Merger Momentum in the UK M&As

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Abstract

We examine the merger momentum affected by both investor and manager sentiment, using a sample of 548 UK completed acquisitions between 1986 – 2002. That is, we investigate the stock market reaction to merger announcements in the short run measured by CAARs and in the long run estimated by BHARs. We find quite mixed results in support of two types of opposing explanations. One is the neoclassical theory supported by the evidence of merger momentum in the short run without long-term reversal in the whole sample. The other is the over-optimism hypothesis with the evidence of the long-run reversal in the samples of cash payment and glamour firms respectively. In addition, we show strong evidence of managerial inefficiency hypothesis that managers intend to be overbearing or keep themselves independent when the market reacts well to the recent mergers or recent securities.

Key Words: merger momentum, long-run reversal, the neoclassical explanations, the over-optimism hypothesis, the managerial irrationality

EFMA Classification Codes: 720, 120, 160, 350

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1. Introduction

Recently, post-acquisition long-term abnormal performance of stock returns of bidder firms has received considerable attention. Quite a few studies doubt the ability of stock markets fully and instantly to reflect the true valuation or synergies generated by any takeovers when they are announced. A growing literature (see Agrawal and Jaffe 2000) claims that the market efficiency hypothesis is rejected by the large estimates of long-term abnormal returns.[1] Agrawal, Jaffe and Mandelker (1992) allege that acquisitions have a negative net wealth effect in their event study of US M&As. The negative post-acquisition returns are all-pervasive despite taking account of plausible characteristics either of the merger firms or of the acquisition deals that one might use as explanations for the anomaly. We can find supports for such an argument from a several sources. For example, Franks, Harris and Mayer (1988) study the impacts of means of payment (stock or cash) on the long term anomaly. Gregory (1997) examines type of mergers (conglomerate or not) and attitude of bidders (hostile or friendly). Sudarsanam and Mahate (2003) focus on the type of growth opportunities of the firms (glamour or value). All of them show that the long-term under-performance of the acquirers are not reduced or eliminated.

Although a number of researches have focused on understanding the valuation underperformance process in a long term horizon, fewer studies pay attention to the comparison of cycles in the quality of mergers measured by the return to bidding firms under different market conditions (whether the market is hot or not). The concept of 'hot market' as a type of market condition was first proposed in the context of Initial Public Offering (IPO) market by Ritter (1984) and further developed by

[1] However Mitchell and Stafford (2000) question the reliability of the long-term anomaly. They find no virtual abnormal performance in their sample after taking into account of the positive correlations of event-firm abnormal returns.

Ljungqvist, Nanda, and Singh (2006). Ljungqvist et al. (2006) model a 'hot market' by characterizing the presence of optimism of investor sentiment. They conclude that the three IPO empirical anomalies – underpricing, hot markets and long-run underperformance – are attributed to an evolving class of exuberant investors. M&As event studies produce similar results on long term underperformance to IPO studies. Therefore Rosen (2006) introduce the hot markets concept into merger markets, i.e. hot merger markets. He defines a 'hot' market as a market where recent mergers by other firms have been received well or the overall stock market is doing better (i.e. bull market). Using a sample of 6192 US mergers from 1982 to 2001, he defines merger momentum as a situation where acquirers' stock prices are more likely to increase when a merger is announced in a hot market than in a cold market. However, this effect reverses in the long run, i.e. acquirers' long-term stock prices are lower for mergers announced at the time of hot market than those announced at other times.

Rosen argues that optimistic investor sentiment is an appropriate explanation for both merger momentum and negative abnormal long-run returns. Investors are assumed to be overly optimistic about the acquisitions announced during hot markets, leading to higher reward for the bidding firms. However such irrational sentiment will be corrected in the long run, resulting in lower long run abnormal return.

Two alternative interpretations are offered for short-run merger momentum on a positive correlation between bidders' return and market conditions. One is the neoclassical theory which assumes managers act as shareholder-value maximizers. According to this logic, merger momentum should result from positive shocks that increase synergies and so this implies no reversal in the long run.

The other is the managerial motivation explanation for merger waves. There are two kinds of explanations with regards to the irrationality of the managerial behaviour

hypothesis. One is the eat or be eaten theory by Gorton, Kahl and Rosen (2006). They assume that managers can reduce their chances of being acquired through acquiring other firms for defensive purposes. Another is the hubris theory of Roll (1986) who argues that overbearing managers insist on making bad acquisitions because they believe they have the ability to create synergies. Both of the managerial-related explanations are concerned with positive shocks to merger waves. Therefore, two entirely different merger dynamics may unfold in such an environment. One is the 'efficient' scenario which allows for profitable acquisitions. The other scenario is related to an 'inefficiency' hypothesis that unprofitable acquisitions preempt those profitable ones. Gorton et al. (2006) argue that which scenario arises depends on the managerial incentives. Therefore, the expectations of managerial explanations are reconciled with both overoptimism and neoclassical theories.

We follow Rosen (2006) to examine whether 'hot market' applies in the UK context, a market showing different characteristics from the US market. The ex-ante misvaluation study of Coakley, Fu and Thomas (2008) find a new trend in UK M&As that cash payment dominates in overvalued markets and it is particularly distinct for the bidding firms who financed with cash. It is opposite to the findings in the US evidence (e.g. Rhodes-Kropf et al. 2005). We accordingly expect that merger momentum in hot markets in the UK context should display a different pattern from that in the US. We explore the initial market reaction to merger announcements following Asquith, Bruner, and Mullins (1983) as well as the long-run returns to mergers as do Loughran and Vijh (1997). A sample of 548 completed acquisitions by UK public bidding firms between 1986 and 2002 is used in order to evaluate the relationship between the announcement reaction (i.e. short-run return) and post-

announcement return (i.e. long-run performance). This is the first study of merger momentum in UK to our knowledge.

We find strong merger momentum but no long-term reversal to our sample of 548 acquisitions. Therefore, the results are much more in line with neoclassic-orientated theory rather than the over-optimism hypothesis which contradicts the US results of Rosen (2006). However, we cannot reject over-optimism hypothesis when we propose a series of competing hypotheses between the neoclassical theory and the over-optimism argument by examining deregulation shocks to the takeovers, means of payment, nature of acquirers, and types of acquisitions, respectively. The results from analyses of the means of payment and of the acquirers' nature support the investor beliefs (over-optimism) hypothesis. Therefore, the evidence on UK M&As is mixed and supports two seemingly opposed theories, i.e. neoclassical theory and over-optimism. Particularly, it is more in line with the managerial motivation explanations which can reconcile both efficiency and inefficiency.

The paper proceeds as follows. Section II discusses the fundamental reasons for merger momentum and presents a series of hypotheses. Section III discusses empirical model, data, and methodologies used to estimate the returns of UK bidders. Our empirical results are analyzed in Section IV. Section V examines several competing hypotheses of alternative theories in explaining merger momentum. Our conclusions are presented in the final section.

2. Merger momentum and hypotheses

The concept of 'merger momentum' comes from Rosen (2006). He defines it as a positive correlation between the market reaction to a merger announcement and recent market conditions. The implication behind it is that the market reaction depends on

the new information in the announcement. It gives an immediate positive response to the merger announcement if both the merger and stock markets are favourable to investors and managers. The implicit assumption is that bidder managers gain at least part of the surplus and that the market did not fully anticipate the merger. Under the assumption, Rosen explains it by overly optimistic investors who systemically misperceive the synergies gained from the acquisitions when recent mergers are well received or the stock market is in a bull market cycle. This is similar to the story for seasoned equity offerings (SEO) as well as initial public offerings (IPO). High returns of both are attributed to the optimistic beliefs on the part of investors.[2] However, optimistic beliefs cannot persist over relative long periods and will ultimately reverse. Thus, price should reverse in the long run, leading to negative abnormal long-run returns.

This is the basis of the central hypothesis throughout the paper.

Hypothesis 1. *The market reaction to merger announcement is positively correlated to recent market conditions, or the market exhibits merger momentum. However, this relation reverses in the long run.*

To further examine investor sentiment as the fundamental explanation for merger momentum, we seek other factors that might explain merger momentum. Several empirical competing hypotheses are proposed as follows.

Mitchell and Mulherin (1996) and Andrade, Mitchell, and Stafford (2001) suggest that economic and regulatory shocks are the main factors behind the M&As. That is, industrial shocks and deregulation can account for merger waves. It is in the context of the neoclassical theory that shocks create high synergies and thus mergers following positive shocks are better off than other mergers. Put it another way, it is a

[2] Loughran and Ritter (1995) support this for SEOs and Helwege and Liang (2004) find evidence for the IPO market.

reflection of merger momentum that the market reaction to announcements is positively related to recent market conditions with positive economic shocks. If the neoclassical theory holds, the gains from merger announcement should persist over the long run horizon. The implication of this theory is the efficient market hypothesis. Although it supports merger momentum during the announcement period, Rosen criticises it on the basis of his evidence of negative long-run returns.

