Shareholders wealth effects of Mergers & Acquisitions in different deal activity periods in India

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Abstract

It has been observed that Mergers and Acquisitions (M&A) occur with different intensity at different points of time; there are periods of high M&A activity as against other periods when deal activity remains low. The comparison of shareholders wealth effect of M&A announcements in these different periods of deal activity has attracted less attention. This paper attempts to analyze and compare the wealth impact of M&A announcements during different periods of deal activity in Indian Information Technology and Information Technology enabled Services (IT&ITeS) sector between 1999 to 2009.

The standard event study methodology was used for estimating abnormal returns for both acquiring and target firms in domestic M&A announced in this period . The results were tested and compared using parametric tests. All the tests were conducted assuming that the Indian capital markets are efficient in semi-strong form. The results indicate that both the acquiring firms and target firm shareholders gained on acquisition announcement irrespective of the period of announcement of the deal; mergers on the other hand generate wealth losses for the acquiring firms across all periods. It was also found that the overall movement in the stock market affects the magnitude of the gains/ losses of acquiring and target firms.

Key Words: Mergers, Acquisitions, Shareholders Wealth, Event Study Methodology, India.

1. Introduction

Mergers and Acquisitions are being used extensively as a tool for growth by firms across the globe. M&A offer inorganic route of growth for firms both within (domestic deals) and across (cross border deals)the boundaries. The last two decades have observed varied movements in the M&A activity in the Indian context with the largest number of deals being observed in 2007 in a span of 11 years between 1999 to 2009. With the revival of the global economies post 2003, the M&A activity also registered a boost in India. This period of heightened M&A activity also corresponded with growing Indian economy and well performing financial markets including the Indian stock markets. Despite this fact, the evaluation of M&A including domestic and cross-border deals remained largely un-touched. In the miniscule work done, most of the studies focused on trends (Venkiteswaran, 1997, Kumar, 2000), operating performance (Pawaskar: 2001, Selvam and Vanitha: 2007, Mantravadi and Reddy: 2008), legal aspects (Mehta and Samanta, 1997), etc. to name a few.

The Indian IT&ITeS sector has played an important role for the Indian economy and its contribution in the GDP has increased from 4.8% in 2005-2006 to 7.5% in 2011-2012. This sector also topped the list of M&A in terms of number between 2006 to 2008 (Dealtracker, 2010). Yet, the impact of M&A in this sector remained un- explored. This paper aims at evaluating the shareholders wealth effect of M&A announcements spanning 11 years between 1999 to 2009 in the Indian IT&ITeS sector. These eleven years also witnessed different momentum in deal activity coupled with different movements in Indian stock market. The Indian stock markets fell down sharply during the dot com bubble burst and started treading upwards post 2003 peaking around the beginning of 2008 (http://www.bseindia.com/ http://www.nsendia.com). These periods of increasing stock market indexes also witnessed a surge in M&A transactions. Using event study methodology, this paper further compares the wealth effects of M&A announcements in different deal activity periods on the assumption that the semi- strong form of Efficient Market Hypothesis (EMH) holds for the Indian capital markets.

2. Research Design

2.1. Data and Data Sources

To measure the impact of M&A announcements on the wealth of the acquiring and target firms in the Indian IT&ITeS sector, all the domestic deals announced between 1999 and 2009 were considered. The list of M&A was taken from Centre for Monitoring Indian Economy (CMIE) Prowess Database and verified from Lexis Nexis database, Venture Intelligence database and financial dailies. Out of the total data set of 668 firms, a final set of 101 firms were drawn based on the criteria for ESM. The firms included in the data set were listed firms as the ESM uses stock price data. Next, the date of first media announcement of the deal had to be available as ESM measures the stock price reaction on and around the date of first media announcement. Also, to ensure that the stocks were fairly liquid, only those firms were included whose stock was traded for at least ninety percent of the days in the 301 days considered for the study.

2.2. Defining the deal activity period

Out of the 11 years from which 101 M&A announcements in Indian IT & ITeS sector were drawn for research, years 2005, 2006 and 2007 witnessed maximum number of deal announcements. These 3 years together witnessed 62% of the total deals announced in the data set. Hence these three years were identified as periods of high deal activity (HDAP). Remaining 8 years comprising of 38% of the data set were identified as periods of low deal activity (LDAP) . The breakup of the data set is given in Table 1. This classification of the deals into HDAP and LDAP also corresponds to the overall M&A activity in these periods.

2.3. Hypothesis development

The literature in the global context is abundant with the impact of a deal announcement on the wealth of acquiring and target firm shareholders. Most of the studies are concentrated in the American and European context primarily due to the availability of authentic and complete data in these economies. The Indian context has witnessed a rise in research on M&A in the last few years. The findings of some of the studies evaluating the wealth effects of M&A in the global and Indian context have been summarized in Table 2.

The following broad outcomes were observed from the overview of literature. Target firm shareholders tend to gain in nearly all types of deals including mergers and acquisitions, domestic and cross border, horizontal and conglomerate, cash financed and stock financed, etc. to name a few whereas the acquiring firms have shown mixed reaction. In case of acquisitions, the acquirers generally gain; the gains are significant especially when the deal is cash financed or the target firm is from a country with which good trade relations exist, etc. The wealth effect of acquiring firms in mergers remain divided. Event study methodology has been widely used for the said purpose with market model for estimating abnormal returns. In most of the cases, the wealth effects of M&A has not been compared across different periods of deal activity to see if these different periods exhibit different results.

Hence, assuming semi-strong form of EMH and based on the review of literature, the following research hypothesis were formulated: H_0: M&A announcements do not have any significant impact on the wealth of acquiring and target firm shareholders; H_1: M&A announcements do have significant impact on the wealth of acquiring and target firm shareholders.

