

# New Evidence on Valuation-Based Acquisition Theory

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**Abstract:** This study provides new evidence on valuation-based acquisition theories. Using risk-adjusted stock returns prior to the acquisition announcement date, I find evidence that bidders have higher valuations than targets, as measured by implied long-run excess returns. I also find evidence that excess returns of bidders and targets deviate substantially from fundamental values prior to the announcement date. Both bidders and targets display mean reversion in returns, suggesting temporary swings away from fundamental values, compared with positive correlation in returns for their industries. Targets have lower valuations than bidders and their industry average. The evidence suggests both parties are mispriced prior to an acquisition: bidders appear to be overvalued while targets are undervalued. Evidence on *Tobin's Q*, the most commonly used valuation measure, is mixed. It is higher for bidders than targets, but lower than and their industry means, calling into question the efficacy of *Tobin's Q* as a valuation metric. Implied long-run excess returns are also significant predictors of whether a firm undertakes an acquisition after controlling for industry, size and *Tobin's Q*. Raw monthly returns for bidders are higher than a control sample prior to the acquisition but lower post-acquisition. There is evidence net returns (pre-and post-acquisition returns) are higher for the merged firm than a control sample on non-bidders and targets, supporting Shleifer and Vishny (2003).

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## I. Introduction

There is ample evidence that managers attempt to time markets when making financing decisions.<sup>1</sup> Following the sky-high stock valuations of the late 1990s, researchers expanded on that notion, turning their attention to the role of equity prices in mergers and acquisitions (M&A). Jovanovic and Rousseau (2001) are among the first to document that periods of high M&A activity are accompanied by high stock valuations. Rhodes-Kropf and Viswanathan (2002) and Shleifer and Vishny (2003) develop theoretical models in which misvaluation results in M&A activity, which Jensen (2005) argues is simply another type of agency costs similar to that of free cash flow.<sup>2</sup> Several empirical studies have also examined the relationship between stock valuations and M&A activity, consistently documenting a positive correlation between the two.<sup>3</sup> Others have focused on the relationship between post-acquisition returns and pre-acquisition valuation, finding mixed results.<sup>4</sup>

One difficulty in conducting research in this vein has been developing strong valuation metrics. Most studies have relied on market-to-book or other ratios (e.g. price-to-earnings, price-to-sales, etc.) as a proxy for relative value. Others have attempted to calculate fundamental values utilizing discount models and analysts expectations. All are fraught with problems. Market-to-book is a noisy measure at best and lacks the necessary precision. For example, it could be inflated due to financial distress (i.e. extremely low shareholder equity) rather than a high stock price. It also relies primarily on accounting data, which is susceptible to manipulation.

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<sup>1</sup> See Meyers (1977), Meyers and Majluf (1984), Jung, Kim and Stulz (1996) and Baker and Wurgler (2002) and Franks and Goyal (2003), among others.

<sup>2</sup> See Jensen and Meckling (1976) and Jensen (1986).

<sup>3</sup> See Dong, Hirshleifer, Richardson and Teoh (2003), Rhodes-Kropf, Robinson and Viswanathan (2005), Ang and Cheng (2005) and Crutchley, Marshall and Payne (2005), among others.

<sup>4</sup> See Rau and Vermaelen (1998), Bouwman, Fuller and Nain (2003), Dong, Hirshleifer, Richardson and Teoh (2003), Moeller, Schlingemann and Stulz (2005) and Ang and Cheng (2005), among others.

Analysts expectations suffer from the same problem, as we saw with several high profile instances in the late 1990s, and are frequently little more than guestimates. Rhodes-Kropf, Robinson and Viswanathan (2005) attempt to overcome some of these difficulties by estimating the true value the firm, but they rely on the time-series of accounting data to do so. More importantly, these metrics fail to address the underlying assumption of valuation-based models: that market inefficiencies result in some firms being valued incorrectly.

This paper addresses these issues. I use stock returns rather than accounting data or analysts estimates to develop valuation metrics, and I apply traditional tests of market efficiency to try to capture the degree to which stock prices deviate from fundamental values. Specifically, I use risk-adjusted excess returns prior to the acquisition to calculate the implied long-run excess returns for different investment horizons as a valuation measure. In addition, I use the serial correlation of these holding period returns to quantify the degree of mispricing. Negative serial correlation indicates mean reversion in returns, which in turn implies temporary swings away from fundamental values. I then use these metrics to examine the role of equity prices in M&A activity. Bidders should exhibit higher implied long-run excess returns, indicating high-valuations, and greater mean reversions in returns, suggesting deviations away from fundamental values, according to valuation-based acquisition theories. Finally, I test whether the acquisitions are value-enhancing by examining the pre-acquisition returns of bidders and the post-acquisition returns of the merged firm against a control sample.

The evidence supports these hypotheses. Bidders exhibit significantly higher implied long-run excess returns than both their industries and their targets prior to the announcement date for 3-month, 6-month, 12-month and 24-month holding periods. Bidders also exhibit negative serial correlation in excess returns, increasingly so, for the different investment horizons,

indicating temporary swings away from fundamental values. Targets also experience mean reversion in returns, suggesting they too are mispriced. In contrast, the industry portfolios for both bidders and targets show positive serial correlation in returns over the same estimation periods. Targets have lower implied long-run returns than bidders, indicating lower valuations than bidders. There is some evidence that target returns are also lower than their industries, but only marginally so. The results suggests bidders are overvalued while targets are undervalued, or at least less overvalued than bidders, supporting Shleifer and Vishny (2003).

The evidence also supports the role of stock valuations in M&A activity. The industries with the greatest M&A activity finance a higher percentage of these deals at least in part with stock, and the mean transaction size is substantially larger. Industries that rely more heavily on stock financing also have some of the highest *Tobin's Q*. The bidders in these industries also exhibit some of the highest implied long-run excess returns and greater mean reversion in returns. In contrast, the least active industries in terms of mergers and acquisitions have among the lowest *Tobin's Q* and implied long-run excess returns, and they rely more heavily on cash to finance smaller transactions.

While bidders have significantly higher *Tobin's Q* than targets, they are significantly lower than their industry means. This calls into question the efficacy of *Tobin's Q* as a valuation metric, particularly as it related to distinguishing bidders from non-bidders. An analysis of bidders and a control sample of non-bidders matched on industry, size and *Tobin's Q* shows that both have positive implied long-run excess returns and exhibit mean reversion in returns, but bidders have significantly higher returns than non-bidders. Targets, on the other hand, have significantly lower returns than their matching firms, and both exhibit mean reversion in returns prior to acquisitions. The results support earlier the findings suggesting that bidders are

overvalued and targets are less overvalued or undervalued. Logistic regressions show implied long-run excess returns are a significant determinant of whether or not a high-valued firm undertakes an acquisition, suggesting it superior to *Tobin's Q* as a valuation metric.

Raw returns prior to the announcement of an acquisition are also higher for bidders than for the matching sample of non-bidders for holding periods of various lengths, providing further support for valuation-based acquisition theories. In contrast, post-acquisition returns are lower for merged firm than the combined non-bidder and non-target matching firms. Even so, the returns are still positive, and there is evidence the net returns (both the pre-announcement and post-effective) for the merged firms are higher than combined matching firms. Coupled with the earlier findings, the results support Shleifer and Vishny (2003), who argue that acquisitions by overvalued firms can be value enhancing if the target is less overvalued or undervalued (i.e. the combined firm is less overvalued).

This paper contributes to the existing literature in several ways. It provides further evidence on valuation-based acquisition theory, showing high-valued firms and industries are the most active acquirers and rely more extensively on equity to finance the transactions. It is also the first to utilize stock returns rather than accounting data or analysts expectations to develop valuation metrics. Moreover, it is the first to utilize the degree to which stock returns deviate market efficiency as a metric for mispricing. The evidence indicates the two metrics are superior to *Tobin's Q* as a valuation metric and in distinguishing between high-value bidders and non-bidders. The remainder is organized as follows: Section II summarizes the existing literature; Section III describes the sample data and methodology used in the analysis; Section IV presents the results of the analysis and its implications; and Section V concludes.

## II. Related Literature

The fundamental assumption of Shleifer and Vishny (2003) is that financial markets are inefficient, leading to mispricings. In their model, bidders have private information about the degree of misvaluation which they try to exploit through a form of arbitrage (i.e. M&A). They argue that managers of overvalued firms expect negative long-run returns because of the overvaluation. In an attempt to ameliorate this problem, they use the equity to acquire relatively less overvalued targets. In short, bidders attempt to make negative long-run ex ante returns resulting from overvalued equity less negative by acquiring less overvalued firms. They argue M&A activity will be greater in industries with relatively high valuations and that these transactions should be disproportionately paid for with stock. Furthermore, bidders are only willing to undertake cash tender offers when the target is undervalued.

