

What Drives Acquisitions? Market Valuations and Bidder Performance

Dimitris Petmezas^{a,*}

^a *University of Surrey, School of Management, Guildford, Surrey, GU2 7XH, UK*

This version: May 2008

Abstract

Given the recent theoretical development that documents stock market misvaluations' driven acquisition, this paper examines the relation between market valuations and bidder performance. We focus on hot stock markets and find that bidder reactions to mergers, in both the short and long-run period, are consistent with the predictions of investors' sentiment (optimism) after controlling for target type and method of payment. Managers that undertake mergers during bullish periods are rewarded by the generalized upward trend of the market in the short-run. However, this is followed by long-term reversals as the market learns only gradually that many of the mergers undertaken during hot periods were not carefully evaluated and were made under the pressure of 'urge to merge' to take advantage of the overall market status of a particular period.

JEL classification: G11 ; G14 ; G34

Keywords: Mergers & Acquisitions; Market Valuations; Short & Long-term wealth effects

1. Introduction

Mergers and acquisitions have been one of the most extensively researched areas in finance with the most recent studies to document empirical evidence that merger activity comes in waves. The literature evaluates a merger based on the initial market reaction to the merger announcement (Jensen and Ruback, (1983)) and on the long-run returns to the merger (Loughran and Vijh, (1997)). Despite the fact that such corporate actions should be viewed as value-enhancing strategic decisions, the empirical studies have not always documented positive wealth effects for acquiring firms' shareholders. The neoclassical theory of mergers modernized by Andrade, Mitchell, and Stafford (2001), argues that merger waves emerge to an extent from economic, regulatory and industrial shocks. Given these shocks, mergers facilitate the change of firms to a new competitive environment. Merger activity comes in waves and returns to acquiring firms depend, among others, on the method of payment (Travlos (1987)), on the acquirer's book to market ratio (Rau and Vermaelen (1998)) and size (Moeller, Schlingemann and Stulz (2004), and type of target (Fuller,

* Corresponding author. Tel.: +44 1483 686-376; fax: +44 1483 689-511.
E-mail address: d.petmezas@surrey.ac.uk (D. Petmezas).

Netter and Stegemoller (2002)). A more recent strand of the literature attempts to link takeover activity with stock market performance (high merger activity is correlated with high stock market valuations as shown by Jovanovic and Rousseau, (2001)). This correlation is particularly interesting given that hot stock market periods, which could turn out to be misvaluations as shown by the growing behavioral finance literature, may impact merger activity in a systematic way.

Studies on the wealth effects of mergers have documented a growing body of long-run anomalies, for example, cash payments systematically outperform stock payments (Loughran and Vijh, (1997)), value acquirers outperform glamour acquirers (Rau and Vermaelen, (1998)), small acquirers have, in general, better performance than large acquirers (Moeller, Schlingemann, and Stulz, (2004)). Along these lines, Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) develop models which suggest that stock market misvaluations drive merger activity. In their models, the fundamental assumption is that financial markets are inefficient and therefore some firms are valued incorrectly, while bidder managers are completely rational, understand market misvaluations and, hence, time the market to make profits. In addition, Rosen (2006) provides evidence that investors' reaction to a merger announcement during a particular period of time can be influenced by their overly optimistic beliefs about the future prospects which lead to merger momentum. Finally, Baker, Ruback and Wurgler (2007) survey a number of papers in behavioral corporate finance and provide a framework which suggests that investor sentiment co-exists with managerial overconfidence (hubris).¹

Given the fact that high merger activity correlates with high stock market valuations, the understanding of stock market valuations is crucial to shed light on merger activities and acquirers' performance. In particular, examining the short- and long-run market reactions to mergers in high- and low-valuation periods can facilitate to highlight the importance of market-wide valuations on acquiring firms' stock price performance and thereby draw conclusions on the ongoing debate of merger activities. If investors' sentiment (optimism) theory holds, bidders should enjoy larger abnormal returns during

¹ The market timing theory is, however, directly opposed to Roll's (1986) hubris hypothesis that assumes financial markets are strong-form efficient while bidder managers are infected by hubris in making their merger decisions.

high-valuation periods, because the overall state of the market rewards the managers for the ‘new information arrival’ during a general upward trend, but this should reverse in the long-run as initial expectations may not be fully met when the combined firms’ accomplishments become known over time.

Also very importantly, while most, if not all, evidence of the recent debate on merger waves and market valuations is drawn exclusively from U.S. data, it cannot be ruled out that this is limited to the U.S. bearing in mind that these are a universal phenomenon. To determine whether this is not sensitive to the choice of the market and robust outside the U.S. we focus our attention on the other side of the Atlantic for U.K. new evidence. We use a sample of 2,973 U.K. domestic public and private acquisitions announced between 1984 and 2003, and examine the performance of acquirers both around the announcement date and in the post-merger period. We choose the U.K. as a representative sample of European evidence as Faccio and Masulis (2005) report that the U.K. accounts for the large majority of European deals (65.3% of their 13 European country mergers are U.K. bidders). In addition, since our study involves to a major extent the examination of method of payment, we are particularly interested in the fact that most U.K. bids are entirely cash financed (80.2% in Faccio and Masulis’ sample) which goes against the market timing theory. This is in sharp contrast with the U.S. practice; Andrade, Mitchell, and Stafford (2001) interestingly report that 70% of U.S. deals are stock financed with 58% being fully stock financed.

This study contributes to the literature in several ways. First, our results indicate that corporate acquisitions’ performance is an integral component of market wide (mis)valuations. Second, the results support the predictions of overoptimistic investors’ beliefs. We find that bidders generate significantly positive abnormal returns during high-valuation periods while they exhibit insignificant returns during low-valuation periods. This suggests that while the market rewards acquisition attempts when stock prices are high, it appears to be indifferent to acquisitions undertaken in low-valuation periods. On the other hand, bidders generate negative abnormal returns in the long-run for acquisitions initiated during both high- and low-valuation periods. Such results indicate that managers time the market and make profits at

the announcement, while they may overestimate the potential synergy gains and the future prospects that are associated with the merger decision. This over-optimism about the synergy gains and the future prospects of the merger is also adopted by investors, who increase the bidder's price at the announcement. The initial generally positive reaction of the market to high-valuation acquirers and the subsequent long-run reversal reflect the market price corrections as investors learn only gradually that many of the mergers undertaken during bullish periods were imprudent and with less care. Third, in general, our results are robust to several acquisition and deal characteristics, industry shocks, past merger activity and merger waves. Fourth, we investigate whether our findings are a result of market-wide or firm-specific misvaluations and we conclude that the latter do not drive acquisitions for different valuation periods. Finally, we examine the pre-event performance of acquirers six months preceding the acquisition event and provide evidence that the reversal of patterns for the acquirers is not simply a manifestation of short-term persistence and long-term reversals but mirrors the consequences of acquisitions during specific periods of market valuation.

The rest of the paper is organized as follows. Section 2 reviews the link between market valuations and bidder performance and sets the hypotheses. Section 3 describes the data and the empirical methodology. Section 4 presents and interprets the short-term results. Section 5 reports long-term performance results. Section 6 concludes the paper.

2. Related Literature Review and Hypothesis Development

A recent literature suggests that shareholder reaction to a corporate announcement can be affected by investor sentiment (optimism), that is, the reaction of investors to factors other than the value created by the merger. The investor sentiment theory advocates that merger performance results from overly optimistic beliefs on the part of investors. Merger momentum could result from investors as a group becoming optimistic about mergers announced during a particular period of time. Rosen (2006) argues that investors' reaction to a merger announcement can be influenced by their overly optimistic beliefs

about the future prospects of the merger.² Consequently, a common, positive trend in announcement returns to bidding firms should be observed during periods of market optimism, resulting in merger momentum, i.e. positive returns in the short-run. During hot merger markets, when optimism increases, bidders time the market to take advantage of the uptrend and hence, the market reaction to all announcements should be more positive than at other times. However, price increases should reverse in the long-run as the market realizes that mergers initiated in hot periods were not carefully evaluated and were in fact bad deals.

Investor sentiment can also affect the type of acquisitions firms make. Managers may be infected with the same optimism as investors during hot markets. If this is the case, then they might overestimate the synergies from a merger, leading them to make more (ex post) bad acquisitions during hot markets, consistent with Baker, Ruback and Wurgler (2007) who argue that investor inefficiency co-exists with managerial irrationality. Alternatively, managers may use hot markets as a cover to exploit shareholders. If managers are rewarded for increasing stock prices, then they have an incentive to make bad acquisitions in hot markets, since even a bad acquisition may temporarily boost the acquirer's stock price. When this managerial motivation is important enough, mergers made in hot markets would be worse than those made in cold markets.

