

**The Effects of Cash and Stock Consideration on Market Response to Acquisitions of
Private and Public Firms**

by

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Abstract

This paper investigates the combined effects of the method of payment, cash or stock, and the type of target firm, public or private, on merger announcement returns for US public acquirers between 1994 to 2015. We break down the sample into deciles and quartiles based on the fraction of cash in the offer amount in order to assess which financing mix is most welcomed by the market, resulting in significant positive immediate abnormal returns (BHAR). For both private and public acquisitions, we find that the higher the cash proportion, the higher the BHAR, for both private and public targets, but more so for public targets. This relation between the cash proportion and returns is monotonic. The returns for fully stock-financed acquisitions of public targets are significantly negative, in contrast to studies based on earlier sample periods. In regressions of BHARs for cash quartiles samples, we find that quartiles with relatively more cash have significantly greater returns for both private and public targets.

Keywords: Mergers & Acquisitions (M&A); Public Targets; Private Targets; Cash and Stock Payment Methods

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1: Introduction

Mergers and Acquisitions (M&A) deals are viewed as one of the most fundamental events in the world of Corporate Finance and these deals pose huge implications on market participants and the general economy. Large Corporations turn to M&A in order to create synergies (through cost reduction and revenue enhancement), grow externally, increase market share, diversify and acquire new capabilities and resources. The payments towards acquisitions can be made using cash, stock, convertible instruments or some other financial instrument, but in most cases its financed through cash, stock or a mix of both. Studies indicate that on average, the stock price of the acquirer goes down while that of the target goes up. However, this is not always the case. We find that the returns for acquirer are different based on the nature of the establishment of the company – private or public.

Private firms are acquired more in number than the publicly traded companies. The impact of the acquisitions on the stock price depends on the expectations of the market. Many studies have been done to measure the returns for the acquirer as well as the target. Some studies have also been done to analyze if the acquirer favours acquiring a public or a private company. Capron and Shen (2005) found that acquirer returns are significantly higher when buying private firms than public firms and that acquirers are less likely to acquire private targets when they face information asymmetry because of their limited ability to value the target's assets. Faccio, McConnell, and Stolin (2006) examined the returns of listed and unlisted targets in 17 Western European countries over the interval 1996-2001 and found that acquirers of listed targets earn an insignificant average abnormal return of -0.38%, while acquirers of unlisted targets earn a significant average abnormal return of 1.48%.

This indicates that announcement returns tend to be positive after acquiring private targets as opposed to public targets. The market might favour acquisition of the target companies for the following reasons: the acquirer may capture a private firm discount (Koeplin, Sarin, and Shapiro, 2000), followed by an illiquidity discount that makes private, less liquid firms less attractive and thus less richly priced (Fuller, et al, 2002; Koeplin, 2000). Since, the acquirer can buy the private firms at a discount, the market reacts positively when an acquirer announces an offer to acquire a private company. On the other hand, most of the information for the public company is available, which also has stricter reporting norms as compared to the private companies. The market consensus is that the acquirer usually overpays or over-estimates the synergies when they acquire a public firm. This causes the acquirer's stock price to drop, and thus there is a negative return when an acquirer announces it plans to buy a public firm.

However, these results do not take into consideration how the acquisition has been financed. If the acquirer is completely certain that the acquisition will lead to more profitability or reduced costs, then the acquirer will prefer to pay cash to acquire the target. This enables the acquirer to absorb the complete upside of the acquisition. In contrast, if the acquirer is unsure about the acquisition, they will prefer to pay using stock or a mix of stock and cash. In this case, the target's shareholders share the upside as well as the downside.

Little or no research has been done in order to find out whether and how the returns for the acquirer's stock vary with both the type of target firm and the method of payment for the acquisition. Our paper tries to distinguish the returns for the acquirer when it acquires either a public or a private company using different combinations of cash and stock. This paper

contributes to the M&A literature by focusing on the impact of financing decisions on merger announcement returns for public acquirers, as no prior study considered this for the full range of financing options, either with or without relation to the target type.

We find that the two-day abnormal returns for the acquirer are positive when the acquirer acquires a private company irrespective of the source of financing. On the other hand, the abnormal returns are different for the acquirer when the target is public. When the public targets are acquired through 100% stock, the average return for the acquirer is -1.95%, while private targets elicit a positive abnormal return of 2.42%. However, the announcement returns are positive for both private and public acquisitions financed fully with cash (0.89% and 0.57% for private and public firms, respectively). Further, we find that the returns are increasing monotonically with the cash fraction of merger financing in case of public targets. There is no “sweet spot” merger financing mix between the fully stock and fully cash financing extremes that is welcomed by the market with particularly high returns. Our findings of positive returns for public targets acquired with cash and the monotonic relation with the cash fraction of the offer are new to the literature.

Our suggested rationale for the different returns for private and public targets with different financing methods is mainly driven by three channels: tax implications, the block holder effect, and the valuation of the acquirer’s stock influencing the financing decision. Private target owners are faced with tax implications when selling out to public firms and receiving cash or stock in exchange for their ownership. As per Poulsen and Stegemoller (2006), 36.5% of private sellers mention favourable tax consequences as their reason for selling out to public bidders through stock consideration, which allows the sellers to optimally time their tax liability. As a result, the owners of a private target may be willing to accept

a lower price for their firm if paid in stock rather than cash, resulting in a greater net value of the acquisition and, consequently, more positive market reaction for stock than cash offers.

Chang (2002) reports significant positive announcement returns when the acquisition creates a block holder in the bidder's ownership structure. The creation of an outside block holder increases firm value as a result of more efficient monitoring (Chang 2002; Fuller, Netter, and Stegemoller, 2002). When stock is used a method of payment for large private targets, a block holder is more likely to be created, leading to more positive returns for stock than cash acquisitions of private firms. We note that these two effects have little relevance for public targets.