Market inefficiency is also the underlying premise of Rhodes-Kropf and Viswanathan (2004), though it is precisely the lack of perfect knowledge about the inefficiency that leads to acquisition. They develop a model where bidder and target valuations deviate from true value. They decompose the misvaluation into firm-specific and market-value components. Bidders have private information about their own value and the potential value of merging with a target. Targets, on the other hand, have limited information about the components of misvaluation, and thus have difficulty assessing the value of synergies from merging. When the market is overvalued, the target is more likely to overestimate the synergies because he underestimates the shared component of misvaluation due to an inability to accurately assess the market-wide versus firm-specific effects. In this setting, market-wide overvaluation tends to make bids look more attractive to the target, while firm-specific overvaluation tends to make bids look to low. The model explains why target firms would accept overvalued equity as payment

Building on his previous work, Jensen (2005) frames the issue in the context of agency theory. If a stock is overvalued, then by definition management knows it cannot produce the performance necessary to justify the high price. Given this inside information, Jensen argues, management turns to actions that may appear to increase firm value in the short-term but lead to long-term value destruction in a desperate attempt to prop up the stock price. In short, he says overvalued firms will first turn to acquisitions and high-risk projects, and eventually to earnings management and even fraud, in a vain attempt to try to justify the high stock price. Jensen calls the resulting value destruction from such behavior the agency costs of overvalued equity. The prevalence of equity- and particularly option-based compensation exacerbates the problem, providing greater incentive for management to do whatever it takes to maintain the façade.

The empirical evidence supports the role of valuation in M&A activity. Dong, Hirshleifer, Richardson and Teoh (2003), using book-to-market and a residual income discount model to estimate true value, find that both targets and acquirers are overvalued. In contrast to Shleifer and Vishny (2003), they show that bidders are overvalued regardless of the method of payment, but that bidders paying in stock are more overvalued than those paying with cash. Ang and Cheng (2003) test both Shleifer and Vishny and Rhodes-Kropf and Viswanathan (2004), again relying on market-to-book and an earnings discount model. They find a positive relationship between overvaluation and M&A activity and the likelihood stock will be used as the medium of payment. Crutchley, Marshall and Payne (2005) examine a sample of internet firms over the 1990s using price-to-sales and implied earnings-to-price as their valuation metric. They also find a relationship between overvaluation and M&A activity.

Given the underlying assumption that market inefficiencies result in mispricings, any valuation metric should incorporate measures of both. Early tests of market efficiency primarily

rely on examining autocorrelations in security returns, looking for predictability as evidence of market inefficiency. Generally speaking, they conclude stock markets are largely efficient given autocorrelations of near zero.<sup>5</sup> Summers (1986) argues that the underlying assumption of these studies is that stock prices take long, temporary swings away from fundamental values, hypothesizing that stock prices have slowly decaying stationary components. Fama and French (1988) expand upon this notion, showing that a slowly decaying price component leads to negative correlation in returns for long-run return horizons. This is consistent with the notion of stock prices deviating from fundamental values. As Poterba and Summers (1987) point out, “Returns must be negatively serially correlated at some frequency if ‘erroneous’ market moves are eventually corrected.” Thus, negative autocorrelations in returns may signal departures from fundamental values.<sup>6</sup>

### **III. Sample and Methodology**

The transaction data is from the Securities Data Corporation U.S. and international Mergers and Acquisitions database. The sample period is 1991 – 2000. Only tender offers with available transaction data are considered, and both bidders and targets must be listed on both the CRSP and Compustat databases. If either the bidder or the target is a financial or utility, as defined by the Fama French 12-industry portfolio definitions, the observation is dropped. Transactions involving ADRs are also excluded. This results in an initial sample of 4,894 firms, (2,447 bidders and targets). To ensure a sufficient number of observations for analysis of various holding period returns, firms are also required have at least five years of monthly stock return

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<sup>5</sup> See Fama (1970) for a survey of this literature.

<sup>6</sup> As Poterba and Summers (1987) and Fama and French (1988) point out, predictability in returns could also be the result of time-varying risk factors. To control for this, risk-adjusted excess returns are used in the analysis. See the methodology section of the paper for more detail.

data on CRSP as a final screen. This results in a final sample of 2,216 firms (1,108 bidders and targets).

As Poterba and Summers (1987) and Fama and French (1988) point out, predictability in returns could also be the result of time-varying risk factors. To control for this, risk-adjusted excess returns are used in the analysis. They are calculated using estimation periods of 10 years prior to 60 days before the announcement date of an acquisition. The time series of raw monthly returns for each firm less the corresponding one-month risk-free rate is regressed on the Fama French research data factors. The intercepts from each model are added to the residuals from the individual monthly observations to create firm-specific excess monthly returns. These returns are then used in the Fama French autocorrelation regressions for holding periods of 3, 6, 12 and 24 months. Here, the compounded lead holding period is regressed on the lagged holding period compound return (e.g. the April-May-June holding period return is regressed on the January-February-March holding period). Overlapping holding periods are used in the regressions to maximize the number of observations. The coefficients from these regressions ( $Rlag_t$ ) represent the mean reversion in returns for the various holding periods and are used to proxy for the degree to which stock prices deviate from fundamental values. The implied excess long-run returns ( $Ret_t$ ), calculated as  $\alpha/(1-\rho)$ , are also calculated for the same holding periods.

Industry serial correlations in excess returns and implied long-run excess returns are calculated in the same manner using the Fama French 12-industry value-weighted monthly portfolio returns. A matched industry observation is created for each firm involved in a transaction for the same estimation period. A control sample of non-bidders and non-targets is also created to examine the differences between bidders and targets and similar non-bidders and non-targets. Control firms are first matched on industry and then on *Size*, defined as the natural

log of the market value of assets, and *Tobin's Q*, defined as the market value of equity plus the book value of debt to the market value of assets. Data for the fiscal year prior to the announcement of the acquisition is used, and bidders and targets from the initial sample of 4,894 firms are excluded as possible matches. The matching firms are those that minimize the absolute value of the sum of the difference in *Size* and *Tobin's Q* between it and the bidders/targets. Serial correlations in excess returns and implied long-run excess returns are calculated as previously described. Two variables shown to be related to merger and acquisition activity, *Cash* and *Debt-to-Equity*, are used as control values. The former is defined as cash scaled by the book value of assets; the latter is defined as long-term debt scaled by shareholder equity. Logistic regressions are also undertaken to examine the relationship between the valuation metrics and whether a firm undertakes an acquisition and whether the transactions are value enhancing.

Finally, returns around the announcement date and before and after the acquisition are examined to determine whether the transaction was value enhancing or value destroying. First, market reaction to acquisitions is gauged by cumulative abnormal returns (CARs) around the announcement date. The CARs are calculated over a five-day period [-2, 2], where day 0 is the date the acquisition is announced. They are computed using the standard market model, where the parameters are estimated over the [-210, -11] period prior to the announcement using ordinary least squares (OLS) regression. The CRSP equally weighted portfolio is used as a proxy for the market return. Pre- and post-acquisition raw cumulative monthly returns for holding periods of 3 months to five years are also examined for those transactions that are actually completed. Pre-acquisition returns are those before the announcement date; post-acquisition returns are those after the effective date. The sum of the two periods are also calculated to examine the net effect of the transactions.

#### IV. Results

The initial sample of 2,447 transactions shows considerable dispersion in M&A activity across industries and time (Table 1, Panel A). The number of acquisitions increases steadily from the beginning of the sample period, reaching its apex in 1998 and tapering off slightly for the last two years. The *Business Equipment* industry, which is comprised primarily of high-technology firms, had nearly twice as many bidders and targets (628 and 620) as any other industry. More than a quarter of all bidders and targets come from this industry. The *Manufacturing, Other* (a “none of the above” category in the Fama French industry definitions) and *Health* are also quite active, accounting for another quarter of the bidders and targets. The *Durables* and *Chemicals* industries are the least active, accounting for just over 5% of all bidders and 6% of targets. The final sample cleaned of firms lacking sufficient return data exhibits similar patterns (Table 1, Panel B). As before, the four most active sectors are *Business Equipment*, *Manufacturing, Other* and *Health* industries, accounting for nearly two-thirds of all transactions. One exception is the *Business Equipment* industry, which loses more than half the observations. The precipitous drop in indicates many of the bidders and targets in the initial sample are young firms with less than five year’s of return data.

The majority of transactions consist of bidders making offers for targets within their own industry (not reported in a table). Nearly 61% of deals (674) involve bidders and targets from the same industry. There are also a significant number of serial bidders. Of the 1,108 transactions, less than 60% (668) involve unique bidders. In other words, more than 40% of the transactions involve serial bidders. Not surprisingly, the most active industries (e.g. *Business Equipment* and *Manufacturing, Health* and *Other*) have the highest frequency of serial bidders.