Rhodes-Kropf and Viswanathan (2004) suggest a behavioral model, in which rational targets do not have perfect information and would accept a larger number of offers from overvalued targets during hot markets, because they overestimate the potential synergies of the merger. The difference between their model and the one of Shleifer and Vishny (2003) stands mainly in that target management is not just self-concerned, but has only imperfect information about the magnitude of synergies at its disposal. In a different study, Rhodes-Kropf, Robinson and Viswanathan (2005) show that merger activity peaks when market valuations are high. In addition, they provide evidence of long-run reversal as they show that

² Our study differs from Rosen's (2006) approach in two main aspects: First, we directly focus on market valuations to examine acquirer's performance, while Rosen examines the performance (momentum) of firms with good (or bad) merger history. Second, we use a U.K. sample while his analysis is based on U.S. data. Our findings are consistent with his arguments and point out that the effect of investors' optimism on acquirer's performance is not a U.S. phenomenon.

returns are lower in deals undertaken during hot merger markets than those announced at other times, given that initial expectations may not be fully met when the combined firms' accomplishments become known with time.

When swings in acquirer's performance are caused by changes in investors' optimism, any increase in bidders' stock price should reverse in the long-run as beliefs are replaced by results. If managers make worse acquisitions in hot markets (because i) they are infected by hubris ii) pursue private benefits or iii) they optimistically overvalue target firms), then the long-run return to bidders might be negative even with a positive announcement return included. To sum up, the initial generally positive reaction of the market to high-valuation acquirers reflects that the market learns only gradually that many of the mergers undertaken during bullish periods were imprudent and not carefully evaluated.

Hypothesis: Firms engaged in acquisitions under investors' sentiment (optimism) theory generate positive announcement returns and negative long-run returns.

3. Data and Methodology

3.1. Classification of High- and Low- Valuation Markets

Each calendar month is classified as high-, neutral-, or low-valuation month on the basis of the P/E ratio of the value-weighted market index (TOTMKUK).³ In order to classify each month into a valuation group the market (TOTMKUK) P/E is detrended by removing the best straight line fit (OLS) from the P/E of the month in question and the five preceding years. The month in question is classified into an above (below) average group if its detrended index P/E was above (below) the past five-year average. Then the months are ranked in order of detrended P/E. Months that belong to the top half of the above average group are classified as high-valuation months and those that belong to the bottom half of the below average group are classified as low-valuation months. All remaining months are classified as neutral-

³ Jovanovic and Rousseau (2001) find that merger waves coincide with periods of high price-earnings ratios on the stock markets, which is used as a proxy of market valuations. In an independent US study, Bouwman, Fuller and Nain (2008) also employ the P/E ratio of the market index (S&P 500).

valuation months. This procedure leads to 53 high-valuation, 63 low-valuation and 124 neutral-valuation months, respectively.⁴

3.2. Selection Criteria and Sample Description

We examine a sample of 2,973 successful domestic acquisitions by U.K. public companies over the period from January 1st, 1984 to December 31st, 2003.⁵ The sample of acquisitions is drawn from the Securities Data Corporation's (SDC) Mergers and Acquisitions Database. The following criteria are used in selecting the final sample: 1) Acquirers are publicly traded U.K. firms, listed on the London Stock Exchange (LSE) and have at least five days of return data around the acquisition announcement for short-run analysis, and one- to three-year return data for the long-run analysis available from the Thomson Financial Datastream. 2) Targets are U.K. public or private firms. 3) The deal value is 1 million USD or more.⁶ 4) The acquirer owns less than 50% of the target company's stock before the deal and more than 50% after the deal. 5) We require that the deal value represents at least 1% of the market value of the acquirer. Market value is measured as monthly share price multiplied by the number of ordinary outstanding shares one month before the announcement date. 6) Both bidding and target firms are non-financial and non-utility firms.

In addition to these restrictions, multiple acquisitions (in which an acquirer announced two or more acquisitions within five days) are also excluded in order to isolate the overlapping effect among deals on bidder returns. The sample is then divided into three groups based on the payment method for the acquisition, i.e., pure cash, pure stock, and mixed. Cash acquisitions consist of transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock.

⁴ For robustness reasons we follow Bouwman et al. (2008) and employ another proxy of market valuations, the detrended market index (TOTMKUK) itself. The process of classifications of high-, low- and neutral-valuation months is similar to the one of the P/E of the index.

⁵ Cross-border deals are excluded because we examine the performance of bidding firms as a matter of market valuations and the inclusion of deals made in foreign (non-UK) markets with different market/business cycles, corporate governance and regulations would contaminate the analysis.

⁶ We follow Fuller, Netter, and Stegemoller (2002) and Moeller, Schlingemann, and Stulz (2004) and employ a one million dollars cut-off point to avoid results being generated by very small deals.

Mixed payment acquisitions include all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as “other” by SDC.

Table 1 presents the activity of acquisitions among public and private targets, value of acquirer and the value of deals stratified by the acquisitiveness of the acquirer, deal value and method of payment for the different market valuation periods. In numbers, 863 acquisitions announced during high-valuation periods, 1545 during neutral-valuation periods and 565 during low-valuation periods. Hence, higher acquisitiveness is a feature that characterizes high-valuation acquisition firms, as high-valuation periods are accompanied with greater merger activity (29%) than low-valuation periods (19%). Accordingly, the relative number of deals over the number of months in different market valuation periods is 16.28, 12.45 and 8.96 for high- neutral- and low-valuation periods respectively. A result that emerges from the sample statistics is that a large fraction of U.K. acquirers engage in cash acquisitions (1609) compared to stock (172) and mixed payment transactions (1192) respectively, consistent with the findings of previous studies based on the U.K. takeover market.⁷ Another noticeable observation is that private firms comprise the vast majority of targets (2731) in contrast to the small number of publicly traded targets (242).⁸ With respect to the deal value, the percentage of total deal value for high valuation months (34%) is more than double when compared to low valuation months (15%), which corroborates the view that managers “urge to merge” under the pressure of a bullish market. Again in deal value terms, cash deals (47%) outweigh by far stock (21%) and mixed payment (32%) deals, while public targets exhibit a disproportional percentage of total deal value (45%) when considering their small contribution to the total number of acquisitions (8%). These findings could be also attributed to managers’ overconfidence/hubris due to the fact that they: i) initiate acquisitions during high-valuation periods when the overall state of share prices is in very high levels; ii) use cash to reflect to the market their budget capacity or iii) buy large companies

⁷ See for example Faccio and Masulis (2005) and Doukas and Petmezas (2007).

⁸ In line with our finding for the respective sample period, Faccio and Masulis (2005) report 90% private target acquisitions for the period 1997-2000 and Doukas and Petmezas (2007) document that 91% of UK deals between 1980 and 2004 were privately held acquisitions.

(public firms are by far larger than private firms (more than double market capitalization)), taking the risk that such a transaction can entail.

Table 1
Summary Statistics of Acquisitions

Type of Acquisition	Number of Acquisitions	% of Total Number of Acquisitions	Mean Market Equity (£ mln)	Mean Transaction Value (£ mln)	% of Total Deal Value
All Deals	2973	100	302.06	32.34	100
High-Valuation	863	29.03	367.99	38.16	34.25
Neutral-Valuation	1545	51.97	284.53	31.84	51.16
Low-Valuation	565	19	249.30	24.83	14.59
Cash	1609	54.12	352.25	27.97	46.81
Stock	172	5.79	358.71	118.19	21.14
Mixed	1192	40.09	226.14	25.86	32.05
Public	242	8.14	895.72	181.48	45.67
Private	2731	91.86	249.45	19.13	54.33
High-Valuation Cash	472	54.69	454.42	37.69	54.02
High-Valuation Stock	65	7.54	452.06	94.51	18.65
High-Valuation Mixed	326	37.77	226.09	27.60	27.32
Neutral-Valuation Cash	814	52.69	319.50	23.37	38.66
Neutral-Valuation Stock	81	5.24	341.51	159.00	26.18
Neutral-Valuation Mixed	650	42.07	233.63	26.62	35.16
Low-Valuation Cash	323	57.17	285.47	25.38	58.51
Low-Valuation Stock	26	4.60	178.88	50.24	9.31
Low-Valuation Mixed	216	38.23	203.70	20.95	32.25
High-Valuation Public	90	10.43	1126.40	179.75	49.12
High-Valuation Private	773	89.57	279.69	21.68	50.88
Neutral-Valuation Public	111	7.18	804.27	208.08	46.94
Neutral-Valuation Private	1434	92.82	244.30	18.20	53.06
Low-Valuation Public	41	7.26	636.96	113.24	33.09
Low-Valuation Private	524	92.74	218.97	17.92	66.91

This table presents summary statistics of 2973 completed domestic acquisitions made by U.K. publicly traded firms during the 1984 to 2003 period. The table reports the number of acquisitions, the percentage of total number of acquisitions, the mean market value of acquirers and the mean transaction value of the acquisition. The last column shows the percentage of total value of transaction. Acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Targets are UK public and private firms. Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. The summary statistics are further divided by method of payment. Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as “other” by SDC.