2.4. Analytical Tools and Statistical Tests employed

To test the research hypothesis, the standard Event Study Methodology (ESM) as described by Mackinlay, 1997, was employed. ESM is an approach for testing the impact that an unanticipated corporate event has on the stock prices of those firms. It is conducted on the assumption that the markets are efficient (Fama *et al*, 1969). If markets are assumed to be efficient, all the information related to a publicly traded firm gets fully reflected in its share price (Alexakis *et al*, 2008). The present study assumes that the Indian capital markets are efficient in the semi-strong form as both the weak form and strong forms of EMH are considered as extreme assumptions. As per the semi-strong form of EMH, the market prices of the financial assets not only reflect the past publicly available information but also incorporate any new information that is released in the market quickly and without bias to new information (Cornell and Morgan, 1990).

ESM involves defining the event date, event windows, estimation period, choosing a model for calculating abnormal returns, aggregation of abnormal returns and testing the abnormal returns for significance.

The event date was the date of first media announcement of the deal, defined as day '0' <Insert Figure 2>. Event window comprises of the days surrounding day '0' during which the event impact was measured. As it can be reasonably assumed that the news about a deal emanates to the market much before it is officially announced and the markets keep adjusting to any additional information about the deal, hence an event window of two months surrounding day '0' was considered for this study.

To estimate the impact of an event, abnormal returns have to be computed which is the difference between the actual returns and expected return (i.e., the return assuming that the event had not taken place). Market model was used for estimating the expected returns and ordinary least square method was used for estimating the market model parameters. To ensure that the parameters themselves remain un-influenced by the event of interest, a clean period of 180 days (called the estimation period) prior to the event window was taken for the study. Once the abnormal returns were estimated, they were cumulated across 21 event windows to look at the overall impact of the M&A announcement both in the period immediately surrounding day '0' and across longer duration of two months. These cumulated market model residuals were tested using three parametric tests.

2.5. Estimating the Cumulative Average Abnormal Returns (CAAR) and Cumulative Standardized Abnormal Returns (CSAR)

The event study measures the impact of M&A announcement by estimating the abnormal returns on and around the date of first media announcement of the deal. These abnormal returns are then cumulated across firms and across different event windows to derive CAAR that indicates the overall behavior of stock prices to announcement of merger or acquisition. Single factor market model is one of the most widely used model for estimating abnormal returns and is considered to be robust under various circumstances (Brown and Warner, 1985).   The market model is defined as:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{1}$$

with $E(\varepsilon_{it} = 0)$, $var(\varepsilon_{it}) = \sigma^2_{\varepsilon i}$

Where, $E(R_{it})$= Expected return on stock 'i' at time t

α_i = Ordinary Least Square (OLS) estimate of the   Intercept of straight line or alpha

coefficient of security 'i'

β_i = Ordinary Least Square (OLS) estimate of the coefficient of BSE Sensex (BSE Sensex

was used as a measure of market return) in the market model

R_{mt}= Actual return on the market index, BSE Sensex

ε_{it} = Error term with mean   zero and constant variance σ_i^2 at time t.

The Abnormal Return (AR_{it}) for stock 'i' on day 't' is defined as the disturbance term of the market model and is given as:

$$AR_{it} = R_{it} - E(R_{it}) \tag{2}$$

where R_{it} was the actual return of stock i on day t.

Once the abnormal returns for each security in the sample size have been estimated, to draw overall insights on the behavior of abnormal returns,   they are cumulated across firms in the sample and then across different event windows as follows:

$$CAAR_{(t1,t2)} = \sum_{t=t_1}^{t_2} AAR_t \tag{3}$$

where,

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \tag{4}$$

and $T_1 \le t_1 \le t_2 \le T_2$

2.6. Statistical tests employed

To test for the significance of results, parametric tests were employed. The parametric tests include the non standardized t-test and standardized Patell test, 1976 and Boehmer, Musumeci and Poulson (BMP) test, 1991. The simple t-test has been widely used and seems to well specified under different capital market conditions (Henderson, 1990; Mackinlay, 1997). The market model residuals are assumed to be homoscedastic which may not always hold true. The Patell test weighs the stocks in inverse proportion to their variance, i.e., the stocks with higher variance are given a lesser weight to ensure that the null hypothesis is not over-rejected (McWilliams and McWilliams, 2000, Jong, 2007). Further, since the data was from the same industry, to take care of the cross sectional contemporaneous correlation, BMP test was employed. Also studies have shown that in conventional event studies that focus only on mean stock price effect and not on other aspects like examination of variance, trading volume, accounting performance, BMP test produces robust results (Higgins and Peterson, 1998, , Seiler, 2000, Savickas, 2003).

The t- test (t), Patell test (t_p), 1976 and BMP test(t_{bmp}), 1991 were conducted as:

$$t = \frac{CAAR_{(t_1,t_2)}}{\sigma(CAAR)} \tag{5}$$

$$t_p = \sqrt{\frac{n*(L_1-4)}{L_1-2}} * \overline{CSAR_t} \tag{6}$$

$$t_{bmp} = \frac{\frac{1}{N}\sum_{i=1}^{N} SCAR_{it}}{\sqrt{\frac{1}{N(N-1)}\sum_{i=1}^{N}(SCAR_{it} - \overline{SCAR})}} \tag{7}$$

Where,

n= number of cross sectional observations

L_1= Length of estimation period, 180 days and

$CSAR_t$= Cumulative Standardized Average Abnormal Return in the event window

The standardized residuals, SAR_{it},were estimated by calculating the standard deviation of the stock returns from the clean estimation period. The cross –sectional average of the SAR_{it} for all the firms in the sample calculated above was computed to derive the Average Standardized Abnormal Returns ($ASAR_t$) and further cumulated across each event window to derive the Cumulative Standardized Abnormal Returns (CSAR):

$$CSAR_{t_1,t_2} = \sum_{t=t_1}^{t_2} ASAR_{it} \tag{8}$$

$$ASAR_t = \frac{1}{N}\sum_{i=1}^{N} SAR_{it} \tag{9}$$

$$SAR_{it} = \frac{AR_{it}}{S_i} \tag{10}$$

where N= number of firms in the sample size

3. Findings

3.1. Mergers: Shareholders wealth effects on Acquiring firms in HDAP and LDAP

The table <insert Table 3> summarizes and compares the findings of Merger announcements on the wealth of acquiring firm shareholders in HDAP and LDAP.