The evidence on the form of payment offers support for valuation based acquisition theories (Table 2). The industries that are the most active acquirers rely more heavily on equity to finance the transactions. The *Business Equipment, Health, Shops, Other* and *Telecom* industries use stock financing in 40% - 50% of the transactions they are involved in. The mean value of stock-financed transactions is considerably higher than acquisitions financed with cash only. For example, the mean value of all-stock financed transactions in the *Telecom* industry, a sector known to have experienced significant overvaluations over the sample period, is nearly ten times that of acquisitions financed entirely with cash. Again, one exception is the highly active *Manufacturing* industry, which uses stock less on average than the entire sample. The size of the transactions regardless of the method of payment is also among the smallest of all industries. The least active industries, *Durables* and *Chemicals*, rarely use stock alone and infrequently use stock at all to finance transactions, relying heavily on cash alone.

Consistent with existing research on M&A activity, I find bidders are larger, have greater cash balances and are more levered than targets (Table 3). The higher value on *Cash* for bidders indicates the potential for a free cash flow problem as described in Jensen (1986 and 2005). This is belied by comparisons with the industry data, which shows bidders have significantly lower cash balances than their industries. *Size* is also significantly higher for bidders than their industry means, but *Debt-to-Equity* is significantly lower.

An examination of the valuation measures reveals dramatic differences between bidders, targets and their industries. Both bidders and their industries have statistically significantly higher *Tobin's Q* than targets, consistent with valuation-based acquisition theory. Interestingly, bidder *Tobin's Q* is significantly lower than their industry mean. The finding calls into question the efficacy of *Tobin's Q* as an overvaluation metric, particularly as it relates to distinguishing

bidders from the rest of their industry. As hypothesized, both bidders and targets exhibit evidence that stock prices deviate substantially from fundamental values prior to acquisitions. Bidders have higher implied long-run excess returns than both their industries and targets for holding periods of 3, 6, 12 and 24 months. The results indicate bidders experience high valuations prior to acquisitions, consistent with valuation-based acquisition theory. This is supported by mean reversion in returns, increasingly so for all holding periods, compared to positive serial correlations in returns, decreasingly so, for their industries. The differences are highly statistically significant and imply bidder stock prices experience wide temporary swings away from fundamental values prior to acquisitions. Consistent with Summers (1986) and Fama and French (1988), industry serial correlations turn negative for 24-month holding period. Taken as a whole, the results support the notion that bidders are overvalued.

In contrast to bidders, targets appear to be undervalued. They have significantly lower implied long-run excess returns than bidders for all holding periods, though the target means are not significantly different from zero. The returns are also lower than their industries, though the differences are only significant for the 12-month holding period. In addition, targets experience negative serial correlation in returns, implying deviations from fundamental values, while their industries have positive correlation in returns. Both decrease (i.e. are more negative for targets, less positive for their industries) as the horizon increases, and the differences are highly significant. The results indicate that targets also experience mispricings prior to acquisitions, though in opposite direction of bidders, supporting Shleifer and Vishny (2003). Bidders appear to have high valuations, as evidenced by high implied long-run excess returns, high *Tobin's Q* and high mean reversion in implied long-run excess returns relative to their industries; targets

appear undervalued, given the negative serial correlation in returns and low implied long-run excess returns and low *Tobin's Q* relative to their industries.

Cross-industry comparisons provide further evidence of the role of high valuations in M&A activity (Table 4). Two of the most active industries (*Business Equipment* and *Health*) have the highest *Tobin's Q* of all industries, while the least active industry (*Durables*) has the lowest. Bidders in the *Business Equipment* and *Health* industries also have the highest *Tobin's Q* of all bidders. Bidders in the most active industries also have higher *Tobin's Q* than targets, and the differences are the greatest in the most active industries. Targets have lower *Tobin's Q* than their industries, significantly so for all but the two least active industries (*Durables* and *Chemicals*). The evidence points to a correlation between industry-wide valuations and acquisitions. Even so, *Tobin's Q* is lower for bidders than their industries in all but one sector (*Non-Durables*), highlighting its weakness as a determinant of whether or not a firm undertakes an acquisition. Indeed, the differences between bidders and their industries are their greatest (i.e. more highly negative) for the most active industries. One exception is again *Manufacturing*, which has among the lowest *Tobin's Q* for both bidders and the industry as a whole. The differences between bidders and targets and their industry means are also among the lowest for the *Manufacturing* sector. The strength of *Tobin's Q* as a metric appears to be in determining targets rather than bidders.

The evidence suggests implied long-run excess returns is comparable with *Tobin's Q* as a valuation metric in distinguishing bidders from targets, and superior to *Q* in distinguishing bidders from non-bidders. Bidder implied long-run returns are consistently higher than their industry means for all holding periods across all industries. One exception is the *Energy* sector, where industry means are higher than bidders, significant for the 6- and 12-month holding

periods. Bidders in the most active industries (*Business Equipment* and *Health*) have the highest returns of all bidders, while bidders in other active industries (*Telecom*, *Shops* and *Others*) also have highest returns, though their industry means do not. In contrast, the least active sectors (*Durables* and *Chemicals*) have the lowest industry implied excess long-run returns. Of course, bidders also have consistently higher returns than targets, which are consistently lower than their industry averages.

The analysis of serial correlation in returns suggest stock prices of bidders and targets experience substantial deviations from fundamental values prior to acquisitions. The serial correlations of returns for all holding periods are negative for bidders and positive for their industries. Bidder mean reversion in returns increases steadily as the holding period increases. Consistent with Poterba and Summers (1987) and Fama and French (1988), industry serial correlations turn negative for longer holding periods. The serial correlation in returns is surprisingly homogeneous across the most and least active sectors for bidders, targets and their industries. Bidder and target mean reversion in returns are of similar magnitude across industries and holding periods, as are industry serial correlations. The differences between bidder and target mean reversion in returns are small and only sporadically statistically significant. In contrast, the differences between bidder and target serial correlations and their industries are substantial and highly significant for all industries and holding periods. The evidence suggests that both bidders and targets are mispriced prior to acquisitions. Coupled with the evidence on *Tobin's Q* and implied long-run excess returns, it appears bidders are overvalued while targets are undervalued.

To further examine the differences in *Tobin's Q* and  $Rlag_t$  and  $Ret_t$ , each bidder and target is matched with a firm that is neither a bidder nor a target during the sample period. Firms

are matched first on industry and then on *Size* and *Tobin's Q* as described earlier. The evidence suggests bidders and non-bidders experience substantial mispricings prior to acquisitions (Table 5). Both exhibit mean reversion in returns and positive implied long-run excess returns. Bidder returns are significantly higher than non-bidders for all periods, but mean reversion of returns are not statistically different. The evidence implies bidders are among the most overvalued of high-valued firms, and it points to the superiority of implied-long run excess returns as a valuation metric, particularly in distinguishing bidders from high-valued non-bidders. Both targets and non-targets exhibit mean reversion in returns, though the differences are not statistically significant. Non-targets do have higher implied long-run excess returns than targets. The results provide further evidence that targets are undervalued prior to acquisitions.

In order to examine the role the valuation metrics play in determining whether or not a firm makes an acquisition, a logistic regression is run on the bidders and the control sample of non-bidders matched on industry, *Size* and *Tobin's Q* (Table 6). The model is run using the control variables *Cash* and *Debt-to-Equity* coupled with the valuation metrics by holding period. The results indicate implied long-run excess returns prior to an acquisition are able to distinguish bidders from non-bidders after controlling for *Tobin's Q*. The probability a firm makes an acquisition is positively related to implied long-run excess returns for all holding periods. The results are highly significant. The coefficients on the  $Ret_t$  variable, which represent the marginal increase in the likelihood a firm undertakes a merger, are higher for shorter holding periods and decrease as the holding period increases. The results suggest temporary mispricings (i.e. shorter-term high implied long-run returns) are driving factor in the decision to acquire. Interestingly, *Cash* is negatively related to the probability a firm makes an acquisition. While contrary to the existing M&A literature, it further supports the role of equity in acquisitions. Firms with lower

cash balances are more likely to undertake acquisitions, suggesting they must be financed with equity (or debt).

An analysis of pre-acquisition returns provides additional evidence that bidders experience high valuations prior to acquisitions (Table 7). Bidders experiences higher raw cumulative returns prior to undertaking an acquisition for holding periods ranging from three months to five years than a control sample of non-bidders matched on industry, *Size* and *Tobin's Q*. The differences are substantial and highly significant. Cumulative abnormal returns (CARs) for the five-day window around the announcement date show little market reaction. The CARs are marginally positive using the equal weighted CRSP portfolio to estimate the market model, but negative using the CRSP value weighted portfolio. The means are not significantly different from zero using either model.

To examine post-acquisition returns, merged firms are compared to combined non-bidder and non-target matching firms. The results show post-acquisition returns are positive but lower for the merged firm than the combined matching firms, though the differences are only significant for longer holding periods of two to five years. The net effect of mergers and acquisitions (pre- and post-acquisition returns) provide some evidence the acquisitions are value-enhancing, as Shleifer and Vishny (2003) posit, rather than value destroying, as Jensen (2005) contends. Merged firms have higher returns for all but the 5-year holding period, though the differences are only significant for the 3-year holding period. The results seem to support Shleifer and Vishny in that the acquisitions mitigate the eventual price correction resulting from the overvaluation, making ex-ante long-run returns less negative.

