A Study of Market Response of The Announcement of Mergers and Acquisitions In Indian Manufacturing Industry

Honey Gupta, L.K. Singh

Abstract: The present paper is an attempt to find the impact of M&A announcement on the share price of Indian acquirer firms. This study examines the 25 Indian domestic Mergers and Acquisitions held in year 2009 & 2010 by using event study methodology. Only firms from secondary sector of Indian economy were selected for this study. T test was applied on Average Abnormal returns (AAR) & cumulative Average Abnormal returns (CAAR) of observed event windows (-5,+5), (-2,+2) and (-1,+1) to examine statistical validity. After analysing all returns, it is found that Mergers and Acquisitions announcement do not have any significant impact on CAAR of Acquirer firms but AAR is statistically significantly positive on some days of (-5,+5)event window.

Keywords: Mergers & Acquisitions (M&A), Event study, Average Abnormal returns (AAR), cumulative Average Abnormal returns (CAAR), Market Model

I. INTRODUCTION

Mergers and acquisitions have become one of the most effective components of corporate growth strategies. In recent past Mergers & acquisition have gained momentum in developed as well as in developing nations. Liberalization, privatization and globalization are the main cause for the expansion of Mergers and Acquisition deals in emerging economies. It is used to gain competitive advantages over the competitors in the form of accelerating a company's growth, entering new markets, greater customer base, enhanced profitability and economies of scale etc.

Today India has emerged as one of the top countries with respect to mergers and acquisitions. In pre-liberalization era, in India, the frequency of M&A deals were very less. But in the wake of liberalization and economic reforms in early 1990s Indian corporate houses got freedom to expand and diversify their business worldwide with lesser government control ,regulations and restrictions. With the growing trend of Mergers and acquisitions in corporate world, it is very important to examine the effects of M&A on firms and what are the main causes of its popularity among nations? Short term and long term effect of M&A can be studied on the performance of acquirer. Accounting based approach of performance measure takes a long term perspective of merger and acquisition performance. These studies generally compares financial ratios over a period of years and any benefit arising from mergers and acquisitions will finally reflected in the firm's accounting statements.

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But these studies are based on historical data and can be manipulated so sometimes these studies could not able to reflect true picture. Whereas, Short-term effects are of interests for immediate trading opportunities they create; moreover, stock market reactions to mergers and acquisitions announcements could help to predict mergers and acquisitions profitability. The effects of these announcements appear to be a good indicator of future success. The most statistically reliable evidence on whether mergers and acquisitions create shareholders wealth is documented by conducting event studies**. (Rani,et.al,2013).** According to **(MacKinlay,1997)**, event study is conducted "using financial market data" to "measure the impact of a specific event on the value of a firm". Share prices are supposed to reflect the true value of firms, because they are assumed to reflect the discounted value of all future cash flows and incorporate all relevant information. Event study is a popular method of assessing M&A impact on firm in developed countries and a number of researchers have adopted this methodology in their study. In developing country, like India, this method is gaining popularity among researchers from last few years.

In accordance to find out the short term effect of market response of M&A announcement on Indian Acquirers, the present study used event study methodology.

II. LITERATURE REVIEW

Tambi (2004) investigates impact of mergers and amalgamation on the performance of Indian companies in the time span of 2000-2001. He has used paired t test to examine the mean difference of four parameters- Total Performance Improvement, Financial Synergy, Operating Synergy and Economies of Scale. His study concluded that mergers have failed to contribute in the performance of companies. **Zhu & Malhotra (2008)** examined the short-term stock performance of a sample of Indian firms acquiring US firms in the period 1995-2005. Their event study showed that the Indian stock market reacts positively to the acquisition announcement. **Dirk Schiereck. & et,al. (2011)** analyzed the impact of cross-border acquisitions announcements on Turkish shareholders wealth with a focus on capital market integration. To achieve their objective, they took the sample of 112 acquisitions between the year 1992 to 2010 which includes 83 domestic and 29 cross border acquisitions. This study used market model approach for its event study methodology. The results in this study found that acquisitions announcements in general show significant positive abnormal returns of about 2.35%. **Oduro & Agyei,**