The cross-examination of valuation period and method of payment (Table 2, Panel A) verifies, very importantly, the well documented reluctance of the bidding firms to pay in stocks when they believe their stock is undervalued (Travlos, (1987)), as there are more than double stock acquisitions during high-

valuation markets (65) than during low-valuation markets (26) (corresponding to 19% and 9% of total deal value, respectively).⁹

Table 2
Financing Characteristics

Valuation Period	Year	Cash		Stock		Mixed		Year Total
		N	%	N	%	N	%	
	1984	2	100%					2
	1985	2	67%	1	33%			3
	1988	66	65%	3	3%	32	32%	101
	1989	14	56%	3	12%	8	32%	25
	1990	83	65%	6	5%	39	30%	128
Low	1991	10	77%	1	8%	2	15%	13
	1995	20	49%	1	2%	20	49%	41
	1996	24	45%	6	11%	23	44%	53
	1997	4	33%			8	67%	12
	2001	3	25%			9	75%	12
	2002	36	51%	4	6%	31	43%	71
	2003	59	57%	1	1%	44	42%	104
L Total		323	57%	26	5%	216	38%	565
	1986	9	69%	3	23%	1	8%	13
	1987	55	63%	22	25%	10	12%	87
	1992	15	60%	1	4%	9	36%	25
High	1993	27	39%	6	9%	37	52%	70
	1994	14	52%	3	11%	10	37%	27
	1998	118	66%	7	4%	55	30%	180
	1999	131	53%	10	4%	108	43%	249
	2000	103	49%	13	6%	96	45%	212
H Total		472	55%	65	8%	326	37%	863
Total		795	56%	91	6%	542	38%	1428

This table reports financing characteristics by year of completed UK public and private acquisitions made by UK acquiring firms. Acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as “other” by SDC.

3.3. Methodology

For the short-run analysis, we follow Fuller, Netter, and Stegemoller (2002) standard event study methodology and calculate Cumulative Abnormal Returns (CARs) for the five-day (-2, +2) period around

⁹ Panel A of Table 2 presents yearly statistics for only high- and low-valuation acquisitions which are the main scopes of our analysis.

the takeover announcement.¹⁰ More specifically, we estimate the abnormal returns by using a modified market-adjusted model: $AR_{it} = R_{it} - R_{mt}$, where R_{it} is the return on firm i and R_{mt} is the value-weighted market index return. This approach amounts to assuming that $\alpha = 0$ and $\beta = 1$ for the firms in our sample.

To sidestep the problem of cross-sectional dependence of sample observations, we employ, similar to Mitchell and Stafford (2000), the Calendar Time Portfolio Regressions (CTPRs) analysis. We estimate the following model: $R_{pt} - R_{ft} = a_i + \beta_i(R_{mt} - R_{ft}) + s_iSMB_t + h_iHML_t + \varepsilon_{it}$, where R_{pt} is the average monthly return of the calendar portfolio, R_{ft} is the monthly risk free return, R_{mt} is the monthly return of the value-weighted market index, SMB_t the value-weighted return on small firms minus the value-weighted returns on large firms, and HML_t the value-weighted return on high book-to-market firms minus the value-weighted return on low book-to-market firms. In addition, β_i , s_i and h_i are the regression parameters and ε_{it} is the error term. The α is interpreted as the average of the individual firm-specific intercepts.

4. Empirical Results

4.1. Acquirer Announcement Returns and Market Valuations: Univariate Analysis

Table 3 presents five-day CARs by type of acquirer and method of payment. The overall sample amounts to a significant positive CAR of 1.17%,¹¹ while the sample partitioned by valuation periods yields significant gains for high-valuation acquirers (1.66%) and insignificant returns (0.41%) for low-valuation bidders, which suggests that acquirers were rewarded for such transactions in the former periods

¹⁰ Since about 30% of the acquiring firms in our sample engage in frequent acquisitions within 200 days, previous announcements will be included in the estimation period and therefore market parameter estimations to an extent would be biased. However, we do also calculate CARs following Brown and Warner's (1985) standard event study methodology which yields qualitatively similar results that we do not report for brevity.

¹¹ Such result supports the investors' sentiment (optimism) theory that predicts positive abnormal returns in the short-run. This result could also be explained by the neoclassical theory of mergers. This assumes that managers act to maximize shareholder value. If mergers are concentrated around common shocks that positively affect the potential synergies from all deals, then mergers following shocks should be better than others and this should be reflected in stock price increases upon a merger announcement.

only.¹² The sub-analysis by target status shows a striking difference among public and private targets. Bidders of public targets generate significant losses (-1.35%) and those of private targets have significant gains of about the same level (1.42%) for the overall period.¹³ The greater acquirer return in private than public targets seems to reflect a liquidity discount for the assets of private targets. On the other hand, acquisitions of large listed firms could signal managerial ‘empire-building’ incentives leading to negative reactions by investors (Draper and Paudyal, (2006)). However, when we examine the results by valuation periods we find that they are driven by the particular valuation conditions existed in the market since low-valuation public acquisitions lose a significant CAR of -2.43%, while acquisitions undertaken during high-valuation months generate an insignificant return and at least do not lose.

Acquisitions associated with cash and mixed methods of payment have abnormal returns of 0.93% and 1.67%, respectively, and are statistically significant at the 1% level while stock payments generate insignificant returns. Cash and mixed offers exhibit significantly larger gains in high-valuation periods than in low-valuation periods. Stock acquisitions result to a negative CAR for public targets in all periods (-2.99%), which aligns with the suggestion that a stock payment signals the bidder’s perception of its overvalued stock. This effect becomes even more pronounced in unfavourable market conditions (-5.97%). Further, the insignificant return of public acquisitions with stock in high-valuation periods shows interestingly that market valuations are over and above the method of payment and firm-specific overvaluation, assumed by the decision of the manager to time the market and pay by the overvalued stock. Finally, the higher abnormal returns from private acquisitions that involve stock financing for all valuation periods might reflect the blockholder benefits that might emerge from the acquisition.¹⁴

¹² For robustness reasons we calculate bidder returns using a second proxy of market valuations (the detrended market index (TOTMKUK) itself). Our results, which are not presented for brevity, are qualitatively similar and are available upon request.

¹³ This result is in line with the evidence of Chang (1998), Fuller, Netter and Stegemoller (2002) and Doukas and Petmezas (2007) who document substantial gains in acquisitions of privately held firms. Consistent with the U.S. evidence, U.K. studies (Draper and Paudyal (2006), among others) report negative and significant bidder abnormal returns for public acquisitions surrounding merger announcements.

¹⁴ For further discussion see Fuller et al. (2002).

Table 3
Short-run Cumulative Abnormal Return (CAR) of Acquirers by Valuation Periods

	All				Cash				Stock				Mixed			
	All	High	Low	H-L	All	High	Low	H-L	All	High	Low	H-L	All	High	Low	H-L
All	1.17% ^a	1.66% ^a	0.41%	1.25% ^a	0.93% ^a	1.29% ^a	0.39%	0.90% ^b	0.22%	1.00%	-1.71%	2.71%	1.67% ^a	2.32% ^a	0.69%	1.63% ^b
	1428	863	565	(0.001)	795	472	323	(0.038)	91	65	26	(0.183)	542	326	216	(0.025)
Public	-1.35% ^c	-0.86%	-2.43% ^b	1.57%	-0.44%	-0.01%	-1.14%	1.13%	-2.99% ^c	-1.82%	-5.97% ^b	4.15%	-0.98%	-0.94%	-1.12%	0.18%
	131	90	41	(0.254)	55	34	21	(0.473)	39	28	11	(0.169)	37	28	9	(0.960)
Private	1.42% ^a	1.96% ^a	0.63% ^b	1.33% ^a	1.03% ^a	1.40% ^a	0.50%	0.90% ^b	2.64% ^b	3.14% ^c	1.40%	1.74%	1.87% ^a	2.63% ^a	0.77%	1.86% ^b
	1297	773	524	(0.001)	740	438	302	(0.047)	52	37	15	(0.483)	505	298	207	(0.014)

The table presents the Cumulative Abnormal Returns (CARs) for bidders that acquired public and/or private UK targets over the 1984 and 2003 period. Cumulative abnormal returns are calculated for the 5 days [-2, +2] around the announcement day (day 0) of a takeover. Abnormal Returns are estimated using a modified market-adjusted model: $AR_{it} = R_{it} - R_{mt}$, where R_{it} is the Return on firm i and R_{mt} is the Value Weighted Market Index Return. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Results are partitioned by valuation period to acquisitions undertaken during high- and low-valuation periods respectively. Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. The results are further divided by the method of payment. Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as “other” by SDC. The number of bids is reported below the mean. H-L (High minus Low) column represents the differences in mean short-run CARs for the five days [-2, +2] around the announcement day (day 0) of a takeover. ^a Denotes significance at the 1% level; ^b Denotes significance at the 5% level; ^c Denotes significance at the 10% level. P-values are provided in parenthesis.