The third channel influencing market reaction to mergers, relevant for both private and public targets, is that acquirers tend to offer large stock consideration when their stock is overvalued and cash when their stock is undervalued or correctly valued. For private targets, this effect counteracts the tax and block holder effects, reducing differences between returns for fully stock and fully cash mergers. For public targets, the third effect is the only one, resulting in a negative reaction for stock offers and positive reaction for cash offers.

The subsequent sections of the paper are organized as follows: Section 2 entails literature review which explains empirical evidences on acquirer abnormal returns. Section 3 illustrates data utilized to derive results. Section 4 presents the research methodology used as well as results obtained and discusses the analysis based on the findings; and Section 5 concludes the paper.

2: Literature Review

2.1.1 Empirical research on Acquirer returns post Public Target Acquisition

Mergers and acquisitions deals are both lucrative and complex in nature. Efficient market hypothesis states that the stock prices reflect all information and it is impossible to consistently gain an alpha. Many studies have been done to estimate the immediate as well as the long-term returns for both the acquirer and the target. These findings contradict the claims of efficient market hypothesis. On average, the stock price of the acquirer goes down while that of the target goes up after a merger or an acquisition announcement. After digging deeper, studies found that the market reacts differently to the mergers and acquisition announcements based on the incorporation of the target firm. If the target is a private firm, the stock price of the acquirer goes up. On the other hand, if the target is a public company, the stock price of the acquirer goes down. Studies further investigate the immediate reactions to various mix of financing for the merger or an acquisition.

2.1.2 Returns for the acquirer and the target after a merger or an acquisition:

The literature investigating the immediate stock market reactions to the mergers and acquisition announcements is vast (see review in Eckbo, 2008). The studies typically find that the target firms experience significant positive abnormal returns, while the acquiring firms experience negative abnormal returns on day of the announcement.

2.1.3 Returns for the acquirer based on the incorporation of the target firm:

Faccio, McConnell, and Stolin (2006) researched on the returns for the acquirer when they acquired a private or a public firm. They find that on average, acquirers of listed targets

earned an insignificant or rather a slightly negative return of -0.38%, while acquirers of unlisted targets earn a significant average abnormal return of 1.48%. Sarin, Koeplin, and Shapiro (2000) found that investment bankers usually apply a private company discount compared to an otherwise similar public company. This is applied to compensate for the reduced value due to the lack of liquidity of the private firms. The illiquidity discount (Fuller, Netter, and Stegemoller, 2002) could go as high as 20% - 30% as compared to an otherwise similar public company.

2.1.4 Returns for the acquirer based on the financing of the M&A:

Fuller, Netter, and Stegemoller (2002), conducted a study on the returns to the acquirer when the acquisition is completely financed through cash or through stock. They found that acquisition of public targets resulted in insignificant bidder returns for cash but significantly negatively returns when they were financed through stock. On the other hand, the returns to the acquirer were positive irrespective of the mode of payment. The limitation of this study relative to ours is that it bundles all financing proportions from 1% to 99% cash into a single category, while we pay special attention to the spectrum of cash percentages into deciles and quartiles and limits the sample to acquirers with five or more acquisitions. We also consider a much longer and more recent sample period than this study.

Many studies have also been conducted to estimate the calendar time returns to find out the long-term performance of M&A activities. However, there have been contrasting findings depending on the time the study was conducted. Franks, Harris, and Titman (1991) used a sample of 399 acquisitions from the period (1975-84). They adjusted for the systematic risk and size and concluded that there is a positive abnormal gain for the

acquirer in case of small transactions. On the other hand, Loderer and Martin (1992) had a sample size of 459 between 1965 and 1986. They found that the acquirer had a negative but insignificant return. André, Kooli, and L'Her (2004) took into consideration the M&A activities from 1980-2000 and found out that the acquirers significantly underperformed over the three-year period.

These studies show that the returns for the acquirer is negative in both short and term long term. It may be the case because the acquirer overpays for the target's assets. It is also quite possible that the acquirer overestimates the synergies as a result of the acquisition. This may be the reason that the market reacts negatively to the M&A deal announcement by the acquirer.

The acquisition is usually financed using cash or stock. Loughran and Vijh (1997) investigated if the method of payment would lead to different results for the acquirer. They report that the acquirer shareholders suffer a negative return if the acquisition is financed completely through equity. On the other hand, the acquirer experiences significant positive abnormal return if the acquisition is entirely financed through cash. This indicates that we need to look at the mode of financing along with the M&A announcement to comprehend the perceived value.

3: Data

We collect the successful US Mergers and Acquisitions data from 1994 - 2015 using the Securities Data and Corporation's (SDC) U.S. M&A database. We divide the target into 2 categories: private firms and public firms by using a variable in the SDC data. To be included in the sample, the following three conditions must have been satisfied:

- The target firm is a US public or a private firm
- The acquiring firm is publicly traded in the US stock exchange
- The target firms are only acquired through stock, cash or combination of both.

We obtained the additional data to carry out our research using various platforms. The immediate reactions are taken from the Centre for Research in Security Prices (CRSP).

Tables I and II summarize the number of M&A transaction per year, as well as the minimum, maximum and the mean returns (immediate reaction) to the merger announcement.

Table I: Descriptive Statistics for US M&A deals – Private Acquisitions

BHAR is the abnormal buy-and-hold return for the announcement day and the following day estimated based on the three-factor Fama-French (1993) and Carhart (1997) model.