Hypothesis 2. *Merger momentum and its long-run reversal are not fundamentally affected by the positive shocks, like deregulation. That is, Hypothesis 1 holds in the industries either with deregulation or with non-deregulation.*

The next distinct feature relates to the means of payment. Loughran & Vijh (1997) conclude that the mode of payment is important to the long-run abnormal returns of bidders. The idea on the mode of payment can be traced back to Myers & Majluf (MM) (1984). MM argue that a firm's share price should drop immediately upon the news of an equity issuance because issuing stock is a signal of overvalued shares. In contrast, firms who finance out of retained earnings signal that their shares are undervalued. It is consistent with general misvaluation theory that overvalued firms tend to acquire less overvalued (or undervalued) firms with stock (or cash).[3] All in all, either the MM theory or the misvaluation proposition provides link to the merger momentum and post-announcement anomaly puzzle. So far, most of the studies only look at long-run performance for the two types of payment (stock versus cash), e.g. Loughran & Vijh (1997) and Gregory (1997). They both find significantly positive abnormal returns following cash-financed takeovers and significantly negative

[3] Please refer to the previous two chapters where the misvaluation theory has been fully discussed. We find misvaluation in UK is an exceptional case in terms of the means of payment hypothesis.

returns following stock-financed ones.[4] However, less attention is paid to the merger momentum aspect in terms of means of payment. Thereby, we have:

Hypothesis 3. *Merger momentum prevails regardless of the means of payment. However, stock-financed acquirers are expected to receive a more positive market reaction during the announcement period and a more negative market reaction in the post-announcement period than cash-financed acquirers.*

Performance extrapolation is another potential source of merger momentum. It was firstly posited by Rau & Vermaelen (1998). They assume that how the market and the board of directors or top management of a bidder assess the value of a new acquisition is on the basis of extrapolating its past performance. Thus, the market assumes that glamour (value) firms who have good (bad) past performance make good (bad) acquisitions. It is consistent with the empirical work on Tobin's Q theory by Servaes (1991). However, glamour (value) firms are simply overvalued (undervalue) in hot markets. The market needs time to adjust its judgement and reassesses the value of the bidders so that long-run post-takeover abnormal performance should become negative (positive). We, therefore, have

Hypothesis 4. *Merger momentum prevails regardless of acquirers' nature (glamour or value). However, glamour acquirers are expected to receive a more positive market reaction during the announcement period and a more negative market reaction in the post-announcement period than value acquirers.*

Besides, there is one more hypothesis regarding the type of acquisitions (merger or tender offers) worth examining although it is not regarded as the interpretation for merger momentum. The main difference between merger and tender offers is the attitude during the acquisition. Mergers are generally friendly transactions and require

[4] This is not always the case. For example, Franks, Harris & Titman (1991) find no significant difference in the performance between cash-financed and stock-financed takeovers.

both agreements from bidders and targets. In contrast, tender offers are more likely to be hostile without the need for approval from targets.[5] Studies find a relatively more positive market reaction to tender offers than to mergers in both the short run (e.g. Jensen and Ruback 1983) and long run (e.g. Loughran and Vijh 1997). Martin (1996) claims that this may be due to the predominance of the cash payment in tender offers. This is the basis for Hypothesis 5,

Hypothesis 5. *Merger momentum prevails regardless of types of acquisitions (mergers or tender offers). However, acquirers in tender offers are expected to receive a more positive market reaction during both announcement and post-announcement period than the acquirers in mergers.*

3. Model and sample selection process

3.1. Empirical model

The model we use to test merger momentum is adopted from Rosen (2006). His model captures the dependency of market reaction on recent merger and stock market conditions. Thus, the merger reaction is a function of several factors accounting for merger activity, market momentum, bidder-specific merger activity, bidder-specific stock momentum, and some other control variables for the financial health of the bidder and specific conditions of the acquisition, respectively.

3.1.1 Discussion on the dependent variable

The dependent variable – the market reaction to a merger – is the measurement of how the market estimates the quality of the merger which is gauged by the return to

[5] But it is not always the case in terms of attitudes. Some mergers may be hostile initially but end up with a friendly agreement after negotiation. Also tender offers are not necessarily hostile since some of them have the approval from the management of the target firms.

bidders. The market reaction to a merger is processed over two phases with different horizons. According to Rosen's paper, the proxy for the short-run market reaction is the five-day cumulative abnormal announcement return (CAAR) of the bidding firm surrounding the first public mention that the merger is being discussed or proposed. The time window for it is days -2 through +2, which is defined as the announcement period.[6] The CAAR, representing the immediate market response to the merger, incorporates the new information like the synergies created from the takeovers and investors' perception of the new announcement (optimistic sentiment for example).

We calculate CAAR as the difference between the return for acquirers and the return on a benchmark index over the five days surrounding a merger announcement:

$$CAAR = \sum_{t=-2}^{+2} (R_t - R_{mt}), (1)$$

where R_t is the return for acquirers on date t relative to the announcement date 0, and R_{mt} is the return on the benchmark index. In abnormal returns studies, the choice of the benchmark R_{mt} is not straightforward. Gregory (1997) uses six asset-pricing models in making adjustments for the size of the UK bidding firm in the period 1984 - 1992. Another paper providing UK post-announcement evidence by Sudarsanam and Mahate (2003) uses four difference benchmark models. Both of the papers show that across a wide range of models the average abnormal post-acquisition return is unambiguously and significantly negative. In this paper, we do not focus on the choice of benchmark but rather on whether merger momentum occurs. Therefore we simply use 'the market-adjusted (Market) model to derive the benchmark return. This is the contemporaneous return on the market portfolio during the event period, i.e. the return on the FTSE All-Share Index as R_{mt}.

[6] There are some other literatures like Bouwman, Fuller, and Nain (2007) using three-day window instead of five-day one. The results for the alternative time windows are quite similar. We choose five-day window around the announcement because five-day window is testified to be wide enough to capture the first mention of a merger by Fuller, Netter and Stegemolle (2002) using a sample of 500 announcements.

The second market reaction phase is the post-announcement period. A surprisingly large set of papers examines long-run stock prices after announcements and finds negative performance.[7] This contradicts the market efficiency hypothesis (EMH). If the market efficiently captures all the information in a merger and its short-run reaction (CAAR) fully reflects this, the post-announcement abnormal return is expected to be zero or at least non-negative. There have been a lot challenges to the EMH. Loughran and Ritter (2000) criticize the chance argument by Fama (1998) that because various methodologies use different weighting schemes, the magnitude of abnormal returns should differ in a predictable manner but the anomaly does not vanish.

One obvious difficulty in studying long-run performance is the methodologies for measuring abnormal long-run returns. Kothari and Warner (1997) claim that long-horizon abnormal security returns can be seriously misspecified. The abnormal returns relative to a reference portfolio benchmark are criticized by Barber and Lyon (1997) who find out a rebalancing and new-listing bias. According to Gregory (1997), the adoption of buy-and-hold abnormal returns (BHAR) is likely to under-estimate the significance of long-run negative abnormal return and to over-estimate the significance of long-run positive abnormal return.[8] If even BHAR shows negative results, we are more confident in concluding that there is abnormal long run return that reverses. BHAR also has the advantage of yielding an abnormal return that accurately reflects investor experience and can be used to test our investor sentiment

[7] See Agrawal and Jaffe (2000).
[8] This idea is in line with the results of Kothari and Warner (1997)

argument.[9] Thereby, we choose BHAR over a three-year horizon as the measurement of market reaction in the long-run, the same as Rosen (2006).[10]

In addition, the requirement for a three-year BHAR after the announcement may introduce survivorship bias since we may eliminate some non-survivoring firms within the three years after announcements. However, Baker and Limmack (2001) carry out sensitivity tests of the survivorship bias which appears not to have serious problems for the results. Higson and Elliott (1998) also find an insignificant difference in BHARs between survivors and non-survivors.

We calculate BHAR over three years as a long position hold in the stock of the bidding firm relative to a short position in the FTSE All-Share index over the same time horizon:

$$BHAR = \frac{\prod_{t=3}^{T}(1+R_t)}{\prod_{t=3}^{T}(1+R_{mt})}, \text{ (2) for post-acquisition window}$$

or $$BHAR = \frac{\prod_{t=-2}^{T}(1+R_t)}{\prod_{t=-2}^{T}(1+R_{mt})}, \text{ (3) for total time window (the inclusion of announcement and post-announcement periods).}$$

We believe that the combination of CAAR for short-run and BHAR for long-run estimation of market reaction to a merger is appropriate for addressing the question of merger momentum. Lyon, Barber and Tsai (1999) argue that CAAR is a biased

[9] Lyon, Barber and Tsai (1999) also test another approach relying on the calculation of calendar-time portfolio abnormal returns (equally-weighted or value-weighted). However, the method does not precisely measure investor experience which does not fit our model well.

[10] There are several determinations on the length of the time window in the long run horizon. The earliest paper Firth (1980) tests the abnormal long-run performance over 36 months following bid periods. Frank and Harris (1989), and Limmack (1991) assess post-acquisition over two years. The latest article by Gregory (2005) spans over 60 months following the announcement periods. We adopt three-year time window consistent with Rosen (2006) as it is long enough to capture the abnormal performance on average in our opinion. In addition, Sudarsanam and Mahate (2003) suggest separate post-acquisition period starting from day +41 to +750 because day +40 is the last day for target to release new information, e.g. profit forecast, in UK (see Sudarsanam 1995). They instead call the interval of day +2 to +40 the bid period. Here we simply adopt three-year after the announcement as the post-announcement period like Rosen's. We did also try Sudarsanam's criterion and find no significance difference between the bid period and post-acquisition period. The results for the alternative trial can be acquired upon request.

predictor of BHAR but is less skewed and less problematic statistically as compared to BHAR.

