

SHORT-TERM IMPACT OF M&A ON SHAREHOLDERS' RETURNS: A STUDY OF CORPORATE ACQUIRER FIRMS IN INDIA

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Mergers and acquisitions (M&A) constitute crucial investment decisions; being so, they are expected to have significant implications for corporate firms' performance. To be consistent with the objective of wealth-maximization, the M&A decisions should have positive impact on the shareholders returns. The study assesses the stock returns for the acquirer firms, associated with M&A announced in India during the years 2002-2008 (peak to peak); the present sample consists of 136 acquirer firms: 19 from auto-ancillary, 42 from pharmaceutical, and 75 from IT sector. Results indicate that the M&A announced in Indian corporate sector during the stated peak of M&A as value creating/enhancing. Shareholders of acquirer firms have earned/ gained excess to normal returns around M&A announcement; the magnitude of returns and the period of returns-conducive window pertaining to IT was significantly better vis-a-vis auto-ancillary and pharmaceutical sector; perhaps the IT boom period (observed 2004 onwards) could be reason. Further, we have observed that the stock market response to M&A announcements lasts, by and large, for a weak only.

Key words: M&A Announcements; Abnormal Returns; Event Study; Acquirer Firms; Clean Window; Contemporaneous Events

INTRODUCTION

M&A are vital corporate investment decisions. These decisions are reckoned as value-creating strategies expected to bring synergistic benefits to the merging entities, operating, marketing, managerial, and financing and so on. The darker side is that, returns from M&A are highly uncertain; a large body of literature has observed M&A as value-deteriorating strategy, particularly, from acquirer firms' perspective (Agrawal *et*

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al. 1992; King *et al.* 2004). To be consistent with the goal of wealth-maximization, M&A should be able enhance/improve the profitability/returns/ value to shareholders. The underlying potential of M&A decisions starts reflecting much earlier, on their announcements it-self, in form of share-price fluctuations. Since, M&A decisions involve huge stake of funds, there potential merits assessment at earliest.

Since post-liberalization reforms (1990), the investment in M&A in India has been evidencing a consistent growth pattern. Recent M&A wave (2002-08) has proved to be the wave of M&A mania, with spurt growth observed in terms of value as well as volume. During the year 2007 (before the recession set in) the M&A value in India was all time high, recording USD 70 billion, revealing a growth rate of 150 per cent *vis-a-vis* global growth rate of 49.11 per cent. After a minor correction, observed during the years 2008 and 2009, the M&A market in India has revived, registering a growth of 159 per cent in 2010 (touching the same level as was witnessed during 2007). The parallel movement of M&A activities with economy is suggestive of M&A activities to be a significant part of economic development. More vivid M&A market is foreseen with the rise in the level of economic growth in the coming years.

This paper attempts to assess the impact of M&A in India. As per efficient market hypothesis, stock prices quickly absorb every new information/announcement/corporate event in the market and transmit the same in forms of stock price fluctuation. Therefore, it has been a general practice to assess the economic effect of corporate events in terms of stock-returns using event study methodology. Using this methodology, the study attempts to examine the abnormal returns associated with M&A announcement pertaining to shareholders of acquirer firms in India. The study examines the M&A announced during M&A wave pertaining to the time span of 2002-08; the sample period has been assumed useful in bifurcating the returns during different economic scenarios; for instance, the period 2002 onwards has witnessed economic uprising; during 2007 M&A were at peak; the year 2008 was the recession year (Figure 1). Such a sample would be insightful for identifying the impact of economic changes on M&A. The study covers three sectors, namely, auto-ancillary, IT, and pharmaceutical.

LITERATURE REVIEW

Announcement impact of M&A has been an extensively researched area in literature. Notwithstanding the fact, the findings are non-convergent as to whether M&A decision

adds to the value of shareholders' or deteriorates it. A brief review of stock-price studies over three decades (1994 to 2005) by Kumar and Panneerselvam (2009) is suggestive of the wide disparity in the empirical findings, albeit the similar methodology with minor variations in data, periods, or region covered. Studies by Datta, *et al.* (1992), Bruner (2002), King *et al.* (2004) also corroborate the same.