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(2013) made an attempt to evaluate the relationship between M&As and the performance of firms on the Ghana Stock Exchange from 1999-2010. The study was accounting based and used univariate analysis with T-testing as well as panel data methodology for the analysis. The study found negative impact on the profitability of the sample firms. Hence, the study does not support the value creation theory of M&A. In addition to the findings, results also indicate that risk and firm size have significantly negative relationship with firm profitability while debt capital and firm growth enhance firm profitability. **Mohapatra,J.K.(2015)** analysed construction sector to find out the effect of M&A with the help of event study methodology. He has drawn a sample of 17 M&A from April 1995 to March 2012. To follow event study methodology, the researcher used estimation period of 180 days. This study also used market model approach for its event study The CAR for most of the acquisitions in the industry is found to be positive at 2.27% which results that M&A positively affect the construction industry in India in the selected time frame. **Sachdeva & et.al. (2015)** examined the announcement effect of 85 merger and acquisition on Indian acquiring firm shareholders wealth in the short run during 1991-2010. This study seeks to assess the impact of merger announcement on the wealth of the acquiring company's shareholders in India. This study finds that the announcement of merger and acquisition do not generate significant positive value for acquiring firm shareholders in India in the short run.

Thus, after reviewing different literature on effect of M&A on performance of firms, still there are mixed conclusion. Some studies found positive impact of M&A while other found M&A as value deteriorating. The Indian studies based on event study methodology are extremely limited in number as compared to developed countries' study. In India mostly studies used accounting approaches to find effect of M&A. studies based on event study methodology has started popularity in recent past as event studies are based on share price data which represents the true present image of company rather than accounting approach which uses past data to find M&A effect on companies. So, still there is a gap which needs more researches in this area .The present study is an attempt to find the impact of M&A announcement on the share price of Indian acquirer firms.

III. RESEARCH OBJECTIVE

The study is designed to assess the announcement effect of M&A on sample acquirer firms. The study is conducted on the sample of 25 M&A of different Indian industries–

- To examine the short term abnormal return of Indian M&A acquirer firms using event study methodology

A. Formation of Hypotheses

On the basis of above said objective, following hypotheses are formed:

$H_0$1: M&A announcements do not have significant impact on the Average Abnormal Return (AAR) of sample acquirer firms, on any given day of the observed event window

$H_0$2: M&A announcements do not have significant impact on the Cumulative Average Abnormal Return (CAAR) of sample acquirer firms, on the observed event window

IV. RESEARCH METHODOLOGY

A. Data Collection

The present study is conducted to examine the effect of M&A announcement on share price of sample Indian acquirer firms. For examining the market response of M&As announcement, event study methodology has been adopted. For event study, adjusted closing share price data has been collected from the CMIE prowess Database and Bombay stock exchange website. Other important information has been collected from important secondary data sources like annual report of sample firms, press releases, Securities and Exchange board of India (SEBI), Reserve bank of India, internet and analyst report of different research companies.

B. Scope of Study & Sample Selection

The sample for this study is drawn from the Indian firms of different industries which have undergone M&A as a part of their inorganic growth strategy in year 2009-2010. All Indian domestic M&A held in year 2009 & 2010 has considered as population for this study. M & As of primary and tertiary sectors of Indian industry were excluded from the sample. Only firms of secondary sector of Indian economy were selected for this study. M&A from the manufacturing Industry was considered for selecting sample. As, Manufacturing Industry plays a crucial role in the social and economic development of any country. After that, companies' whose share capital was less than 100 corers was also removed from the sample. Thus, the final sample collected is of 25 acquirer firms of different Indian industries. Table -3 in appendixes presents list of all the sample firms and their respective M&A announcement date.

C. Event Study Methodology

In the present study, Event study methodology is adopted to find market response of M&A announcement impact on Indian acquirer firms. Event study methodology has been widely used for the said purpose with market model for estimating abnormal returns. "Event studies examine the behaviour of firms' stock prices around corporate events. In a corporate context, the usefulness of event studies arises from the fact that the magnitude of abnormal performance at the time of an event provides a measure of the (unanticipated) impact of this type of event on the wealth of the firms' claimholders." (Kothari & Warner).

D. Event Study Mechanism:

1. **Event definition & Event date**

   Event is expected to convey some information that is going to influence the share prices. In present study event is the merger & acquisition's announcement. That's why our objective of this study is to study the effect of M&A announcement. Event date is defined as the first media announcement of the M&A deal and it is denoted by day 0 in event study.