3.1.2 Independent variables

The first consideration for the independent variables is recent overall merger activity. Similar to Rosen (2006), we include two measures for it. The first measure of merger momentum is the average five-day CAAR around merger announcements made in the last 12 months prior to a merge (hereby trailing 12-month CAAR). If recent mergers generate strong CAARs, this indicates a hot market. The other is to capture merger waves measured by the trailing 12-month number of mergers. Shughart and Tollison (1984) find autocorrelation between the number of mergers in a year and the number of mergers in the next year.

The next factor that has an impact on the market response to a merger is the broader stock market. As discussed in the previous chapters, misvaluation theory predicts that more mergers occur when the market is misvalued, particularly overvalued. To see whether stock prices are rising, We proxy the rising/decreasing level of stock prices in the overall market with the change in FTSE All-Share index during the period starting one year prior to an announcement and ending three days before the announcement. That is the trailing 12-month return on FTSE All-Share index.

The third consideration – bidder-specific merger activity is controlled by three variables according to Rosen (2006). Firstly, the quality of a firm's acquisition can be identified by using the five-day CAAR of the firm's last merger in the prior three years otherwise it is assumed to be zero. Secondly, we measure firm activity by the number of acquisitions announced by the firm in the prior three years. Thirdly, a

variable on bidder-specific merger activity serves to differentiate frequent acquirers from occasional ones (Schipper and Thompson 1983, and Fuller et al. 2002). I include a dummy variable equal to 1 if this is the first merger announcement by the firm in the last three years.

The bidder-specific return is the last important factor that has an effect on the market perception of a merger announcement. We proxy this by the bidder's BHAR during the period starting one year prior to a merger announcement and ending three days before the announcement (hereby bidder-specific trailing 12-month BHAR). The benchmark for the BHAR is the FTSE All-Share index.

In addition, as Rosen (2006) suggests, we include some control variables accounting for the financial health of the bidder and the specific conditions of the acquisition. Firstly, the means of payment is an important factor we need to control for. We use a dummy variable for whether the targets are financed with stock. Secondly, the size effect is also controlled for in the model. We use the log of total assets of bidding firms as the control variable. Loderer and Martin (1997) find negative correlation between the bidder's size and its short-run CAAR around a merger announcement. Thirdly, the ratio of target-to-bidder size is another effect and therefore is regarded as one of the control variables (e.g. Asquith, Bruner and Mullins 1983). Fourthly, the financial strength of the acquiring firm is also taken into account and this is estimated by both book-to-market ratio and returns on assets (ROA). High book-to-market ratio, correlated with a low Tobin's Q, is linked to a higher short-run CAAR (Lang, Stulz and Walkling 1989). The book-to-market ratio can reflect of the nature of acquirers (glamour or value). Acquirers with low book-to-market are taken as glamour firms and therefore are expected to have lower BHAR (Rau and Vermaelen 1998). Bidding firms with higher ROA, as one of the indicator of

company profits and performance, are expected to make better acquisitions (Morck, Shleifer and Vishny 1990). Fifthly, diversification has a negative effect on the returns to bidding firms (Maquieira, Megginson Nail 1997). This requires another dummy variable equal to 1 if the merger is diversified (target and bidder come from different industries). We use the 17-industry classification according to 4-digit SIC code which is defined by Kenneth French on his personal web site.[11]

3.2 Sample collection and corresponding data

We look at the UK M&As announced between 1985 and 2002 as given in the Securities Data Corporation (SDC) database provided by Thomson Financial Company.[12] We set the criteria as: 1), both targets and acquirers are UK firms; 2), acquirers need to be public, i.e. listed on the London Stock Exchange; 3), the market value of the target 4-week prior to the announcement should be at least $1 million. This gives a total sample of 1385 acquisitions.

We match the merger companies with the stock market data and balance sheet from DataStream. We pick up market value of the bidders from item *MV* from DataStream and the FTSE All-Share index for benchmark. A series of accounting data for acquirers are also collected, i.e. book value of the bidder equity (item *305*), total assets of the bidders (item *321 + 305*), and bidder's ROA (item *707*). Although we do not focus on the return of target, we still require the market value of the target as the measurement of its size to calculate ratio of target-to-bidder size. Since some targets are not publicly traded and therefore we cannot collect their accounting data from DataStream, we use the market price to book value from SDC for those non-public

[11] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html
[12] The earliest year when SDC starts collecting M&As in UK is the year of 1985.

targets. Therefore any mergers that do not have corresponding data from DataStream are dropped from the sample. Then the sample is cut down sharply to 681 takeovers.

Nevertheless, this is still not the final sample used. To focus as appropriately as possible on the effects of general market conditions, we continue to make additional cuts to the sample. All of these eliminations are suggested by Rosen (2006). Firstly, we truncate the outliers with negative book value, a ratio of book-to-market over 10, and ROA below -100% or above 200%. This leaves a sample of 664 acquisitions. Secondly, we eliminate those acquisitions in which the target is much larger than the bidder, more than 120% of the size of the bidder. So, we are left with a final sample of 548 acquisitions from 1986 to 2002.

Table 1 presents summary statistics on the sample of 548 acquisitions.

[Table 1 around here]

Several variables are worth discussing briefly. The first two variables capture recent merger activity: the trailing 12-month CAAR and trailing 12-month number of mergers. They are positively correlated, which can be seen in Figure 1.

[Figure 1 around here]

There is a clear uptrend in the number of mergers through the period of 1986 to 2002. The mean (76 acquisitions) is dominated by the late 1990s where the peak of 160 acquisitions is localizes. We can see a hot market with high market activity measured by merger numbers in the late 1990s until early 2000s. However, trailing 12-month CAAR has local peaks in 1980s as well as 1990s. Hence the inclusion of both merger number and CAAR capture different aspects of the merger market.

Three variables are used for the means of payment: pure stock financing (100%), pure cash financing (100%), and mix of stock and cash or other payment financing. Cash payment overwhelms the other two, means of 64.234% compared to 12.226%

for stock and 17.336% for mixed and other payment. It is consistent with the finding of cash dominance in the UK. It indicates that the characteristics in UK M&As may be distinct from other market dominating by stock payment, such as the USA. The target statistics show that most (around 99%) of the targets are publicly traded. Private targets are smaller portion and non subsidiaries can be found. Since nearly 100% of the targets are public, we do not introduce dummy variables that control for private or subsidiary targets. As for the types of acquisition, tender offers make up 67.153% of the total and the rest are mergers. This is may be due to the prevalence of cash payment in the tender offers. Besides, there is a wide range between the mean (£420.121 millions) and the median (£69.478 millions) of the total assets for bidding firms. It may imply a size effect for acquisitions.

4. General results for Hypothesis 1

Hypothesis 1 implies that the stock market's initial reaction to a merger announcement is positive but that the market revises its perception in the long run resulting in reversals due to overly optimism. This is the central issue across the whole paper. We use a cross-sectional analysis of the five-day CAAR around a merger announcement as the dependent variable for short run horizon, and the three-year BHAR in the post-announcement period as the dependent variable for long run horizon.

4.1 Short run returns

Table 2 presents the cross-sectional CAAR regression results with controlling for the means of payment, types of targets, firm-specific financing characteristics, and a dummy for diversification.

[Table 2 around here]

4.1.1 Regression results

There is market-wide merger momentum picked up by the number of mergers in the UK. Table 2 shows that the overall number of mergers in the prior year is positive and statistically significant related to CAAR. A one-percentage-point increase in the trailing number boosts the CAAR for a bidding firm by 0.076 percentage point. In contrast, this effect cannot be found in the US where the coefficient is reported to be insignificant (Rosen 2006). However, the other important proxy for merger momentum, trailing CAAR, has an insignificant but negative effect on market reaction. While in Rosen's study, the US market initial reaction to an announcement (i.e. CAAR) is positively and significantly related to the performance of the last 12-month mergers (i.e. trailing CAAR). The evidence in the UK indicates that the market immediate response to a merger announcement depends on the volume of last 12-month overall mergers rather than value creation from mergers.

As for the stock market, we do not find any evidence in support of a rising stock market leading to a positive reaction to an announcement. The coefficient of the trailing FTSE All-Share index is positive sign but insignificant (p-value = 0.114). This is another particular evidence for UK distinct from the US who has positive and significant coefficient of trailing return on CRSP index.

There is no bidder-specific merger momentum at all. As for a bidder, neither the historical market reaction to its earlier merger, nor whether it is a frequent or occasional buyer, and nor how many mergers by the bidder itself in the prior 3 years have an impact on the current market reaction to a merger announcement.

The idiosyncratic return (BHAR) of the bidding firm in the last 12-month is strongly negatively related to the CAAR. When the return over a prior 12-month period of the acquirer's stock return net of the capitalism-weighted index increases by one percentage point, the average CAAR around the announcement is 3.5 basis points lower at the 1% significant level.

As for control variables, some signs are consistent with the earlier literature. One is dummy variable of stock financing, which is significantly negatively related to the stock return of the bidding firm. This is consistent with the findings by Fuller, et al. (2002). They attribute this to the liquidity effect and negotiation power of public targets relative to private or subsidiary targets. Moreover, negative size effect also has impact on the stock returns of the bidding firms. Logged total assets have a strongly negative coefficient -0.056 with a 0.000 *p*-value, which is identical with the paper of Loaderer and Martin (1997). Lastly, positive coefficient on bidder ROA supports Morck, Shleifer and Vishny (1990) that firms with better prior performance make better acquisitions.