## **V. Conclusion**

The results provide considerable support for valuation-based acquisition theories. Bidders experience high valuations both in terms of *Tobin's Q* and implied long-run excess returns prior to acquisitions. There is also evidence these returns are the result of substantial deviations from market efficiency (i.e. fundamental values). Industries with higher valuations, as measured by *Tobin's Q* and implied long-run excess returns, are the most active acquirers. These industries also finance transactions more frequently with stock. In contrast, industries with low valuations tend to use cash as the method of payment. Bidder *Tobin's Q* is higher than targets, but less than their industry average, calling into question the efficacy of *Tobin's Q* as a valuation metric. In contrast, bidders exhibit higher excess returns than both their industry and targets. Both bidders and targets also experience substantial mean reversion in returns prior to acquisitions, denoting deviations away from fundamental values. Their industries, on the other hand, exhibit positive serial correlations in returns for the same estimation period. Targets have lower excess returns than their industry. The results suggest bidders are overvalued while targets are undervalued (or less overvalued).

The lack of significant differences between bidder and industry *Tobin's Q* suggest its value as a metric is in determining firms likely to become targets rather than bidders. An examination of bidders and targets and non-bidders and non-targets matched on industry, *Size* and *Tobin's Q* suggest implied long-run excess returns are able to distinguish bidders from non-bidders. Logistic regressions support this conclusion. Excess returns are positively related to the probability a firm undertakes an acquisition even after controlling for *Tobin's Q*. The results are highly significant, and they indicate excess returns are a superior valuation metric that offers a level of precision *Tobin's Q* lacks.

Pre-acquisition returns provide further support for valuation-based acquisition theories. Bidders experience higher raw monthly returns for various holding periods prior to an acquisition than their matching firms. In contrast, the post-acquisition returns for the merged firms are significantly lower than those of the combined non-bidder and non-target matching firms. There is some evidence net returns (pre- and post-acquisition returns) are marginally higher for the merged firms than the matching firms, though the differences are only significant for the 3-year holding period. The results provide some support for Shleifer and Vishny (2003), who argue the acquisitions can be value enhancing if targets are less overvalued than their bidders.

Future research should further examine the relationship between valuation and M&A activity. In particular, closer attention should be paid to the method of payment for transactions. Shleifer and Vishny argue cash will only be used by low-valued bidders to finance transactions where the target is undervalued. This could explain some of the divergent results like those seen in the *Manufacturing* industry, which relies more heavily on cash financing and is also one of the most active acquiring industries despite low *Tobin's Q* and implied long-run excess returns. In addition, the role of serial acquisitions and cross-industry acquisitions should also be examined to determine if they affect post-acquisition returns. Doing so could further illuminate our understanding of the complex phenomenon of mergers and acquisitions.

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**Table 1**  
**Deal Frequency By Year and Industry**

The following table presents the number of bidders and targets by industry and year. Firms must be listed on both CRSP and Compustat. If either party is a financial or utility, as defined by the Fama French 12-industry definitions, or an ADR the observation is excluded. This results for the initial sample of 4,894 firms (2,447 bidders and targets) is shown in Panel A. As a final screen, both bidders and targets are also required to have at least five year's of monthly return data prior to the announcement date available on CRSP. This results in a final sample of 2,216 firms (1,108 bidders and targets), shown in Panel B. Transaction data comes from the Securities Data Corporation Mergers and Acquisitions database. Only tender offers (both completed and withdrawn) and only those with available data on transaction value and method of payment are considered. The first number represents the number of bidders in an industry for any given year; the second number is the number of targets.

<b>Panel A</b>	<b>Initial Sample</b>										
<b>Industry</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>Total</b>
<i>Non-Durables</i>	5, 6	14, 7	17, 17	5, 7	7, 12	14, 15	15, 20	20, 13	10, 13	21, 25	128, 135
<i>Durables</i>	2, 3	4, 2	3, 8	3, 4	7, 4	14, 14	12, 11	11, 15	7, 15	7, 8	70, 84
<i>Manufacturing</i>	17, 15	19, 17	22, 17	20, 20	34, 28	29, 30	53, 54	50, 45	59, 44	35, 36	338, 306
<i>Energy</i>	13, 11	17, 17	10, 6	18, 19	21, 22	26, 26	18, 20	36, 32	17, 15	12, 10	188, 178
<i>Chemicals</i>	6, 3	0, 5	4, 9	4, 13	8, 5	9, 10	7, 3	11, 8	7, 6	6, 5	62, 67
<i>Business Equip.</i>	15, 16	22, 19	29, 25	47, 46	38, 37	49, 56	85, 83	100, 105	117, 116	126, 117	628, 620
<i>Telecom</i>	5, 5	5, 11	12, 11	16, 15	18, 14	19, 18	22, 23	25, 19	20, 21	29, 29	171, 166
<i>Shops</i>	5, 7	7, 11	9, 6	16, 19	24, 28	38, 34	33, 33	36, 41	22, 29	19, 23	209, 231
<i>Health</i>	16, 15	11, 10	14, 19	27, 27	30, 32	39, 34	35, 41	35, 45	35, 34	28, 33	270, 290
<i>Others</i>	8, 11	17, 17	18, 20	47, 33	28, 33	40, 40	63, 55	58, 59	49, 50	55, 52	383, 370
<b>Total</b>	92, 92	116, 116	138, 138	203, 203	215, 215	277, 277	343, 343	382, 382	343, 343	338, 338	2447, 2447
<b>Panel B</b>	<b>Final Sample</b>										
<b>Industry</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>Total</b>
<i>Non-Durables</i>	2, 3	9, 5	11, 10	4, 4	6, 9	8, 8	7, 9	6, 3	5, 8	12, 15	70, 74
<i>Durables</i>	2, 2	3, 2	2, 6	1, 3	4, 1	4, 3	5, 8	6, 8	5, 11	4, 5	36, 49
<i>Manufacturing</i>	12, 11	14, 15	19, 14	13, 10	25, 21	16, 15	37, 31	27, 25	38, 24	25, 25	226, 191
<i>Energy</i>	10, 7	5, 5	7, 4	10, 12	10, 12	14, 13	5, 7	15, 13	12, 11	6, 6	94, 90
<i>Chemicals</i>	4, 1	0, 4	3, 6	3, 7	5, 2	8, 8	5, 0	9, 6	6, 6	6, 5	49, 45
<i>Business Equip.</i>	6, 8	11, 8	18, 15	20, 18	16, 15	14, 17	24, 25	33, 34	43, 44	39, 43	224, 227
<i>Telecom</i>	2, 2	3, 7	2, 4	7, 6	6, 6	7, 7	4, 8	7, 6	5, 4	4, 3	47, 53
<i>Shops</i>	2, 5	4, 5	4, 2	3, 6	7, 9	13, 12	7, 7	19, 20	9, 14	8, 7	76, 87
<i>Health</i>	11, 11	1, 2	7, 9	8, 10	10, 13	10, 9	12, 18	15, 23	15, 17	11, 17	100, 129
<i>Others</i>	4, 5	13, 10	9, 12	26, 19	15, 16	14, 16	27, 20	23, 22	22, 21	33, 22	186, 163
<b>Total</b>	55, 55	63, 63	82, 82	95, 95	104, 104	108, 108	133, 133	160, 160	160, 160	148, 148	1108, 1108

**Table 2****Deal Characteristics By Industry and Method of Payment**

The following table presents the deal characteristics by industry. Transactions are divided into those financed entirely through stock, those financed entirely through cash and those financed with a mixture of both and possible other sources of financing as well. Panel A presents the number, percentage and mean value of each financing alternative and all transactions by bidder industry for the the final sample of 1,108 bidders and 1,108 targets from 1991 - 2000. Panel B presents the same data by target industry.