4.2. Acquirer Announcement Returns by Relative size, Industry Diversification Book-to-Market and P/E Ratio: Univariate Analysis

Table 4 reports acquirer abnormal returns after controlling for factors that affect the performance of bidding firms on a univariate basis such as the relative size of the target to bidder, industry diversification, book-to-market ratio and price-to-earnings ratio. We define the relative size of the target as the deal value divided by the market value of the acquirer one month prior to the announcement date. An acquisition is defined as diversifying when the acquirer's two-digit SIC code is different from that of the target company. Accordingly, all other acquisitions are classified as non-diversifying acquisitions. The next set of tests involves examining abnormal returns for bidders according to their book-to-market ratio which is defined as the net book value divided by market value one month prior to the announcement date. In addition, very importantly, we test the performance of firms with positive and negative P/E ratios compared to the market respectively to further enhance the argument that our results indicate market rather than firm-specific driven acquisitions. More specifically, we examine bidder performance of firms that had larger P/E ratio than the P/E of the market one month prior to the announcement and those that had smaller P/E ratio than the P/E ratio of the market one month prior to the announcement. If firm-specific valuations drive acquisitions, we should expect that the above patterns should not stand.

Our results for all bidders in both valuation periods are consistent with the literature, indicating that wealth gains to acquiring firms are declining monotonically with target size.¹⁵ Further, high-valuation acquisitions generate positive and statistically significant abnormal returns for all and private targets of small (1.26%) and large (2.73%) relative size, while only private targets have significant gains in low-valuation periods (1.02%). The mean difference between high- and low-valuation acquisitions is statistically significant irrespective of the relative size of the target to bidder. Overall, regardless of the relative size of the target to bidder, acquisitions undertaken during high-valuation periods outperform

¹⁵ Rosen (2006) suggests that the relative size of the merging firms affects the magnitude of the synergy. This view is in line with Jensen and Ruback, (1983), Travlos (1987) and Fuller et al. (2002) who show that announcement returns increase with the target's relative size to the bidder.

those initiated during low-valuation periods and drive acquirer's overall positive performance in the short-run.

Conglomerate expansion is suggested to be driven by managerial 'empire building' motives as well as a way of easily meeting growth expectations rather than representing a value-enhancing investment opportunity, a notion that should be reflected in the stock market by the underperformance of diversifying acquisitions. A common finding among several previous studies is that diversifying acquisitions destroy shareholder value.¹⁶ Interestingly, a comparison of Panels A and B of Table 4 reveals that the mean differences in abnormal returns for all bidders and valuation periods appear to be opposite to those predicted by corporate finance theory. Diversifying acquisitions in high-valuation months produced significant abnormal returns of 2.22% as opposed to non-diversifying ones that generate CARs of 1.19%. Moreover, in low-valuation months, bidders that undertake diversifying acquisitions earn a significant CAR of 0.62%, whereas non-diversifying acquisitions do not generate significant abnormal returns. The significance pattern of periods mean difference is again repeated in diversifying acquisitions as high-valuation acquisitions outperform low-valuation acquisitions irrespective of the target status and, in most cases, the method of payment. For non-diversifying acquisitions the pattern is almost similar.

Further, it has been acknowledged in the literature that the book-to-market ratio of acquiring firms is related to the announcement returns, as it conveys important information about past and potential future bidder's stock performance. Lang, Stulz, and Walkling (1989) provide evidence that high book-to-market ratio is associated with a larger announcement CAR. Rau and Vermaelen (1998) suggest that glamour acquirers (i.e., acquirers with low book-to-market ratio) outperform value ones (i.e., acquirers with high book-to-market ratio) in the short-run. It appears that the market fails to understand that past managerial performance is not necessarily a good indicator of future performance, at least in the case of acquisitions. Table 4 illustrates that firms with low growth opportunities (low book-to-market ratio) generate

¹⁶ See, for example, Lang and Stulz (1994). However, Jensen and Ruback (1983) find that the announcements of diversifying acquisitions are generally associated with small positive abnormal returns.

significantly larger abnormal returns during high-valuation periods than low-valuation periods (the mean difference for all and private acquisitions is significant at the 1% level) presumably due to market over-optimism towards glamour firms in the former period. The returns of high book-to-market acquisitions show that high-valuation bids outperform low-valuation bids on average (the mean difference is statistically insignificant). The market seems to favor reputation in bidders during high-valuation periods, but ignores valuation conditions when reacting in high book-to-market bids. This observation could be attributed to ‘glamour’ firms’ managers attempt to time the market and use their firm’s valuation advantage. Overall, our results are robust after controlling for book-to-market effect providing evidence that returns on particular periods (bullish periods) drive the overall acquirer’s performance. Finally, we find that bidders generate significantly larger abnormal returns during high-valuation periods than low-valuation periods for all and private acquisitions in the positive P/E portfolio. This pattern sustains also for the negative P/E group, indicating that our results are over and above firm-specific misvaluations.

Table 4

Short-run Cumulative Abnormal Return (CAR) of High-Valuation Vs Low-Valuation Acquirers by the Relative Size of the Target, Diversifying/Non-Diversifying Acquisitions, Book-To-Market (B/M) Ratio and Price-To-Earnings (P/E) Ratio

The table presents the Cumulative Abnormal Returns (CARs) for bidders that acquired public and/or private UK targets over the 1984 and 2003 period. Cumulative abnormal returns are calculated for the 5 days [-2, +2] around the announcement day (day 0) of a takeover. Abnormal Returns are estimated using a modified market-adjusted model: $AR_{it} = R_{it} - R_{mt}$, where R_{it} is the Return on firm i and R_{mt} is the Value Weighted Market Index Return. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Panel A represents acquisitions with small relative size of target to bidder, diversifying acquisitions, high book-to-market ratio and positive P/E ratio and Panel B acquisitions with large relative size of target to bidder, non-diversifying acquisitions, low book-to-market ratio and negative P/E ratio respectively. The relative size of the target is defined as the deal value divided by the market value of the acquirer. The Acquirer Market Value (MV) is the monthly share price multiplied by the number of ordinary shares (as reported in Datastream) the month before the announcement date. We rank acquirers’ relative size (deal value to acquirer’s market value one month prior to the announcement date) and then we classify the ones above (below) the sample relative size median as large (small) relative size. An acquisition is defined as diversified when the acquirer’s two-digit SIC code is different from that of the target company. Bidder’s book-to-market ratio is the net book value divided by its market value and is estimated one month before the acquisition announcement date. We rank acquirers’ book-to-market values and then we classify the ones above (below) the sample book-to-market median as high (low) B/M acquirers. Positive (negative) P/E ratio represents bidders that had larger (smaller) P/E ratio than the market one month prior to the announcement. Results are partitioned by valuation period to acquisitions undertaken during high- and low-valuation periods respectively. Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. The results are further divided by the method of payment. Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as “other” by SDC. The number of bids is reported below the mean. H-L (High minus Low) column represents the differences in mean short-run CARs for the five days [-2, +2] around the announcement day (day 0) of a takeover. ^a Denotes significance at the 1% level; ^b Denotes significance at the 5% level; ^c Denotes significance at the 10% level. P-values are provided in parenthesis.