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2. **Estimation window**
   In this study estimation period comprises of 130 days prior to observed event window of (-5,+5) days
3. **Event Window**
   Although there is no consistency between the event windows used in existing studies, the short-term window is used in present research which is relatively "straight forward and trouble free" (Tuch and O'Sullivan, 2007, p. 148). For this study, (+5,-5), (+2,-2) & (+1,-1) event windows has been chosen for conducting event study.
4. **Computation of E(r), AR using Market Model**
   The traditional market model to estimate abnormal returns as per equation (1) is:

Equation 1

$$AR_{i,t} = R_{i,t} - E(r_{i,t})$$

Where-
$AR_{i,t=}$ Abnormal returns for given security and day t
$E(r_{i,t})$ = Expected returns for given security and day t
And
$R_{i,t}$ is actual returns for security i and day t,which are calculated as equation 2

Equation 2

$$R_{i,t} = (P_t - P_{t-1}) / P_{t-1}$$

$R_{i,t=}$ Actual returns for given security i on day t
P_t= Price of stock 'i' on day 't'
P_{t-1}= Price of stock 'i' on day 't-1'

The market model approach runs a one factor Ordinary Least Squares (OLS) regression of an individual stock's daily returns against the preceding the actual event. (equation 3)

Equation 3

$$E(r)_{i,t} = \alpha_i + \beta_i R_{m,t}$$

Where-
α = Regression intercept
β = Beta factor, slope
$E(r)_{i,t}$ = Expected returns for given security and day t

Equation 4

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t})$$

- **Computation of Cumulative Abnormal Returns (CAR)**
  CAR represents the time series aggregation of abnormal returns

Equation 5

$$CAR(T1, T2) = \sum_{t=T1}^{T2} AR\, i(t)$$

Where,
(T1, T2)= Event Window , for present study it is (-5,+5)

- **Cross sectional Aggregation: Measurement of Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR)**

For Average Abnormal Return (AAR_T) for the entire sample, the individual firm's Abnormal Returns (ARit) calculated previously were averaged and aggregated across all the firms in the sample size. (refer Eq. 6)

Equation 6

$$AAR_T = (\sum_{i=1}^{T} AR_{it})/\text{N}$$

Where,
N= Number of firms in sample size

Cumulative average abnormal returns are calculated for different period in event window, as follows-

Equation 7

$$CAAR(T1, T2) = \sum_{T=T1}^{T2} AAR_T$$

After calculating CAAR, next step is to check statistical validity of CAAR by applying t test at 5 % significance level for (-5,+5) event window.

V. DATA ANALYSIS AND FINDINGS

Mergers and acquisitions on an average, have the potential to enhance the shareholder value. While there are many popular ways to measure the value created by M&As, the short-run stock performance of the acquirer, the target and the combined entity is the most widely used method (Indhumathi, Selvam). To find out the effect of M&A announcement on company's share price, the Market Model is applied to conduct event study.

- To examine, whether the M&A announcement has affected the share price of the acquirer companies on and around the event day, the abnormal returns (AR) for each day of the (-5,+5) event window is calculated
- Next step is to calculate CAR by cumulative addition of AR
- Further, for Average Abnormal Return (AAR) of entire sample, the average of Abnormal Returns (AR) is computed across all the firms in the sample on each day of the (-5,+5) event window
- Using above calculated AAR, the cumulative sum across entire event window is calculated for each of the observed (-5,+5), (-2,+2) and (-1,+1) event window in order to arrive at CAAR
- To check the statistical validity, t-test is applied on AAR & CAAR
- If -2.23 > calculated t-statistics > 2.23 , the AAR or CAAR is statistically significant at 5% significance level &
- If -1.81 > calculated t statistics > 1.81 , the AAR & CAAR is statistically significant at 10% significance level

A. T Test Application on AAR

The table no.1 presents the AAR & CAAR for all the 25 firms across the (-5,+5)

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Event window and t-test application on AAR to check the statistical significance on 95% as well as on 90% confidence level. This table also helps to validate the hypothesis H_01

TABLE 1: AAR, CAAR & T Test Application on AAR

S. No.	Event Windows	AAR	CAAR	T Statistics	Statistical Significance
1	-5	-0.006	-0.006	-1.842	**S++**
2	-4	0.01	0.004	2.244	**S+**
3	-3	0.001	0.005	0.281	NS
4	-2	0.009	0.014	2.369	**S+**
5	-1	0.012	0.026	1.675	NS
6	**0**	**0.012**	**0.038**	**2.347**	**S+**
7	1	-0.003	0.035	-1.194	NS
8	2	0.003	0.038	0.902	NS
9	3	-0.007	0.031	-3.013	**S+**
10	4	-0.007	0.024	-2.36	**S+**
11	5	0.001	0.026	0.263	NS