<b>Panel A</b>	<b>Bidders</b>						
<b>Industry</b>	<i>All Stock</i>	<i>All Cash</i>	<i>Mixed</i>	<i>Mean Stock</i>	<i>Mean Cash</i>	<i>Mean Mixed</i>	<i>Mean All</i>
<i>Non-Durables</i>	7	46	17	1394.13	326.22	2873.40	1051.61
<i>Durables</i>	2	29	5	318.40	169.47	910.71	280.70
<i>Manufacturing</i>	24	141	61	751.47	164.81	1793.70	666.77
<i>Energy</i>	9	62	23	8938.31	77.49	2426.80	1500.70
<i>Chemicals</i>	1	36	12	153.57	198.18	1647.40	552.18
<i>Business Equip.</i>	56	128	40	1622.74	185.83	1277.98	740.08
<i>Telecom</i>	7	23	17	13248.33	1597.79	2988.74	3836.08
<i>Shops</i>	14	38	24	638.22	377.22	1398.99	747.96
<i>Health Care</i>	25	51	24	7201.89	227.14	319.77	1993.06
<i>Others</i>	33	104	49	2128.01	385.15	834.17	812.66
<b>Total</b>	178	658	272	3100.27	276.00	1553.14	1043.24
<b>Panel B</b>	<b>Targets</b>						
<b>Industry</b>	<i>All Stock</i>	<i>All Cash</i>	<i>Mixed</i>	<i>Mean Stock</i>	<i>Mean Cash</i>	<i>Mean Mixed</i>	<i>Mean All</i>
<i>Non-Durables</i>	7	48	19	1009.20	253.20	2843.21	989.72
<i>Durables</i>	1	37	11	11.70	271.75	1990.31	652.24
<i>Manufacturing</i>	22	120	49	2918.14	177.96	1698.25	883.60
<i>Energy</i>	7	58	25	11491.38	84.45	2310.52	1590.01
<i>Chemicals</i>	3	35	7	124.95	126.12	923.51	250.08
<i>Business Equip.</i>	59	128	40	1606.47	206.65	1717.26	836.67
<i>Telecom</i>	4	33	16	24532.69	1170.01	3635.63	3677.57
<i>Shops</i>	14	47	26	597.65	286.79	925.15	527.58
<i>Health Care</i>	35	66	28	5358.06	242.90	556.42	1698.78
<i>Others</i>	26	86	51	421.01	397.19	639.31	476.75
<b>Total</b>	178	658	272	3100.27	276.00	1553.14	1043.24

**Table 3**  
**Univariate Analysis of Firm Specific-Variables**

The following table presents the firm characteristics for both bidders and targets and each individually. Firms must be listed on both the CRSP and Compustat databases, excluding ADRs, to be included in the sample. If either the bidder or the target is a financial or utility, as defined by the Fama French 12-industry definitions, the observation is excluded. Firms are also required to have at least five year's of monthly return data available on CRSP to ensure a sufficient number of observations for the analysis. The final sample consists of 2,216 firms (1,108 bidders and targets). The data is for the year prior to the announcement date. The first rows display the means for, bidders, targets, their industries and their differences. The second rows present the t-values from tests on the means values and their differences. Variables and test statistics in bold are significant at the 1%, 5% or 10% level, represented by \*\*\*, \*\* and \*, respectively.

Variable	Bidder			Target			Industry		
	Mean	Mean	Difference	Mean	Mean	Difference	Mean	Mean	Difference
<i>Tobin's Q</i>	<b>2.1548</b>	<b>2.4410</b>	<b>-0.2862</b>	1.7780	<b>2.4410</b>	<b>-0.6630</b>	<b>2.1548</b>	1.7780	<b>0.3768</b>
	<b>34.44***</b>	<b>37.74***</b>	<b>-4.43***</b>	<b>26.26***</b>	<b>37.74***</b>	<b>-12.85***</b>	<b>34.44***</b>	<b>26.26***</b>	<b>5.34***</b>
<i>Size</i>	<b>7.5477</b>	<b>5.2293</b>	<b>2.3184</b>	<b>7.0934</b>	<b>5.2293</b>	<b>1.8641</b>	<b>7.5477</b>	<b>7.0934</b>	<b>0.4543</b>
	<b>45.12***</b>	<b>31.15***</b>	<b>33.01***</b>	<b>40.3***</b>	<b>31.15***</b>	<b>24.03***</b>	<b>45.12***</b>	<b>40.3***</b>	<b>4.42***</b>
<i>Debt-to-Equity</i>	0.2215	<b>0.7952</b>	<b>-0.5737</b>	<b>1.0968</b>	<b>0.7952</b>	<b>0.3016</b>	0.2215	<b>1.0968</b>	<b>-0.8752</b>
	0.88	<b>3.76***</b>	<b>-1.92**</b>	<b>4.35***</b>	<b>3.76***</b>	<b>1.84*</b>	0.88	<b>4.35***</b>	<b>-2.46**</b>
<i>Cash</i>	<b>0.1086</b>	<b>0.1665</b>	<b>-0.0579</b>	<b>0.0890</b>	<b>0.1665</b>	<b>-0.0776</b>	<b>0.1086</b>	<b>0.0890</b>	<b>0.0197</b>
	<b>23.73***</b>	<b>38.19***</b>	<b>-11.06***</b>	<b>18.65***</b>	<b>38.19***</b>	<b>-17.01***</b>	<b>23.73***</b>	<b>18.65***</b>	<b>3.33***</b>
<i>Ret3</i>	<b>0.0156</b>	<b>0.0016</b>	<b>0.0139</b>	0.0011	<b>0.0016</b>	-0.0005	<b>0.0156</b>	0.0011	<b>0.0145</b>
	<b>13.27***</b>	<b>1.67*</b>	<b>10.61***</b>	0.91	<b>1.67*</b>	-1.15	<b>13.27***</b>	0.91	<b>8.72***</b>
<i>Ret6</i>	<b>0.0339</b>	0.0031	<b>0.0308</b>	0.0013	0.0031	-0.0018	<b>0.0339</b>	0.0013	<b>0.0326</b>
	<b>13.33***</b>	1.42	<b>10.63***</b>	0.48	1.42	-1.29	<b>13.33***</b>	0.48	<b>9.07***</b>
<i>Ret12</i>	<b>0.0717</b>	<b>0.0239</b>	<b>0.0479</b>	0.0004	<b>0.0239</b>	<b>-0.0234</b>	<b>0.0717</b>	0.0004	<b>0.0713</b>
	<b>9.54***</b>	<b>3.26***</b>	<b>4.72***</b>	0.06	<b>3.26***</b>	<b>-3.43***</b>	<b>9.54***</b>	0.06	<b>6.70***</b>
<i>Ret24</i>	<b>0.1456</b>	<b>0.0530</b>	<b>0.0927</b>	-0.0068	<b>0.0530</b>	-0.0598	<b>0.1456</b>	-0.0068	<b>0.1524</b>
	<b>5.20***</b>	<b>2.98***</b>	<b>3.74***</b>	-0.24	<b>2.98***</b>	-1.29	<b>5.20***</b>	-0.24	<b>3.85***</b>
<i>Rlag3</i>	<b>-0.0623</b>	<b>0.5499</b>	<b>-0.6122</b>	<b>-0.0557</b>	<b>0.5499</b>	<b>-0.6056</b>	<b>-0.0623</b>	<b>-0.0557</b>	-0.0065
	<b>-13.54***</b>	<b>144.61***</b>	<b>-121.4***</b>	<b>-12.02***</b>	<b>144.61***</b>	<b>-122.5***</b>	<b>-13.54***</b>	<b>-12.02***</b>	-1.04
<i>Rlag6</i>	<b>-0.0520</b>	<b>0.5157</b>	<b>-0.5676</b>	<b>-0.0571</b>	<b>0.5157</b>	<b>-0.5728</b>	<b>-0.0520</b>	<b>-0.0571</b>	0.0052
	<b>-8.82***</b>	<b>98.31***</b>	<b>-78.25***</b>	<b>-9.73***</b>	<b>98.31***</b>	<b>-79.3***</b>	<b>-8.82***</b>	<b>-9.73***</b>	0.63
<i>Rlag12</i>	<b>-0.1376</b>	<b>0.3590</b>	<b>-0.4966</b>	<b>-0.1457</b>	<b>0.3590</b>	<b>-0.5048</b>	<b>-0.1376</b>	<b>-0.1457</b>	0.0081
	<b>-15.48***</b>	<b>43.61***</b>	<b>-45.62***</b>	<b>-16.51***</b>	<b>43.61***</b>	<b>-48.53***</b>	<b>-15.48***</b>	<b>-16.51***</b>	0.69
<i>Rlag24</i>	<b>-0.3284</b>	<b>-0.1475</b>	<b>-0.1809</b>	<b>-0.3237</b>	<b>-0.1475</b>	<b>-0.1762</b>	<b>-0.3284</b>	<b>-0.3237</b>	-0.0047
	<b>-15.18***</b>	<b>-9.23***</b>	<b>-8.89***</b>	<b>-14.94***</b>	<b>-9.23***</b>	<b>-7.15***</b>	<b>-15.18***</b>	<b>-14.94***</b>	-0.16

**Table 4**

**Valuation Metrics of Bidders and Targets by Industry**

The following table presents the valuation metrics by industry. Panel A presents the differences between bidders than their industries; Panel B between targets and their industries; Panel C between bidders and targets. The differences section presents the t-values from tests on the means and their differences. Variables and test statistics in bold are significant at the 1%, 5% or 10% level, represented by \*\*\*, \*\* and \*, respectively.