Panel A	Small Relative Size			Diversifying Acquisitions			High Book-to-Market			Positive P/E (P/E Bidder - P/E Market)		
	High	Low	H-L	High	Low	H-L	High	Low	H-L	High	Low	H-L
All Bidders	1.23% ^a	0.21%	1.02% ^b	2.22% ^a	0.62% ^c	1.60% ^a	1.30% ^a	0.87% ^c	0.43%	1.60% ^a	0.33%	1.27% ^b
	418	281	(0.033)	397	295	(0.002)	412	259	(0.463)	298	241	(0.032)
Public Targets	0.38%	-1.78%	2.16%	1.44%	-1.95%	3.39% ^b	-0.15%	-2.80% ^c	2.65%	-1.23%	-4.08% ^a	2.85%
	13	9	(0.366)	44	24	(0.037)	45	21	(0.181)	34	17	(0.189)
Private Targets	1.26% ^a	0.27%	0.99% ^b	2.32% ^a	0.85% ^b	1.47% ^a	1.48% ^a	1.19% ^b	0.29%	1.96% ^a	0.66% ^c	1.30% ^b
	405	272	(0.045)	353	271	(0.006)	367	238	(0.638)	264	224	(0.032)
Cash	0.99% ^a	0.59% ^c	0.40%	1.89% ^a	0.78% ^c	-1.11% ^c	1.06% ^a	0.87%	0.19%	1.22% ^b	0.14%	1.08%
	258	171	(0.402)	215	166	(0.077)	271	148	(0.759)	155	136	(0.102)
Stock	1.69%	-1.74%	3.44% ^c	2.71%	0.32%	2.38%	0.68%	-2.37%	3.05%	-0.02%	-0.74%	0.72%
	22	8	(0.053)	28	13	(0.421)	18	13	(0.443)	36	9	(0.858)
Mixed	1.60% ^c	-0.27%	1.88% ^c	2.59% ^a	0.42%	2.17% ^b	1.93% ^b	1.30%	0.63%	2.70% ^a	0.69%	2.01% ^c
	138	102	(0.086)	154	116	(0.012)	123	98	(0.607)	107	96	(0.081)
Panel B	Large Relative Size			Non-diversifying Acquisitions			Low Book-to-Market			Negative P/E (P/E Bidder - P/E Market)		
All Bidders	2.07% ^a	0.61%	1.46% ^b	1.19% ^a	0.18%	1.00% ^c	2.37% ^a	0.15%	2.22% ^a	1.40% ^a	0.14%	1.26% ^b
	445	284	(0.016)	466	270	(0.087)	376	242	(0.000)	473	266	(0.013)
Public Targets	-1.07%	-2.62%	1.54%	-3.07% ^b	-3.11% ^c	0.04%	-2.00%	-1.21%	-0.79%	-0.36%	-1.07%	0.71%
	77	32	(0.341)	46	17	(0.986)	38	17	(0.699)	49	20	(0.679)
Private Targets	2.73% ^a	1.02% ^b	1.71% ^a	1.65% ^a	0.40%	1.25% ^b	2.86% ^a	0.26%	2.60% ^a	1.61% ^a	0.24%	1.37% ^b
	368	252	(0.009)	420	253	(0.038)	338	225	(0.000)	424	246	(0.010)
Cash	1.67% ^a	0.18%	1.49% ^b	0.80% ^b	0.01%	0.81%	1.95% ^a	0.01%	1.94% ^a	1.57% ^a	0.07%	1.50% ^b
	214	152	(0.049)	257	157	(0.182)	157	134	(0.008)	278	162	(0.011)
Stock	0.64%	-1.70%	2.35%	-0.29%	3.76% ^c	3.47%	1.65%	-1.25%	2.90%	0.35%	-1.61%	1.96%
	43	18	(0.421)	37	13	(0.202)	34	9	(0.273)	14	12	(0.513)
Mixed	2.85% ^a	1.55% ^b	1.30%	2.08% ^b	1.00%	1.08%	2.85% ^a	0.48%	2.37% ^c	1.22% ^b	0.50%	0.72%
	188	114	(0.186)	172	100	(0.359)	185	99	(0.010)	181	92	(0.457)

4.3. Cross-Section Regression Analysis

To better examine the impact of market valuations on acquirers' performance around acquisition announcements, we adopt a multiple regression framework, where we employ high-valuation and low-valuation acquisition measures and various acquisition characteristic controls as independent variables. The dependent variable is the acquirer's five-day cumulative abnormal return.

Specifically, we conduct cross-sectional regression analysis of acquirers' abnormal returns to examine whether differences in acquirer and deal characteristics explain the abnormal return differences found in high- and low-valuation acquisitions. We include a dummy variable that takes the value of one if the deal was conducted by a bidder within a high-valuation month and zero otherwise. We refer to this binary variable as high-valuation deals dummy. We also include a low-valuation deals dummy, defined as a binary variable that takes the value of one if the deal took place within a low-valuation month and zero otherwise. Since mergers tend to take place in concentrated time periods (waves) and macroeconomic conditions, we include controls for past merger activity $t-1$, defined as the log of one plus the number of mergers during the 6-month pre-announcement period, acquirer's return $t-1$, defined as the average 6-month pre-event return and, most importantly, market return $t-1$, measured as the average 6-month pre-event return of the market index. The last variable offers an alternative way to measure whether market valuations drive acquisition performance. In addition, the following independent variables which have been suggested by theory as key determinants of the market's perception of an acquisition are considered: cash deals, which is an indicator variable taking the value of one for cash and debt acquisition deals and zero otherwise, common stock deals, which is an indicator variable taking the value of one for stock acquisition deals and zero otherwise, diversification deals, which is an indicator variable taking the value of one when the acquirer and target are not from the same industry and zero otherwise using the two-digit SIC codes, book-to-market ratio, calculated as the acquirer's market value divided by its net book value one month prior to the acquisition announcement, target's relative size, defined as the log of the deal value to

acquirer's market value one month before the acquisition announcement date, acquirer's size, defined as the log of acquirer's market value one month before the acquisition announcement date.

The results are reported in Table 5. The first regression specification relates acquirers' abnormal returns of all acquisitions respectively to several acquirer and deal characteristics. The coefficients of regression (1) for all acquisitions display that the diversification variable, the relative size of the target, the acquirer return $t-1$ and the market return $t-1$ have a significantly positive relation with acquirer's CARs, which means that the market views larger deals, acquisition in different industries, and firms that experienced a price run-up even more favourably. Finally, very importantly, the acquirer's return increases with the returns of the market, which indicates stock market driven acquisitions.

Given the results from the univariate analysis, investors' sentiment theory predicts that high-valuation periods will be associated with positive CARs, while low-valuation periods should have no relation with any acquirers' gains. Consistent with the results from the univariate tests, regression (2) for all acquisitions shows that high-valuation acquirers have a positive and significant association with abnormal announcement returns. The dummy variable indicating high-valuation deals carries a coefficient of 0.011 and is statistically significant at the 1% level, suggesting that the market offers a premium to high-valuation acquirers by approximately 1.1% over the five-day window. On the other hand the low-valuation deals dummy carries a negative but insignificant coefficient. In regression (3), which includes the control variables, the coefficient of the high-valuation deals variable is again 0.011 and is also statistically significant at the one percent level. This suggests that after controlling for deal and acquirer characteristics high-valuation acquisitions are associated with an abnormal return that is 1.1% larger than that of other valuation periods. In addition, the coefficient of the market return $t-1$ is also positive and significant suggesting that the market favours acquisitions undertaken when its valuation increases. The same significant sign is reported for acquirer return over the pre-event period and relative size of the target to bidder as the market reacts positively with firms that experienced good past performance and with larger deals. All other variables, including merger activity (waves), are insignificant. This is an indication that

merger waves do not seem to drive results inconsistent with predictions of the neoclassical theory. Overall the results suggest that deal characteristics have no distinct bearing on abnormal returns five days surrounding the acquisition announcement. This evidence provides additional support for the theoretical prediction of the investors' optimistic beliefs. Optimism about mergers overall generates a positive autocorrelation in announcement returns while overall optimism about firms can lead to a positive correlation between CARs and the returns in the stock market. There is no way, however, of using the announcement results to distinguish these two issues. A long-run analysis is therefore essential in order to draw fruitful conclusions about the real source of market valuations effect on acquirer's performance.

