How Markets React to Different Types of Mergers

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Abstract

This paper analyzes the merger data for the period of 1994-2011 for the US companies and identifies the characteristics driving M&A performance. We analyze two-day abnormal returns for M&A announcements by public acquiring firms to test whether the market reacts differently to the type of target firms, the fundamentals of the target, and the target firm's industry. The key contribution of our study is that we examine whether the market has a preference for delisted firms acquired in the M&A activity. Although the number of 'Delisted and Acquired' firms is small during the period analyzed, we find that the market reaction to M&A of non-delisted public target firms is more negative than that of the delisted public target firms. More generally, we also find that acquisitions of private firms induce a positive reaction for the acquirer, in contrast with acquisitions of public firms. Further, the characteristics of the target and acquirer firms, such as firm performance, do not play a huge role in market reactions to a merger except for the delisted status of a firm.

Keywords: Mergers and Acquisitions; M&A; delisted; private; public; US

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1. Introduction

M&A activities create synergies and economies of scale, expanding operations and cutting costs. The impact of M&A announcement on stock price movements mainly depends on market expectations. M&A deals are complicated especially for the acquiring firms. When an acquiring firm releases an M&A announcement, and if the market considers this is a wealth increasing event for the firm, then the market reacts positively and vice versa.

The M&A activity experienced several lean years following the 2008 financial crisis. However, post crisis, there was a marked recovery in corporate strategic and financing activities which led to a resurgence in M&A activity. This project reviews and analyzes the M&A data with a focus on the US market for the period of 1994-2011. We use an Event Study Methodology to test whether an M&A have an impact on a firms' stock price, what are the sources of this impact, and finally whether characteristics such as the type of firms, the trading status of a firm, and fundamental factors play a role in M&A induced stock returns. This paper examines several hypotheses of the price change from the M&A announcements. Do M&As increase or decrease the value of share price? Does the private or public nature of a target firm impact M&A returns? Does the delisted or non-delisted status of a target firm impact M&A returns?

Our results indicate that the average two-day announcement return for the acquirer of merger is around 0. It means that the market theoretically does not react significantly to a merger announcement. However, we observed that the market reaction for the acquirer is positive when the target company is private while it is negative when the target is public. Public companies are generally transparent, are

subject to stricter disclosure norms and also have a large number of analysts covering them. Hence these companies may be either overpriced or may require a higher premium due to these characteristics. On the other hand, private companies are less transparent as well as illiquid. Hence, the acquirer may not pay a higher premium for these which should translate to a positive reaction for the merger. Therefore, the market sees more value in acquiring a private company.

Chang (1998) examined, amongst others, the acquiring firm's stock price reaction at the announcement of a takeover proposal when the target firm is privately held for a sample period of 1981 to 1992. He finds that on average, acquirers experienced positive abnormal returns in the case of acquisition of private firms while such returns were negative while acquiring a public company. Similarly, Louis and Sun (2010) found that for the period 1994-2006, the acquirer's average abnormal return is less positive for announcements of stock swaps involving privately owned targets and less negative for those involving publicly owned targets when the announcements were made on Fridays than on any other business days.

Our findings for the most recent period of 1994 to 2011 support the earlier knowledge on this topic.

We further decided to test the impact of M&A of delisted and listed firms on the acquirer's returns. To the best of our knowledge, no prior study has considered whether the market welcomes or punishes firms for acquiring delisted firms.

On the other hand, it would also be interesting to test what the market would attribute to the merger of a delisted firm. We hypothesize that the market reaction could be either positive because of cheap acquisitions. The common reasons that we noticed in our sample of delisted firms were insufficient assets, insolvency, or failure to meet listing requirements. Financially distressed firms tend to be delisted, so that the market believes that the acquirer can change the target's management to turn the firm around. Alternatively, the market reaction could be negative because of acquiring troubled targets. It could be that the delisted firms were already in financial distress or facing significant operational

difficulties and the market would adjust negatively to these factors. Reputational loss could be another reason that would affect the market reaction to the delisted target firms. The likelihood that poorly performing firms would drain resources from better performing acquiring firms should increase the concerns of the market in the event of a merger of a delisted firm.