<b>Panel A</b>										
<b>Bidders</b>										
<b>Variable</b>	<b>Non-Durs.</b>	<b>Durables</b>	<b>Mfg.</b>	<b>Energy</b>	<b>Chemicals</b>	<b>Bus. Equip.</b>	<b>Telecom</b>	<b>Shops</b>	<b>Healthcare</b>	<b>Other</b>
<i>Tobin's Q</i>	2.0011	1.5469	1.6745	1.5067	2.0047	3.1249	1.8520	1.9949	3.0265	1.7857
<i>Ret3</i>	0.0145	0.0046	0.0064	-0.0105	0.0087	0.0358	0.0162	0.0136	0.0377	0.0085
<i>Ret6</i>	0.0281	0.0112	0.0116	-0.0213	0.0172	0.0787	0.0322	0.0356	0.0801	0.0209
<i>Ret12</i>	0.0565	0.0311	0.0220	-0.0268	0.0213	0.1673	0.1057	-0.0200	0.1781	0.0655
<i>Ret24</i>	0.0949	-0.0145	0.0513	-0.0478	0.0120	0.3477	0.1664	0.1313	0.2173	0.1619
<i>Rlag3</i>	-0.0802	-0.1459	-0.0959	-0.0640	-0.0889	-0.0304	-0.0387	-0.0650	-0.0225	-0.0552
<i>Rlag6</i>	-0.0687	-0.1252	-0.0652	-0.0614	-0.0785	-0.0442	-0.0452	-0.0085	-0.0086	-0.0558
<i>Rlag12</i>	-0.1266	-0.1817	-0.1668	-0.1613	-0.1562	-0.1693	-0.0450	0.0162	-0.1748	-0.1087
<i>Rlag24</i>	-0.2837	-0.3053	-0.2718	-0.3140	-0.3131	-0.2840	-0.3955	-0.4223	-0.4387	-0.3692
<b>Industry</b>										
<b>Variable</b>	<b>Non-Durs.</b>	<b>Durables</b>	<b>Mfg.</b>	<b>Energy</b>	<b>Chemicals</b>	<b>Bus. Equip.</b>	<b>Telecom</b>	<b>Shops</b>	<b>Healthcare</b>	<b>Other</b>
<i>Tobin's Q</i>	1.7952	1.8487	1.7652	1.6422	2.1849	3.5728	2.4325	1.8125	3.5368	2.3978
<i>Ret3</i>	0.0084	-0.0143	-0.0059	-0.0035	-0.0010	0.0114	0.0032	0.0027	0.0148	-0.0050
<i>Ret6</i>	0.0044	-0.0290	-0.0127	-0.0026	-0.0056	0.0282	0.0039	0.0034	0.0291	-0.0116
<i>Ret12</i>	0.0117	-0.0528	-0.0276	0.0105	-0.0164	0.1404	0.0038	-0.0015	0.0588	-0.0205
<i>Ret24</i>	0.0495	-0.1063	0.0166	0.1354	-0.0137	0.1669	0.0248	-0.0175	0.1384	-0.0420
<i>Rlag3</i>	0.6282	0.6225	0.5366	0.4714	0.5283	0.5687	0.6101	0.5266	0.5643	0.5319
<i>Rlag6</i>	0.5619	0.5906	0.4238	0.3704	0.5951	0.5998	0.6008	0.5582	0.4651	0.5350
<i>Rlag12</i>	0.4583	0.3777	0.2090	0.3753	0.5066	0.6087	0.3121	0.4865	0.2087	0.1933
<i>Rlag24</i>	0.1702	-0.3047	-0.2538	0.0655	-0.0808	-0.0573	-0.2643	0.0174	-0.2425	-0.3282
<b>Differences</b>										
<b>Variable</b>	<b>Non-Durs.</b>	<b>Durables</b>	<b>Mfg.</b>	<b>Energy</b>	<b>Chemicals</b>	<b>Bus. Equip.</b>	<b>Telecom</b>	<b>Shops</b>	<b>Healthcare</b>	<b>Other</b>
<i>Tobin's Q</i>	<b>0.2059**</b>	<b>-0.3019***</b>	-0.0907	<b>-0.1355**</b>	-0.1802	<b>-0.4479**</b>	<b>-0.5804***</b>	0.1824	<b>-0.5103**</b>	<b>-0.6121***</b>
<i>Ret3</i>	0.0061	<b>0.0188***</b>	<b>0.0123***</b>	-0.0070	<b>0.0097***</b>	<b>0.0245***</b>	<b>0.0130**</b>	<b>0.0109**</b>	<b>0.0229***</b>	<b>0.0135***</b>
<i>Ret6</i>	<b>0.0237**</b>	<b>0.0401***</b>	<b>0.0243***</b>	<b>-0.019**</b>	<b>0.0228**</b>	<b>0.0504***</b>	<b>0.0283**</b>	<b>0.0322***</b>	<b>0.0510***</b>	<b>0.0324***</b>
<i>Ret12</i>	0.0448	<b>0.0840***</b>	<b>0.0495***</b>	<b>-0.0373*</b>	<b>0.0377**</b>	0.0269	<b>0.1019***</b>	-0.0186	<b>0.1192***</b>	<b>0.0860***</b>
<i>Ret24</i>	0.0454	0.0918	0.0347	-0.1832	0.0257	<b>0.1809***</b>	<b>0.1416*</b>	<b>0.1488**</b>	0.0789	<b>0.2038***</b>
<i>Rlag3</i>	<b>-0.7084***</b>	<b>-0.768***</b>	<b>-0.6325***</b>	<b>-0.5355***</b>	<b>-0.6172***</b>	<b>-0.5991***</b>	<b>-0.6488***</b>	<b>-0.5915***</b>	<b>-0.5867***</b>	<b>-0.5871***</b>
<i>Rlag6</i>	<b>-0.6305***</b>	<b>-0.7158***</b>	<b>-0.4890***</b>	<b>-0.4318***</b>	<b>-0.6736***</b>	<b>-0.6440***</b>	<b>-0.6460***</b>	<b>-0.5667***</b>	<b>-0.4737***</b>	<b>-0.5908***</b>
<i>Rlag12</i>	<b>-0.5850***</b>	<b>-0.5594***</b>	<b>-0.3758***</b>	<b>-0.5366***</b>	<b>-0.6628***</b>	<b>-0.7780***</b>	<b>-0.3571***</b>	<b>-0.4703***</b>	<b>-0.3835***</b>	<b>-0.3019***</b>
<i>Rlag24</i>	<b>-0.4540***</b>	-0.0006	-0.0180	<b>-0.3795***</b>	<b>-0.2323***</b>	<b>-0.2268***</b>	<b>-0.1313***</b>	<b>-0.4397***</b>	<b>-0.1962***</b>	-0.0410

