BHAR on bidder's stock	No. of observations
Full Sample (1985 to 2002)	-0.005 (-1.98)*	1957
Early time period (1985 to 1989)	0.009 (1.56)	421
Later time period (1990 to 2002)	-0.008 (-2.12)**	1536
High market valuation period portfolio	-0.006 (-2.34)**	810

*, **,   indicate statistical significance at the 5% and 1% levels respectively

Table 4.7 Regression results for the CAR on control variables

The sample consists of 1957 U.K mergers announced between1985 to 2002. The dependent variable is the cumulative abnormal return (CAR). The CAR is defined as

$$\sum_{t=-2}^{2} (R_t - R_{index,t})$$ where R_t is the return on the bidding firm's stock and $R_{t,index}$ is

the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. Stock financing is the percent of mergers that are entirely financed by stock. Other financing is the percent of mergers that have some non-stock financing. Target is public. private. and subsidiary refer to the percent of mergers with that type of target. The ratio of target-to-bidder size is the ratio of target equity to bidder equity. Bidder book-to market is the book-to-market equity ratio and return on assets. Diversifying merger is the percent of mergers where the target and the bidding firm are in different industries. The significance level is report as t-statistic.

	Dependent Variable: CAR			
	Independent Variable: Control Variables			
	Full Sample (1985 to 2002)	Early time period (1985 to 1989)	Later time period (1990 to 2002)	High market valuation period portfolio
Private target	0.008 (1.95) *	0.005 (1.43)	0.009 (2.09)**	0.05 (2.08)**
Subsidiary	0.011 (1.72)	0.003 (0.76)	0.012 (1.41)	0.042 (1.72)
Stock Financing	-0.18 (-1.55)	-0.07 (-0.56)	-0.09 (-0.85)	-0.06 (-1.45)
Other Financing	0.15 (2.32)**	0.08 (2.79)**	0.10 (1.33)	0.24 (2.12)**
Log of total assets	-0.023 (-0.86)	-0.006 (-1.45)	0.001 (0.92)	0. 004 (1.98)*
Ratio of target to bidder size	0.006 (1.73)	0.013 (1.47)	0.005 (1.97)*	0.02 (4.66)**
Bidder book to market	0.005 (0.87)	0.007 (0.75)	0.004 (0.56)	0.002 (2.63)**
Diversifying merger	0.002 (2.55)**	0.003 (3.67)**	-0.001 (-1.34)	0.001 (1.22)
No. of Observations	1957	421	1536	810

*, **, indicate statistical significance at the 5% and 1% levels respectively

Table 4.8   Regression results for the BHAR on CAR and market momentum variables

The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ (where R_t is the return on

the bidding firm's stock and $R_{index,t}$ is the return on the FTSE All Share value-weighted index. We include acquisitions with at least one year of observations after the announcement. The post-announcement window runs from three days after an announcement to three years after the announcement. The total window runs from two days before an announcement to three years after the announcement. Bidder's CAR is the cumulative abnormal return around announcement period which is define

as: $\sum_{t=-2}^{2} (R_t - R_{index,t})$ where R_t is the return on the bidding firm's stock and R

t,index is the return on the FTSE All Share index. The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock We use trailing 12-month FTSE All Share index return which is the return on the value weighted FTSE All Share index in the year ending three days before a merger announcement to proxy market wide momentum factor. The significance level is report as t-statistic.

Dependent variable: BHAR		
Independent variables: CAR and market momentum variable		
	Bidder's CAR	Trailing 12-month return on FTSE all share index	Adjusted R-sq
Post announcement returns	-1.03 (-2.76)**	-0.12 (-1.33)	0.038
Total window returns		-0.34 (1.67)	0.067
High market valuation period post announcement returns	-1.08 (-3.35)**	-0.25 (-2.91)**	0.066
High market valuation period total window returns		-0.38 (-2.45)**	0.051

*, **, indicate statistical significance at the 5% and 1% levels respectively

Table 4.9 Regression results for the BHAR on merger momentum variables

The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ (where Rt is the return on

the bidding firm's stock and Rindex,t is the return on the FTSE All Share value-weighted index. We include acquisitions with at least one year of observations after the announcement. The post-announcement window runs from three days after an announcement to three years after the announcement. The total window runs from two days before an announcement to three years after the announcement. we proxy merger momentum using trailing 12-month average CAR and to capture the merger wave we using trailing 12-month number of mergers. Trailing 12-month average cumulative abnormal announcement return is the average CAR for all sample mergers in the 12 months ending 3 days before an announcement. Trailing 12-month number of mergers is the number of sample mergers in the 12 months prior to an announcement. The significance level is report as t-statistic.