4.1.2 Discussion

The short-run results show relatively weak evidence of merger momentum with only one supportive variable, the number of overall mergers. It is consistent with both the neoclassical theory and over-optimism.[13] The neoclassical theory implies that mergers during waves should have higher synergies than mergers announced at other time. Put another way, mergers concentrated around common shocks that can boost merger numbers are better than other mergers far away from waves. Over-optimism predicts a parallel relationship with a different explanation. There is no way to distinguish the

[13] There is no direct test on managerial motivations hypothesis on the CAAR in the model unless we add additional corporate governance controls.

neoclassical theory from the over-optimism hypothesis by the short-run results. We turn to the analysis of the following long-run regression and Hypothesis 2 regarding deregulation/privatization in particularly testing the neoclassical theory in the next section.

However, there is no merger momentum in terms of trailing CAAR. For this reason, Hypothesis 1 is rejected for no weights in accounting for the trailing 12-month CAAR as a significant measurement of merger momentum, and the overall stock market momentum.

The reason for the puzzle of weak merger and market momentum may be that the full sample mixes different forms of financing and different types of the acquirers which yield different market reactions. We will turn to the examinations on means of payment explanation (Hypothesis 3) and performance extrapolation (Hypothesis 4) later.

One other result is worth noticing. We find a negative relation between the bidder-specific stock momentum and market reaction to a merger around announcement. The run-up in the bidding firm's stock price leads to lower returns for the bidding firm during the announcement period. It is different from the finding by Morck et al. (1990) but consistent with the managerial defensive interpretation by Gorton et al. (2006) or hubris by Roll (1986). Gorton et al. (2006) state that managers may engage in unprofitable acquisitions if they have a strong incentive to keep themselves independent. Such circumstances often pertain during merger waves.

According to Roll (1986), the management of the bidding firms with good recent performance may be confident in their ability to creating value in situations that the market expects a decrease in the their stock price. Thus the managers are intent on making acquisitions even when they know the market will judge them to have a

negative net present value. This is because they believe the market will correct their perception in the long run. We assume that rational shareholders cannot perfectly control management and therefore cannot prevent managers from making such wealth reducing acquisitions. If hubris results in making bad acquisitions, the stock price will be discounted and is unlikely to reverse in the long run. This implies a negative coefficient on the run-up of the bidder-specific trailing BHAR in the long run, which we will examine in the following section. In addition, the 'hubris' interpretation can also be viewed in light of the performance extrapolation hypothesis, i.e. Hypothesis 4 in our study. Rau and Vermaelen (1998) find that bidding firms with low book-to-market ratio (glamour acquirers) have worse post-acquisition performance than the firms with high book-to-market (value acquirers). They attribute this finding to hubris. We will test for it using Hypothesis 4.

Another possible explanation for the negative effect of the run-up bidder-specific stock price is the stock financing. Travlos (1987) concludes that negative CAARs attributed to stock financing, the dominant means of payment when overvaluation can be prevailing. This can be tested using Hypothesis 3 on the means of payment.

4.2 Long-run results

Extending the horizon up to three years after the announcement in our study provides a basis for testing the neoclassical theory against the over-optimism and managerial explanations. If the neoclassical theory holds, the short-run CAAR should be unbiased and so we expect no reversal in the long run. Otherwise, we support the over-optimism theory. Even allowing for positive gains from the merger at the time of the announcement, over-optimism predicts long-run negative returns of the bidding firms because investors learn to revise their perceptions slowly. Managerial motivation can

make the abnormal long-run returns even worse if managers make bad acquisitions during hot markets.

Table 3 displays the BHAR regression results for the long run. We provide two windows for long term horizon. One focuses on post-announcement period only (in column 1) starting from day +3 relative to the announcement date up to trading day +780, which avoids contamination from the announcement period. The other is called total window (in column 2) and concludes both the announcement and post-announcement periods, starting from day -2 relative to the announcement date up to +780. It captures the total impact of stock markets on the merger from the time of announcement to the end of the post-announcement period.

[Table 3 around here]

We employ BHAR as the long-term dependent variable, while keep other variables unchanged. In addition, we add an independent variable, the CAAR surrounding the announcement, for the post-announcement period. It allows for another test for the long run reversal hypothesis.

4.2.1 Regression results

However, the long run regression results are not different from those for the short-term window. As for the new add-in variable, CAAR, its coefficient (-0.229) is negative but insignificant. The market momentum variable also indicates no reversal in the long run. Again, the effect of the trailing 12-month return on FTSE is negative (-88.061) but *p*-value (0.119) implies insignificance.

Our central hypothesis of long term reversal is rejected with strong evidence of positive merger momentum in the long run. First, the variable of trailing 12-mongth CAAR generates a positive impact on both post-announcement returns and total

window returns. However, we do not see such strong evidence in the announcement period. Second, the other variable of trailing 12-month number of mergers continues to be positive and significant. The results are highly consistent with those for the announcement period and are even strengthened over the long run horizon (announcement period: 0.076 with *p*-value0.001; post-announcement period: 0.288 with *p*-value 0.000; total window: 0.392 with *p*-value 0.000). It implies that there are some positive shocks during merger giving a positive impact on the return of the bidding firms. Note that our results on long-term merger momentum contradict Rosen's results.[14] So far, it seems that the results of merger momentum in the UK are more in line with neoclassical theory rather than over-optimism hypothesis.

In addition, there is no strong evidence of reversal for market-wide and bidder-specific merger momentum. This is consistent with our short run results though opposed to those of Rosen. In Table 3, none of the coefficients are significant with the expected signs in the post-announcement and total windows.

The coefficient on bidder-specific stock momentum provides a strong support to either the managerial motivation or hubris hypothesis. When the trailing 12-month BHAR on bidder's increases by one percentage point, the BHAR of bidding firms on average falls by 9.2 (post-announcement period) or 12.1 (total window) basis points. At least a portion of the gains are truncated because of bidder managers' hubris.[15]

A few of the control variables have significant coefficients in the regression in Table 3. The signs are consistent with the earlier papers.

[14] There are two exceptions in Rosen's results in terms of the merger waves. Firstly, Rosen finds strong merger waves in the 1990s while not in 1980s in terms of short run return. Secondly, he finds merger waves in his long term story after controlling for the number of merger announcements in the post-announcement three-year period. Both of the shocks of merger waves are positive and significant to the return of bidding firms. However, since UK M&As play the different pattern from the US, we do not have these extra controls as Rosen does.

[15] However we are bearing in mind that it is not conclusive to say no gains at all for the bidding firms. The circumstances for measuring gains are complicated. Therefore, we are very cautious of making the conclusion.

4.2.2 Discussion

Overall, the long-term results reject Hypothesis 1 as there is no distinct reversal over the long horizon. As a whole, no signs show that the over-optimism hypothesis reigns in the context of UK M&As. We need to have further analysis on our central hypothesis. Therefore, we are going to check for deregulation, different means of payment, different nature of acquirers and different types of acquisitions that may produce dissimilar patterns of merger momentum in the next section.

Interestingly, our results offer some support for the neoclassical theory. Not only no long run drift exists but also the merger momentum persists and becomes stronger. If a number of acquisitions are clustered, the short-run and long-run return of the bidding firms rise on average. Furthermore, the positive coefficient on trailing 12-month CAAR appears significant in a longer rather than shorter window. It implies some positive shocks during the waves that can create the synergies of the acquisitions. We turn to Hypothesis 2 to check whether deregulation shocks have a positive impact on the performance of bidding firms.

In our results, two totally different stylized facts are hard to be explained by any single reasons. One stylized fact is that mergers are concentrated in specific merger waves with a regime shift of a technological or regulatory nature. The other stylized fact is the strong negative coefficient of bidder-specific stock momentum. As suggested by Gorton et al. (2006), only managerial-related theories can characterize the phenomenon of mergers coming in waves (efficiency) and the downward negative returns (inefficiency). The predominant cash payment in the UK M&As may give explanations to it (Hypothesis 3). Besides, the examinations on the performance of acquirers (glamour or value) may also reconcile the two stylized facts (Hypothesis 4).

5. Competing hypotheses between the neoclassical theory and the over-optimism of investors and managers

Since some results in UK of our central Hypothesis 1 are too mixed to be explained by the over-optimism theory, and other results support the neoclassical theory, we now require a more in-depth examination to see how far each theory can match the results. Therefore, to understand better to what extent merger momentum can be attributed to over-optimistic investors and possibly managerial motivation, and how much can be attributed to neoclassical explanations, we conduct a series of competing hypothesis tests (i.e. Hypothesis 2 to 5) between these opposing explanations.

Hypothesis 2 probably gives too much weight to the neoclassical story, since it attributes neoclassical explanations to all mergers which acquire the targets from deregulated industries. Alternatively, by looking at the means of payment, nature of acquirers, and types of acquisitions, Hypothesis 3 to 5 may give relatively less weight to the neoclassical theory. However, by testing different competing hypotheses, we can better see whether the UK merger momentum permits alternative explanations.

Table 4 provides a summary of a series of tests of the short-run return CAAR and long-run return BHAR for each hypothesis, respectively.

[Table 4 around here]

The hypotheses regarding the means of payment and nature of the acquirers provide distinct evidence on abnormal return. Firstly, the average returns of cash bidders are significantly larger than those of stock bidders in both short run and long run. Secondly, the long run BHAR of value firms are significantly larger than those of glamour firms. However the short run returns of non-deregulated target and tender offer M&As are not significantly different from those of regulated target and merger offer M&As.