Panel B		Targets									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	1.7797	1.4307	1.4572	1.4217	1.9442	2.1227	1.7446	1.3540	2.6632	1.4649	
<i>Ret3</i>	0.0020	-0.0008	-0.0064	-0.0062	-0.0017	0.0060	0.0046	0.0043	0.0138	-0.0048	
<i>Ret6</i>	0.0028	-0.0033	-0.0132	-0.0134	-0.0038	0.0153	0.0053	0.0059	0.0258	-0.0144	
<i>Ret12</i>	0.0036	-0.0075	-0.0243	-0.0163	-0.0078	0.0127	0.0017	0.0075	0.0586	-0.0254	
<i>Ret24</i>	0.3224	-0.1716	-0.0596	-0.0783	0.1448	-0.0103	0.0311	-0.0094	0.1543	-0.1805	
<i>Rlag3</i>	-0.0602	-0.0721	-0.0641	-0.0855	-0.1078	-0.0159	-0.0541	-0.0599	-0.0309	-0.0817	
<i>Rlag6</i>	-0.1105	-0.0521	-0.0445	-0.0969	-0.0783	-0.0521	-0.0390	-0.0588	-0.0128	-0.0687	
<i>Rlag12</i>	-0.1288	-0.1199	-0.1559	-0.1652	-0.1273	-0.2045	-0.0670	-0.1032	-0.1158	-0.1338	
<i>Rlag24</i>	-0.2874	-0.3118	-0.2931	-0.6261	-0.2563	-0.3032	-0.2929	-0.2760	-0.3104	-0.3054	
		Industry									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	1.7952	1.8487	1.7652	1.6422	2.1849	3.5728	2.4325	1.8125	3.5368	2.3978	
<i>Ret3</i>	0.0084	-0.0143	-0.0059	-0.0035	-0.0010	0.0114	0.0032	0.0027	0.0148	-0.0050	
<i>Ret6</i>	0.0044	-0.0290	-0.0127	-0.0026	-0.0056	0.0282	0.0039	0.0034	0.0291	-0.0116	
<i>Ret12</i>	0.0117	-0.0528	-0.0276	0.0105	-0.0164	0.1404	0.0038	-0.0015	0.0588	-0.0205	
<i>Ret24</i>	0.0495	-0.1063	0.0166	0.1354	-0.0137	0.1669	0.0248	-0.0175	0.1384	-0.0420	
<i>Rlag3</i>	0.6282	0.6225	0.5366	0.4714	0.5283	0.5687	0.6101	0.5266	0.5643	0.5319	
<i>Rlag6</i>	0.5619	0.5906	0.4238	0.3704	0.5951	0.5998	0.6008	0.5582	0.4651	0.5350	
<i>Rlag12</i>	0.4583	0.3777	0.2090	0.3753	0.5066	0.6087	0.3121	0.4865	0.2087	0.1933	
<i>Rlag24</i>	0.1702	-0.3047	-0.2538	0.0655	-0.0808	-0.0573	-0.2643	0.0174	-0.2425	-0.3282	
		Differences									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	-0.0156	<b>-0.4181***</b>	<b>-0.3080***</b>	<b>-0.2205***</b>	-0.2407***	<b>-1.4501***</b>	<b>-0.6879***</b>	<b>-0.4585***</b>	<b>-0.8736***</b>	<b>-0.9328***</b>	
<i>Ret3</i>	-0.0064	<b>0.0134***</b>	-0.0005	-0.0027	-0.0007	<b>-0.0054**</b>	0.0015	0.0016	-0.0010	0.0002	
<i>Ret6</i>	-0.0016	<b>0.0257***</b>	-0.0005	<b>-0.0108*</b>	0.0018	<b>-0.0129***</b>	0.0014	0.0025	-0.0033	-0.0028	
<i>Ret12</i>	-0.0081	<b>0.0455**</b>	0.0033	-0.0268	0.0086	<b>-0.1277***</b>	-0.0021	0.0089	-0.0002	-0.0049	
<i>Ret24</i>	0.2729	-0.0653	-0.0762	<b>-0.2137***</b>	0.1585	<b>-0.1772***</b>	0.0063	0.0081	0.0160	-0.1386	
<i>Rlag3</i>	<b>-0.6884***</b>	<b>-0.6946***</b>	<b>-0.6007***</b>	<b>-0.5569***</b>	<b>-0.6361***</b>	<b>-0.5846***</b>	<b>-0.6642***</b>	<b>-0.5865***</b>	<b>-0.5951***</b>	<b>-0.6136***</b>	
<i>Rlag6</i>	<b>-0.6724***</b>	<b>-0.6427***</b>	<b>-0.4682***</b>	<b>-0.4672***</b>	<b>-0.6734***</b>	<b>-0.652***</b>	<b>-0.6398***</b>	<b>-0.6170***</b>	<b>-0.4779***</b>	<b>-0.6037***</b>	
<i>Rlag12</i>	<b>-0.5871***</b>	<b>-0.4977***</b>	<b>-0.3649***</b>	<b>-0.5405***</b>	<b>-0.6339***</b>	<b>-0.8131***</b>	<b>-0.3791***</b>	<b>-0.5897***</b>	<b>-0.3245***</b>	<b>-0.3271***</b>	
<i>Rlag24</i>	<b>-0.4576***</b>	-0.0070	-0.0393	<b>-0.6917***</b>	<b>-0.1755***</b>	<b>-0.2460***</b>	-0.0286	<b>-0.2934***</b>	<b>-0.0679*</b>	0.0228	

Panel C		Bidders									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	2.0011	1.5469	1.6745	1.5067	2.0047	3.1249	1.8520	1.9949	3.0265	1.7857	
<i>Ret3</i>	0.0145	0.0046	0.0064	-0.0105	0.0087	0.0358	0.0162	0.0136	0.0377	0.0085	
<i>Ret6</i>	0.0281	0.0112	0.0116	-0.0213	0.0172	0.0787	0.0322	0.0356	0.0801	0.0209	
<i>Ret12</i>	0.0565	0.0311	0.0220	-0.0268	0.0213	0.1673	0.1057	-0.0200	0.1781	0.0655	
<i>Ret24</i>	0.0949	-0.0145	0.0513	-0.0478	0.0120	0.3477	0.1664	0.1313	0.2173	0.1619	
<i>Rlag3</i>	-0.0802	-0.1459	-0.0959	-0.0640	-0.0889	-0.0304	-0.0387	-0.0650	-0.0225	-0.0552	
<i>Rlag6</i>	-0.0687	-0.1252	-0.0652	-0.0614	-0.0785	-0.0442	-0.0452	-0.0085	-0.0086	-0.0558	
<i>Rlag12</i>	-0.1266	-0.1817	-0.1668	-0.1613	-0.1562	-0.1693	-0.0450	0.0162	-0.1748	-0.1087	
<i>Rlag24</i>	-0.2837	-0.3053	-0.2718	-0.3140	-0.3131	-0.2840	-0.3955	-0.4223	-0.4387	-0.3692	
		Targets									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	1.7797	1.4307	1.4572	1.4217	1.9442	2.1227	1.7446	1.3540	2.6632	1.4649	
<i>Ret3</i>	0.0020	-0.0008	-0.0064	-0.0062	-0.0017	0.0060	0.0046	0.0043	0.0138	-0.0048	
<i>Ret6</i>	0.0028	-0.0033	-0.0132	-0.0134	-0.0038	0.0153	0.0053	0.0059	0.0258	-0.0144	
<i>Ret12</i>	0.0036	-0.0075	-0.0243	-0.0163	-0.0078	0.0127	0.0017	0.0075	0.0586	-0.0254	
<i>Ret24</i>	0.3224	-0.1716	-0.0596	-0.0783	0.1448	-0.0103	0.0311	-0.0094	0.1543	-0.1805	
<i>Rlag3</i>	-0.0602	-0.0721	-0.0641	-0.0855	-0.1078	-0.0159	-0.0541	-0.0599	-0.0309	-0.0817	
<i>Rlag6</i>	-0.1105	-0.0521	-0.0445	-0.0969	-0.0783	-0.0521	-0.0390	-0.0588	-0.0128	-0.0687	
<i>Rlag12</i>	-0.1288	-0.1199	-0.1559	-0.1652	-0.1273	-0.2045	-0.0670	-0.1032	-0.1158	-0.1338	
<i>Rlag24</i>	-0.2874	-0.3118	-0.2931	-0.6261	-0.2563	-0.3032	-0.2929	-0.2760	-0.3104	-0.3054	
		Differences									
Variable	Non-Durs.	Durables	Mfg.	Energy	Chemicals	Bus. Equip.	Telecom	Shops	Healthcare	Other	
<i>Tobin's Q</i>	0.2214	0.1162	<b>0.2173***</b>	0.0850	0.0605	<b>1.0023***</b>	0.1075	<b>0.6409***</b>	<b>0.3633***</b>	<b>0.3207***</b>	
<i>Ret3</i>	<b>0.0125**</b>	0.0054	<b>0.0128***</b>	-0.0043	<b>0.0104*</b>	<b>0.0299</b>	0.0115	0.0093	<b>0.0239***</b>	<b>0.0133***</b>	
<i>Ret6</i>	<b>0.0253**</b>	0.0145	<b>0.0249***</b>	-0.0079	<b>0.0210*</b>	<b>0.0633***</b>	<b>0.0269*</b>	<b>0.0300**</b>	<b>0.0542***</b>	<b>0.0352***</b>	
<i>Ret12</i>	0.0529	0.0386	<b>0.0463***</b>	-0.0105	0.0291	<b>0.1546***</b>	<b>0.1040**</b>	-0.0275	<b>0.1195***</b>	<b>0.0909***</b>	
<i>Ret24</i>	-0.2275	0.1571	<b>0.1109***</b>	0.0305	-0.1328	<b>0.3580***</b>	0.1353	<b>0.1407*</b>	0.0630	<b>0.3424**</b>	
<i>Rlag3</i>	-0.0200	<b>-0.0739**</b>	<b>-0.0319***</b>	0.0215	0.0189	-0.0145	0.0155	-0.0051	0.0084	0.0264	
<i>Rlag6</i>	0.0419	-0.0731	-0.0207	0.0354	-0.0002	0.0079	-0.0062	<b>0.0503*</b>	0.0042	0.0129	
<i>Rlag12</i>	0.0021	-0.0618	-0.0109	0.0040	-0.0290	0.0351	0.0220	<b>0.1195*</b>	<b>-0.0590*</b>	0.0251	
<i>Rlag24</i>	0.0037	0.0065	0.0214	0.3121	-0.0568	0.0192	-0.1027	-0.1463	<b>-0.1283**</b>	-0.0638	

**Table 5**

**Univariate Analysis of Valuation Metrics for Bidders and Matches**

The following table presents the firm characteristics for bidders, targets and a control sample matched on industry *Size* and *Tobin's Q*. Matching firms must be listed on both the CRSP and Compustat databases, excluding ADRs, to be included in the sample. Firms are also required to have at least five year's of monthly return data available on CRSP to ensure a sufficient number of observations for the analysis. The 4,894 bidders and targets from the initial sample are excluded as possible matches. The data is for the year prior to the announcement date. The first rows display the means for, bidders, targets, their industries and their differences. The second rows present the t-values from tests on the means values and their differences. Variables and test statistics in bold are significant at the 1%, 5% or 10% level, represented by \*\*\*, \*\* and \*, respectively.