Hence, we further segregated public firms that have been delisted before the merger announcement and the firms which were not delisted during the merger. Approximately 11,000 firms were delisted during the sample period. Of these, around 42 were delisted before they were merged or acquired.

Also, when we compare the market reaction to delisted and non-delisted target firms, we naturally consider only public targets. According to our results, markets react negatively to the merger of Non-delisted firms whereas the reaction is less negative to delisted firms. When we segregate the public targets into delisted and non-delisted firms, the market reaction to the merger of delisted targets is average around zero. The univariate results show that the market reaction to merger announcements for delisted targets is not significantly different from zero, although this could be partially due to the small sample size of these firms. However, non-delisted firms have a mean market reaction of -2.5%. Hence, we can conclude that the reaction to Non-delisted firms is very negative but not so for delisted firms.

Because of the small sample size, we believe, the two-sample tests do not find a statistical difference in means and medians between reaction announcements with delisted and non-delisted targets. We also conducted regressions to test the market reaction to acquisition of public firms versus private firms. The dependent variable was the buy-and-hold abnormal announcement return estimated on the four Fama-French and Carhart Factors. This was further extended to test the market reaction to acquisition of delisted versus non-delisted firms. Our regression analysis shows that the market reacts less negatively to delisted target acquisitions with the abnormal returns in the case of acquisition of delisted firms closer to 0 while those for non-delisted firms being more negative.

We also consider the effect of target firm's profitability, leverage and size on market reaction. The regression analysis shows that there is a negative relation between the Target firm's leverage and Acquirer's returns. We also used controls on the variables to include the fixed effects 'with industry and year' and 'without industry and year'. After controlling for the industry effect, we find that leverage does not affect the announcement reaction. This can be attributed to the differences in leverage among industries that arise due to differing costs of financial distress. When we analyzed the market reaction against target firm's sectors, we found that all sectors show a negative market reaction with some sectors such as Services, Finance and Manufacturing showing a significant negative reaction.

2. Literature Review:

Merger Basis: There are several reasons a firm may merge or enter into business combinations. Many of the reasons include replacement of inefficient management, financial synergies, operating synergies etc. In this section, we summarize the literature that motivates financial variables that influence market response to merger announcements.

Inefficient Management: Manne (1965) emphasizes the market for corporate control and views mergers as a threat if a firm's management lags in performance, either because of inefficiency or because of agency problems. For our study, we have used an accounting based management performance ration i.e. Return on Equity as measured by Net Income divided by Shareholder's Equity of the target.

Financial Synergies: A diversifying merger can also increase the combined debt capacity of two firms because it reduces the variability of earnings, and thus reduces bankruptcy risk for any given level of debt. This, in turn, lowers the firms' cost of capital by lowering the present value of future tax liabilities. Our measure of debt capacity is the one-year lagged ratio of the target firm's equity over total assets.

Firm status: Public firms may be less likely to merge than private firms because their owners are likely to be more diversified than private owners. This reduces the benefits from further diversification. Furthermore, public firms are under closer scrutiny than private firms, implying that problems stemming from information asymmetries are less severe and that public firms enjoy better access to debt as well as equity financing. Thus, the financial synergies of a merger may be less important for public firms.

Chang (1998), in a study of returns to the public company shareholders when they acquire privately held firms, found an average positive 2.6 percent abnormal return for shareholders of bidding firms for stock offers but not cash transactions. The finding of positive abnormal returns earned by buyers using

stock to acquire private companies is in sharp contrast with the negative abnormal returns earned by US bidders using stock to acquire publicly traded companies.