	Dependent variable: BHAR		
	Independent variables: merger momentum variables		
	Trailing 12-month average CAR	Trailing 12-month number of merger/1000	Adjusted R-sq
Post announcement returns	-9.72 (-5.61)**	-0.33 (-0.65)	0.078
Total window returns	-10.33 (-1.95)*	0.12 (0.78)	0.041
High market valuation period post announcement returns	-11.23 (-4.52)**	-0.27 (-2.32)**	0.046
High market valuation period total window returns	-8.66 (-2.55)**	-0.11 (-1.86)	0.026

*, **, indicate statistical significance at the 5% and 1% levels respectively

Table 4.10 Regression results for the BHAR on bidder specific merger momentum

The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ (where R_t is the return on

the bidding firm's stock and $R_{index,t}$ is the return on the FTSE All Share value-weighted index. We include acquisitions with at least one year of observations after the announcement. The post-announcement window runs from three days after an announcement to three years after the announcement. The total window runs from two days before an announcement to three years after the announcement. We proxy bidder specific merger momentum by using the CAR on bidder's last announcement, first merger dummy and the number of mergers by bidder in last 3 years. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The first merger dummy is one if the firm has made an acquisition in the three years prior to the announcement and zero otherwise. The significance level is report as t-statistic.

	Dependent variable: BHAR			
	Independent variables: bidder specific merger momentum variables			
	CAR on bidder's last announcement	First merger dummy	No. of mergers by bidder in last 3 year	Adjusted R-sq
Post announcement returns	0.15 (0.44)	0.09 (1.88)*	-0.028 (-1.76)	0.033
Total window returns	0.21 (0.87)	0.11 (1.67)	0.012 (1.98)*	0.12
High market valuation period post announcement returns	0.35 (1.75)	0.07 (2.54)**	0.016 (3.42)**	0.047
High market valuation period total window returns	0.28 (2.12)**	0.12 (3.89)**	0.022 (2.12)**	0.071

*, **, indicate statistical significance at the 5% and 1% levels respectively.

The BHAR is defined as $\prod_{t=1}^{T}(1 + R_t) - \prod_{t=1}^{T}(1 + R_{index,t})$ (where R_t is the return on

the bidding firm's stock and $R_{index,t}$ is the return on the FTSE All Share value-weighted index. We include acquisitions with at least one year of observations after the announcement. The post-announcement window runs from three days after an announcement to three years after the announcement. The total window runs from two days before an announcement to three years after the announcement. To proxy bidder specific stock momentum pattern, we using trailing 12 month BHAR on bidder's stock which is the buy and hold return on bidder's stock in the 12 months ending three days before an announcement. The significance level is report as t-statistic.

	Dependent variable: BHAR	
	Independent variables: bidder specific stock momentum	
	Trailing 12-month BHAR on bidder's stock	Adjusted R-sq
Post announcement returns	-0.075 (-3.26)**	0.033
Total window returns	-0.062 (-2.67)**	0.12
High market valuation period post announcement returns	-0.11 (-4.87)**	0.047
High market valuation period total window returns	-0.092 (-2.55)**	0.071

*, **,   indicate statistical significance at the 5% and 1% levels respectively.

Table 4.12   Regression results for the BHAR on control variables

The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ (where R_t is the return on

the bidding firm's stock and $R_{index,t}$ is the return on the FTSE All Share value-weighted index. We include acquisitions with at least one year of observations after the announcement. The post-announcement window runs from three days after an announcement to three years after the announcement. The total window runs from two days before an announcement to three years after the announcement. To proxy bidder specific stock momentum pattern, we using trailing 12 month BHAR on bidder's stock which is the buy and hold return on bidder's stock in the 12 months ending three days before an announcement. The significance level is report as t-statistic.