In the case of HDAP, the non standardized cumulative residual, CAAR, indicated that the acquiring firms experienced significant wealth losses on merger announcement for all the event windows. The losses peaked to -27.71% in the two month surrounding the event announcement which gradually lowered to -18.13% around 35 days and reduced to -2.38% around the event announcement date. In a one month event window, the losses experienced by acquiring firms averaged -23.06%. With the standardized cumulative residuals, CSAR, the test statistics, t_p and t_{bmp} indicate same result

as in case of CAAR. Although the magnitude of CSAR reduced significantly from-27.71% to -4.31% in the two month event window to -0.45% as against -2.38% in one day event window, indicating the presence of heteroscedasticity, both the test statistics, indicate significant negative losses to the acquirers. Even though these two test statistics were insignificant in the (-2,+2), (-1,+1) and event announcement date, they remained negative. It was also observed that the t_{bmp} values corresponding to most of the event window was less that t_p values indicating the impact of event induced variance.

In LDAP <insert Table 3>, the acquiring firms experienced significant losses in all the event windows except for (-1,+1) event window and the event announcement date where they remained negative although statistically insignificant. The CAAR ranged between -39.23% to -8.63%. The losses rose to -26.5% in the (-8, +8) day event window. The t_p and t_{bmp} statistics also indicated significant wealth losses for the acquiring firm shareholders in all the event windows except for the one day and event announcement day. The CSAR ranged between a high of -5.62% in the 50 days event window to a low of -0.11% in the one day event window.

Thus the results indicate that the merger announcements generated negative wealth effects for the acquirers in both HDAP as well as LDAP. Also the losses in absolute terms were more in LDAP than HDAP in most of the event windows. Some important observations were made from the above comparison.

Firstly, the percentage loss experienced by acquiring firms was less in HDAP (-1.9% in 5 days, -2.14% in 10 days, -1.89% in 20 days and -2.29% in 50 days) as compared to LDAP (-1.9% in 5 days, -3.23% in 10 days, - 2.81% in 20 days and -5.62% in 50 days) event windows. This was true for almost all event windows. A possible reason for the same can be the overall effect of positively moving Indian stock market in HDAP (BSE Sensex crossed the 7000 mark on 7th June, 2007 and 20,000 on October 29th, 2007) that reduces the negative impact of announcement of the deal in this period. As compared to this , the LDAP corresponds to the periods when Indian stock markets were not doing well. Hence the expected returns in these years were much higher than the actual returns leading to large abnormal losses. This fact further gets corroborated from the fact that even though HDAP comprised of larger number of firms than LDAP, the magnitude of larger losses in LDAP can be attributable to the falling Indian stock markets.

3.2. Mergers: Shareholders wealth effects on Target firms in HDAP and LDAP

In HDAP, the target firms experienced mixed returns <insert Table 4>; wealth losses (in terms of CAAR) in longer windows of 60 to 20 days. The shorter windows between 15 to 7 days observed positive but insignificant CAAR which became negative, but insignificant, between 6 days and 1 day event window.   The extent of losses were huge totaling -51.70% in the 60 days event windows and -5.34% on the event announcement date. The positive CAAR peaked to 16.83% in the 9 days event window but were insignificant. The overall picture indicated that the target firms experienced enormous wealth loss on announcement of mergers in the two months event   window but no significant gain or loss was made in the fifteen days surrounding the event date .

With CSAR, the cumulative residuals fell down considerably in absolute terms (which again indicated the violation of the assumption of homoscedasticity the data set and their influence on CAAR), the results were same as found with CAAR. A maximum loss of -5.79% was observed on an overall basis. To draw a conclusive evidence from the mixed results obtained, the AAR and ASAR were plotted <Insert Figure 3>. The AAR and ASAR were negative between -60 and -55 days in the pre-event announcement period. After that, until the event announcement date, they remained mostly positive. However, these positive AAR and ASAR did not sustain and turned negative with the magnitude of the negative returns being high in the post event announcement period. The impact of this behavior clearly explains the mixed response of CAAR and CSAR. Hence on the whole, the target firms experienced losses on merger announcements.

The target firm shareholders gained significantly in the LDAP <insert Table 4>. Except for event windows of 40 to 25 days and 1 day event window, where although the CAAR were positive but were not significant, in rest all other event windows, CAAR were positive and significant and were as high as 35.67% in the 50 days event windows. The shorter event periods experienced significant positive CAAR to the extent of 25.17% in 4 days event windows. Thus even though the deals pertained to LDAP, the results found were consistent with previous findings of target firm

shareholders getting positive returns around announcement dates. The t_p and t_{bmp} test statistics gave the same result as t statistic. Wealth gains of were observed in periods immediately surrounding event announcement with a maximum of 4.85% in twenty days window.

Thus, on an overall basis, contradictory results were found in HDAP and LDAP. Also the results should be read with reservation due to the small data set for this category.

3.3. Acquisitions: Shareholders wealth effects on Acquiring firms in HDAP and LDAP

Acquisition announcements in IT&ITeS sector in India generated wealth gains for acquirers <Insert Table 5> in HDAP. Maximum gains (CAAR) registered was 35.77% in 55 days event window. CAAR averaged 32.1% in the longer event windows between 45 to 60 days. They came close to 10.65% in the 15 days event window and rose again to 15.31% in the 8 days surrounding event announcement. On the event announcement date, they averaged 2.04%. The standardized residuals (CSAR) also showed similar results. Both t_p and t_{bmp} indicated wealth gains in all the event windows except the event announcement date. The maximum gains were observed in the 55 days surrounding the event announcement of 10.29%. In the one month window, CSAR registered 5.13% gains to the acquirers and average gains in the 10 days window were 13.40%. The t_{bmp} statistics is found to have lower values as against t_p in all event windows indicating the existence event induced variance.