Industry-wide variables: We have conducted tests to evaluate the industry effect in M&A activities. Industry classification is based on the major four-digit categories in the Standard Industrial Classification (SIC). There are two residual categories in the classification – Public Administration and Non Classifiable. However, the 10 main categories used account for 100% of the firms in the sample with zero firms in the residual categories. See Table 1 below for details:

Table 1: SIC code based industry classification of the sample data

Sector	Number of Observations
Agriculture, Forestry Fishing	6
Mining	95
Construction	11
Manufacturing	489
Transportation, Communications, Electric, Gas &Sanitary Service	164
Wholesale Trade	40
Retail Trade	71
Finance, Insurance, Real Estate	876
Services	441
Total	**2193**

3. Data and Methodology:

We construct the sample of merger announcements following the criteria used in Louis and Sun (2010). We use the Thomson SDC database and include mergers in which the acquirer is a public firm with a transaction value greater than $5 million and at least 50% of the transaction is financed by stock. We only include firms in the sample if data on total assets, net income, common equity, and common shares outstanding are available on Compustat for each merger announcement. We distinguish between merger announcements in which the target is a private or public firm based on a variable provided by the SDC data set.

Abnormal returns are calculated using the four-factor Fama-French (Fama and French, 1993) and momentum (Carhart, 1997) models.

The data used in this study is gathered from multiple sources. The data for delisted firms and their daily returns is taken from Center for Research in Security Prices (CRSP) database which gave a data of 11,000 delistings for the period 1994-2011. The details on the delisted companies and the reason they were delisted is given in Table 2 below. The delisting codes ranged between 200 and 600 and as can be seen from the table below, majority of the delisted firms were due to either insufficient assets, weakness in price or bankruptcy.

Table: 2 – Details of delisted companies

Delistings from 1994-2011		
Total Delistings	**11910**	
Total Delisted and Merged	**56**	

Number of Firms	Delisting Code	Reasons for Delisting
2	231	Mergers- When merged, shareholders primarily receive common stock or ADRs
1	331	Exchanges- Issue exchanged, primarily for another class of common stock
3	520	Dropped- Issue stopped trading current exchange - trading Over the Counter
1	550	Delisted by current exchange - insufficient number of market markers
14	**552**	**Delisted by current exchange - price fell below acceptable level**
4	560	Delisted by current exchange - insufficient capital, surplus and /or equity
11	**561**	**Delisted by current exchange - insufficient (or non-compliance with rules of) of floats or assets**
2	570	Delisted by current exchange - company request (no reason given)
2	574	Delisted by current exchange - bankruptcy, delcared insolvent
7	580	Delisted by current exchange - delinquent in filing, non-payment fees
2	582	Delisted by current exchange - failure to meet equity requirements
7	**584**	**Delisted by current exchange - does not meet exchange's requirements for listing**
56		

4. Empirical Results:

4.1 General Market reaction to Mergers

The average two-day announcement return of merger is around 0. It means that the market theoretically does not react significantly to a merger announcement. We performed a t-test to test this hypothesis whether the average return is different than 0 and the results are displayed in the following table 3, column 1.

Table 3: Testing the merger announcement return against 0

Market response to merger announcements of Public and Private targets. The table reports t-test results for merger of private and public targets announcements returns in 1994–2011 being different than 0. The abnormal announcement returns are two-day buy-and-hold returns based on the four Fama-French and Carhard factors. Column 1 is the abnormal announcement returns of all the mergers. Column 2 and 3 further segregate the observations into public and private return. The t -statistics are provided in parentheses. ⁎, ⁎⁎, and ⁎⁎⁎ indicate significance at the 10%, 5%, and 1% levels, respectively.

	All Returns	Private Return	Public Return
	(1)	(2)	(3)
Number of observations	5212	2601	2610
Median	-0.006	0.004	-0.015
Mean	-0.002	0.021	-0.024
Mode	0.063	0.175	0.063
Variance	0.013	0.018	0.006
Mean Reaction Different than 0 (t stat)	0.268	1.947*	1.000

At 95% confidence interval, none of the individual returns are significantly different than 0 as the t-stat is less than the critical value of 1.96. However, at 90% confidence interval, the market reaction of private targets is different than 0.