Table 5
Ordinary Least Squares (OLS) Regression Analyses of Cumulative Abnormal Returns on High and Low- Valuation Acquisitions

Dependent Variables	All		
	(1)	(2)	(3)
Intercept	0.016 (0.336)	0.061 ^a (0.000)	0.012 (0.475)
High-Valuation deals (Dummy = 1 If Target is Acquired in a high-valuation month)		0.011 ^a (0.000)	0.011 ^a (0.001)
Low-Valuation deals (Dummy = 1 If Target is Acquired in a low-valuation month)		-0.002 (0.539)	0.003 (0.484)
Cash deals (Dummy = 1 If Target is Acquired with Cash and Debt)	-0.001 (0.789)		-0.009 (0.753)
Common stock deals (Dummy = 1 If Target is Acquired with Common Stock)	-0.002 (0.847)		-0.002 (0.820)
Diversifying deals (Dummy = 1 If Target and Acquirer are in Different Industry)	0.005 ^c (0.080)		0.005 ^c (0.059)
B/M	0.000 (0.982)		-0.001 (0.785)
Log of Relative Size of Target to Acquirer	0.010 ^a (0.001)		0.010 ^a (0.001)
Log of Acquirer Size	-0.001 (0.563)		-0.002 (0.430)
Acquirer Return_{t-1}	2.046 ^a (0.006)		1.965 ^a (0.008)
Market Return_{t-1}	6.238 ^a (0.001)		4.499 ^b (0.027)
Merger Activity_{t-1}	0.001 (0.714)		0.002 (0.627)
F-Statistic	4.675 (0.000)	8.726 (0.000)	4.817 (0.000)
N	2302	2973	2302
R²	1.80%	0.58%	2.26%

This table presents regression estimates of the acquirer's five-day cumulative abnormal return on acquisitions for high- and low-valuation deals, controlling for deal and acquirer characteristics. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. High-valuation deals, is an indicator variable that takes the value of one if the deal is conducted within a high-valuation classified month. We refer to this dummy as high-valuation deals dummy. Low-valuation deals, is an indicator variable, defined as a binary variable that takes the value of one if the deal is made within a low-valuation classified month. Cash deals, is an indicator variable taking the value of 1 for cash and debt acquisition deals and zero otherwise. Common stock deals, is an indicator variable taking the value of 1 for stock acquisition deals and zero otherwise. Diversification deals, is an indicator variable taking the value of 1 when the acquirer and target for acquisition are not in the same industry and zero otherwise. Book-to-market ratio is the net book value divided by its market value and is estimated one month before the acquisition announcement. Target's relative size, is defined as the log of the target deal value to acquirer's market value one month before the acquisition announcement date, and acquirer's size, is defined as the log of acquirer's market value one month before the acquisition announcement date. Acquirer's return r_{t-1} is defined as the average 6-month pre-event return. Market return r_{t-1} represents the average 6-month pre-event return of the market index. Merger activity $_{t-1}$ is defined as the log of one plus the number of mergers during the 6-month pre-announcement period. ^a Denotes significance at the 1% level; ^b Denotes significance at the 5% level; ^c Denotes significance at the 10% level. P-values are provided in parenthesis.

5. Post-acquisition Long-term Performance

5.1. Acquirer Post-Acquisition Returns and Market Valuations

We have reported that bidders engaged in acquisitions during high-valuation periods generate superior abnormal returns relative to acquirers that made acquisitions during low-valuation periods. We have also argued that a potential explanation of our announcement results is the investors' sentiment theory. To confirm that investor sentiment is a driving force behind shareholders' wealth effects, our analysis horizon is extended to the long-run. If the relationship between the CAR and the valuation variables occurs because of over-optimism, then we should pick up a reversal of the CAR over time as the merged company begins to have a track record. Hence, to assess whether the difference in stock price performance between high-valuation and low-valuation acquisitions, respectively, is consistent with the expectation of the market, we examine the post-acquisition stock price performance of acquirers.

If bidders generate higher returns by engaging in high-valuation acquisitions than those that engage in low-valuation acquisitions, time-series portfolios of high-valuation acquirers should be associated with higher returns relative to an explicit asset pricing model. Fama and French (1993) suggest that a three-factor model may explain the time series of stock returns. While several researchers argue that the size and book-to-market factor-mimicking portfolios may not represent risk factors, we basically use the Fama-French (1993) three-factor model to assess whether high-valuation acquirers earn higher returns for bearing

additional risks. We use the intercept from the time-series regressions of the high-valuation and low-valuation acquirers to measure whether the latter earn higher returns for bearing additional risk controlling for market, size, and book-to-market effects.¹⁷ Intercepts are estimated for 1 and 3 years subsequent to the acquisition announcement.

Table 6 reports the regression results. An interesting finding that emerges from the 3-year long-term performance analysis and in sharp contrast with the announcement returns is that most intercepts for both high- and low-valuation acquirers are negative and statistically significant at conventional levels.¹⁸ The negative magnitude of the intercepts systematically increases, as we move from the first to the third year after the acquisition, indicating that the post-acquisition stock price performance deteriorates with time. The same pattern exists for all financing deals (except for cash). The market's positive or non-negative reaction to acquisition announcements in comparison to the harmful post-acquisition stock performance points out that the market overestimates the operational efficiencies and synergy gains for both high- and low-valuation acquisitions. The market learns only gradually that many of the mergers undertaken during bullish periods were not carefully evaluated and were indeed bad deals. In summary, this differential between market anticipation and post-acquisition stock performance suggests that the market, on average, was optimistic about the future prospects of these mergers.¹⁹

Interestingly, this result is not driven by public deals as they generate insignificant returns. However, public acquisitions with stock are negative and significant (-1.98%), with stock deals undertaken during high-valuation periods being on average more negative than low-valuation stock acquisitions. This evidence is in line with the view that during stock market booms, managers are more likely to be affected by hubris and get involved in fame-enhancing but value-destroying acquisitions. Public acquisitions are

¹⁷ While the intercept in these regressions appears to be similar in spirit to Jensen's alpha in the context of CAPM, which controls for size and book-to-market factors in addition to the overall market factor, we do not interpret it as a measure of portfolio performance attribution.

¹⁸ For robustness reasons, we employ the market index (TOTMKUK) itself as a proxy of market valuations and we obtain qualitatively similar results for long-run analysis which are not reported for brevity but are available upon request.

¹⁹ Note that our evidence does not suggest that mergers by no means occur as a result of shocks. There may also be other driving force, for example shocks may lead to optimism on part of investors.

ideal in this context, since they are more exposed to the spotlight and therefore increase managerial reputation. Moreover, such acquisitions correspond to much larger transaction and bidder equity values, and hence the market's valuation effect is more pronounced. Private acquisitions, on the other hand, generate overall negative abnormal returns and lose more wealth when the transaction is announced in low-valuation periods. Overall, our results are consistent with the hypothesis that high-valuation acquirers' returns are caused by investors' over-optimism, possibly in addition to other factors.

Table 6
Calendar-Time Portfolio Regressions (CTPRs) of Long-Run Stock Returns using the Fama-French 3-Factor Model

	All			Cash			Stock			Mixed		
	All	High	Low	All	High	Low	All	High	Low	All	High	Low
Panel A: 1 year												
All Bidders	0.03%	-0.16%	-0.10%	0.10%	0.11%	0.12%	-0.49%	-0.99%	-0.01%	0.28%	0.15%	0.55%
	1320	855	465	735	468	267	87	63	24	498	324	174
Public Targets	-0.06%	-0.84% ^c	0.88%	0.48%	0.59%	0.27%	-1.03%	-1.61% ^b	0.88%	-0.71%	-1.29% ^c	-0.19%
	123	86	37	53	33	20	35	26	9	35	27	8
Private Targets	0.09%	0.20%	-0.11%	0.08%	0.13%	0.08%	0.29%	1.35%	-0.86%	0.61% ^b	0.74%	0.62%
	1197	769	428	682	247	247	52	37	15	463	297	166
Panel B: 3 years												
All Bidders	-0.54% ^b	-0.37% ^b	-0.96% ^a	-0.27%	-0.12%	-0.83% ^b	-1.91% ^a	-1.32% ^b	-1.65% ^a	-0.59% ^a	-0.23%	-0.56% ^c
	1230	855	375	692	468	224	83	63	20	455	324	131
Public Targets	-0.33%	-0.01%	0.32%	0.55%	0.86% ^c	0.15%	-1.98% ^a	-0.96%	-0.51%	-0.26%	-0.55%	0.58%
	118	86	32	52	33	19	33	26	7	33	27	6
Private Targets	-0.50% ^b	-0.34% ^c	-1.04% ^a	-0.32%	-0.16%	-0.85% ^b	-1.47% ^a	-0.73%	-1.58% ^b	-0.40% ^c	-0.14%	-0.57% ^c
	1112	769	343	640	435	205	50	37	13	422	297	125

This table presents Fama and French (1993) 3-factor alphas for merger portfolios of all, high- and low-valuation acquirers. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). The sample consists of successful acquisition deals completed over the 1984-2002 (2000) period for 1- (3-) year analysis as identified from the Thomson Financial *Securities Data Corporation's* (SDC) *Global Financing* database. Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. Panel A reports alphas for 1 year post-event, Panel B for 3 years post-event. Calendar time regression alphas are also reported by method of payment used in the transaction (Cash, Stock, Mixed). Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as "other" by SDC. Acquirers enter the portfolio on the announcement day of the successful takeover and remain for 12 and 36 months, respectively. Portfolios are rebalanced each month to include firms that have just completed a takeover. We estimate the calendar-time return under the Fama-French 3-factor model with the following regression:

$$R_{pt} - R_{ft} = a_i + \beta_i(R_{mt} - R_{ft}) + s_iSMB_t + h_iHML_t + \varepsilon_{it}$$

The numbers in percentage represent the reported FF α , which is the average of the individual, firm-specific intercepts. Respectively, a, b and c denote statistical significance at the 1%, 5% and 10% levels based on heteroskedasticity adjusted standard errors. The number of firms is reported below the monthly average abnormal returns.