Large number of empirical studies support positive abnormal returns associated with M&A announcement (Markides and Ittner 1994; Cakici *et al.* 1996; Schwert 1996; Maqueira *et al.* 1998; Eckbo and Thorburn 2000; Kohers and Kohers 2000; Doukas *et al.* 2002; Beitel *et al.* 2004; Anand and Singh 2008; Mittal, *et al.* 2012; Rani *et al.* 2013). Fee and Thomas (2004) have witnessed abnormal returns of 3.06 per cent over a three days window around announcement (day -1 to day +1) on analyzing 554 horizontal deals taken place during 1980-97. Anand and Singh (2008) have examined the effects of M&A announcements on private sector banks in India over a forty days event window; findings have shown significant accumulations of abnormal wealth in three to eleven days window for bidder as well as target banks.

Few studies document M&A as value-deteriorating decisions (Jensen 1986; Shleifer and Vishney 1989; Kuipers *et al.* 2002; Martinez-Jerez 2002; Akbulut and Matsusaka 2003). There are some studies, which have observed significant negative returns up to five cent for the acquirer firms (Sirower 1997; Datta and Puia 1995; Corhay and Rad 2000; Mulherin and Boone 2000; Mitchell and Stafford 2000; Walker 2000; DeLong 2001; Houston *et al.* 2001; Goergen and Renneboog 2004).

There also exist studies that suggest no significant impact of M&A on the stock-returns. For instance, study by Andrade *et al.* (2001) suggests 3-days abnormal returns around announcement for target firms, whereas, no conclusive evidence has been noted for abnormal returns to the acquirer firms. In a review study of 14 informal and 100 scientific studies (during 1971 to 2001), Bruner (2002) observed massive studies indicating sizeable positive returns for shareholders of target firms, zero returns for acquirer firms and positive combined returns for both bidder and acquirer firms.

Jensen and Ruback (1983) have observed significant difference in the shareholders returns from mergers and acquisitions (as separate events); shareholders of bidding firms have earned significant positive gains of 2.4 per cent to 6.7 per cent and weighted average returns of 3.8 per cent in successful tender offers; in marked contrast, zero/negligible returns have been noted for the shareholders of bidding firm for mergers.

Hassan *et al.* (2007) on assessing mergers and acquisitions (as separate events) in US pharmaceutical industry have noted the abnormal returns (short-term as well as long-term) in cases of acquisitions only. In Indian context, Kumar and Panneerselvam (2009) have identified positive short-term abnormal returns from mergers as well as acquisitions, which have taken place during 1998-2006.

The available studies along with inconclusive findings also reflect the regional disparity; the available literature seems to be more focused on M&A activities pertaining to the western developed economies; the developing economies such as India seem to be inadequately attended, albeit the consistent momentum of M&A observed in these economies. In spite of globalization, there exists wide difference in the corporate culture, economic environment, investors' sentiments, regulatory environment, etc.; this then constitutes rationale, for more comprehensive studies pertaining to M&A in India.

RESEARCH METHODOLOGY

The paper assesses the magnitude of stock returns associated with M&A announcements using event-study methodology (Brown and Warner 1980; 1985). Event study is a widely accepted approach/ statistical tool used for assessing the impact of particular type of firm-specific events, such as, mergers, earnings/ dividend announcements, stock-split, bonus announcements, etc. on the security prices of the affected firm.

Event study measures the extent of abnormality in the security price behaviour around event announcements, *i.e.* the extent to which security returns react differently from the expected returns. In particular, it measures the abnormal returns gained by firm's shareholders due to unanticipated corporate events; the magnitude of the abnormal returns around the event announcement is a measure of the impact of the particular unanticipated event on the firm's shareholders wealth (Brown and Warner 1980); the positive abnormal returns signify the value-creation and decrease in the returns indicate value-deterioration.

Key constituents of event study analysis are *the event, event date, event window, estimation model, estimation window, and estimation period.*

Event signifies the corporate action whose impact the researcher would like to examine; in the present context, the event is the M&A announced during 2002-08 in auto-ancillary, IT, and pharmaceutical sectors in India.

Event date or 'zero date' refers to the first date of the public announcement of an event. For the purpose of announcement, the corporate firms normally prefer newspapers, magazines, stock-exchange websites, and companies' website. Present study reckons the first date of M&A announcement, as per Centre of Monitoring Indian Economy (CMIE) database PROWESS, as the event date; additionally, the validity of the event date is cross-verified primarily using newspaper clippings, companies' website, websites of Bombay Stock Exchange and National Stock Exchange.

Event-window refers to the period during which the event occurs. It has been observed that the security prices are most vulnerable to the event information during this period. Event study examines the impact of a corporate announcement on stock-price behavior (regarded abnormal returns) during the event window.