The LDAP observed mixed reaction for acquirers <Insert Table 5>; wealth losses in longer windows of 60 to 45 days and becoming positive (although insignificant) around 35 days windows and finally indicating wealth gains around acquisition announcement date. However, when the estimated residuals from the market model were standardized, a neat picture of acquiring firms experiencing wealth gains emerged. The negative CAAR in the longer event windows was the result of influence of stocks with high σ^2. Standardization results in giving lower weight to stocks with larger variance and hence takes care of Type I error.

Hence the acquiring firm shareholders in the IT&ITeS sector made wealth gains in both HDAP and LDAP. Further, just as the magnitude of losses suffered by the acquiring firms in HDAP (Refer to Table 2) were less as compared to those suffered in LDAP in mergers, the gains made in HDAP are relatively higher than those made in LDAP. The effect of the positive stock market performance seems to have an impact on the returns in the HDAP and LDAP. This finding also reinforces the nature of IT&ITeS industry in India which comprises of small number of large firms and very large number of small firms. As a result of this, the acquirers do not tend to lose anything.

3.4. Acquisitions: Shareholders wealth effects on target firms in HDAP and LDAP

The target firm shareholders made wealth gains on acquisitions announced in HDAP <Insert Table 6> in the entire two months event window. The CAAR registered a high of 22.92% in the two month event window and 10.42% in one month event window. The findings corroborate the findings of literature that the target firm shareholders gain on event announcement. The event announcement date saw insignificant but positive CAAR of 1.39 %. The t_p and t_{bmp} tests also indicated significant positive stock price reaction to acquisition announcements in HDAP. The overall CSAR were around 3.60% with 0.27% on event announcement date. All the event windows indicated wealth gains to targets.

LDAP observed mixed reaction for targets <Insert Table 6>. Longer windows of 50,45,40,30 and 25 days observed wealth gains. However around the event announcement, starting 10 days , the CAAR became negative and also statistically significant (except the event announcement date). CSAR figures also had similar findings as those with CAAR. The t_p and t_{bmp} test statistics indicated strong evidence of wealth losses in shorter windows. As no conclusive evidence could be drawn, hence the data set of this category was re-examined by segregating the LDAP in periods of positively moving stock market (1999, 2003, 2004 and 2008) and negatively moving stock markets(2000, 2001, 2002 and 2009). It was found that the announcements made in (1999, 2003, 2004 and 2008) resulted in wealth loss for targets <Insert Table 7> whereas those made in other years generated wealth gains.

4. Conclusion

The Indian M&A landscape saw a significant rise in M&A transactions post 2004 with IT&ITeS sector being one of the most active sectors in both domestic and cross border deals. For the acquiring firms, all acquisition announcements are perceived positively by the market, irrespective of the fact whether they have been announced in HDAP or LDAP, resulting in wealth gains for them . The target firms also gained, but their gains was limited to the periods of positively moving stock markets. The magnitude of gains for both acquiring and target firms was larger when stock markets were rising.

Merger announcements, on the contrary, resulted in wealth losses for acquirers in both HDAP and LDAP. However, the magnitude of losses were less in HDAP when stock markets were rising.   The results for targets indicated wealth loss in HDAP whereas gains in LDAP. However, the results for this category (targets in case of mergers) should be read with some reservation due to the limited data set. On the basis of the above findings for M&A, it can be concluded that acquisitions are perceived positively by the market as compared to mergers in the Indian IT&ITeS sector.

The results with standardized residuals seem to be robust and well specified especially in case of acquiring firms in acquisition announcements in LDAP where they indicate consistent gains for acquirers. Yet, the simple t-test results are consistent with t_p and t_{bmp} test results in most of the cases in terms of acceptance or rejection of null hypothesis. This use of standardized residuals in Indian context for testing the announcement effect of M&A on shareholders wealth is a pioneering work.

The magnitude of the wealth gains/losses do get influenced by the trends in stock market at the time of deal announcement; the gains are more (and losses are less) when the stock markets move positively and vice versa. Finally, the assumption of the semi-strong form of EMH for Indian markets stands rejected due to the existence of significant wealth gains/losses, as the case may be.

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Table 1.Composition of firms in HDAP and LDAP

Mergers					
	HDAP		LDAP		
	Acquirers	Targets	Acquirers	Targets	**TOTAL**
No. of Firms	13	3	5	3	**24**
Acquisitions					**TOTAL**
	HDAP		LDAP		
	Acquirers	Targets	Acquirers	Targets	
No. of Firms	14	32	11	20	**77**
TOTAL	27	35	16	23	**101**