4.2 Market Reaction based on Public v/s Private targets

We observed that the market reaction for the acquirer is positive when the target company is private while it is negative, although not statistically significant, when the target is public. It may be due to the public companies being overpriced. The number of analysts covering public companies are much larger and there is plenty of information available to analyze these entities. The firm fundamentals must have been already priced-in while the merger may not add much value to the combined entity. Therefore, the market sees more value in the acquiring a private company.

We conducted a t-test to understand whether the mean returns of the acquirer are same when the target is a public or private. The results are in Table 4. It shows that the test statistic is significantly different than zero at the 95% confidence level and we conclude that the returns are different.

Table 4: Market Reaction to Public versus Private targets

*The table reports t-test results of market reaction being different for merger of private and public targets' announcements returns in 1994–2011. The t -statistics are provided in parentheses *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.*

	Private Target	Public Target
Mean Return	0.021	-0.024
Number of observations	2601	2610
Difference in mean reaction (t stat)	2.405**	

4.3 Market Reaction based on Delisted v/s Non-delisted targets

Next, we test our hypotheses about differential market reaction to merger announcements with delisted and non-delisted targets. We consider the sample of public target firms and distinguish between firms that have been delisted before the merger announcement and the firms which were not delisted at the time of the merger announcement. Firms with delisting dates beyond 3 years before the merger date were not selected for this test. Accordingly, we got a sample of 42 firms out of the earlier 56 firms 'delisted and merged firms'.

The hypotheses that we are looking to test are: 1) whether the market reaction to target firms 'delisted before the merger' and non-delisted publicly traded targets is significantly different than zero and 2) whether the mean abnormal returns for these two sets of firms are the same or significantly different from each other.

According to our results in Table 5, markets react negatively to the merger of Non-delisted firms whereas markets reaction to delisted firm is not different from zero. It is possible that the acquirers are paying less premiums for these delisted firms as against the non-delisted or public firms due to the low level of profitability and weak financial health. It has been argued in literature that most of the merger and acquisitions are unsuccessful due to the higher premiums as well as inability to realize synergies and integrate. Hence, acquiring assets at fire-sale prices could be viewed positively by the market.

Table 5: Market Reaction for returns for Delisted and Non-Delisted targets against 0

Market response to merger announcements of Delisted and Non Delisted targets. The table reports t-test results for merger of Delisted and Non-Delisted targets announcements returns in 1994–2011 being different than 0. Column 1 is the market reaction of all the Delisted targets and Column 2 is the market reaction of the Non Delisted targets. The t -statistics are provided in parentheses. ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Delisted	Non Delisted
	(1)	(2)
Number of observations	42	2568
Median	-0.001	-0.015
Mean	-0.009	-0.025
Mode	-0.002	0.063
Variance	0.005	0.006
Mean Reaction Different than 0 (t stat)	0.422	0.96

The results from Table 5 show that the market is reacting positively to the merger of a delisted firm than a public or non-delisted firm as it can be seen from the table that the returns are more negative for non-delisted firms.

Table 6: Market Reaction to returns for Delisted Target versus returns Non-Delisted targets

Market response to merger announcements of Delist and Non Delist targets. The table reports t-test results for merger of Delist and Non-Delist targets announcements returns in 1994–2011 being different. Column 1 is the market reaction of all the Delisted targets and Column 2 is the market reaction of the Non Delisted targets. The t –statistics and z-statistics are provided in parentheses. ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

	Delisted	Non Delisted
	(1)	(2)
Mean	-0.009	-0.025
Number of observations	42	2658
Difference in mean reaction (t stat)	0.189	

In table 6, we tried to compare the market reaction to delisted and non-delisted targets by comparing the means using t-test to check if they are significantly different. We conclude that the means for these two types of firms are not statistically different.