Table 4 simply compares the abnormal return between the groups within each hypothesis but does not help us find out merger momentum or long term drift. We re-estimate the short-run and long-run regressions for each group for each hypothesis. We conclude that there is a mixture of appropriate explanations: neoclassical for merger waves, particularly in terms of numbers, and over-optimistic investors for long run reversal and overbearing or defensive managers for downward bidder-specific market momentum.

5.1 Hypothesis 2: deregulation versus non-deregulation

Deregulation has gained widespread currency in the last two decades. The stated rationale for deregulation is that the inefficiencies and failures of regulation provide too much protection for regulated firms and lead to distortions. Hence deregulation is regarded as a positive shock to the economy, raising the level of competitiveness and causing higher productivity, more efficiency and lower prices overall. M&As are a market response as suggested by the neoclassical theory.

Our first competing hypothesis consequently comes from comparing the acquisitions with the targets from non-deregulated industries and acquisitions with targets from deregulated industries. We treat deregulation as a positive shock as suggested by the neoclassical theory. Neoclassical theory suggests that, for acquisitions related to deregulation, shocks should have merger momentum in the short run and persist over the long term horizon. On the other hand, if investors' and managers' over-optimism prevails, then we expect merger momentum in the short run and reversal in the long run in both kinds of acquisition.

Table 5 reports the same regressions for the announcement and post-announcement periods as in Table 2 and 3, but splits the sample according to whether

or not the deal is related to deregulation.[16] McCrudden (1999) suggests utilities and banking and financial services are two specialised but particularly important industries governed by regulatory practices. Here we classify those acquisitions with targets from utilities and finance-related industries as deregulated and the remaining acquisitions non-deregulated.[17]

[Table 5 around here]

The results are ambiguous since both types show a powerful and positive merger wave impact but little evidence of long term abnormal performance. Both the deregulated and the non-deregulated industry bidders exhibit negative but insignificant coefficients on CAAR. We observe a strong managerial motivational effect in the non-deregulated group but not in the deregulated one. The significantly negative bidder-specific stock momentum in both the short-run and long-run is consistent with the management hypotheses by either Gorton et al. (2006) or Roll (1986). Nevertheless, managerial motivation may not drive the long-term performance of non-deregulating bidders downwards because of positive merger momentum.

To sum up, the implications behind the results for the non-deregulated group are unclear. Firstly, even after we allow for deregulatory shocks, we do not see any obvious long run drift in the non-deregulated acquirers, hence the over-optimism hypothesis is rejected. Secondly, the results are too ambiguous to support the neoclassical theory. If the neoclassical theory holds, we would expect no rise in the returns of acquirers from non-deregulated group since we assume no other positives in that group. However, both groups have a similar pattern of merger momentum.

[16] In the other tables relating to competing hypotheses of alternative explanations, we only show one window in terms of long-run period, i.e. the post-announcement period. The results of the total window show a similar pattern and can be obtained upon requests.

[17] According to Kenneth French 17-industry classification, utilities sector belongs to 14th industry. And finance sector is ranked in the 16th industry including banks, insurance companies, and other financials.

As for the bidders who acquire utilities or financial targets, there is evidence of merger momentum in terms of merger numbers. The neoclassical theory envisages positive merger waves but this cannot lead to the conclusion that no long run return reverses are caused by the positive effect of deregulation. One reason for the ambiguous results of deregulation is that the method for differentiating deregulated from non-deregulated acquisitions that simply depend on the target industries may be criticized as inaccurate. We recognise that acquisitions with targets involving the industries other than utility and financial institutions may be also related to deregulation. However, at the current stage, our study simply advances the idea of deregulation being a possible test of the different explanations. So whether the over-optimism hypothesis works in deregulation is still in question and awaiting further investigation.

5.2 Hypothesis 3: stock versus cash payment

Since merging firms with different means of payment are mispriced to different directions (under or over) in Coakley et al. (2008), we expect that their performance after merger announcement will also differ. Bidders with stock payment should have more positive return while bidders with cash payment should have more negative return. Nevertheless, if over-optimism and hubris explanations apply to the UK market, then merger momentum and its long-run reversal should exist no matter what the means of payment. Otherwise, neoclassical theory prevails over the sentiment theories.

We adopt the majority definition on the means of payment. That is, stock acquisitions include not only those takeovers with 100% stock but also those takeovers whose percentage of stock is larger than the percentage of cash and

similarly for cash acquisitions. The sample of cash-financed acquisitions (391) is much bigger than the sample of stock-financed ones (115), shown in Table 6.

[Table 6 around here]

The results show quite a different picture of merger momentum between stock-financed and cash-financed acquisitions in both the short term and long term. First, there is no evidence of merger momentum at all for stock-financed acquirers. However this is such evidence for bidding firms who pay in cash, in which merger momentum, particularly in terms of the number of mergers, is significantly positive. Second, there is no evidence of abnormal long-run return for bidders financing with stock. Moreover, their short-run returns are positively and statistically significantly proportional to the price of the overall stock market in the short term. The coefficient of market momentum is 123.418 with *p*-value of 0.000. In contrast, long-run reversal exists weakly in the return of bidders financing with cash. This is reflected by the weakly negative relation between short-term variable CAAR and long-term dependent BHAR. Third, stock-financed acquisitions but not cash-financed ones effectively support managerial explanations, having negative coefficients on bidder-specific stock momentum in both the short-run and long-run.

Overall, after taking the means of payment into account, our results (weakly) support the over-optimism hypothesis with evidence of long-run reversal in the returns of bidders with cash financing. Moreover, stock-financed acquisitions seem much more profitable than the cash-financed acquisitions. At least, there is no distinct long-term anomaly and therefore Hypothesis 3 with regards to stock payment is rejected.

These results may seem confusing to researchers in the field of M&As since more mispricing is observed in stock-financed acquisitions than in cash-financed

acquisitions in the USA. However, the return of bidding firms in the pose-event study is quite consistent with our findings on misvaluation in the pre-event study. Coakley et al. (2008) find that inside managers perceive cash acquirers to be more overvalued relative to stock acquirers. In addition, stock acquisitions are made by those bidding firms with better growth prospects in contrast with the situation in cash acquisitions. These findings reject popular misvaluation theory such as that of Rhodes-Kropf, Robinson and Viswanthan (2005). We explain the novel findings by the private information held by both target and acquirer managers. Target managers will only accept stock if they know the acquirers are not that mispriced, otherwise they will demand cash. Since firms bidding with stock are not misvalued as much as those bidding with cash, we would not expect returns on the bidding firms with stock deviate too far from fundamentals.

In addition, the inside management of stock acquisitions is more likely to be personally motivated than the inside management of cash acquisitions. This is because managers are overconfident when they know their firm is not as mispriced as the market believes (i.e. outside investor sentiment) so that they believe they can create great synergies from the takeovers, and in the meanwhile not be acquired by others. Under such circumstances, managers using stock as the payment have a greater probability of making bad acquisitions. This explains why both short-run and long-run post-announcement performances of stock-financing bidders are negative compared to their own stock price prior to the announcement.

5.3 Hypothesis 4: glamour versus value acquirers

The third competing hypothesis is based on the performance extrapolation interpretation (Rau and Vermaelen 1998) of glamour and value firms. The measure

used to distinguish glamour from value firms is the book-to-market ratio. According to Sudarsanam and Mahate (2003), we divide our sample of 548 into three equally sized portfolios based on the book-to-market ratio in the fiscal year prior to the bid announcement. It yields 183 glamour bidding firms with lowest book-to-market and 183 value bidding firms with highest book-to-market ratio.

There are two main implications behind the performance extrapolation hypothesis which states that assessment on the value of a new acquisition by the market and top management is based on the bidder's past performance. One is that merger momentum should be more distinct for glamour bidding firms than for value ones in the bid announcement period. The other is that overvaluation (undervaluation) of the glamour (value) firms will be corrected in the opposite direction in the long-run, i.e. long-run reversal. All in all, if the above implications are supported by the results shown in Table 7, then the over-optimism theory holds.

[Table 7 around here]

Glamour bidding firms show remarkable results in terms of merger momentum and long-run reversal. Firstly, the returns of glamour acquirers are positive correlated to the trailing number of mergers in the overall market, one measurement of merger momentum. Such a relation is sustained over a rather longer period. Secondly, the trend of reversal in the performance of glamour bidding firms is significant in terms of stock market momentum. The coefficient of trailing 12-month returns on the FTSE index is extremely large and significant, -317.122 with *p*-value 0.014. It is the largest and strongest negative relation between the overall stock market and the returns of bidding firms in the regressions. This means that a glamour bidding firm announcing an acquisition during a hot market does much worse, all else being equal, than one announced during a cold market. Thirdly, there is evidence of bidder-specific merger

momentum only in the return of glamour acquirers. We see a long-term wealth gain of glamour acquirer if they had more bids in the previous 3 years. The coefficient reported is 0.421 though the significance is weak. This shows that glamour acquirers use their advantage of overvaluation in the hot market and therefore favour making acquisitions compared to value acquires, which give them experiences in making better bids. Moreover, they earn a good reputation from the market. Lastly, glamour acquirers are shown to be overbearing by the results of bidder-specific stock momentum. The trait of hubris may come from the overvaluation of the glamour firms or alternatively from the experience of making multiple takeovers in hot markets.

In contrast, the results in value bidding firms seem weak compared to the results in glamour ones. Both of the short-run and long-run regressions are unsuccessful with no significant explanatory variables. We conclude that no merger momentum and long-run reversal applies for value acquirers.