Merger Year	N (Observations)	Announcement BHARs			
		Mean	Std Dev	Minimum	Maximum
1994	583	0.0179225	0.0851909	-0.2069455	0.8602461
1995	549	0.0154135	0.1000555	-0.3538565	1.7063291
1996	742	0.0315572	0.1129253	-0.4428870	0.7630390
1997	954	0.0167092	0.1291030	-0.4215292	3.1691142
1998	857	0.0222600	0.1049683	-0.3819625	0.9953475
1999	673	0.0200867	0.1825835	-0.3421741	3.5866069
2000	678	0.0090595	0.1536978	-0.7048957	0.7196941
2001	318	0.0128847	0.1040220	-0.2412674	1.1140742
2002	290	0.0152962	0.1063517	-0.3494619	0.8926519
2003	269	0.0203289	0.1718644	-0.2515836	2.1923525
2004	386	0.0014386	0.0696319	-0.7562320	0.4221795
2005	412	0.0084244	0.0605452	-0.2351043	0.6099727
2006	406	0.0099560	0.0548273	-0.1713730	0.5466543

Table I - Continued

Merger Year	N (Observations)	Announcement BHARs			
		Mean	Std Dev	Minimum	Maximum
2007	365	0.0101946	0.0717534	-0.2795012	0.5944046
2008	231	0.0175818	0.1067188	-0.4851859	0.8314840
2009	129	0.0075107	0.0736221	-0.2428049	0.5031557
2010	187	0.0061773	0.0557712	-0.1542402	0.3998264
2011	224	0.0021694	0.0663397	-0.3139938	0.3916410
2012	209	0.0155559	0.0751839	-0.2381078	0.6286918
2013	230	0.0079619	0.0459115	-0.2478817	0.2686559
2014	294	0.0155407	0.0655775	-0.3142140	0.3761579
2015	67	0.0092701	0.0544051	-0.2670515	0.1754991

Table II: Descriptive Statistics for US M&A deals – Public Acquisitions

For the public acquisition announcements, reported BHAR are mostly negative given the negative market reaction to public acquisition as opposed to private acquisitions.

Merger Year	N (Observations)	Announcement BHARs			
		Mean	Std Dev	Minimum	Maximum
1994	309	0.000262442	0.1374945	-0.2502402	2.1686212
1995	358	-0.0110920	0.0651381	-0.3125428	0.2816739
1996	315	-0.0038686	0.0577028	-0.2588038	0.3838853
1997	425	-0.0070601	0.0653732	-0.4075579	0.2741987
1998	438	-0.0067142	0.0915257	-0.3360168	0.6210511
1999	397	-0.0139069	0.0932798	-0.3780264	0.9767108
2000	384	-0.0281638	0.0998195	-0.4542689	0.3462969
2001	278	-0.0018067	0.1530530	-0.3990227	1.9241448
2002	173	-0.0145442	0.0733811	-0.2490368	0.2494796
2003	195	-0.0221586	0.0769018	-0.2872881	0.3006136
2004	192	-0.0192507	0.0631584	-0.2272834	0.3165131
2005	180	-0.0202788	0.0536329	-0.2956344	0.1340950
2006	176	-0.0134847	0.0593969	-0.2668698	0.2688046
2007	197	-0.0102625	0.0523964	-0.2657714	0.1385047
2008	126	-0.0237527	0.0786249	-0.3009463	0.2732211
2009	100	-0.0055012	0.0770038	-0.1939408	0.2757783
2010	115	-0.0013779	0.0589982	-0.1821559	0.2202122
2011	84	-0.0039384	0.1217626	-0.3500550	0.8320136
2012	109	0.0026104	0.0868384	-0.2104717	0.3305894
2013	105	0.0097002	0.0561992	-0.1640352	0.2699925
2014	146	0.0140327	0.0551670	-0.1736966	0.2226402
2015	31	0.0217368	0.0715589	-0.1138636	0.1588939

There are approximately twice the number of M&A activities for private firm as compared to a public firm. Our sample includes 9,053 unique M&A announcements where the target is a private firm. On the other hand, there are 4,842 M&A announcements where the target is a publicly traded firm.

The number of M&A transactions per year, where the target is either public or private, have drastically reduced after the 2008 financial crisis. From the data set it is quite evident that the mean returns for an acquirer by acquiring a private target is usually positive while on average it has been negative if the target is a publicly traded firm.

4: Methodology and Results

4.1.1 Methodology

In this section, we carry out univariate comparisons for private and public acquisitions using different samples of cash/stock considerations. We examine the abnormal return using Buy-and-Hold Abnormal Return strategy (BHAR) for immediate market reactions, i.e., days (0,1). The event window return is typically split into two parts: the immediate market reaction and the long-term reaction, but in this case, we only look at the immediate market reaction in order to assess the stand-alone impact of cash/stock financing on abnormal returns as opposed to time horizon effect on BHAR.

The reason for using the two-day return, rather than just return on day 0, is that we may not know the exact time of the event. For instance: if the merger event is in the morning (before trading starts) or during trading hours, day 0 return is the immediate reaction; if the merger event is in the evening (after hours), then day 1 return is the first return following the event. Therefore, we combine days 0 and 1 returns as the event return. The returns are calculated in the SAS¹ program by Eventus-WRDS².

An estimation window for the abnormal return model is 250 days, ending 46 days before the announcement date, and excluding the events if the estimation window has less than 20 days of returns.

¹ SAS is a statistical software suite for advanced analytics developed by SAS Institute

² Wharton Research Data Services

We estimate the abnormal return over a period (t_1, t_2) using BHAR, which compounds daily Abnormal Returns (AR) over time and then over events:

$$BHAR_i(t_1, t_2) = (1+AR_{it1}) (1+AR_{it1+1}) \dots(1+AR_{it2})$$

Then:

$$BHAR(t_1, t_2) = \sum_{i=1}^N BHAR_i(t_1, t_2) \text{ tested against } 0, \text{ where } i \text{ are the merger events.}$$

Using the event-time approach, we calculate the returns from the event date (day 0) which calculates the BHAR for each event and Value-Weighted-Average BHARs across events. This approach calculates the average return of investing in each event firm and selling the stock at the end of the holding period. To obtain the expected return when calculating BHARs, we use the 4-factor Fama and French (1993) and Carhart (1997) model³:

$$E(R_{it}|X_t) - r_f = \alpha_i + \beta_{i1}(R_m - r_f) + \beta_{i2}(SMB_t) + \beta_{i3}(HML_t) + \beta_{i4}(UMD_t)$$

where the intercept (α_i) is the 4-factor alpha; The model regresses daily excess returns of event stocks asset over the T-bill rate on intercept and 4-factors used as proxy for market risk factors i.e. daily market excess return (CRSP⁴ value-weighted index) over risk free rate, risk premium for size (SMB), risk premium for book-to-market (HML) and risk premium for momentum (UMD).