Table 2: Overview of Review of Literature

Authors	Data and Methodology	Key Findings
Eckbo, 1983	Horizontal Mergers in US; ESM with MM	Bidders made gains; rivals of challenged deals also made gains.
Seth, 1990	104 tender offers between years 1962 to 1979 in US; ESM with MM	Both related and unrelated acquisition strategies showed significant synergies; the ESM also showed that acquisitions were value maximizing.
Agrawal et al, 1992	5 years post deal announcement effect of 937 mergers and 227 tender offers between 1955 to 1987 in US; ESM with Dimson Marsh Method	Wealth loss for acquirers of 10% over 5 years after the deal; neither the firm size nor the error in beta estimation caused negative returns-market prices were slow to adjust to the merger announcement.
Borg and Leeth, 1994	191 acquisitions between 1905 to 1930 in US; ESM	Acquirers gained; for deals announced between 1905 to 1918, the stock prices continued to increase even after the completion of acquisition; during merger waves, stock prices dropped after consolidation; The large increase in wealth of stockholders till 1915 was attributed to large synergistic gains from acquisition, absence of stock market regulation and lower competition for control.
Guo et al, 1995	Merger announcements by Japanese firms of domestic US firms; ESM with MM; included variables like exchange rate, free cash flow, sales growth rate, asset growth level, premium paid to target firm and relative size of acquiring firm	Both acquirers and targets made wealth gains; positive relation between free cash flow and returns earned by Japanese acquiring firms.
Chavaltanpipat et al, 1997	Bank mergers between 1994 to 1995 in US; ESM with MM in 30 days event window	Bidder banks incurred insignificant wealth loss in small to medium acquisitions (worth less than $1 billion); large acquisition showed significant wealth loss. All the target banks made wealth gains.
Frederikshust et al, 1999	Examined the wealth creation and redistribution theories of mergers and acquisitions using a Dutch sample in the period 1954 till 1997: ESM with single factor MM	52 % of bidders gained as against 82 % of the targets; payment in cash in comparison to payment in shares provided better returns to both the party shareholders.

ESM: Event Study Methodology, MM: Market Model

Authors	Data and Methodology	Key Findings
Kargin, 2001	Review of Literature	In case of mergers, in most of the cases, targets experienced wealth gains whereas the acquirers lost. In case of tender offers, acquirers had little or no gains. Beta risk, firm size effect, time periods considered in the studies, and the type of market index chosen identified as possible causes for difference in the returns of the acquiring firms.
Fuller et al, 2002	Firms making multiple acquisitions of firms belonging to the public or private sector or that were its subsidiaries in US; ESM with modified MM	Bidder gained when acquiring private firms/subsidiary of a public firm; they lost when acquiring public firms. Magnitude of gains/ loss directly varied when the target was large and the bidders used stock as mode of payment.
Moeller et al, 2004	12,023 acquisitions made by public firms between 1980 to 2001 in US; ESM	Small firms received better returns compared to large firms. Barring acquisitions of public firms where payment was made with equity, large firms lost as they paid larger premiums than smaller firms, resulting in negative synergy gains.
Lepetit et al, 2004	M&A in European banking industry for the period between 1991 to 2001; Bivariate Garch model	Assessed the deal impact based on activity, geographic specialization and diversification; results indicated wealth gains to targets; for M&As aimed at geographic specialization, the markets reacted positively.
Campa and Hernado, 2004	M&A announcements made between 1998 and 2004 in the European Union comprising of 262 deals; ESM	Targets gained whereas no effect for acquirers. On the basis of geographical spread and sectoral dimensions of the deals, mergers in industries that had previously been under government control or that were still heavily regulated generated lower value than M&A announcements than in unregulated industries.
Kiymaz, 2004	70 US targets and 207 US bidders involved in cross border M&As between 1989 and 1999 between financial institutions; ESM with single factor MM and two factor model	Wealth gains for US targets whereas US bidders experienced insignificant gains; Bidder gains were maximum when the targets were from a Latin American country. Returns varied with foreign and US economic conditions, level of economic development of target country, exchange rate volatility control of target etc.

ESM: Event Study Methodology, MM: Market Model

Diz and Silva, 2005	M&As from Portuguese banking industry between 1995 and 2003; ESM with MM over a 20 day event window	Target firms gained whereas the acquirers suffered wealth loss; the combined effect showed no abnormal performance, i.e., the gains of one averaged the loss of the other.
Frederiskhust et al, 2005	101 M&A in Netherlands between 1954 to 1997; ESM with MM	Targets gained whereas bidders did not receive significant positive returns. For bidders, stock financed deals generated wealth losses whereas cash financed deals generated wealth gains.
Kirchhoff et al, 2006	69 domestic and cross border M&As of real estate finance institutions between 1995 and 2002 in US; ESM with MM and Market Adjusted Model	Targets gained but acquirers lost in one and twenty day window.
Malhotra and Malhotra, 2007	36 Merger announcement of US firms buying Indian companies; ESM	For 22 firms out 36 firms, no change observed. Secondary regression analysis indicated that firm size had positive impact on returns but cash flows not significantly related.
Anand and Singh, 2008	5 bank Mergers; ESM with single factor and multiple factor MM	Both bidder and target banks gained (except in the case of GTB and Oriental bank, both combined loss of 14.78 % in 11 day event window).
Clougherty and Duso, 2009	165 large mergers between 1990 and 2002; ESM with MM	Rival firms experienced wealth gains around merger announcements; concluded that the stock price reaction of rivals was not sensitive to merger waves and so the rivals positive abnormal returns were not influenced by merger waves.
Manasakis, 2009	19 M&A in Greek banking sector between 1995 and 2001; ESM with MM	Target gained in case of horizontal and diversifying deals whereas the bidding firms experienced losses in case of horizontal deals and no effect in case of diversifying deals.
Kumar and Panneerselvam, 2009	165 acquirers & 18 targets in mergers and 252 acquirers & 58 targets in acquisitions; ESM with single factor MM	Both acquirers and targets gain on Acquisition announcements in shorter time periods and acquirers gained more than targets (reverse was true for mergers); identified information leakage prior to the deal announcement.

ESM: Event Study Methodology, MM: Market Model

Bennet et al, 2010	17 acquiring firms in the Indian manufacturing sector for the period 2000 to 2002 ; ESM with MM and market adjusted model	Both acquirers and targets gain with lesser returns for acquirers; abnormal returns around the announcement date can be determined by event period market volatility, liquidity, cash position and financial leverage of the firms including profitability, growth and firm size for larger windows.
Bashir et al, 2011	71 M&A in Pakistan 2004 and 2010; ESM with MM	Contrary to several findings across the globe, they found wealth gains to acquirers and losses for targets; cited reasons like failure to make synergy gains for such a behavior of abnormal returns.