5.2. Acquirer Post-Acquisition Returns by Book-to-Market

The post-merger results obtained so far could be explained as market valuation periods are just proxies for firm valuation. According to Rau and Vermaelen (1998), if firm-specific misvaluations hold, we would expect acquirers with high book-to-market to outperform those with low book-to-market in the long-run. To clarify whether acquirer's long-term performance is due to market-wide (mis)valuations or firm-specific (mis)valuations, we partition our sample equally into high, medium and low book-to-market acquirers, according to their book-to-market ratio one month prior to the acquisition announcement. Each sub-sample is again split into high- and low-valuation periods and we investigate the performance of acquirers for each of these three book-to-market categories. The results for the 1- and 3-year post-event windows are presented in Table 7. Overall, acquirers seem to generate in most cases insignificant abnormal returns irrespective of the book-to-market category for both high- and low-valuation acquisitions. When we examine the return differentials between the high and low book-to-market acquirers' returns in both high- and low-valuation periods we find insignificant mean differences. Hence, we conclude that firm-specific misvaluations do not drive acquisitions for different valuation periods.

Table 7

Effect of Market-Wide Valuations: Calendar-Time Portfolio Regressions (CTPRs) By Acquirer Book-to-Market Ratio using the Fama-French 3-Factor Model

	1 year		3 years	
	High	Low	High	Low
High B/M	0.19% 302	-0.37% 124	-0.05% 302	-0.81% ^c 85
Medium B/M	-0.18% 219	0.42% 165	0.02% 219	0.02% 135
Low B/M	-0.03% 267	1.29% ^c 117	-0.62% ^b 267	-0.97% ^a 101
H-L	0.48% (95)	-1.18% (108)	0.51% (167)	0.03% (120)

This table examines the impact of the market state by controlling for acquirer book-to-market ratio. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). We equally divide the sample into high, medium and low book-to-market acquirers, and examine the 1- and 3-year performance of acquirers making acquisitions during high- and low-valuation periods for each book-to-market category. Using monthly data from 1984 till 2002, each month is classified through this period 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. All other months are classified as neutral-valuation acquisitions. Acquirers are divided into equal subsamples of high, medium and low book-to-market firms based on their book-to-market ratio one month prior to the acquisition announcement. Bidder's book-to-market ratio is the net book value divided by its market value and is estimated one month before the acquisition announcement date. Acquirers enter the portfolio on the announcement day of the successful takeover and remain for 12 and 36 months, respectively. Portfolios are rebalanced each month to include firms that have just completed a takeover. We estimate the calendar-time return under the Fama-French 3-factor model as in Table 6.

5.3. Acquirer Post-Acquisition Returns and Price Reversals

In this section we investigate whether our long-run stock return results are caused by long-term price reversals. It could be argued that our general finding that high-valuation acquirers exhibit positive abnormal returns around the announcement date but negative and significant abnormal returns in the long-run reflects momentum followed by long-term reversals. In other words, it could be the case that acquirers that experienced positive returns for some months prior to the acquisition (high-valuation acquisitions), are subject to a brief period of persistence followed by long-term negative returns.

To investigate this, we firstly measure the pre-announcement performance of each bidder during high- and low-valuation periods. Specifically, for each acquirer, we calculate its calendar time abnormal returns for the six months preceding the acquisition announcement. Acquisitions of high- and low-valuation bidders are ranked according to their pre-event abnormal returns and placed into two equal groups (i.e., top and bottom groups). As a result, we sort our sample into four categories: i) High-valuation acquisitions that experience the highest pre-event abnormal returns, ii) High-valuation acquisitions that exhibit the lowest pre-event abnormal returns, iii) Low-valuation acquisitions that experience the highest pre-event abnormal returns, and iv) Low-valuation acquisitions that exhibit the lowest pre-event abnormal returns. If our results

are simply a manifestation of momentum and reversals and have nothing to do with the period the acquisition was undertaken, then any support or contradiction of our interpretation will be shown for acquirers that have experienced extremely high or low pre-event returns. Hence, if price reversals drive our long-run results, we expect that high- (low-) valuation acquirers that generated high pre-event returns should have negative post-acquisition performance and those who experienced the lowest pre-event returns to have positive post-acquisition performance.

The results are presented in Table 8. For high-valuation acquirers that experienced the largest 6-month pre-event returns (4.95%), the 3-year long-run returns are negative and significant (-0.54%). This pattern could be attributed to price reversals. However, high-valuation acquirers that experienced the most negative abnormal pre-event returns (-2.86%) still exhibit poor performance in the long-run (-0.36%). These negative returns cannot be attributed to price reversals, as those firms were found to perform also poorly prior to the acquisition announcement. Similarly, for low-valuation acquirers that had the lowest pre-event returns (-2.35%), and those with the highest pre-event returns (2.87%), post-event performance is also negative and significant (-1.22% and -0.39%, respectively) reflecting that our results are not an outcome of price reversals. Therefore it can be argued that market valuations affect managerial decisions with respect to the quality of the acquisition and lead the acquirer's performance.

Table 8
Calendar-Time Portfolio Regressions (CTPRs) of Acquirers with the Best and Worst Pre-event Performance using the Fama-French 3-Factor Model

	High-Valuation Acquirers		Low-Valuation Acquirers	
	Top group (50%) in terms of pre-event returns	Bottom group (50%) in terms of pre-event returns	Top group (50%) in terms of pre-event returns	Bottom group (50%) in terms of pre-event returns
Average 6-month pre-event CTPR	4.86% ^a	-2.93% ^a	2.82% ^a	-3.36% ^a
Average 1-year CTPR	0.04%	0.05%	-0.70% ^b	-0.57%
	446	406	213	252
Average 6-month pre-event CTPR	4.95% ^a	-2.86% ^a	2.87% ^a	-2.35% ^a
Average 3-year CTPR	-0.54% ^b	-0.36% ^c	-0.39% ^c	-1.22% ^a
	437	398	177	198

This table presents the pre-announcement (6-month) as well as the post-event 1- and 3-year monthly average calendar time abnormal returns of four categories of acquirers. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). Firstly, acquirers are divided into two groups, high and low-valuation acquirers respectively. High- (low-) valuation acquirers are the one who acquired firms during periods of high- (low) stock market valuations. Using monthly data from 1984 till 2002, each month is classified through this period 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. All other months are classified as neutral-valuation acquisitions. The two groups created above are further subdivided into four categories: i) High-valuation acquirers who had the highest six-month pre-announcement monthly average abnormal returns, ii) High-valuation acquirers who had the lowest six-month pre-announcement monthly average abnormal returns, iii) Low-valuation acquirers who had the highest six-month pre-announcement monthly average abnormal returns, iv) Low-valuation acquirers who had the lowest six-month pre-announcement monthly average abnormal returns. Acquirers enter the portfolio on the announcement day of the successful takeover and remain for 12 and 36 months, respectively. Portfolios are rebalanced each month to include firms that have just completed a takeover. We estimate the calendar-time return under the Fama-French 3-factor model with the following regression as in Table 6:

5.4. Acquirer Post-Acquisition Returns by Excluding Multiple Deals

We finally conduct a robustness test to further enhance the above evidence. Given that some bidders conduct multiple acquisitions during a short-period of time there could be the case that there is to an extent noise when computing post-acquisition returns. Particularly a 12-month or, mainly, a 36-month return series may be affected by inter-effects sourcing from the same bidder acquiring within high and low-valuation periods. In other words, for example, part of the 36-month return series of a classified high-valuation acquirer might also be part of the return series of the same acquirer that makes another acquisition a few months later during a classified low-valuation month. Hence, in order to get a ‘pure’ picture of acquirers’ performance in different valuation periods we exclude bidders whose return series coincides in the calculation of both high and low-valuation period’s portfolios.