Dependent variable: BHAR

Independent variables: bidder specific stock momentum

	Post announcement returns	Total window returns	High market valuation period post announcement returns	High market valuation period total window returns
Private target	0.012 (0.34)	0.037 (0.82)	-0.006 (-0.95)	0.021 (1.54)
Subsidiary	0.17 (2.12)**	0.092 (1.32)	0.12 (2.01)*	0.092 (2.33)**
Stock Financing	-0.053 (-0.75)	-0.077 (-0.38)	-0.065 (-1.89)	-0.042 (-1.28)
Other Financing	0.012 (1.54)	0.016 (2.55)**	0.011 (2.88)**	0.016 (1.66)
Log of total assets	0.031 (3.75)**	0.023 (1.42)	0.043 (1.66)	0.035 (2.89)**
Ratio of target to bidder size	0.27 (4.45)**	0.18 (2.35)**	0.11 (2.29)**	0.017 (1.97)*
Bidder book to market	0.057 (1.19)	0.053 (2.69)**	0.052 (2.05)**	0.046 (0.77)
Diversifying merger	0.17 (3.87)**	0.19 (2.76)**	0.21 (1.65)	0.26 (1.53)
Adjusted R-sq	0.036	0.082	0.058	0.071

*, **, indicate statistical significance at the 5% and 1% levels respectively.

Table 4.13   Long-run portfolio returns.

The portfolio return for group j is the average over all months with at least 10 observations of, $CTP_{j(t),t} = \sum_{i=j(t)} \frac{R_{i,t}}{N_{j,t}} - R_{index,t}$ where j(t) consists of acquisitions in group j for months t-36 through t-1, Nj(t) is the number of acquisitions in j(t). and Rindex,t is the return on the FTSE all share value-weighted index. The quartiles are defined based on monthly averages of the grouping variables. Trailing 12-month average cumulative abnormal announcement return (CAR) is the average CAR for all sample mergers in the 12 months ending 3 days before an announcement. Trailing 12-month number of mergers is the number of sample mergers in the 12 months prior to an announcement. Trailing 12-month FTSE all share index return is the return on the value-weighted FTSE all share index in the year ending three days before a merger announcement. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The buy and hold return (BHAR) on bidder's stock is the return in the 12 months ending three days before an announcement.

	Top quartile	Second quartile	Third quartile	Bottom Quartile	t-value of Top minus Bottom
Trailing 12 month average CAR	-8.67%	-6.43%	-2.39%	6.48%	2.62**
Trailing 12 month number of merger/1000	-4.54%	-4.29%	-4.26%	3.74%	1.29
Trailing 12 month return on FTSE all share index	-4.28%	-3.69%	2.51%	-4.55%	-2.01*
CAR on bidder's last announcement	-0.83%	2.73%	-4.87%	4.76%	1.58
Trailing 12-month BHAR on bidder's stock	-5.34%	-3.87%	2.20%	2.93%	1.63
CAR	-2.61%	-8.36%	-6.39%	-0.37%	-1.28

*, **, indicate statistical significance at the 5% and 1% levels respectively.

Table 4.14 Robustness long-run portfolio returns base on FF 3 factor model

The regression results *in* this table represent the monthly abnormal return which obtain from the Fama-French three factor model:

$$R_{cpt} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + \varepsilon_{i,t}$$

Where $R\,p\,t$ is the simple monthly return on the calendar-time portfolio (either equally weighted or value weighted), $R\,f\,t$ is the monthly return on three month Treasury bills, Rmt is the return on a value weighted market index, $SMBt$ is the return of value-weighted portfolios of small stocks and big stocks, $HMLt$ is the difference in the returns of values weighted portfolios of high book-to-market stocks and low book-to-market stocks. The quartiles are defined based on monthly averages of the grouping variables. Trailing 12-month average cumulative abnormal announcement return (CAR) is the average CAR for all sample mergers in the 12 months ending 3 days before an announcement. Trailing 12-month number of mergers is the number of sample mergers in the 12 months prior to an announcement. Trailing 12-month FTSE all share index return is the return on the value-weighted FTSE all share index in the year ending three days before a merger announcement. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The buy and hold return (BHAR) on bidder's stock is the return in the 12 months ending three days before an announcement.

	Top quartile	Second quartile	Third quartile	Bottom Quartile	t-value of Top minus Bottom
Trailing 12 month average CAR	-5.28%	-2.41%	0.29%	3.67%	2.36**
Trailing 12 month number of merger/1000	-2.37%	-3.73%	-5.09%	1.37%	2.81**
Trailing 12 month return on FTSE all share index	-5.04%	-0.38%	0.87%	-2.37%	-2.06*
CAR on bidder's last announcement	-1.65%	0.51%	-2.47%	1.82%	1.92
Trailing 12-month BHAR on bidder's stock	-1.52%	-3.26%	1.27%	2.61%	0.51
CAR	-1.29%	-4.17%	-2.82%	-1.07	1.02

*, **, indicate statistical significance at the 5% and 1% levels respectively.