ESM: Event Study Methodology, MM: Market Model

Table 3. Mergers: Comparison of CAAR and CSAR of Acquiring Firms in HDAP and LDAP

	Mergers-Acquirers										
Event Windows	**High Deal Activity Period (HDAP)**					**Event Windows**	**Low Deal Activity Period (LDAP)**				
	CAAR	CSAR	t	t_p	t_{bmp}		CAAR	CSAR	t	t_p	t_{bmp}
(-60,+60)	-27.71	-4.31	-19.15*	-15.56*	-13.94*	(-60,+60)	-32.88	-3.51	-12.75*	-7.86*	-7.74*
(-55,+55)	-21.49	-3.18	-14.88*	-11.47*	-10.10*	(-55,+55)	-39.23	-5.26	-15.13*	-11.77*	-11.62*
(-50,+50)	-16.30	-2.29	-10.94*	-8.26*	-7.05*	(-50,+50)	-36.88	-5.62	-14.14*	-12.59*	-12.39*
(-45,+45)	-20.23	-3.05	-13.06*	-11.01*	-9.01*	(-45,+45)	-22.39	-3.31	-8.48*	-7.42*	-7.13*
(-40,+40)	-17.93	-2.62	-11.36*	-9.47*	-7.63*	(-40,+40)	-22.70	-2.78	-8.40*	-6.22*	-5.81*
(-35,+35)	-18.13	-2.53	-11.76*	-9.14*	-7.51*	(-35,+35)	-29.89	-4.13	-12.08*	-9.24*	-9.20*
(-30,+30)	-23.06	-2.96	-14.62*	-10.68*	-8.31*	(-30,+30)	-25.40	-3.16	-10.13*	-7.07*	-7.06*
(-25,+25)	-24.99	-3.38	-15.86*	-12.19*	-9.11*	(-25,+25)	-13.33	-1.22	-5.88*	-2.74	-3.02*
(-20,+20)	-13.76	-1.89	-8.55*	-6.81*	-4.85*	(-20,+20)	-20.59	-2.81	-8.58*	-6.29*	-6.70*
(-15,+15)	-11.74	-1.47	-9.73*	-5.32*	-5.21*	(-15,+15)	-23.56	-4.02	-9.64*	-8.99*	-9.38*
(-10,+10)	-13.36	-2.14	-12.41*	-7.73*	-7.62*	(-10,+10)	-20.09	-3.23	-7.24*	-7.23*	-6.47*
(-9,+9)	-12.14	-2.17	-10.73*	-7.82*	-7.38*	(-9,+9)	-24.55	-4.16	-9.09*	-9.33*	-8.71*
(-8,+8)	-10.67	-2.24	-8.98*	-8.08*	-7.31*	(-8,+8)	-26.50	-4.46	-9.77*	-9.99*	-9.16*
(-7,+7)	-10.10	-2.01	-13.80*	-7.26*	-8.83*	(-7,+7)	-21.94	-3.81	-7.58*	-8.53*	-7.44*
(-6,+6)	-9.07	-1.81	-11.58*	-6.53*	-7.37*	(-6,+6)	-14.88	-2.76	-5.29*	-6.19*	-5.61*
(-5,+5)	-8.45	-1.90	-10.15*	-6.85*	-7.48*	(-5,+5)	-17.06	-2.63	-6.77*	-5.89*	-5.66*
(-4,+4)	-5.90	-1.20	-6.79*	-4.32*	-4.52	(-4,+4)	-17.80	-2.73	-6.97*	-6.11*	-5.78*
(-3,+3)	-3.57	-0.88	-3.87*	-3.18*	-2.89*	(-3,+3)	-14.59	-2.23	-5.09*	-4.99*	-4.31*
(-2,+2)	-2.01	-0.40	-2.70*	-1.46	-2.16	(-2,+2)	-8.63	-1.52	-3.03*	-3.39*	-2.85*
(-1,+1)	-2.38	-0.45	-5.75*	-1.61	-2.30*	(-1,+1)	-0.86	-0.11	-0.30	-0.26	-0.21
(0,0)	-0.78	-0.26	-2.25*	-0.94	-0.45	(0,0)	-0.52	-0.19	-0.20	-0.42	-0.24

*Significant at 5% (Critical values: HDAP: 2.197 & LDAP: 2.776)