Variable	Bidder	Match	Difference	Target	Match	Difference
	Mean	Mean		Mean	Mean	
<i>Ret3</i>	<b>0.0156</b>	<b>0.0095</b>	<b>0.0061</b>	0.0011	<b>0.0052</b>	<b>-0.0041</b>
	<b>13.27***</b>	<b>7.52***</b>	<b>3.50***</b>	0.91	<b>4.60***</b>	<b>-2.56***</b>
<i>Ret6</i>	<b>0.0339</b>	<b>0.0188</b>	<b>0.0151</b>	0.0013	<b>0.0098</b>	<b>-0.0086</b>
	<b>13.33***</b>	<b>6.25***</b>	<b>3.67***</b>	0.48	<b>4.10***</b>	<b>-2.52**</b>
<i>Ret12</i>	<b>0.0717</b>	<b>0.0460</b>	<b>0.0257</b>	0.0004	<b>0.0228</b>	<b>-0.0224</b>
	<b>9.54***</b>	<b>5.75***</b>	<b>2.32**</b>	0.06	<b>4.07***</b>	<b>-2.82***</b>
<i>Ret24</i>	<b>0.1456</b>	<b>0.0908</b>	<b>0.0548</b>	-0.0068	-0.0022	-0.0046
	<b>5.20***</b>	<b>4.32***</b>	<b>1.86*</b>	-0.24	-0.07	-0.10
<i>Rlag3</i>	<b>-0.0623</b>	<b>-0.0668</b>	0.0045	<b>-0.0557</b>	<b>-0.0653</b>	0.0096
	<b>-13.54***</b>	<b>-13.71***</b>	0.68	<b>-12.02***</b>	<b>-14.03***</b>	1.50
<i>Rlag6</i>	<b>-0.0520</b>	<b>-0.0618</b>	0.0098	<b>-0.0571</b>	<b>-0.0701</b>	0.0130
	<b>-8.82***</b>	<b>-10.03***</b>	1.14	<b>-9.73***</b>	<b>-11.81***</b>	1.58
<i>Rlag12</i>	<b>-0.1376</b>	<b>-0.1273</b>	-0.0103	<b>-0.1457</b>	<b>-0.1632</b>	0.0175
	<b>-15.48***</b>	<b>-14.82***</b>	-0.90	<b>-16.51***</b>	<b>-19.18***</b>	1.56
<i>Rlag24</i>	<b>-0.3284</b>	<b>-0.3568</b>	0.0284	<b>-0.3237</b>	<b>-0.3580</b>	0.0342
	<b>-15.18***</b>	<b>-16.85***</b>	1.00	<b>-14.94***</b>	<b>-16.59***</b>	1.18

**Table 6**

**Logistic Regressions on the Likelihood of Being a Bidder**

The following table presents the results of the logistic analysis on the likelihood of being a bidder relative to the valuation measures and control variables. The dependent variable is equal to one if the firm is a bidder; zero if it is a non-bidding matching firm. Firms are matched on industry, Size and Tobin's Q. A. Matching firms must be listed on both the CRSP and Compustat databases, excluding ADRs, to be included in the sample. Firms are also required to have at least five year's of monthly return data available on CRSP to ensure a sufficient number of observations for the analysis. The 4,894 bidders and targets from the initial sample are excluded as possible matches. The coefficients represent the marginal change in the probability that a firm will be a bidder for a one unit increase in the independent variable. The second rows list the chi-square test statistic. The model fit statistics are listed at the bottom of the columns. Variables and test statistics in bold are significant at the 1%, 5% or 10% level, represented by \*\*\*, \*\* and \*, respectively.

Panel A Variable	Bidders/Non-Bidders			
	Coefficient	Coefficient	Coefficient	Coefficient
<i>Intercept</i>	0.0175	0.0107	0.0016	0.0114
	1.41	0.59	0.01	0.62
<i>Debt-to-Equity</i>	-0.0020	-0.0022	-0.0023	-0.0023
	0.76	0.82	0.86	0.86
<i>Cash</i>	<b>-0.1915</b>	<b>-0.2122</b>	<b>-0.1715</b>	<b>-0.1272</b>
	<b>6.24***</b>	<b>7.73***</b>	<b>5.27**</b>	<b>2.98*</b>
<i>Ret3</i>	<b>1.1130</b>			
	<b>14.41***</b>			
<i>Rlag3</i>	0.0964			
	1.73			
<i>Ret6</i>		<b>0.6505</b>		
		<b>23.42***</b>		
<i>Rlag6</i>		0.0454		
		0.71		
<i>Ret12</i>			<b>0.1979</b>	
			<b>15.02***</b>	
<i>Rlag12</i>			-0.0404	
			1.03	
<i>Ret24</i>				<b>0.0415</b>
				<b>5.71***</b>
<i>Rlag24</i>				0.0099
				0.33
$R^2$	0.0177	0.0132	0.0095	0.0045
<i>Max. Rescaled R<sup>2</sup></i>	0.0236	0.0176	0.0127	0.0060

**Table 7**  
**Analysis of Returns**

The following table presents the returns around the prior to and following acquisitions. Panel A presents the cumulative abnormal returns (CARs) for the five-day event window [-2, 2] surrounding the announcement date, where time zero is the announcement date. CARs are calculated using the standard market model and the CRSP equal and value weighted portfolios. Panel B presents the raw cumulative returns for various holding periods prior to and following the acquisitions. Pre-acquisition returns are those prior to the announcement dates; post-acquisition returns are those following the effective date of the transactions; pre- and post-acquisition returns are the sum of the two periods. Differences between the bidders and their matches and the merged firm and their combined non-bidder and non-target matches are considered. The first rows display the means for bidders (or merged firms), their matches firms and the differences. The second rows present the t-values from the tests on the mean values and their differences. Variables and test statistics in bold are significant at the 1%, 5% or 10% level, represented by \*\*\*, \*\* and \*, respectively.

Panel A	Equal Weight			Value Weight		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
CAR	0.0021	0.0058	0.0751	-0.0009	-0.0002	0.0720
	0.51			-0.24		
	0.26			0.06		
% +	0.5405			0.5000		

  

Panel B	Pre-Acquisition			Post-Acquisition			Pre- & Post		
	Bidders	Matches		Merged	Matches		Merged	Matches	
Holding Period	Mean	Mean	Difference	Mean	Mean	Difference	Mean	Mean	Difference
3-Month	<b>0.0627</b>	<b>0.0381</b>	<b>0.0246</b>	<b>0.0815</b>	<b>0.1049</b>	-0.0234	<b>0.1443</b>	<b>0.1431</b>	0.0012
	<b>8.15***</b>	<b>4.88***</b>	<b>2.27**</b>	<b>6.65***</b>	<b>8.61***</b>	-1.38	<b>9.91***</b>	<b>9.79***</b>	0.08
6-Month	<b>0.1289</b>	<b>0.0801</b>	<b>0.0488</b>	<b>0.1499</b>	<b>0.1892</b>	-0.0393	<b>0.2788</b>	<b>0.2694</b>	0.0095
	<b>12.36***</b>	<b>7.50***</b>	<b>3.36***</b>	<b>8.61***</b>	<b>10.97***</b>	-1.64	<b>13.67***</b>	<b>13.13***</b>	0.37
1-Year	<b>0.2811</b>	<b>0.1792</b>	<b>0.1019</b>	<b>0.2800</b>	<b>0.3349</b>	-0.0548	<b>0.5611</b>	<b>0.5141</b>	0.0470
	<b>17.09***</b>	<b>10.43***</b>	<b>4.52***</b>	<b>11.09***</b>	<b>13.43***</b>	-1.61	<b>18.73***</b>	<b>16.87***</b>	1.23
2-Year	<b>0.5314</b>	<b>0.3622</b>	<b>0.1692</b>	<b>0.4799</b>	<b>0.5799</b>	-0.1001	<b>1.0112</b>	0.9421	0.0691
	<b>22.35***</b>	<b>14.27***</b>	<b>5.37***</b>	<b>13.87***</b>	<b>17.14***</b>	-2.21**	<b>24.29***</b>	<b>22.13***</b>	1.41
3-Year	<b>0.7772</b>	<b>0.5656</b>	<b>0.2116</b>	<b>0.6805</b>	<b>0.7924</b>	-0.1119	<b>1.4577</b>	<b>1.3579</b>	<b>0.0998</b>
	<b>27.22***</b>	<b>19.93***</b>	<b>5.87***</b>	<b>16.89***</b>	<b>20.17***</b>	-2.19**	<b>28.52***</b>	<b>25.79***</b>	<b>1.78*</b>
5-Year	<b>1.2238</b>	<b>0.9683</b>	<b>0.2555</b>	<b>1.1063</b>	<b>1.3706</b>	-0.2643	<b>2.3301</b>	<b>2.3389</b>	-0.0088
	<b>31.32***</b>	<b>22.71***</b>	<b>5.60***</b>	<b>20.57***</b>	<b>27.08***</b>	-4.27***	<b>31.45***</b>	<b>31.55***</b>	-0.06