S+: Significant at 5% significance level
S++: Significant at 10% significance level
NS: Non Significant at 5% and 10 % significance level

Findings:

Following observations are found from table-1:

1) The CAAR is positive in the entire event window (-5,+5) except for the first day i.e. day -5 of the event window and it is maximum on day 0 and day +2 with value of 0.038.
2) The value of AAR is positive in 7 out of 11 day event window with maximum value (0.012) reached on day 0
3) It is clear from the table-1, that value of AAR and CAAR is positive on announcement day and AAR is significantly positive at 5% significance level on day 0 i.e. event day
4) It is observed that on applying t-test, AAR is statistically significant on day -5 i.e. the first day of the event window, at 90% confidence level
5) Based on the results of t-test application, AAR is found to be statistically significant on 5 days out of 11 days window at 95% confidence level. It is significant on day -4, day -2, day 0, day +3 & day +4 of the (-5,+5) event window
6) It is concluded from the table that out of 11 days event window, Hypothesis **H_01 is rejected on day -5, day -4, day -2, day 0, day +3 & day +4 of (-5,+5) event window**
7) Contrary to above, it is also observed that Hypothesis **H_01 failed to be rejected on day -3, day -1, day +1, day +2 & day +5 day of (-5,+5) event window**

B. T Test Application on CAAR Across all Event Window:

The table no.2 presents the CAAR for (-5,+5), (-2,+2) and (-1,+1) event windows and summery of t-test application on CAAR to check the statistical significance on 95% as well as on 90% confidence level. This table also helps to validate the hypothesis H_02.

TABLE 2: Hypothesis Testing of CAAR

S. No.	Event Windows	CAAR	T Statistics	Hypothesis *
1	(-5,+5)	0.026	1.101	Failed to Reject
2	(-2,+2)	0.033	1.489	Failed to Reject
3	(-1,+1)	0.021	1.133	Failed to Reject

Note-*Hypothesis tested at 5% and 10% significance level

Findings:

1) It is observed from table 2, that value of CAAR is positive across all event windows and it is maximum in the 5 day event window
2) On comparing the calculated T-statistics with critical value from T distribution table, it is observed that CAAR is not significant on 5% and 10 % significance level, across (-5,+5), (-2,+2) and (-1,+1) event windows
3) From the table 2, it is concluded that **hypothesis H_02 fails to be rejected across all selected event windows for CAAR**
4) Hence, M&A announcements do not have significant impact on the Cumulative Average Abnormal Return (CAAR) of sample acquirer firms, on the observed event windows

VI. CONCLUSION & RECOMMENDATIONS

The present study is undertaken to find out the effect of market response on M&A announcement of Indian acquirer firms in the short term. For this research, Event study methodology is adopted to find out the effect of M&A announcement on stock prices of sample acquirer firms. The results from the above analysis indicate that M&A announcements do not have significant impact on the Cumulative Average Abnormal Return (CAAR) of the sample acquirer firms, on the observed event windows. Hence, hypothesis $H_0$2 fails to be rejected for all selected event windows. Further, from table-1 it is observed that M&A announcements have significant impact on the Average Abnormal Return (AAR) of sample acquirer firms on some days of the observed event window; thus for these days the hypothesis $H_0$1 is rejected. AAR is significantly positive on announcement day at 95% confidence level. For rest of the days of the event window, M&A announcement does not have a significant impact on the Average Abnormal Return (AAR) of the sample acquirer firms. Therefore, the hypothesis $H_0$1 failed to be rejected on rest of the days of event window. However the results cannot be generalised as study is conducted on only small sample and time frame of study was also limited. Therefore, there is a scope for further studies in the area of primary and tertiary sectors of Indian economy and more time frames can be chosen. More studies can be conducted using Accounting approach as well as Event study approach, so that advantages of both methods can be leveraged to generate better results. As it is found from the present study, that AAR and CAAR are maximum on M&A announcement day and there is a significant impact of announcement on AAR. Hence, it is recommended that, acquiring companies should be more careful with M&A announcement as it can potentially impact its performance in immediate short term.