SMB is a zero net exposure portfolio that is long on small cap stocks and short on big cap stocks (self-financing portfolio); likewise, HML is also a self-financing zero net exposure portfolio that is long on high book-to-market stocks and short on low book-to-market

³ BHARs based on a multi-factor model can only be used for horizons that are not too long, up to 60-90 days. For longer horizons, BHARs become more correlated across events, and various biases may arise

⁴ Centre for Research in Security Prices

stocks; and UMD is a zero net exposure portfolio that is long on past 12-months best (winners) performing stocks and short on 12-months worst (losers) performing stocks (on NYSE).

In the last section, we carry out a regression analysis to further perform multivariate tests in order to determine the drivers of abnormal returns by regressing public acquirers' announcement returns (BHARs) on different cash/stock proportions. We use different cash/stock consideration portions as our independent variables since this study is exclusively interested in finding whether different forms of financing drive announcement abnormal returns for public acquirers among other drivers.

4.1.2 Results

We divide proportions of cash financing in each merger event into deciles and quartiles samples and report each sample's BHAR, t-stats, number of observations (N) and p-value in *Table III IV, V and VI*. The below tables report abnormal announcement returns (BHARs) for US target acquirers between 1994 – 2015, we examine immediate market reaction [BHAR (0,1)] and the level of significance of each abnormal return.

Table III: BHAR t-test results for public and private acquisitions - Deciles sample

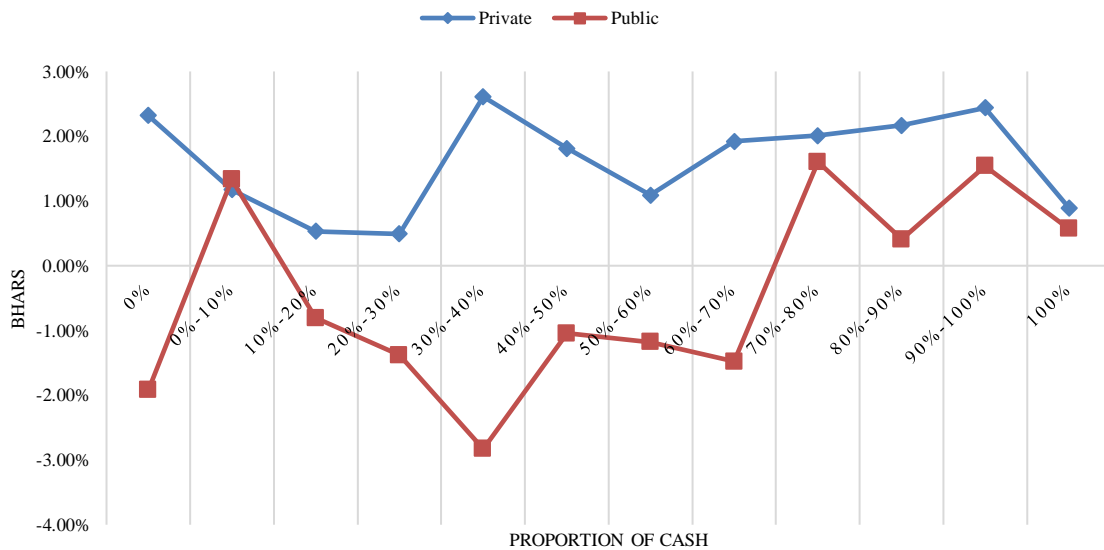
The table reports announcement returns for mergers sorted by the cash fraction of the offer amount (decile cash samples). BHAR (0,1) is the abnormal buy-and-hold return for the announcement day and the following day estimated based on the three-factor Fama-French (1993) and Carhart (1997) model. The t-statistics are for tests of the mean BHARs against zero. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

<i>Cash</i>	<i>Private Targets</i>				<i>Public Targets</i>				
		BHAR	t-stat	p-value	N	BHAR	t-stat	p-value	N
0%		2.32%***	-8.72	<0.0001	3,316	-1.92%***	-9.20	<0.0001	2,431
0% - 10%	Decile 1	1.17%	-1.37	0.1728	141	1.33%	-1.04	0.3058	45
10%-20%	Decile 2	0.53%	-0.77	0.4367	157	-0.81%	-1.19	0.236	87
20%-30%	Decile 3	0.49%	-0.51	0.6094	123	-1.38%*	-1.73	0.085	106
30%-40%	Decile 4	2.61%***	-3.42	0.0008	153	-2.83%***	-5.13	<0.0001	128
40%-50%	Decile 5	1.81%***	-3.02	0.0029	187	-1.04%*	-1.66	0.099	134
50%-60%	Decile 6	1.09%*	-1.82	0.0699	163	-1.18%*	-1.86	0.0655	108
60%-70%	Decile 7	1.92%**	-2.51	0.0131	124	-1.48%*	-1.70	0.0946	45
70%-80%	Decile 8	2.01%***	-2.87	0.0046	182	1.60%	-1.15	0.2585	35
80%-90%	Decile 9	2.17%**	-2.26	0.0254	121	0.41%	-0.26	0.7952	19
90%-100%	Decile 10	2.44%***	-2.74	0.0075	85	1.54%	-0.16	0.8764	8
100%		0.89%***	-8.38	<0.0001	3,842	0.57%***	-3.55	0.0004	1,566

As per *Table III*, for private firms: Decile 4 (i.e. 30-40% cash consideration), the BHAR is statistically significant positive 2.61%, this represents the highest BHAR of all the deciles within the private sample. 100% stock consideration, decile 10, decile 8, decile 5 and 100% cash consideration also show statistically significant positive BHARs at 99% confidence interval, arranged in descending order. Decile 9 and decile 7 are also statistically significant

at 95% confidence interval. However, decile 1, decile 2 and decile 3 for private targets are statistically insignificant. For public targets: only at 100% cash consideration, the BHAR is statistically significant positive 0.57%, other deciles such as decile 1, decile 8, decile 9, and decile 10 also report positive BHARs but all are statistically insignificant. Decile 4 and 100% stock consideration both represent negative BHARs at 1% level of significance, decile 3, decile 5, decile 6 and decile 7 also show negative BHARs at 90% confidence interval.