Table 4. Mergers: Comparison of CAAR and CSAR of Target Firms in HDAP and LDAP

	Mergers-Targets										
Event Windows	**High Deal Activity Period (HDAP)**					**Event Windows**	**Low Deal Activity Period (LDAP)**				
	CAAR	CSAR	t	t_p	t_{bmp}		CAAR	CSAR	t	t_p	t_{bmp}
(-60,+60)	-51.70	-5.79	-11.35*	-10.03*	-12.57*	(-60,+60)	27.79	5.69	8.28*	9.85*	9.02*
(-55,+55)	-43.29	-4.69	-9.28*	-8.12*	-9.92*	(-55,+55)	31.43	6.49	9.17*	11.24*	10.07*
(-50,+50)	-30.35	-5.49	-6.51*	-9.51*	-12.44*	(-50,+50)	35.67	7.12	10.40*	12.33*	11.03*
(-45,+45)	-13.27	-3.61	-2.80	-6.25*	-8.08*	(-45,+45)	20.90	4.39	5.99*	7.61*	6.70*
(-40,+40)	-35.80	-4.73	-7.54*	-8.19*	-10.65*	(-40,+40)	7.46	2.00	2.16	3.46	3.09
(-35,+35)	-20.94	-2.72	-5.56*	-4.72*	-6.81*	(-35,+35)	3.24	1.14	0.91	1.98	1.72
(-30,+30)	-23.07	-2.57	-5.95*	-4.45*	-6.36*	(-30,+30)	9.50	2.19	2.55	3.79	3.12
(-25,+25)	-33.75	-3.61	-9.49*	-6.25*	-9.78*	(-25,+25)	9.56	2.08	2.46	3.61	2.86
(-20,+20)	-18.32	-3.00	-5.08*	-5.20*	-8.68*	(-20,+20)	20.45	4.26	5.39*	7.37*	5.95*
(-15,+15)	1.71	-1.76	0.44	-3.04	-4.55*	(-15,+15)	28.00	5.47	9.00*	9.47*	9.04*
(-10,+10)	10.33	0.13	2.34	0.22	0.29	(-10,+10)	18.70	3.73	5.54*	6.46*	5.61*
(-9,+9)	16.83	1.08	3.78	1.87	2.55	(-9,+9)	16.66	3.28	4.85*	5.68*	4.85*
(-8,+8)	11.60	0.05	2.56	0.09	0.13	(-8,+8)	15.72	3.07	4.32*	5.32*	4.29
(-7,+7)	5.42	0.16	1.17	0.28	0.37	(-7,+7)	15.98	3.10	4.24*	5.37*	4.16
(-6,+6)	-1.27	-0.41	-0.27	-0.70	-0.88	(-6,+6)	19.99	3.93	5.21*	6.81*	5.19*
(-5,+5)	-6.02	-0.38	-1.33	-0.66	-0.77	(-5,+5)	19.41	3.77	4.69*	6.53*	4.61*
(-4,+4)	-10.82	-1.48	-2.64	-2.57	-3.92	(-4,+4)	25.17	4.85	6.59*	8.40*	6.31*
(-3,+3)	-12.70	-1.39	-2.93	-2.40	-3.29	(-3,+3)	24.71	4.80	6.06*	8.32*	5.85*
(-2,+2)	-10.80	-1.16	-2.40	-2.02	-2.67	(-2,+2)	22.38	4.39	4.96*	7.60*	4.85*
(-1,+1)	-8.21	-0.79	-1.77	-1.36	-2.59	(-1,+1)	8.63	1.75	1.66	3.04	1.69
(0,0)	-5.34	-0.47	-1.18	-0.81	-1.45	(0,0)	1.67	0.28	0.33	0.49	0.39

*Significant at 5% (Critical values: HDAP: 4.303 & LDAP: 4.303)

Table 5. Acquisitions: Comparison of CAAR and CSAR of Acquiring Firms in HDAP and LDAP

Acquisitions-Acquirers											
Event Windows	High Deal Activity Period (HDAP)					Event Windows	Low Deal Activity Period (LDAP)				
	CAAR	CSAR	t	t_p	t_{bmp}		CAAR	CSAR	t	t_p	t_{bmp}
(-60,+60)	28.12	8.27	23.63*	30.94*	25.17*	(-60,+60)	-6.77	1.54	-4.46*	5.12*	4.85*
(-55,+55)	35.77	10.29	30.49*	38.50*	32.26*	(-55,+55)	-5.16	2.13	-3.33*	7.06*	6.49*
(-50,+50)	30.68	8.95	26.51*	33.46*	27.89*	(-50,+50)	-5.49	1.65	-3.52*	5.47*	4.97*
(-45,+45)	30.34	8.98	26.19*	33.59*	27.95*	(-45,+45)	-7.31	1.26	-4.87*	4.19*	3.91*
(-40,+40)	19.31	6.22	16.42*	23.26*	18.89*	(-40,+40)	-0.22	2.99	-0.15	9.93*	9.95*
(-35,+35)	15.55	5.12	13.22*	19.16*	15.53*	(-35,+35)	0.59	2.85	0.41	9.47*	9.36*
(-30,+30)	15.00	5.13	12.08*	19.20*	14.85*	(-30,+30)	1.19	1.82	0.82	6.03*	5.92*
(-25,+25)	12.46	3.81	9.77*	14.25*	10.98*	(-25,+25)	3.54	1.75	2.38*	5.81*	5.39*
(-20,+20)	10.49	2.68	8.41*	10.02*	8.13*	(-20,+20)	2.47	1.40	1.58	4.64*	4.08*
(-15,+15)	10.65	3.13	8.44*	11.71*	9.72*	(-15,+15)	3.15	2.52	1.98	8.36*	7.03*
(-10,+10)	13.40	3.74	10.50*	14.00*	11.37*	(-10,+10)	2.35	1.95	1.50	6.47*	5.33*
(-9,+9)	14.84	4.06	12.37*	15.17*	12.98*	(-9,+9)	1.37	1.57	0.84	5.22*	4.19*
(-8,+8)	15.31	3.76	12.98*	14.07*	11.93*	(-8,+8)	0.56	1.27	0.33	4.22*	3.20*
(-7,+7)	14.35	3.30	11.49*	12.32*	10.13*	(-7,+7)	3.94	1.94	2.30*	6.44*	4.97*
(-6,+6)	10.07	2.32	8.20*	8.66*	7.11*	(-6,+6)	2.59	1.47	1.42	4.89*	3.52*
(-5,+5)	7.66	1.84	5.99*	6.89*	5.33*	(-5,+5)	4.47	1.73	2.38*	5.75*	4.02*
(-4,+4)	7.33	2.15	5.42*	8.04*	6.28*	(-4,+4)	6.58	2.14	3.41*	7.11*	4.90*
(-3,+3)	5.56	1.78	4.44*	6.66*	5.49*	(-3,+3)	7.97	2.75	5.30*	9.13*	7.94*
(-2,+2)	6.87	1.85	8.67*	6.90*	5.97*	(-2,+2)	6.83	1.90	3.94*	6.30*	4.64*
(-1,+1)	4.94	1.54	6.00*	5.76*	5.29*	(-1,+1)	4.56	1.17	1.90	3.87*	2.11
(0,0)	2.04	0.47	3.04*	1.75	0.59	(0,0)	2.63	0.58	1.17	1.91	0.43
*Significant at 5% (Critical values: HDAP: 2.160 & LDAP: 2.228)											

Table 6. Acquisitions: Comparison of CAAR and CSAR of Target Firms in HDAP and LDAP