Table 4.15 Robustness regression results for CAR and BHAR on key variables when include tender offers

The sample consists of 2236 U.K mergers announced between1985 to 2002 and 892 UK mergers during high market valuation period.. The dependent variable is the cumulative abnormal return . The CAR is defined as $\sum_{t=-2}^{2} (R_t - R_{index,t})$ The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ The CAR is measured over the five-day window surrounding the merger announcement for the bidding firm's stock. The BHAR post-announcement window runs from three days after an announcement to three years after the announcement. The key variables are: Trailing 12 month average cumulative abnormal announcement return (CAR) is the average CAR for all sample mergers in the 12 months ending 3days before an announcement. Trailing 12-month FTSE All Share index return is the return Trailing 12-month FTSE All Share index return is the return on the value-weighted FTSE All Share index in the year ending three days before a merger announcement. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The buy and hold return (BHAR) on bidder's stock is the return in the 12 months ending three days before an announcement The significance level is report as t-statistic.

	Dependent Variable: CAR		Dependent Variable: BHAR	
	Full Sample (1985 to 2002)	High market valuation period portfolio	Full Sample (1985 to 2002)	High market valuation period portfolio
Trailing 12-month average CAR	0.18 (2.01) *	0.43 (2.24)**	-9.55 (-3.09)**	-9.12 (-4.78)**
Trailing 12-month return on FTSE All Share Index	0.017 (1.72)	0.033 (2.16)**	-0.17 (-1.41)	-0.32 (-2.72)**
CAR on bidder's last announcement	0.058 (1.55)	0.041 (1.96)*	0.11 (0.85)	0.26 (1.45)
Trailing 12-month BHAR on bidder's stock	0.15 (2.32)**	0.08 (2.79)**	-0. 11 (-1.33)	-0.14 (-2.12)**
Observations	2236	892	2236	892

*, **, indicate statistical significance at the 5% and 1% levels respectively

Table 4.16 Robustness regression results for CAR and BHAR on key variables when divide sample into public target mergers and private target mergers

The sample consists of 1957 U.K mergers announced between1985 to 2002. The dependent variable is the cumulative abnormal return. The CAR is defined as $\sum_{t=-2}^{2} (R_t - R_{index,t})$ The BHAR is defined as $\prod_{t=1}^{T} (1 + R_t) - \prod_{t=1}^{T} (1 + R_{index,t})$ the result we present below is for high market valuation period control portfolios. The key variables are: Trailing 12 month average cumulative abnormal announcement return (CAR) is the average CAR for all sample mergers in the 12 months ending 3days before an announcement. Trailing 12-month FTSE All Share index return is the return Trailing 12-month FTSE All Share index return is the return on the value-weighted FTSE All Share index in the year ending three days before a merger announcement. CAR for the last announcement by the firm is for the most recent merger where the target is at least 10% the size of the bidder as long as the merger was announced in the three years prior to the current announcement. The buy and hold return (BHAR) on bidder's stock is the return in the 12 months ending three days before an announcement The significance level is report as t-statistic.

	Dependent Variable: CAR		Dependent Variable: BHAR	
	Private and Subsidiary target acquisitions	Public target acquisitions	Private and Subsidiary target acquisitions	Public target acquisitions
Trailing 12-month average CAR	0.21 (1.21)	0.14 (2.24)**	-8.56 (-3.09)**	-9.71 (-4.78)**
Trailing 12-month return on FTSE All Share Index	0.012 (2.43)**	0.047 (1.16)	-0.097 (-2.92)**	-0.39 (-1.95)*
CAR on bidder's last announcement	0.071 (2.28)**	0.025 (0.83)	0.25 (2.76)**	0.21 (1.77)
Trailing 12-month BHAR on bidder's stock	0.095 (1.21)	0.088 (2.42)**	-0.31 (-1.59)	-0.11 (-2.75)**
No. of Observations	1776	181	1776	181