Figure 1: Public vs Private BHARs - Deciles sample



As per *Figure 1* above, private target acquisitions show consistent positive abnormal returns (BHARs) for all the decile samples and out of which 75% of the sample size show statistically significant positive abnormal returns. On the other hand, public target acquisitions report a negative abnormal return trend (i.e. decile 2 to decile 7), only 4 deciles and 100% cash consideration show positive abnormal return, and out of which the 100% cash consideration is the only statistically significant positive BHAR for public targets acquisitions. This shows the disparity between private and public target acquisitions

as far as announcement abnormal returns are concern from a decile cash proportion sample size perspective as per *Figure 1*.

This result is consistent with papers on market reaction to mergers that reported positive abnormal returns for private acquisition and negative abnormal returns for public acquisitions. However, our findings are different from Fuller, Netter, and Stegemoller (2002) who find that acquisitions of public targets result in insignificant returns for cash or mixed offers.

Table IV: Difference in Mean returns for public and private targets – Deciles sample

The table reports the difference in means announcement returns between private and public acquisitions for mergers sorted by the cash fraction of the offer amount (decile cash samples). BHAR is the abnormal buy-and-hold return for the announcement day and the following day estimated based on the three-factor Fama-French (1993) and Carhart (1997) model. The t-statistics are for tests of the BHAR differences against zero. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

<i>Cash</i>	<i>Sample</i>	<i>BHAR differences: Private Targets minus Public Targets</i>	<i>t-stat</i>	<i>p-value</i>	<i>N</i>
0%	100% Stock	4.25%***	-12.54	<0.0001	3,316
0% - 10%	Decile 1	-0.16%	(-0.10)	0.9184	141
10%-20%	Decile 2	1.35%	-1.39	0.1648	157
20%-30%	Decile 3	1.88%*	-1.5	0.1339	123
30%-40%	Decile 4	5.44%***	-5.79	0.001	153
40%-50%	Decile 5	2.85%***	-3.29	0.0011	187
50%-60%	Decile 6	2.27%***	-2.61	0.0097	163
60%-70%	Decile 7	3.41%***	-2.95	0.0039	124
70%-80%	Decile 8	0.41%	-0.26	0.7922	182
80%-90%	Decile 9	1.75%	-0.95	0.3478	121
90%-100%	Decile 10	0.90%	-0.09	0.9277	85
100%	100% Cash	0.32%*	-1.67	0.0943	3,842

We also carried out a difference in means t-test for deciles samples to verify whether the differences in abnormal returns between private and public acquisitions are significantly different from zero. As shown in *Table IV*, when we compare the two samples (i.e. private minus public BHARs), we see that there is no significant difference between the BHAR's of private and public target at decile 1 (negative return), decile 2, decile 8, decile 9 and

decile 10 (all positive returns) while the rest of the deciles (i.e. 100% stock, 100% cash, decile 3,4,5,6 and 7) report positive significant difference in means at 90% and 99% confidence interval. This demonstrates that difference in BHARs of most decile sample are significantly different from zero which confirms the mirror-image announcement private and public acquisition BHAR trends in *Figure 1*.

Table V: BHAR t-test results for public and private acquisitions - Quartiles sample

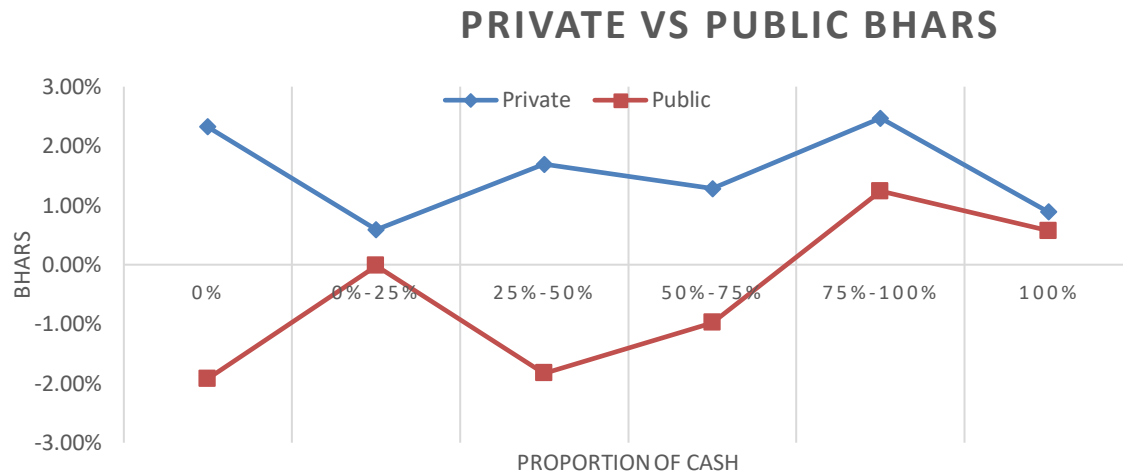
The table reports announcement returns for mergers sorted by the cash fraction of the offer amount (quartile cash samples). BHAR is the abnormal buy-and-hold return for the announcement day and the following day estimated based on the three-factor Fama-French (1993) and Carhart (1997) model. The t-statistics are for tests of the mean BHARs against zero. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