Overall, the results of glamour acquirers strongly support Hypothesis 4 while the results of value firms do not. We are not surprised that the investors are keen on glamour firms at times when market is hot rather than other times. However, such sentiment by the investors will finally be replaced by rationality so that the glamour firms will be punished for what the irrational market initially rewarded them. What is more, such punishment can be much more serious if the top management of the bidding firms joins the irrational group. On the other hand, the market and the manager themselves seem rational both in their perception of the real valuation of value firms and in their estimation of the synergies created by the acquisitions. Such an explanation is reasonable since value firms are usually regarded as mature but stable companies with low growth prospects which is already been well known to the market.

5.4 Hypothesis 5: merger versus tender offers

The last hypothesis is to separate mergers from tender offers. Rosen suggests that tender offers should be excluded from the merger sample as these two types of acquisitions display different patterns. Tender offers are more hostile while mergers are generally friendly agreements. Tender offers receive a more positive or less negative market response due to the prevalence of cash payment. Therefore, we expect distinct merger momentum and long-run reversal in the mergers rather than tender offers. Since the sample of tender offers (368) is much larger than that of mergers (180), we could not exclude the tender offers from the original sample but simply have a robustness check on it.[18] Table 8 reports the results.

[Table 8 around here]

The results show no short-term merger momentum in either mergers or tender offers, thus rejecting Hypothesis 5 with regards to merger momentum. However, there is long-term merger momentum in tender offers, with evidence of strong merger momentum in the trailing 12-month number of mergers.

The two types of acquisitions relate to market momentum in different directions in different windows. The post-announcement return of bidders in mergers offers is negatively proportional (-219.210) to the stock market momentum. Hypothesis 5 is accepted at the 10% significant level in terms of the long-run reversal expectation. However, the announcement return on bidding firms in tender offers increase by around 44 times the rise in the stock market index.

[18] Actually, the hypothesis about merger versus tender offers is a robustness check of whether merger momentum in mergers can be explained by investor sentiment if we exclude the positive effect of tender offers. For the sake of convenience, we include this robustness check in the section on competing hypotheses together with other significant propositions.

Bidder-specific stock momentum gives rise to a transitory negative impact on the returns of mergers in the short run only. However, returns on bidders in tender offers are negatively affected by the persistent bidder-specific stock price before the announcements. In other words, the hubris hypothesis is supported by tender offers but not by mergers offers.

6. Conclusion

This paper undertakes a post-event investigation of UK M&As by examining the interaction between market conditions and the market reaction to a merger announcement. We adopt the conception of 'hot' market from Rosen (2006) to measure market conditions. The presumption is that bidding firms announcing acquisitions in hot markets (either hot merger market or hot stock market) tend to get a better reaction from the markets, reflected by higher return compared to those announced in a cold market.

We run a series of cross-sectional analysis of the return on bidding firms to examine several alternative explanations on merger momentum but with different predictions on long run return. These are the neoclassical theory, the over-optimism hypothesis, and the theory of managerial motivations or irrationality (hubris). We find that the results of market-wide (but not bidder-specific) merger momentum in UK M&As are too complicated and mixed to be explained exclusively by any of these three theories.

First of all, the overall 548 acquisitions of sample show merger momentum in merger markets in both the short-run and long-run which supports the neoclassical theory rather than the over-optimism hypothesis. There is a wealth gain for the bidding firm when a number of acquisitions cluster, indicating a merger wave prior to

the announcement. Furthermore, the trend is strongly upward in the long-run, showing a positive reaction to the overall acquisitions announced in the year prior to the announcement in quality (measured by trailing CAAR) and quantity (measured by trailing number of mergers). Besides broad merger momentum, we examine three other types of momentums. Broad stock market momentum and bidder-specific merger momentum are found to be not strong enough to support any of the theories. As for the bidder-specific stock momentum, a negative impact over both horizons is found which indicates managerial inefficiency.

Second, we do find evidence of merger momentum as well as long term reversal in return in three forms. This evidence supports overly optimistic investor sentiment. One of these forms relates to means of payment, when we test a hypothesis of stock-financed acquirers versus cash-financed acquirers. There is merger momentum in terms of the number of mergers for the acquirers who pay for targets in cash. Also, the post-announcement returns of cash bidding firms are weakly and negatively related to their short-run announcement returns, whereas this is not found in bidding firms financing by stock. These results are not surprising since they are consistent with our misvaluation findings that cash bidders are more overvalued than stock bidders.

Another form, showing the strongest results consistent with the expectation of the over-optimism hypothesis, pertains to the nature of acquirers (either glamour or value). Glamour acquirers, who had better performance in the past, are found to be favoured by the market reflecting merger momentum while doing much worse in the long run reflected in strongly negative coefficients on the CAAR and on market momentum. In contrast, value firms have no sign of merger momentum or of long run drift.

The last form in line with over-optimism hypothesis is the separation of mergers from tender offers. Mergers offers exhibit no merger momentum at all while tender

offers do so in the long run. The returns on bidding firms in mergers show weak evidence of reversal or a negative relation with market momentum in the long run. Moreover, strong hubris evidence is also found in these three forms supportive of the over-optimism hypothesis.

Therefore, our results are mixed and open to several parallel explanations. On the one hand, the results show that the behaviour of market participants (either investors or managers) is to some extent irrational. Investors may be overly optimistic in a hot market toward some specific acquisitions, such as stock or glamour acquisitions, and systematically over-perceive their resultant synergies. However, investors will realise their inaccurate judgement and slowly correct the valuation. This will lead in the long-run to a lower stock price for the bidding firms. If managers are also imbued with the same optimism or hubris, more bad acquisitions are made during hot markets, leading to worse long-run results. On the other hand, we believe that the returns of UK bidding firms will not be totally negative due to the positive shocks effects which partly support the neoclassical theory.

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Table 1
Summary Statistics

Summary statistics for the sample of 548 acquisitions announced during 1986-2002. Trailing 12-month average cumulative abnormal announcement return (CAAR) is the average CAAR for all the mergers in the sample in the 12 months ending three days prior to an announcement. Trailing 12-month number of mergers is the number of mergers in the sample in the 12 months before an announcement. Trailing 12-month return on the FTSE all share index is the average return for the FTSE all share index in the 12-months ending three days prior to an announcement. CAAR on the last announcement by the firm is for the most recent merger by the bidder itself in the last three years prior to an announcement. Trailing 12-month BHAR on the bidder's stock is the average buy-and-hold return (BHAR) for all the mergers in the sample in the 12 months ending three days prior to an announcement BHAR is measured relative to the FTSE all share value-weighted index. Pure stock financing, pure cash financing, and mixed payment financing are counted as dummy variables that is 1 for pure stock (100%), pure cash, and otherwise for mixed payment, respectively. 'Target is public firm', 'target is private firm', and 'target is subsidiary' are also dummy variables, respectively. Mergers and tender offers are valued as dummy variables. Total assets, bidder book-to-market, and bidder return on assets (ROA) are bidders' accounting data collected from DataStream at the end of the year prior to the merger announcement. The ratio of target-to-bidder size is the ratio of target market-to-book to bidder market-to-book. Diversifying merger is also measured as a dummy variable. I use the 17-industry classification available at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. In addition, glamour and value acquirers are defined by the lowest book-to-market and highest book-to-market among the three size-equal portfolios.

Variable	Mean	Median	Standard Deviation
Trailing 12-month average CAAR	5.935%	6.041%	3.589%
Trailing 12-month number of mergers	76	63	41
Trailing 12-month return on the FTSE all share index	0.054%	0.057%	0.043%
CAAR on the last announcement by the firm	0.307%	0	3.910%
Dummy that is 1 if this is the first announcement by the bidder in the prior 3 years	14.964%	0	35.704%
Number of mergers by the bidder in the 3 years prior to the announcement	0.250	0	0.649
Trailing 12-month BHAR on the bidder's stock	109.321%	97.897%	77.937%
Pure stock financing	12.226%	0	32.789%
Pure cash financing	64.234%	1	47.975%
Mixed payment financing	17.336%	0	37.890%
Target is public firm	99.088%	1	9.517%
Target is private firm	0.912%	0	9.517%
Target is subsidiary	0.000%	0	0.000%
Mergers	32.847%	0	47.008%
Tender offers	67.153%	1	47.008%
Total assets of bidding firm (£ millions)	420.121	69.478	1365.238
Logged bidder total assets	7.861	7.842	0.798
Ratio of target-to-bidder size	19.930%	8.140%	26.994%
Bidder book-to-market	0.180	0.049	0.397
Bidder ROA	12.761%	12.875%	33.726%
Diversifying merger	47.628%	0	49.989%
Glamour acquirers’ book-to-market	0.008	0.006	0.007
Value acquirers’ book-to-market	0.474	0.261	0.585

Table 2
Regression Results for the CAAR (Dependent variable)