*, **, indicate statistical significance at the 5% and 1% levels respectively

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CHAPTER 5: CONCLUSION AND PROPOSAL FOR FUTURE RESEARCH

5.1 SUMMARY AND CONCLUSION

In this thesis, several empirical and theoretical issues concerning the characteristics of bidding firms have been resolved, that is, the strategies and performance in M&As. In order to answer the big question, "do shareholders gain from corporate acquisitions?" Several performance determinants identified in the previous literature were intensively examined. In addition, some important characteristics associated with the UK merger market have been discussed in depth. These include such things as non-public targets, the large proportion of cash deals, bidders with high frequency bidding activities, and merger momentums. This study is very important in terms of understanding the intrinsic driving force of corporate takeovers and reveals the determinants of a successful merger deal. At the same time, some factors examined in this thesis are believed to play a foremost role in shaping the shareholder's gain from acquiring firms. Therefore, this study not only fills in the gaps in the existing corporate finance literature, but also creates new avenues for future investigation.

The thesis first addressed the issue of the linkage between causes and consequences of UK mergers, and empirically investigated bidders' outcomes according to the method of payment, the target's ownership status, and the bidder's bidding frequency. Over 90% of the bidders exhibited a substantial price run-up before the merger

announcement, which suggests that mergers are the outcome of good stock performance rather than the cause. Secondly, this work offers empirical evidence to support the stock-price driven acquisition hypothesis. Using a large up to date UK sample a positive relationship was found between market-wide valuation levels and bidders' announcement period returns, with a significant negative relationship in the long-run. Furthermore, this is the first study of the merger momentum issue to be carried out in the UK, and confirms the existence of merger momentum in the UK market. More specifically, the focus has been on the interaction between broad market conditions and the market's response to merger announcements, and it was found that the momentum effect, that is, the market's reaction to a merger, is positively correlated with the response to other mergers in the recent past. This finding could help to resolve much of the confusion associated with bidders' gains from mergers. Finally, in the second and third chapters the issues of frequent bidder's acquisitions and non-public target acquisitions were investigated from different angles, which yielded many important findings.

Chapter 2 is the first empirical chapter, and addresses the issue of the causes and consequences for mergers. Apart from other takeover motivations identified in the previous literature, the bidder's pre-announcement stock performance was examined in order to find out the direct cause of takeover activities. Based on the large UK domestic takeover sample, which comprised 6,423 successful deals and 1,367 bidders, it was found that over 90% of the bidders exhibited substantial price run-ups prior to

the takeover announcement. This price run-up was about 11.8% for the whole sample during the twenty-four months before the acquisition announcement, and was extremely high for those bidders using stock as the method of payment, where it reached a peak of 20.62%, whereas for bidders using cash it was around 12.36%. The sample was also divided by the target's ownership status, and it was found that bidders involved in non-public target deals exhibited higher price run-ups. However, when looking at long-run post-acquisition performances a significant decline was seen in the bidders' stock returns, in general there was a -16.47% decline within twenty-four months of the announcement date, which is statistically significant. These findings are consistent with the hypothesis that merger is the outcome of good performance rather than the cause. Subsequently, the notion that it is better for a firm to grow though a large number of small acquisitions rather than through a small number of large acquisitions was tested. The results are consistent with the hypothesis and show that the bidders' returns are positively related to the number of acquisitions made and negatively related to the relative size of the assets acquired.

Furthermore, a test was conducted on the bidders' announcement period performances according to the target's ownership status. Over all the sample periods the five-day CAR was 1.52%, which is statistically significant. For bidders engaged in public target acquisition, the five-day CAR was -0.67 with a t value equal to -4.81, and for non-public target acquisitions, the bidders' gain was 1.71% over the five-day announcement period with a t value equal to 15.06. An interesting discovery was

made when looking at the short-run results, which led to the next stage of the empirical test. A very high short-run CAR was found for both the public and non-public target acquisitions during the years with high volume merger activities (i.e. 1989, and 1996 to 1998). This result held when the robustness issues were controlled for, which suggests that there must be some unknown factors driving bidders' performances. One of the common factors found for these years was the high volume of merger activity and high market valuation levels compared to other years in the sample. It is therefore suspected that market valuation levels are one of the driving forces of merger activity and also the important determinant of the bidder's performance. This raises the question of whether stock price levels or market valuation alter the level of merger activity and hence influence bidders' performances.