<i>Cash</i>	<i>Sample</i>	<i>Private Targets</i>				<i>Public Targets</i>			
		BHAR	t-stat	p-value	N	BHAR	t-stat	p-value	N
0%	100% stock	2.32%***	-8.72	<0.0001	3,316	-1.92%***	(-9.20)	<0.0001	2,431
0% - 25%	Quartile 1	0.59%	-1.2	0.2289	391	-0.02%	(-0.49)	0.9607	183
25%-50%	Quartile 2	1.69%***	-4.45	<0.0001	471	-1.83%***	(-5.31)	<0.0001	367
50%-75%	Quartile 3	1.28%***	-3.01	0.0028	387	-0.98%**	(-1.99)	0.0473	177
75%-100%	Quartile 4	2.47%***	-4.77	<0.0001	319	1.24%	-0.64	0.5224	44
100%	100% cash	0.89%***	-8.38	<0.0001	3,842	0.57%***	-3.55	0.0004	1,566

As per the quartile samples shown in *Table V*; for private targets: 80% of the BHARs are statistically significant i.e. at 100% cash, 100% stock, quartile 2, quartile 3 and quartile 4 all report significant positive abnormal returns at 99% confidence interval, only quartile 1 reports an insignificant positive BHAR. This private target results are consistent with the private decile samples results on *Table III* where 75% of the BHARs are statistically significant. For public targets: 100% stock, quartile 2 and quartile 3 report statistically significant negative abnormal returns. On the other hand, quartile 1 and quartile 4 show statistically insignificant abnormal returns with negative and positive BHAR respectively.

100 % cash is the only sample that results in significant positive abnormal returns for public targets.

Figure 2 Public vs Private BHARs - Quartile sample:



In Figure 2 above, the positive and negative BHARs trends for private and public acquisitions are consistent with the trends in Figure 1. For the quartile sample figure above, private acquisitions continue to show consistent positive abnormal returns for all quartile samples and out of which is 90% of the sample size show statistically significant abnormal returns. The public target acquisitions on the hand, continue to show negative abnormal return trend even with the quartile samples. All the quartile samples show negative BHARs except for quartile 4 and 100% cash, of which only the latter sample is statistically significant as per Table V. Even with the quartile samples, the disparity in abnormal returns between private and public acquisitions is still clear just as the decile samples. Therefore, both samples are in line with previous literature on announcement returns but only by looking at the overall BHAR results as depicted on Figure 1 and Figure 2 trends.

When we break down M&A deal financing into different proportion of cash and stock considerations (i.e. deciles and quartiles cash considerations), we can see a mix of different

interesting results as far as announcement abnormal returns are concerned, of which the overall results are consistent with previous findings in this area of research, but our paper differs from previous studies in a number of ways. For instance, we find that 100% cash consideration results in positive abnormal returns regardless of the type of target and the higher the cash proportion, the higher the abnormal return for both public and private acquisitions, at least for 60-90% cash (excluding 100% cash).

Table VI: Difference in Mean returns for public and private targets - Quartiles sample

The table reports the difference in means announcement returns between private and public acquisitions for mergers sorted by the cash fraction of the offer amount (quartile cash samples). BHAR is the abnormal buy-and-hold return for the announcement day and the following day estimated based on the three-factor Fama-French (1993) and Carhart (1997) model. The t-statistics are for tests of the mean BHARs against zero. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

<i>Cash</i>		<i>BHAR differences: Private Targets minus Public Targets</i>	<i>t-stat</i>	<i>p-value</i>	<i>N</i>
0%	100% stock	4.25% ***	-12.54	<0.0001	3,316
0% - 25%	Quartile 1	0.62%	-0.83	0.4086	141
25%-50%	Quartile 2	3.53% ***	-6.87	<0.0001	157
<50%	Cash = <50%	2.43% ***	-5.68	<0.0001	123
>50%	Cash = >50%	2.37% ***	-3.68	0.0003	123
50%-75%	Quartile 3	2.27% ***	-3.48	0.0006	123
75%-100%	Quartile 4	1.23%	-0.62	0.5393	85
100%	100% cash	0.32% *	-1.67	0.0943	3,842

We further carried out a difference in means t-test for the quartile sample as well as per *Table VI*. In this case, we see that 75% of the results show positive significant difference in means between private and public acquisitions i.e. 100% stock, quartile 2 and quartile 3 are statistically significant at 99% confidence interval. In this sample, we also include cash at less than and greater than 50% of total deal financing, and both proportions show significant difference in BHARs for private and public acquisitions. Only quartile 1 and quartile 2 show statistically insignificant difference in means. *Table VI* also demonstrates

that the difference in abnormal returns of most quartiles are significantly different from zero, which also confirms the shape of *Figure 1* and *Figure 2* i.e. the mirror-image announcement private and public acquisition BHAR trends.

4.1.3 Regression Analysis

In this section, we perform multivariate tests on the drivers of abnormal returns by regressing acquires' announcement returns (i.e. BHARs) on different proportions of cash/stock considerations (i.e. quartiles cash sample). First, we carry out regression analysis by regressing each of the private and public acquisition BHARs on quartiles samples. We control for target size (i.e. market cap) as well as M&A deal rumour (investor sentiment) since these two variables could potentially have a significant impact on announcement returns. We also eliminate quartile 1 from the explanatory variables as the four quartiles cannot be used simultaneously to avoid singularity of the matrix of explanatory variables. We obtained results for our first regression as per *Table VII*, left-hand side variables are made up of: the intercept, two control variables and three explanatory variables.

Regression Model I:

$$BHAR_i = a_0 + a_1*value + a_{10}*rumour + b_5*Q_2 + b_6*Q_3 + b_7*Q_4$$

As per the regression results on *Table VII*, we report two separate regression analysis results for private and public acquisitions in order to estimate whether each of the three variables on the right-hand side (quartile samples) explain the BHAR of the acquirer. For private acquisitions, quartile 2 and quartile 4 show significant coefficients at 90% and 99% confidence interval respectively. Quartile 3 has no significance on the acquirer's announcement abnormal return for private acquisitions. This result confirms the univariate findings (on *Table V*) where quartile 2 and quartile 4 are significant except for quartile 3

which happens to be insignificant in the multivariate results but significant in the univariate results.

On the other hand, for public acquisitions, the only independent variable with significant coefficient is quartile 2 (significant at 1% level), all other variables are insignificant but quartile 2 and quartile 3 show negative coefficients which is also consistent with the univariate results (*Table V*) except for the former being the only significant coefficient.