Acquisitions-Targets											
Event Windows	High Deal Activity Period (HDAP)					Event Windows	Low Deal Activity Period (LDAP)				
	CAAR	CSAR	t	t_p	t_{bmp}		CAAR	CSAR	t	t_p	t_{bmp}
(-60,+60)	22.92	3.60	29.97*	20.37*	17.88*	(-60,+60)	1.61	0.18	1.03	0.80	0.66
(-55,+55)	19.84	2.71	25.26*	15.31*	13.11*	(-55,+55)	1.89	0.33	1.21	1.48	1.21
(-50,+50)	14.14	1.34	17.67*	7.60*	6.45*	(-50,+50)	15.79	3.10	10.69*	13.87*	12.24*
(-45,+45)	11.43	0.73	14.01*	4.13*	3.52*	(-45,+45)	12.97	2.55	8.44*	11.39*	9.69*
(-40,+40)	12.49	1.35	16.31*	7.65*	7.28*	(-40,+40)	5.79	1.42	3.67*	6.36*	5.26*
(-35,+35)	14.85	2.87	21.00*	16.27*	17.87*	(-35,+35)	0.68	0.09	0.42	0.39	0.32
(-30,+30)	10.42	2.01	14.95*	11.37*	13.05*	(-30,+30)	6.14	0.52	3.72*	2.34*	0.09
(-25,+25)	13.22	2.62	22.74*	14.80*	18.48*	(-25,+25)	8.68	0.91	5.87*	4.05*	3.55*
(-20,+20)	14.86	3.19	26.01*	18.05*	23.64*	(-20,+20)	2.28	-0.18	1.50	-0.80	-0.69
(-15,+15)	9.74	1.93	17.57*	10.91*	14.36*	(-15,+15)	0.50	-0.36	0.33	-1.62	-1.39
(-10,+10)	8.99	1.82	17.57*	10.32*	15.56*	(-10,+10)	-4.03	-1.09	-2.49*	-4.85*	-3.90*
(-9,+9)	8.60	1.63	16.47*	9.25*	13.46*	(-9,+9)	-5.68	-1.22	-3.91*	-5.44*	-4.75*
(-8,+8)	7.09	1.22	13.08*	6.92*	10.26*	(-8,+8)	-9.74	-1.80	-7.91*	-8.04*	-7.76*
(-7,+7)	5.03	0.93	9.81*	5.27*	7.57*	(-7,+7)	-11.80	-2.12	-10.89*	-9.47*	-10.00*
(-6,+6)	5.20	0.89	9.97*	5.01*	6.77*	(-6,+6)	-11.43	-2.16	-10.30*	-9.67*	-10.42*
(-5,+5)	4.92	0.73	9.02*	4.14*	5.19*	(-5,+5)	-8.00	-1.54	-7.23*	-6.89*	-7.41*
(-4,+4)	4.69	0.71	8.11*	4.02*	4.67*	(-4,+4)	-8.22	-1.60	-7.16*	-7.17*	-7.55*
(-3,+3)	4.50	0.78	8.37*	4.39*	5.01*	(-3,+3)	-6.98	-1.45	-6.58*	-6.49*	-7.02*
(-2,+2)	3.73	0.63	6.00*	3.58*	3.53*	(-2,+2)	-5.75	-1.27	-4.65*	-5.65*	-5.68*
(-1,+1)	2.64	0.45	3.15*	2.56*	1.83	(-1,+1)	-3.50	-0.76	-2.30*	-3.38*	-2.63*
(0,0)	1.39	0.27	1.95	1.54	0.25	(0,0)	0.46	0.07	0.33	0.33	0.06
*Significant at 5% (Critical values: HDAP: 2.043 & LDAP: 2.093)											

Table 7. Acquisitions: Comparison of CAAR of Target Firms in LDAP

Results for 1999, 2003, 2004 and 2009			Results for 2000, 2001, 2002 and 2008		
Event Windows	CAAR	t	Event Windows	CAAR	t
(-60,+60)	9.51	30.72*	(-60,+60)	-9.24	-20.44*
(-55, +55)	10.35	32.98*	(-55, +55)	-8.83	-19.49*
(-50,+50)	0.73	2.30*	(-50,+50)	-3.95	-8.95*
(-45,+45)	10.51	32.43*	(-45,+45)	-4.99	-11.15*
(-40,+40)	9.67	28.83*	(-40,+40)	-6.90	-15.43*
(-35,+35)	6.90	21.96*	(-35,+35)	-5.75	-12.24*
(-30,+30)	6.23	19.33*	(-30,+30)	-3.88	-8.10*
(-25,+25)	5.17	15.79*	(-25,+25)	-2.26	-5.35*
(-20,+20)	4.23	12.77*	(-20,+20)	-3.9	-9.37*
(-15,+15)	2.99	8.41*	(-15,+15)	-3.63	-8.90*
(-10,+10)	2.24	6.05*	(-10,+10)	-4.45	-10.19*
(-9,+9)	1.65	6.05*	(-9,+9)	-4.11	-8.94*
(-8,+8)	0.97	3.61*	(-8,+8)	-4.4	-9.43*
(-7, +7)	0.28	3.14*	(-7, +7)	-4.5	-10.54*
(-6,+6)	0.51	2.93*	(-6,+6)	-4.42	-11.24*
(-5, +5)	1.08	4.64*	(-5, +5)	-3.65	-8.55*
(-4,+4)	0.17	2.04	(-4,+4)	-3.44	-7.47*
(-3,+3)	0.21	2.40*	(-3,+3)	-3.10	-6.68*
(-2,+2)	0.19	2.19	(-2,+2)	-2.43	-4.33*
(-1,+1)	0.02	0.13	(-1,+1)	-1.85	-2.89*
(0,0)	0.02	0.01	(0,0)	0.11	0.08
Significant at 5%, Critical value:2.365			Significant at 5%, Critical value:2.201		