Chapter 3 focuses on the above questions and delivers an empirical analysis. A different sample of UK domestic acquisitions was used here, which ranged from 1985 to 2003 and comprised 4,591 successful deals. The monthly P/E ratio of the TOTMKUK index was used to place each month into an above (below)-average group if the de-trended P/E of that month was above (below) the past five-year average. The months were then ranked in order of the de-trended P/E. The top half of the above average months were classified as high valuation months and the bottom half of the below average months were classified as low valuation months. All other months were classified as neutral valuation months. Of the 4,591 acquisitions in the sample, 1,374 occurred during high valuation months, 2,133 during neutral valuation

months, and 1,082 during low valuation months.

It was found that deals initiated in high market valuation periods received significantly higher short-run returns than those initiated in low market valuation periods (1.95% to 1.33% in general). These results held even after the target's ownership status, the method of payment, and the bidder's bidding frequency were controlled for, which suggests that stock market valuation is indeed a significant deterministic factor of a bidder's short-run performance. In order to understand how market valuation levels influence bidders' returns in the long-run, a further test was conducted on the bidders' returns on the thirty-six months following the merger announcement. In general, it was found that the returns were insignificant in the long-run[102]. However, the difference between deals made in high valuation periods and those made in low valuation periods was significant. It was also found that there was a great reversal in the results, where the deals initiated in the low market valuation periods significantly out-performed those initiated in high valuation periods. Such a result indicates that the market initially rewards the acquirer who makes deals in high market valuation periods when the stock prices are in general above their fundamental values. However, these overvaluation bubbles will eventually burst when there are no substantial earnings to support such high prices. In contrast, for low-valuation acquisitions, the market is initially cautious, but comes to believe over

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[102] The long-run test was conducted using both Fama-French three factor model and the standard CAPM. For former an insignificant positive return of 0.22% was obtained, while the latter gave an insignificant negative return of

time that such mergers are likely to have better combining synergy and hence better growth potential. Furthermore, the long-run investigation resulted in a unique discovery, which was that frequent bidders out-performed infrequent bidders for deals initiated during low market valuation periods. This suggests that frequent bidders are more easily affected by market sentiment and hence are very careful to in their choice of target when the market valuation is low. This finding is important in terms of suggesting that the rationality of frequent bidders changes according to the level of the market valuation. They are more prone to merger deals and have fewer concerns about the future prospects of the deal when the market is very hot, but are much more cautious about merger deals in low market valuation periods. The relationship between a bidder's rationality and the market valuation level can be partially explained by the management overconfidence hypothesis, and the organizational learning hypothesis, but for a deeper understanding, this surely requires further investigation.

Based on the findings discussed so far, it is known that market valuation certainly plays an important role as a determinant of a bidder's performance. Furthermore, the fact that mergers come in waves, leads to the hypothesis that merger momentum exists in markets where one merger deal correlates with the deals of the recent past; where the market has been reacting favourably to the merger announcements, it tends to continue to do so. Chapter 4 focuses on the merger momentum issue by justifying the existence of the momentum pattern and then investigates its sources.

To define merger momentum, the correlation between the market reaction to a merger announcement and recent market conditions, and to bidder-specific merger activity, bidder-specific stock momentum, and deal-specific control variables were measured. The merger momentum variables were proxied using the last twelve-month average CARs of all the mergers in the sample and the numbers of merger deals in the last twelve months. Both variables were found to be significant during high market valuation periods, and this led to an investigation of the sources of merger momentum.

Looking at the interaction between bidders' short-run and long-run returns enabled the identification of the main driving force behind merger momentum. If the short-run returns reveal the true synergy gains from the merger then no associated long-run drift should be found. However, the results show that the bidders' short-run returns were reversed in the long- run. Similar to that found in previous studies, the acquisitions announced in the high market valuation periods led to a significant long-run decline. These results are consistent with the investor sentiment hypothesis and are important in explaining such long-run drifts. If investors expect a broad range of mergers to create synergies, then they should react positively to merger announcements. However, if investor expectations are based more on optimistic beliefs than on fundamental values, the short-run increase in the bidder's stock price should be reversed in the long-run when this optimistic belief is replaced by reality as the track record of the merger becomes known.

The concern of financial analysts operates in addition to investor sentiment. Financial analysts are always optimistic during high market valuation periods (Jensen 2004). Hence, they will set up unrealistic earning targets for the firm. Managers who fail to meet those targets face punishment by disappointed investors, so they have to boost the share price to play the earnings game, and the M&A is the perfect medium for this. At the same time, managers are as easily infected by optimism resulting from past success as ordinary investors. Consequently, they will initiate merger deals in order to meet analysts' expectations rather than out of proper concern for the synergy from the deal, and thus these bad deals will (in most cases) reveal their true quality and result in long-run losses.