Table 9 reports the one- and three-year returns after excluding multiple deals by same acquirers in high and low valuation months. The evidence is similar to our long-run findings in table 7. Looking at the 3-year analysis we observe again that most intercepts for both high- and low-valuation acquirers are negative and statistically significant at conventional levels. In general, the results are also consistent with table 7 when we partition our sample by method of payment and target ownership status. Overall, the findings further confirm that the market was, on average, optimistic about the future prospects of these mergers.

Table 9. Calendar-Time Portfolio Regressions (CTPRs) of Acquirers after the Exclusion of Multiple Deals By the Same Acquirer in High and Low-Valuation Months using the Fama-French 3-Factor Model

	All			Cash			Stock			Mixed		
	All	High	Low	All	High	Low	All	High	Low	All	High	Low
Panel A: 1 year												
All Bidders	-0.01%	-0.01%	-0.17%	0.12%	0.09%	0.12%	-0.49%	-0.99%	-0.01%	0.24%	0.12%	0.51%
	1303	846	457	725	462	263	87	63	24	491	321	170
Public Targets	-0.02%	-0.75% ^c	0.88%	0.56%	0.80%	0.27%	-1.03%	-1.61% ^b	0.88%	-0.71%	-1.29% ^c	-0.19%
	122	85	37	52	32	20	35	26	9	35	27	8
Private Targets	0.06%	0.16%	-0.17%	0.10%	0.10%	0.08%	0.29%	1.35%	-0.86%	0.58% ^c	0.71%	0.59%
	1181	761	420	673	430	243	52	37	15	456	294	162
Panel B: 3 years												
All Bidders	-0.49% ^b	-0.47% ^b	-1.62% ^a	-0.22%	-0.30%	-1.41% ^a	-2.12% ^a	-1.75% ^a	-1.55% ^b	-0.51% ^b	-0.34%	-0.43%
	1020	751	269	558	400	158	72	56	16	390	295	95
Public Targets	-0.29%	0.20%	0.11%	0.55%	0.90% ^c	0.05%	-2.38% ^b	-0.89%	-0.99%	-0.21%	-0.42%	0.80%
	104	78	26	47	31	16	29	24	5	28	23	5
Private Targets	-0.46% ^b	-0.56% ^b	-1.63% ^a	-0.29%	-0.35%	-1.42% ^a	-1.54% ^a	-1.28% ^c	-1.26% ^c	-0.29%	-0.29%	-0.47%
	916	673	243	511	369	142	43	32	11	362	272	90

This table presents Fama and French (1993) 3-factor alphas for merger portfolios of all, high- and low-valuation acquirers after the exclusion of multiple deals by the same acquirer in high and low-valuation periods. All acquirers are publicly traded firms listed on the London Stock Exchange (LSE). The sample consists of successful acquisition deals completed over the 1984-2002 (2000) period for 1- (3-) year analysis as identified from the Thomson Financial *Securities Data Corporation's* (SDC) *Global Financing* database. Using monthly data from 1984 till 2003, each month is classified through this period 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 other months are classified as neutral-valuation acquisitions. Panel A reports alphas for 1 year post-event, Panel B for 3 years post-event. Calendar time regression alphas are also reported by method of payment used in the transaction (Cash, Stock, Mixed). Cash acquisitions include transactions made solely in cash, or cash and debt. Stock acquisitions are defined as transactions made solely in common stock. Mixed payment acquisitions consist of all acquisitions in which the payment method is neither pure cash nor pure stock, and methods classified as "other" by SDC. Acquirers enter the portfolio on the announcement day of the successful takeover and remain for 12 and 36 months, respectively. Portfolios are rebalanced each month to include firms that have just completed a takeover. We estimate the calendar-time return under the Fama-French 3-factor model as in Table 6.

6. Conclusion

This paper examines whether market misvaluations drive acquisitions and/or acquirers' returns. Specifically, we focus on hot markets and address the fundamental question of whether investor sentiment (optimism) is a driving force of acquirers' performance. We test this hypothesis and conclude that optimistic beliefs of investors over bullish periods are a significant factor of acquisition returns. If market participants are optimistic about the synergies that will occur from the merger, then they will bid up the stock of the merging firms. However, as the performance of the merged firm is revealed over time, investors may revise their views about the quality of the merger, losing their optimism. To explain the sources of larger high-valuation returns at the announcement, we look the long-run stock returns of acquiring firms. Acquisitions announced during stock market boom periods lead to long-run declines in the bidder's stock price. Overall, the results show that, *ceteris paribus*, the positive short-run reaction to an announcement is fully reversed over the next one to three years. Our results are not sensitive to firm-specific misvaluations and various acquisition and deal characteristics.

These findings of course do not imply that investor sentiment is the only driving force of acquirer's returns. Our results have important implications for contracting practices and organizational design. In a sense, managerial motives are likely to be additionally included in the acquisition decision. If investors have unrealistic expectations about the synergies from a merger, that still does not explain why a manager should make an acquisition. Manager's compensation may initiate managers to conduct further -even bad- acquisitions to take advantage of the increase in firm's stock announcement returns, based on their previous experience in conduction of acquisitions. This could be an alternative explanation to positive announcement returns in the short-run for high-valuation acquisitions followed by negative post-returns in the long-run.

References

- Andrade, G., Mitchell, M., Stafford, E., 2001. New evidence and perspectives on mergers. *Journal of Economic Perspectives* 15, 103-120.
- Baker, M., Ruback, R., Wurgler, J., 2007. Behavioral corporate finance: a survey, in *The Handbook of Corporate Finance: Empirical Corporate Finance*, edited by Espen Eckbo. New York: Elsevier/North Holland.
- Bouwman, C., Fuller, K., Nain, A., 2008. Market valuation and acquisition quality: empirical evidence. *Review of Financial Studies*, forthcoming.
- Brown, S. J., Warner, J.B., 1985. Using daily stock returns. *Journal of Financial Economics* 14, 3-31.
- Chang, S., 1998. Takeovers of privately held targets, method of payment, and acquirer returns. *Journal of Finance* 52, 773–784.
- Doukas, J., Petmezas, D., 2007. Acquisitions, overconfident managers and self-attribution bias. *European Financial Management* 13, 531-577.
- Draper, P., Paudyal, K., 2006. Acquisitions: private versus public. *European Financial Management* 12, 57-80.
- Faccio, M., Masulis, R.W., (2005). The choice of payment method in European mergers and acquisitions. *Journal of Finance* 60, 1345-1388.
- Fama, E., French, K., 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33, 3-56.
- Fuller, K., Netter, J., Stegemoller, M., 2002. What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *Journal of Finance* 57, 1763-1793.
- Jensen, M.C., Ruback, R., 1983. The Market for corporate control: the scientific evidence. *Journal of Financial Economics* 11, 5-50.
- Jovanovic, B., Rousseau, P., 2001. Mergers and technological change: 1885-2001. Working paper Vanderbilt University.
- Lang, L., Stulz, R., 1994. Tobin's q, corporate diversification, and firm performance. *Journal of Political Economy* 102, 1248–1280.
- Lang, L., Stulz, R., Walkling, R., 1989. Managerial performance, Tobin's Q, and the gains from successful tender offers. *Journal of Financial Economics* 24, 137-154.
- Loughran, T., Vijh, A.M., 1997. Do long-term shareholders benefit from corporate acquisitions. *Journal of Finance* 52, 1765-1790.
- Moeller, S.B., Schlingemann, F.P., Stulz, R.M., 2004. Firm size and the gains from acquisitions. *Journal of Financial Economics* 73, 201-228.
- Mitchell, L.M., Stafford, E., 2000. Managerial decisions and long-term stock price performance. *Journal of Business* 73, 287-329.
- Rau, P.R., Vermaelen, T., 1998. Glamour, value and the post-acquisition performance of acquiring firms. *Journal of Financial Economics* 49, 223-253.
- Rhodes-Kropf, M., Robinson, D.T., Viswanathan, S., 2005. Valuation waves and merger activity: the empirical evidence. *Journal of Financial Economics* 77, 561-603.
- Rhodes-Kropf, M., Viswanathan, S., 2004. Market valuation and merger waves. *Journal of Finance* 59, 2685-2718.
- Roll, R., 1986. The hubris hypothesis of corporate takeovers. *Journal of Business* 59, 197-216.
- Rosen, R., 2006. Merger momentum and investor sentiment: the stock market reaction to merger announcements. *Journal of Business* 79, 987–1017.
- Shleifer, A., Vishny, R.W., 2003. Stock market driven acquisitions. *Journal of Financial Economics* 70, 295-311.
- Travlos, G. N., 1987. Corporate takeover bids, methods of payment, and bidding firms' stock returns. *Journal of Finance* 42, 943-963.