Overall, *Table VII* results are very similar to our findings in the univariate analysis (*Table V*), i.e. all the private acquisition coefficients are positive while most of the public acquisition coefficients are negative except for quartile 4. Both regressions also showing varying levels of significance with private acquisitions having more significant coefficients than public acquisitions just as the univariate analysis as per *Table V*.

We further carried out a regression analysis for private and public acquisitions as a full-sample by incorporating cross-terms i.e. the combination of quartile sample proportions and target type indicator (whether the target is private or public) in order to investigate whether the type of target, combined with target size or cash proportion (quartile samples) will have a significant impact on announcement abnormal returns of the acquirer.

Regression Model II:

$$BHAR_i = a_0 + a_1*value + a_2*value*public + b_1*public + b_2*Q_2*public + b_3*Q_3*public + b_4*Q_4*public + b_5*Q_2 + b_6*Q_3 + b_7*Q_4$$

Table VII: Regression for public and private acquisitions BHARs - Quartile sample

The table reports regression of acquirer's BHAR on the following variables. The first three variables are used to control for target's size (i.e. target's market value) and merger rumour which could potentially drive abnormal returns. All the other explanatory variables represent quartile samples on stand-alone basis and when combined with target type (i.e. whether target is private or public). The t-statistics are in parentheses and adjusted for heteroskedasticity *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively

<i>Variables</i>	<i>Private Target</i>	<i>Public Target</i>	<i>Full Sample</i>
Intercept	0.005815 (1.19)	0.000978 (0.17)	0.005909 (1.21)
a1 = target's market value	-3.23E-7 (-0.24)	-5.13E-7 (-1.43)	4.846E-8 (0.03)
a2 = target's market value * Public Indicator			-5.38E-7 (-0.33)
a10 = merger event rumour	0.022257 (1.23)	0.001793 (0.13)	
b1 = Public Indicator			-0.00488 (-0.65)
b2 = Quartile 2 * Public Indicator			-0.02944*** (-3.24)
b3 = Quartile 3 * Public Indicator			-0.01667* (-1.67)
b4 = Quartile 4 * Public Indicator			-0.00689 (-0.32)
b5 = Quartile 2	0.011021* (1.78)	-0.01836 *** (-2.76)	0.01103* (1.78)
b6 = Quartile 3	0.006903 (1.06)	-0.00971 (-1.29)	0.006952 (1.07)
b7 = Quartile 4	0.018925*** (2.65)	0.011967 (0.59)	0.01886*** (2.64)
N (Observations)	1,568	771	2,339
Adjusted R-square	0.25%	1.13%	2.39%

Regression Model II applies to both private and public acquisitions (i.e. full sample). For public acquisitions, we equate the *x-variables* (in the third term to sixth term) i.e. public indicator on the right-hand side of the equation to 1 while that of private acquisitions to 0, therefore, these terms have zero impact on the BHAR of the acquirer as far as private acquisitions is concern.

Due to the low explanatory powers of the independent variables, these results could possibly be viewed with incredulity as indicated by the low adjusted R-Squared. Looking at the overall effect of target type, target size and quartile samples on BHARs of acquirers as per the regression results on *Table VII* (full sample column), we see that, the target listing as represented by coefficient b_1 also poses no significant impact on announcement abnormal returns, this finding is divergent from previous studies.

Quartile 2 remains significant (coefficient b_5) at 90% confidence interval even with the cross-term (coefficient b_2) at 99% confidence interval. Quartile 3 on the other hand, remains insignificant on a stand-alone basis (coefficient b_6) but is significant at 10 % level when combined with target listing as a cross-term (coefficient b_3). Finally, Quartile 4 is significant on a stand-alone basis (coefficient b_4) at 99% confidence interval but is insignificant when combined with target listing (coefficient b_7). This result is consistent with the *Regression I* (Private and public target column on *Table VII*).

Therefore, this shows that Quartile 2 (25% - 50% cash) has significant impact on announcement returns of the acquirer for both private and public acquisitions as seen in both *Regression I and II*. Quartile 4 is also significant under both regression analysis but more so for private acquisitions as indicated in *Table VII*. However, Quartile 3 is statistically insignificant under both regression models even after combining with target listing variable hence Quartile 3 does not contribute to acquirer's overall announcement abnormal returns.

Table VIII: Regression Analysis of BHARs with cross-terms (1994 - 2015)

The table reports regressions of acquirer's BHAR on the following variables for three sub-periods. The first two variables are used to control for target's size (i.e. target's market value). All the other explanatory variables represent quartile samples on stand-alone basis and when combined with target type (i.e. whether target is private or public). The t-statistics are in parentheses and adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

<i>Variable</i>	<i>1994-2000</i>	<i>2000-2007</i>	<i>2007-2015</i>
	<i>Period A</i>	<i>Period B</i>	<i>Period C</i>
a0 = Intercept	0.008828 (1.34)	-0.00032 (-0.04)	-0.00612 (-0.48)
a1 = target's market value	-2.56E-6 (-0.14)	1.289E-7 (0.08)	0.000012* (1.67)
a2 = target's market value * Public Indicator	3.634E-6 (0.20)	-1.45E-6 (-0.79)	-0.00001* (-1.70)
b1 = Public Indicator	0.008595 (0.68)	-0.00966 (-0.83)	0.011035 (0.72)
b2 = Quartile 2 * Public Indicator	-0.03098** (-1.99)	-0.02508* (-1.88)	-0.0573*** (-3.06)
b3 = Quartile 3 * Public Indicator	-0.02523 (-1.48)	-0.01607 (-1.13)	-0.01415 (-0.73)
b4 = Quartile 4 * Public Indicator	-0.01258 (-0.35)	-0.0311 (-0.81)	0.003595 (0.11)
b5 = Quartile 2	0.011317 (1.26)	0.012123 (1.23)	0.029607* (1.93)
b6 = Quartile 3	0.011917 (1.23)	0.005589 (0.55)	0.00152 (0.10)
b7 = Quartile 4	0.022605** (2.07)	0.018597 (1.58)	0.020446 (1.33)
N (Observations)	1,017	1,006	611
Adjusted R-square	0.15%	3.10%	3.59%

In addition to the cross-terms regression analysis, we further break down the data into the dot-com bubble era (95' to '01) as well as pre and post financial crisis (sub-prime mortgage crisis – 07'/08'), we basically use *Regression Model II* to carry out the analysis but, in this case, using three sub-periods. *Table VIII* shows the cross-terms regression results for three different time period in order to assess the level of significance of different quartiles on acquirer's BHAR for the three sub-periods indicated as *Period A, B and C*.