4.4 What explains merger returns

Next we test what factors explain the returns for a merger in a multivariate regression setting in Table 7. The regression was run for the fundamental characteristics of both the target and acquirer. For this, we chose the following variables representing the fundamental characteristic of size, profitability and leverage. For size, we utilized the Deal value along with Target Assets and Acquirer Assets, all in $ millions. For profitability, we utilized the Return on Equity i.e. Net Income over Shareholders Equity for both the Target and Acquirer. We winsorize the top and bottom one-percentiles of all the continuous variables. Lastly, for leverage we computed the Leverage Ratio for both the Target and Acquirer as Equity over Total Assets and we again winsorized the top and bottom one-percentile of this dataset.

We conclude that out of the above factors, the acquirer's and target's leverage and the delisted variable have significant impact on the market reaction to a merger. We further noted that size has no influence on the market reaction. However, as mentioned above, the type of the target, whether delisted or non-delisted does play an important role in market reaction to a merger. This is explained below by our regression results below.

We find that a target being delisted has a significant explanatory power for the market reaction in this regression. As per our tests, everything else being equal, a delisted target will have 2.7% more positive return than a non-delisted target.

Further, the leverage of the target and acquirer also have significant impact on the market reaction as seen in the table above. However, ultimately, leverage is not significant when we control for industry. As per the trade-off theory of leverage, different industries have different leverage because of their

different financial distress costs. Hence, when we control for industry, it systematically eliminates leverage effects due to industry and there is no effect of leverage on returns left. The other fundamental factors have little or nothing to do with market reaction.

Table 7: Market Reaction to Target and Acquirer Fundamentals

	(1)	(2)	(3)	(4)
Deal Size	-1.20e	-1.18e	-1.07e	-1.06e
	(-3.69***)	(-3.59***)	(-3.28***)	(-3.23***)
Target Size	1.12e	7.28e	9.51e	5.82e
	(-0.57)	(0.37)	0.48	(0.30)
Target Leverage	-0.011	-0.004	-0.009	-0.004
	(-2.49**)	(-1.02)	(-2.15**)	(-0.84)
Target ROE	0	-0.001	-0.001	-0.001
	(-0.12)	(-0.59)	(-0.40)	(-0.86)
Delisted Dummy	0.0271	0.0281	0.033	0.0344
	(2.15**)	(2.24**)	(2.65***)	(2.76***)
Acquirer Size	1.58e	1.38e	3.36e	3.13e
	(0.44)	(0.39)	(0.95)	(0.89)
Acquirer Leverage	-0.017	-0.003	-0.016	-0.004
	(-2.71***)	(-0.49)	(-2.65***)	(0.66)
Acquirer ROE	-0.01	-0.01	-0.002	-0.002
	(-0.34)	(0.50)	(-0.83)	(-0.96)
Constant	-0.014	0.033	-0.006	0.039
	(-4.99) ***	(1.04)	(-1.11)	(1.23)
Industry Fixed effect	No	Yes	No	Yes
Years Fixed effect	No	No	Yes	Yes
Number of observations	2193	2193	2193	2193
R squared	0.0195	0.0394	0.0541	0.0719
Adjusted R squared	0.0159	0.0323	0.0432	0.0577

Market response to merger announcements of public targets with different characteristics of the deal and the acquired and target firms. The dependent variable is the two-day buy-and-hold abnormal announcement return of the acquiring firm estimated on the four Fama-French and Carhart factors on the merger announcement day and the next trading day. In the table, Column (1) regresses fundamentals against abnormal returns 'without any 'industry or year fixed effects'. Column (2) again regresses the fundamental of the target and acquirer while adding the 'industry fixed effects'. Then we add Column (3) to include the 'year fixed effects' and finally in Column (4) we add both the 'industry and year fixed effects'. The t -statistics are entered in the same column under the coefficients. ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

We also check the robustness of results in **Table 7** by removing the Deal Size, which may be collinear with the delisted target status, from the regression. The coefficients on the Delisted dummy are virtually unchanged and increase in their statistical significance.