In general, studying the merger momentum effect contributes to a deeper understanding of how and why the market's reaction to merger announcements differs so greatly across time and with different market valuation levels. Merger momentum also reinforces the previous findings that market valuation plays a determinative role in the bidder's performance.

In short, the major contributions of this thesis are as follows:

1. It was found that over 90% of the bidders exhibited substantial price run-ups prior to a merger announcement, which it can be argued is the direct cause of corporate takeover activities. However, there were also significant price declines following merger announcements, which suggests that mergers are the outcome of good

performance rather than the cause.

2. The investigation into frequent bidder acquisitions has important implications for bidding firm managers as it clearly shows that it is better to achieve growth through many small acquisitions over a period of time than through a small number of large acquisitions.

3. It was found that market valuations significantly influence the bidder's performance in both the short-run and long-run. The implication of these findings for bidding firm managers is that they need to be very careful in their choice of target when the overall market valuation is high, because long-run reversal is most likely to occur when deals are made in high market valuation periods.

4. Frequent bidders were found to be more likely to be affected by market sentiment. In the long-run they under-performed compared to infrequent bidders for deals initiated during high valuation periods, and out-performed the infrequent bidders for deals initiated during low market valuation periods. The overconfidence hypothesis and organizational learning hypothesis have been put forward to explain these results.

5. This thesis is the fist empirical study on the merger momentum issue to be undertaken in the UK. The results show the existence of merger momentum in the UK market. An empirical analysis of the origins of merger momentum has been conducted and several theoretical explanations for this momentum pattern have been offered. The findings of this research are important because the merger momentum hypothesis serves as another creditable explanation for bidders' short-run and long-run performance.

6.2 PROPOSAL FOR FUTURE RESEARCH

Whist this thesis makes several contributions to the existing literature, it also opens the door to a number of interesting issues which may be addressed by future research. In Chapter 2 it was found that bidders exhibit significant price run-ups prior to merger deals, and that acquisitions of private firms and subsidiaries yield positive short-run returns. However, in the long-run these acquisitions lead to negative returns. These findings raise a number of questions. If the price run-up is due to the good performance of the bidder, then why is a sudden decline in price observed one month after the merger? Furthermore, if overvaluation and managerial concerns drive mergers, a large amount of insider trading in the period prior to the merger should be expected. The central issue drawn from Chapter 2 that is ripe for future research is the examination of whether acquisitions undertaken by overvalued companies are driven by managerial self-interest at the expense of shareholders. This issue could be examined by using managers' personal trading decisions as windows into their beliefs concerning their firms' valuations. If a manager's motive for undertaking an acquisition is their belief that the share price is overvalued, the same private information presents opportunities for trading by insider. If there are other reasons for trading, managers of overvalued acquirers should be expected to be the net sellers of their stock. Moreover, examining insider trading by acquiring firms will shed light on whether mergers are motivated by managerial self-interest. Based on Jensen's agency-driven explanation for acquisitions using overvalued equities, a strong relationship should be seen between insider selling and the acquisition announcement.

Thus, acquiring firms need to constantly give out good news to the market to stimulate price levels, and a poor long-run post-acquisition performance should be seen because of a lack of synergies in the deals.

Chapters 2 and 3 both focus on frequent bidder acquisitions, and it is found that frequent bidders accumulate experience from acquisitions they have made in the past. The empirical evidence shows that it is better for a firm to grow through many small acquisitions than through a small number of large acquisitions. However, the examination of the mechanism of this learning process is beyond the remit of this thesis, there is a plan to carry out such an investigation in the future. More specifically, the plan is to study empirically how post-acquisition decisions and learning from previous acquisition experience affect the long-term performance of acquiring firms. It is hoped that this future research will focus on the way acquisitions are managed after completion. Is the target firm integrated within the structures and operations of the acquiring firm, or has it been kept independent as a stand-alone unit? Are resources, such as senior managers, brand names, and physical facilities being retained or replaced? Through these decisions and the actions taken to implement them, the acquiring firm creates or destroys value for its shareholders. These aspects of M&A have so far been left largely unexplored and unexplained by the literature and demand a further thorough investigation.

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