Target listing on a stand-alone basis remains insignificant (coefficient b_1) for all the three Periods. This finding is consistent with the previous results on *Table VII*. Quartile 2 with target listing (coefficient b_2) is significant across the three time periods but on a stand-alone basis (coefficient b_5), it is only significant for Panel C. Quartile 3 remains insignificant across the three time periods even when combined with the target listing variable (coefficient b_3 and b_6). On the hand, quartile 4 is only significant for Panel A (coefficient b_7), meaning that, large proportions of cash consideration (75% - 100%) for private and public acquisitions resulted in significant positive BHAR (2.26%) in the dot-com bubble (massive growth period in the used and adoption of the internet).

Overall, the three regression results are similar to our univariate findings analysis, for instance from *Table III and V* as well as *Figure 1 and 2*, we see that the private targets have consistently resulted in positive BHARs with varying levels of significance (but mostly statistically significant) while public acquisitions mostly resulted in significant negative abnormal returns for both quartile and decile samples. We confirm these results with our multivariate analysis as reported on *Table VII*, whereby private targets provide significant positive (for quartile 2 and 3) coefficients while public targets result in significant negative coefficients (at least for quartile 2). At 100% cash, both private and public target acquisitions provide significant positive BHARs, and at 100% stock considerations, only private targets provide positive significant abnormal return while public targets provide negative significant BHAR.

Conclusion

This paper investigates the effects of cash/stock considerations on announcement abnormal returns for US public acquirers between 1994 to 2015. We break down cash considerations into decile and quartile samples in order to assess which financing combination/mix is most welcomed by the market, resulting in significant positive immediate abnormal returns (BHAR).

For both private and public acquisitions, we find that the higher the cash proportion, the higher the BHAR (positive for private targets and negative for public targets). For instance, deciles and quartiles with smaller cash proportions show significant positive BHARs for private acquisitions and significant negative BHARs public acquisitions. When regressing BHARs on quartile cash indicators, we also find that high-cash quartile samples show significant positive coefficients for both private and public targets (only quartile 3 seems to be insignificant). Our results provide insights into the drivers of announcement abnormal returns by investigating cash/stock consideration proportions that result in the highest positive/negative abnormal returns over the 20-year horizon.

These findings point to the common market method-of-payment hypothesis that public acquirers will offer large stock consideration when their stock is overvalued and cash when their stock is undervalued or correctly valued. Therefore, this leads to negative price reaction to M&A announcements for stock-based acquirers. On the other hand, the market reacts positively to large cash considerations hence positive BHARs for cash-based acquirers.

References

- Andre, Paul, Kooli Maher, and L'her Jean-Francois. 2004. "The long-run performance of mergers and acquisitions: Evidence from the Canadian stock market." *Financial Management* 27-43.
- Bhagat, Sanjai, Malhotra Shavin, and Zhu . PengCheng. 2011. "Emerging country cross-border acquisitions: Characteristics, acquirer returns and cross-sectional determinants." *Emerging Markets Review* 12 3: 250-271.
- Capron, L., and Shen J.C. 2007. "Acquisitions of private vs. public firms: Private information, target selection, and acquirer returns." *Strategic Management Journal* 28(9) 891-911.
- Chang, Saeyoung. 2002. "Takeover of Privately Held Target, Method of Payment, and Bidder Return." *The Journal of Finance* 123 -134.
- Eckbo, B.E. ed. 2008. *Handbook of Empirical Corporate Finance*. Vol. 2. chapter 15: Elsevier.
- Faccio, Mara, John, J. McConnel, and David Stolin. 2006. "Return to Acquirers of Unlisted and Listed Targets." *Journal of Financial and Quantitative Analysis* 197.
- Fama, Eugene F, and Kenneth R French. 1996. "Multifactor Explanations of Asset Pricing Anomalies." *The Journal of Finance* (Wiley for the American Finance Association) 51: 55-84.
- Franks, Julian, Harris Robert, and Titman Sheridan. 1991. "The postmerger share-price performance of acquiring firms." *Journal of Financial economics* 29 1: 81-96.

- Fuller, Katherine, Jeffrey Netter, and Mike Stegemoller. 2002. "What Do Returns to Acquiring Firms Tell Us? Evidence from Firms That Make Many Acquisitions." *Journal of Finance*.
- Koeplin, John, Sarin Atulya, and Shapiro Alan C. 2000. "The private company discount." *Journal of Applied Corporate Finance* 12 4: 94-101.
- Loderer, Claudio, and Martin Kenneth. 1992. "Postacquisition performance of acquiring firms." *Financial Management* 69-79.
- Loughran, Tim, and Vijh. Anand M. 1997. "Do long-term shareholders benefit from corporate acquisitions?" *The Journal of Finance* 52 5: 1765-1790.
- Poulsen, Annette, and Mike Stegemoller. 2006. "Moving from Private to Public Ownership: Selling Out to Public Firms vs. Initial Public Offering*." *Journal of Economic Literature*.
- Sarin, Atulya, John Koeplin, and Alan C. Shapiro. 2000. "The Private Company Discount." *Journal of Applied Corporate Finance, Vol.12, No.4, Winter 2000* 12: 11.
- Shaheen, Isfandiyar. 2006. *Stock market reaction to acquisition announcements using an event study approach*.