The sample consists of acquisitions announced 1986-2002. The dependent variable is the cumulative abnormal announcement effect. The CAAR is defined as $\sum_{t=-2}^{2}(R_t - R_{index,t})$, where R_t is the return on the acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. In addition, the CAAR is measured over the five-day window surrounding the announcement date for the acquirer's stock. Also see the note to table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Full Sample	
	Coefficient	*p*-Value
Merger momentum:		
Trailing 12-month average CAAR	-0.196	(0.462)
Trailing 12-month number of mergers/100	0.076	(0.001)***
Market momentum:		
Trailing 12-month return on FTSE all share index	26.459	(0.108)
Bidder-specific merger momentum:		
CAAR on bidder's last announcement	-0.102	(0.573)
First merger dummy	-0.008	(0.824)
Number of mergers by firm in last 3 years	-0.011	(0.654)
Bidder-specific stock momentum:		
Trailing 12-month BHAR on bidder's stock	-0.035	(0.000)***
Control variables:		
stock financing	-0.077	(0.000)***
Logged total assets	-0.056	(0.000)***
Ratio of target-to-bidder size	0.012	(0.724)
Bidder book-to-market	-0.009	(0.700)
Bidder ROA	0.038	(0.080)*
Diversifying	0.017	(0.270)
Adjusted R-squared	0.1728	

Table 3
Regression Results for BHAR (Dependent Variable)

The sample consists of acquisitions from 1986 to 2002. The dependent variable is the buy-and-hold return (BHAR) relative to the FTSE all share index. 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 acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. The postannouncement window runs from three days after an announcement to three years after the announcement. The total window runs from two days prior to an announcement. Also see note to table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Postannouncement Returns (+3 to +780) (1)		**Total Window Returns (-2 to +780)** (2)	
	Coefficient	*p*-Value	Coefficient	*p*-Value
CAAR	-0.229	(0.128)		
Merger momentum:				
Trailing 12-month average CAAR	2.016	(0.028)**	1.732	(0.071)*
Trailing 12-month no. of mergers/100	0.288	(0.000)***	0.392	(0.000)***
Market momentum:				
Trailing 12-month return on FTSE	-87.663	(0.120)	-74.252	(0.207)
Bidder-specific merger momentum:				
CAAR on bidder's last announcement	-0.329	(0.596)	-0.376	(0.563)
First merger dummy	0.055	(0.670)	0.045	(0.738)
No. of mergers by firm in last 3 years	0.080	(0.339)	0.063	(0.468)
Bidder-specific stock momentum:				
Trailing 12-month BHAR on bidder's	-0.092	(0.004)***	-0.121	(0.000)***
Control variables:				
Stock financing	-0.127	(0.043)**	-0.187	(0.004)***
Logged total assets	0.012	(0.729)	-0.024	(0.483)
Ratio of target-to-bidder size	-0.208	(0.065)*	-0.204	(0.085)*
Bidder book-to-market	0.123	(0.110)	0.106	(0.190)
Bidder ROA	0.024	(0.740)	0.040	(0.601)
Diversifying	0.054	(0.292)	0.073	(0.176)
Adjusted R-squared	0.1485		0.1867	

Table 4
Statistics of Short-run (CAAR) and Long-run (BHAR) abnormal return in difference competing hypotheses

We separate the sample into two sub-samples according to different competing hypotheses. The sub-samples in panel A are non-deregulation and deregulation. We define the deregulation acquisition by the target industries of utility or financial institutes (in French 17-industry classifications, no. 14 and 16 industries). The sub-samples in panel B are stock-financed acquirers and cash-financed acquirers respectively. We define the stock-financed one as the percent of stock larger than the percent of cash, and the cash-financed one as the percent of cash larger than the percent of stock. The sub-samples in panel C are glamour and value acquirers. We defined the glamour/value firms as the lowest/highest book-to-market among the three size-equal portfolios. The sub-samples in panel D are acquirers in mergers and in tender offers. % refers to mean CAARs or BHARs. *P* refers to the proportion (%) of positive CAARs or larger-than-1 BHARs (since BHARS are calculated in levels) in each group. *t* refers to the *t*-statistic which is calculated assuming unequal group variances where the null hypothesis of equal group variances is rejected at the 10% level. Otherwise *t*-statistics are calculated assuming equal group variances. *p* is the test statistic for the test of difference in proportion. Both *t* and *p* are calculated using a two tail test. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	CAAR or BHAR				Tests of Difference Significance	
Panel A:						
	Non-deregulation		Deregulation		D vs N	
	%	*P*	*%*	*P*	*t*	*p*
Announcement period: CAAR	8.34***	64.06	3.92***	66	-3.35***	0.37
Postannouncement period: BHAR	103.41	48.66	110.14**	53	1.15	0.78
Total Window: BHAR	112.34***	54.91	114.76***	56	0.39	0.2
Panel B:						
	Stock		Cash		C vs S	
	%	*P*	*%*	*P*	*t*	*p*
Announcement period: CAAR	1.32	40.87	9.85***	71.87	5.40***	6.12***
Postannouncement period: BHAR	88.94*	29.57	108.79***	54.73	2.96***	4.74***
Total Window: BHAR	90.44	31.3	119.47***	61.89	4.34***	5.80***
Panel C:						
	Glamour		Value		V vs G	
	%	*P*	*%*	*P*	*t*	*p*
Announcement period: CAAR	6.39***	63.93	6.08***	61.75	-0.19	-0.43
Postannouncement period: BHAR	100.84	41.53	111.42***	58.47	1.57	3.24***
Total Window: BHAR	107.33	47.54	118.02***	61.75	1.51	2.73***
Panel D:						
	Merger		Tender Offer		T vs M	
	%	*P*	*%*	*P*	*t*	*p*
Announcement period: CAAR	4.70***	62.22	8.92***	65.49	2.88***	0.75
Postannouncement period: BHAR	106.29	50.56	103.83	48.91	-0.42	-0.36
Total Window: BHAR	111.00**	52.78	113.65***	56.25	0.43	0.77

Table 5
Regression Results with regarding to deregulation

The sample is divided into two sub-samples, non-regulation and deregulation. We define the deregulation acquisition by the target industries of utility or financial institutes (in French 17-industry classifications, no. 14 and 16 industries), shown in column (3) and (4). And the rest acquisitions are classified as the group of non-deregulation industries, shown in column (1) and (2). We repeat the short-run and long-run regressions as in table 2 and 3 in the sub-samples. The CAAR is defined as $\sum_{t=-2}^{2}(R_t - R_{index,t})$, where R_t is the return on the acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. In addition, the CAAR is measured over the five-day window surrounding the announcement date for the acquirer's stock. The BHAR is defined as $\prod_{t=1}^{T}(1+R_t)/\prod_{t=1}^{T}(1+R_{index,t})$. The postannouncement window runs from three days after an announcement to three years after the announcement. Also see note to Table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Non-deregulation Industries				Deregulation Industries (Utilities & Financial)			
	Announcement Return (-2 to +2): CAAR		**Postannouncement Returns (+3 to +780): BHAR**		**Announcement Return (-2 to +2): CAAR**		**Postannouncement Returns (+3 to +780): BHAR**	
	(1)		(2)		(3)		(4)	
	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value
CAAR			-0.224	(0.165)			-0.123	(0.810)
Merger momentum:								
Trailing 12-month average CAAR	-0.107	(0.738)	1.919	(0.069)*	-0.578	(0.121)	2.393	(0.161)
Trailing 12-month no. of mergers/100	0.065	(0.020)***	0.248	(0.008)***	0.109	(0.002)***	0.329	(0.048)**
Market momentum:								
Trailing 12-month return on FTSE	30.184	(0.135)	-48.062	(0.470)	15.386	(0.491)	-146.237	(0.151)
Bidder-specific merger momentum:								
CAAR on bidder's last announcement	-0.099	(0.622)	-0.378	(0.566)	-0.643	(0.343)	-0.903	(0.769)
First merger dummy	-0.009	(0.838)	0.102	(0.476)	-0.013	(0.871)	0.041	(0.907)
No. of mergers by firm in last 3 years	-0.007	(0.809)	0.082	(0.365)	-0.010	(0.859)	0.008	(0.973)
Bidder-specific stock momentum:								
Trailing 12-month BHAR on bidder's	-0.037	(0.000)***	-0.091	(0.008)***	-0.005	(0.848)	-0.091	(0.465)
Control variables:								
Stock financing	-0.085	(0.000)***	-0.166	(0.023)**	-0.015	(0.595)	-0.136	(0.275)
Logged total assets	-0.059	(0.000)***	-0.003	(0.947)	-0.038	(0.006)***	0.053	(0.405)
Ratio of target-to-bidder size	0.007	(0.869)	-0.264	(0.041)**	0.057	(0.327)	0.341	(0.195)
Bidder book-to-market	-0.018	(0.594)	0.148	(0.178)	-0.019	(0.448)	-0.075	(0.503)
Bidder ROA	0.035	(0.146)	0.009	(0.912)	0.085	(0.080)*	-0.115	(0.602)
Diversifying	0.011	(0.613)	0.089	(0.216)	0.075	(0.177)	-0.238	(0.350)
Adjusted R-squared	0.1667		0.1377		0.1652		0.3716	
Observations	448				100			