BIBLIOGRAPHY

1. Chandra, Prasanna,(2001), "Financial Management", Tata McGraw Hill Publishing Company Ltd., fifth edition
2. Gopalaswamy,A.K. (2008), "Stock price reaction to merger announcements: an empirical note on Indian markets", Investment Management and Financial Innovations, Volume 5, Issue 1
3. Kalghatgi,j, " Mergers and Acquisitions in Indian Information Technology Industry and its Impact on Shareholders' Wealth", International Journal of Research in Commerce, IT & Management, volume no. 2 (2012), issue no. 4
4. Kothari, S. P., & Warner, J. B. (2007), "Econometrics of event studies." , Chapter 1 in Handbook of Corporate Finance-Empirical Corporate Finance. Elsevier B
5. MacKinlay, A.C. (1997), "Event studies in economics and finance", Journal of Economic Literature, 35, 12-39
6. Mohapatra,J.K., "Shareholder's Value Creation in M&A- A Case of Indian Construction Industry" , Pacific Business Review International, Volume 8, Issue 1, July 2015, PP 41-49
7. Oduro, I M. & Agyei, S.K.(2013), "Mergers & Acquisition and Firm Performance: Evidence from the Ghana Stock Exchange", Research Journal of Finance and Accounting, Vol.4, No.7
8. Rani , N. and Yadav,S. S. and Jain P.K.,(2013), "Market Response to the Announcement of Mergers and Acquisitions: An Empirical Study from India", Vision: The Journal of Business Perspective, sDownloaded from http://vis.sagepub.com/content/17/1/1, on May 10, 2014
9. Rosenberg, Matt, (2011), "Sectors of The Economy", article online available at www.geography.about.com posted on March, 2011
10. Sachdeva T,Sinha N.& Kaushik, K.P.,(2015), "Impact of Merger and Acquisition Announcement on Shareholders' Wealth an Empirical Study Using Event Study Methodology", Delhi Business Review, Vol. 16
11. Singh,Dr.,L.& Gupta,H.,(2014), "Impact of M&A on Performance of Acquirer: A Study of Selected Firms of Manufacturing Industry in India", Journal of International Academic Research for Multidisciplinary, Volume 2, Issue 11, December 2014, Pp.209-224
12. Tambi,M.K., "Impact of Mergers and Amalgamation on the Performance of Indian Companies", WPA Finance, pp 32-38, 2004
13. Tuch, C. and N. O'Sullivan (2007) "The impact of acquisitions on firm performance: a review of the evidence" International Journal of Management Reviews, vol 9, pp-141–170.
14. Wseton, J. Fred, Chung Kwang S. and Hoag, S.E., "Mergers, Restructuring and Corporate Control", Prentice Hall of India Pvt. Ltd., 2007

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APPENDIX

Table No. 3 List of Sample Acquirer Firms and their Event Day

S. No.	Name of Acquirers	M&A Announcement Date
1.	A C C Ltd.	29-Jan-2010
2.	Aditya Birla Nuvo Ltd.	9-Mar-2009
3.	Biocon Ltd.	30-Sep-2009
4.	Brigade Enterprises Ltd.	24-Jan-2009
5.	C E S C Ltd.	28-Aug-2009
6.	Crompton Greaves Ltd.	30-Mar-2010
7.	Entegra Ltd.	21-Apr-2009
8.	Escorts Ltd.	29-Apr-2009
9.	Essar Oil Ltd.	4-Mar-2009
10.	G H C L Ltd.	25-May-2009
11.	G T L Infrastructure Ltd.	14-Jan-2010
12.	G V K Power & Infrastructure Ltd.	7-Dec-2009
13.	Hindustan Unilever Ltd.	27-Jan-2010
14.	Indian Oil Corpn. Ltd.	16-Sep-2009
15.	Jaiprakash Power Ventures Ltd.	25-Jun-2009
16.	Mahindra & Mahindra Ltd.	30-Mar-2010
17.	Prism Cement Ltd.	8-Aug-2009
18.	Ranbaxy Laboratories Ltd.	19-Jan-2010

19.	Reliance Industries Ltd.	30-Jun-2009
20.	Reliance Infrastructure Ltd.	29-Jan-2010
21.	Reliance Power Ltd.	21-Jul-2009
22.	Tata Chemicals Ltd.	7-Aug-2009
23.	Tata Motors Ltd.	22-Sep-2009
24.	Ultratech Cement Ltd.	20-Oct-2009
25.	United Spirits Ltd.	16-Nov-2009