4.4 Tests to check Acquirer characteristics of Delisted versus Non-delisted firms

Given the different returns to delisted target acquirers, we wanted to test the characteristics of acquirers who are pursuing these acquisitions. Our motive was to check whether the acquirers for such delisted firms are much different, e.g. bigger or smaller than those of non-delisted firms. Accordingly, we attempted to do a comparison of means of the characteristics of the acquirers and then perform a t-test.

Table 8: T-test for difference in means on Acquirer characteristics of Delisted and Non-delisted firms

	Delisted Means	Non-Delisted Means	T-stat
Average Deal Size (in Million)	221.52	1482.95	1.075e
Average Acquirer size (Assets in Million)	1765.18	11741.34	3.38e
Average Acquirer Leverage (Equity/Assets)	39%	35%	0.577
Average Acquirer ROE (Net Income / Equity)	-18%	7%	0.329

We conclude that on an absolute mean level, acquirers involved in Delisted firm acquisitions are much smaller, highly leveraged and less profitable than those involved in acquiring Non-Delisted firm acquisitions. Similarly, the mean deal size in case of Delisted firm acquisitions is much smaller at $221.52 million as against $1482.95 million for Non-delisted acquisitions.

However, based on the results of t-tests on these means, we find that the means are not statistically different and that there is no significant difference in characteristics of acquirers for Delisted targets versus Non Delisted targets. The same holds true for the deal size in the case of delisted and non delisted targets. As with our previous test comparing returns for delisted and non-delisted targets, we attribute the lack of statistical significance to the small sample size of the delisted firms.

Table 9: Market Reaction to merger announcement within different industries

The dependent variable is the two-day buy-and-hold abnormal announcement return of the acquiring firm estimated on the four Fama-French and Carhart factors on the merger announcement day and the next trading day. The regression includes the explanatory variables in column (4) of table 7. The t - statistics are provided in parentheses. ∗, ∗∗, and ∗∗∗ indicate significance at the 10%, 5%, and 1% levels, respectively.

Market Reaction to Industries - Regression	
	Coefficients
Intercept	0.029
	(0.920)
Mining	-0.050
	(-1.50)
Construction	-0.059
	(-0.53)
Manufacturing	-0.059
	(-1.84)*
Transportation, Communications, Electric, Gas &Sanitary Service	-0.046
	(-1.41)
Wholesale Trade	-0.057
	(-1.65)*
Retail Trade	-0.052
	(-1.56)
Finance, Insurance, Real Estate	-0.044
	(-1.38)
Services	-0.079
	(-2.46)**
Number of observation	2193
R square	0.030
Adjusted R Square	0.026

From table 9, we note that, as a general notion, markets react negatively to merger announcements in all industries. However, industries such as services, wholesale trade and manufacturing have statistically significant negative reaction which implies they drive the mildly negative, non-significant return that we found in the univariate test.

5. Conclusion

This project provides an overview of impact of firm characteristics on M&A returns and more specifically on whether US firms' acquisitions of private firms or public firms or delisted or non-delisted firms from 1994 till 2011 have been wealth creating or wealth reducing events for the acquiring firms.

The general market reaction is 0 for a merger announcement. However, when we segregate the targets firms into public and private, the public firms have negative market reaction while the private firms have a significant positive reaction. This could be because of the public firms trading at a premium due to factors such as liquidity, and analyst coverage.

When we look at the fundamentals of the targets and acquirer. If the target is a delisted firm, this makes a positive effect on the market reaction. Also, the profitability or size of the target or the acquirer has no bearing on the market reaction to a merger.

Even though the evidence in this paper shows that investors can earn abnormal returns by trading acquiring firms, there is some limitation of this study that needs to be mentioned. The main limitation is sample size. In this paper, the sample size of delisted firms is only 42. With much larger samples we can have more robust tests of the hypotheses and the results could be different. However, it is difficult to collect data due to information limitations.

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