Table 6
Regression Results for Stock financing VS Cash financing

The sample is divided into two sub-samples, stock-financed and cash-financed acquirers. We define the stock-financed one as the percent of stock larger than the percent of cash (shown in column 1 and 2), and the cash-financed one as the percent of cash larger than the percent of stock (shown in column 3 and 4). We repeat the short-run and long-run regressions as in table 2 and 3 in the sub-samples. The CAAR is defined as $\sum_{t=-2}^{2}(R_t - R_{index,t})$, where R_t is the return on the acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. In addition, the CAAR is measured over the five-day window surrounding the announcement date for the acquirer's stock. The BHAR is defined as $\prod_{t=1}^{T}(1+R_t)/\prod_{t=1}^{T}(1+R_{index,t})$. The postannouncement window runs from three days after an announcement to three years after the announcement. Also see note to Table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Stock-financed Acquirers				Cash-financed Acquirers			
	Announcement Return (-2 to +2): CAAR		**Postannouncement Returns (+3 to +780): BHAR**		**Announcement Return (-2 to +2): CAAR**		**Postannouncement Returns (+3 to +780): BHAR**	
	(1)		(1)		(3)		(4)	
	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value
CAAR			-0.263	(0.605)			-0.298	(0.080)*
Merger momentum:								
Trailing 12-month average CAAR	-0.030	(0.959)	1.366	(0.633)	-0.074	(0.815)	1.809	(0.080)*
Trailing 12-month no. of mergers/100	0.069	(0.139)	0.363	(0.110)	0.074	(0.009)***	0.285	(0.002)***
Market momentum:								
Trailing 12-month return on FTSE	123.418	(0.000)***	0.220	(0.999)	9.071	(0.644)	-97.264	(0.127)
Bidder-specific merger momentum:								
CAAR on bidder's last announcement	0.088	(0.829)	-0.920	(0.639)	-0.131	(0.520)	-0.310	(0.638)
First merger dummy	-0.117	(0.363)	0.257	(0.678)	-0.002	(0.964)	0.065	(0.641)
No. of mergers by firm in last 3 years	0.064	(0.527)	-0.060	(0.901)	-0.007	(0.802)	0.087	(0.308)
Bidder-specific stock momentum:								
Trailing 12-month BHAR on bidder's	-0.027	(0.024)**	-0.167	(0.004)***	-0.031	(0.021)***	-0.053	(0.224)
Control variables:								
Logged total assets	0.017	(0.361)	-0.031	(0.732)	-0.079	(0.000)***	0.004	(0.918)
Ratio of target-to-bidder size	0.028	(0.664)	0.042	(0.891)	-0.004	(0.915)	-0.169	(0.200)
Bidder book-to-market	-0.041	(0.313)	0.049	(0.805)	0.005	(0.840)	0.104	(0.228)
Bidder ROA	0.046	(0.033)**	0.177	(0.096)*	-0.065	(0.195)	-0.004	(0.980)
Diversifying	0.046	(0.090)*	0.107	(0.419)	0.000	(0.993)	0.099	(0.107)
Adjusted R-squared	0.1932		0.1850		0.2184		0.1060	
Observations	115				391			

Table 7
Regression Results for Glamour VS Value Acquirers

The sample is divided into two sub-samples, glamour and value acquirers. We defined the glamour/value firms as the lowest/highest book-to-market among the three size-equal portfolios. The results of glamour firms are shown in column 1 and 2. And the results of value firms are described in column 3 and 4. We repeat the short-run and long-run regressions as in table 2 and 3 in the sub-samples. The CAAR is defined as $\sum_{t=-2}^{2}(R_t - R_{index,t})$, where R_t is the return on the acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. In addition, the CAAR is measured over the five-day window surrounding the announcement date for the acquirer's stock. The BHAR is defined as $\prod_{t=1}^{T}(1+R_t)/\prod_{t=1}^{T}(1+R_{index,t})$. The postannouncement window runs from three days after an announcement to three years after the announcement. Also see note to Table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Glamour Acquirers				Value Acquirers			
	Announcement Return (-2 to +2): CAAR		**Postannouncement Returns (+3 to +780): BHAR**		**Announcement Return (-2 to +2): CAAR**		**Postannouncement Returns (+3 to +780): BHAR**	
	(1)		(1)		(3)		(4)	
	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value
CAAR			-0.519	(0.110)			-0.093	(0.783)
Merger momentum:								
Trailing 12-month average CAAR	0.087	(0.840)	2.885	(0.095)*	-0.090	(0.838)	1.407	(0.447)
Trailing 12-month no. of mergers/100	0.086	(0.041)**	0.345	(0.044)**	0.044	(0.254)	0.260	(0.111)
Market momentum:								
Trailing 12-month return on FTSE	16.151	(0.612)	-317.122	(0.014)***	2.679	(0.912)	-25.679	(0.803)
Bidder-specific merger momentum:								
CAAR on bidder's last announcement	-0.055	(0.810)	-0.240	(0.794)	-0.255	(0.478)	-0.882	(0.562)
First merger dummy	0.000	(0.995)	-0.352	(0.305)	-0.013	(0.798)	0.320	(0.127)
No. of mergers by firm in last 3 years	-0.013	(0.832)	0.421	(0.087)*	-0.024	(0.345)	0.010	(0.925)
Bidder-specific stock momentum:								
Trailing 12-month BHAR on bidder's	-0.032	(0.008)***	-0.111	(0.025)**	0.005	(0.809)	-0.105	(0.250)
Control variables:								
Stock financing	-0.049	(0.136)	-0.203	(0.126)	-0.048	(0.097)*	-0.007	(0.956)
Logged total assets	-0.077	(0.000)***	-0.168	(0.041)**	-0.018	(0.231)	0.032	(0.610)
Ratio of target-to-bidder size	0.215	(0.353)	-0.202	(0.828)	0.029	(0.473)	-0.223	(0.195)
Bidder book-to-market	0.720	(0.718)	10.746	(0.181)	-0.013	(0.517)	0.099	(0.256)
Bidder ROA	0.039	(0.126)	0.179	(0.087)*	-0.149	(0.060)*	-0.004	(0.991)
Diversifying	-0.010	(0.702)	0.031	(0.769)	0.046	(0.052)**	0.049	(0.626)
Adjusted R-squared	0.1848		0.1912		0.2193		0.1044	
Observations	183				183			

Table 8
Regression Results for Mergers VS Tender Offers

The sample is divided into two sub-samples, acquirers in mergers and in tender offers. SDC defines the tender offer as a formal offer of determined duration to acquire a public company's shares made to equity holders. The offer is often conditioned upon certain requirements such as a minimum number of shares being tendered. The results of mergers are shown in column 1 and 2. And the results of tender offers are described in column 3 and 4. We repeat the short-run and long-run regressions as in Table 2 and 3 in the sub-samples. The CAAR is defined as $\sum_{t=-2}^{2}(R_t - R_{index,t})$, where R_t is the return on the acquirer's stock and $R_{index,\,t}$ is the return on the FTSE all share value-weighted index. In addition, the CAAR is measured over the five-day window surrounding the announcement date for the acquirer's stock. The BHAR is defined as $\prod_{t=1}^{T}(1+R_t)/\prod_{t=1}^{T}(1+R_{index,t})$. The postannouncement window runs from three days after an announcement to three years after the announcement. Also see note to Table 1. Industry dummies are included in the regressions but not shown in the table. Asymptotic *p*-values are in parentheses. ***, **, and * indicate statistically significant at the 1%, 5%, 10% level, respectively.

	Mergers				Tender Offers			
	Announcement Return (-2 to +2): CAAR		**Postannouncement Returns (+3 to +780): BHAR**		**Announcement Return (-2 to +2): CAAR**		**Postannouncement Returns (+3 to +780): BHAR**	
	(1)		(1)		(3)		(4)	
	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value	Coefficient	*p*-Value
CAAR			-0.334	(0.398)			-0.168	(0.257)
Merger momentum:								
Trailing 12-month average CAAR	-0.403	(0.237)	2.222	(0.182)	-0.048	(0.907)	0.379	(0.737)
Trailing 12-month no. of mergers/100	0.060	(0.235)	0.079	(0.747)	0.047	(0.144)	0.488	(0.000)***
Market momentum:								
Trailing 12-month return on FTSE	-5.907	(0.820)	-219.210	(0.084)*	44.248	(0.038)**	-48.365	(0.408)
Bidder-specific merger momentum:								
CAAR on bidder's last announcement	0.216	(0.463)	-0.648	(0.652)	-0.233	(0.317)	-0.041	(0.948)
First merger dummy	-0.059	(0.235)	0.174	(0.473)	0.050	(0.391)	-0.034	(0.830)
No. of mergers by firm in last 3 years	0.012	(0.685)	-0.025	(0.858)	-0.044	(0.269)	0.123	(0.264)
Bidder-specific stock momentum:								
Trailing 12-month BHAR on bidder's	-0.064	(0.000)***	-0.008	(0.926)	-0.027	(0.017)***	-0.138	(0.000)***
Control variables:								
Stock financing	0.020	(0.690)	0.008	(0.974)	-0.104	(0.000)***	-0.142	(0.017)***
Logged total assets	-0.046	(0.001)***	0.004	(0.953)	-0.062	(0.000)***	-0.002	(0.964)
Ratio of target-to-bidder size	0.040	(0.529)	0.122	(0.694)	-0.010	(0.812)	-0.269	(0.014)***
Bidder book-to-market	-0.008	(0.826)	-0.067	(0.699)	-0.004	(0.888)	0.237	(0.003)***
Bidder ROA	-0.028	(0.654)	0.177	(0.561)	0.066	(0.010)***	0.012	(0.866)
Diversifying	0.039	(0.097)*	0.135	(0.246)	-0.000	(0.982)	-0.021	(0.683)
Adjusted R-squared	0.1063		0.0430		0.2047		0.2782	
Observations	180				368			

Figure 1
The trailing 12-month average CAAR and the trailing 12-month number of mergers for acquisitions announced 1986-2002

The sample of 548 acquisitions covers from 1986 to 2002. The data in the figure include all merger announcements meeting the sample criteria. The average CAAR is the trailing 12-month average cumulative abnormal announcement return and the number of announcements is the total acquisition announcements in the prior 12 months.