As per efficient market hypothesis, market prices quickly adjust to new information announced in the market. Literary findings also suggest that abnormal returns, in general, last for less than a week around announcement; this then constitutes the rationale for examining the economic effect of an event normally observed to persist for a short-period (not extending beyond a week). To be on conservative side and keeping in view the possibility of market-noise before the actual announcement, the present study considers a relatively larger window of four weeks; event window (used in present study) consists of 31 days, *i.e.* 15 days prior to M&A announcement and 15 days after the announcement.

Estimation window refers to the period prior to the event window, during which the share-prices are supposed to have no influence of the event announcement. The period is used for estimating expected returns; this ensures that estimate of the normal returns are not influenced by the event-related returns. In present context, estimation window of 120 days, ranging from -145 days to -26 days has been considered; for better results, the period of 10 days before event-window (-15 to +15) has been excluded. Thus, the total estimation period used in the present study consists of 161 days: 31 days event window, 10 days left-out period and 120 days estimation-window (as portrayed by estimation time line, Figure 2).

Estimation model refers to the model used to estimate the expected returns. The present study uses the traditional single factor market model for the estimation the expected returns; this model involves the regression of a stock's returns against market index. The

present study uses S&P CNX 500⁴ as the proxy of market returns (R_m).

3.1 Data collection and sample description

M&A announcement information has been collected from CMIE's database PROWESS (version 4.1). To confirm the validity of announcements dates, the newspapers clippings, websites of concerned companies, Bombay stock exchange (BSE), and National Stock Exchange were also consulted. The daily share-prices information and market index information has been collected from the archives of National Stock Exchange of India (NSE) and Bombay Stock Exchange (BSE).

Selection criteria for sample firms

The acquirer firms that satisfy the following criteria form the part of study.

- (i) The firm should be listed at National Stock Exchange (NSE) or at Bombay Stock Exchange (BSE).
- (ii) The daily share-prices information of the firm for the estimation period 161 days should be available.

Additionally, to ensure capturing exclusive/pure impact of M&A, the study uses certain sample selection criteria (McWilliams and Siegal 1997). The sound criterion requires that event window should not be contaminated with any contemporaneous announcement (*i.e.* the announcements likely to have bearing on the share-prices); for the purpose, the sample firms have been filtered-out to ensure that during the select event-window of 31-days no other announcements except M&A should have taken place. The select list includes: announcements of the financial result; dividend announcements; announcements or ex-dates of share split, stock dividends-issue of bonus shares; announcements of new share issue in form of domestic or international offering in form of Public Offer, Preferential Issue, Foreign Currency Convertible Bonds (FCCB), and American Depository Receipts (GDR); announcement of capital investment in a new project. It is customary that if a firm receives an order of substantial

⁴ The S&P CNX Nifty is a stock market index and benchmark index for Indian equity market; it covers 22 sectors of the Indian economy, thus offering investment managers exposure to the Indian market in a single portfolio. The S&P CNX Nifty index is a free float market capitalization weighted index. It represents about 67.27% of the free float market capitalization of the stocks listed at National Stock Exchange (NSE) as on September 30, 2012.

value, or from prestigious customers, it informs about the same to Bombay Stock Exchange, as these announcements are likely to have positive influence on the firm's share-prices. The firms with such announcements during 31 days event window were excluded from the sample.

The detailed sample description is contained in Table 1. After filtering, 136 firms (out of 341 firms) form the sample for the study, representing nearly 40 per cent of the acquirer firms (involved in M&A) during the period of study; sector-wise observations are also, by and large, similar. This may be considered statistically adequate sample representing the universe; therefore, the results obtained from analysis may be regarded credible.

Key hypotheses and statistical significance test

Hypothesis: In view of corporate objective of shareholders' wealth-maximization, it has been hypothesized that shareholders of acquirer firms would earn excess to normal returns on M&A announcements.

Statistical test: To test the hypotheses, the study uses 'crude dependence adjustment test' (Brown and Warner, 1980). The test compensates for the potential dependence of returns across the security-events. For the purpose, Brown and Warner suggest the estimation of standard deviation of abnormal returns from the time series of residual returns over the estimation period; the use of single variance estimate for the entire sample would overcome the potential problem of the unequal variance across the securities.

3.3 Computation of abnormal returns

The event study examines the extent of price movement actually caused by event announcement, *i.e.* the abnormal behavior in the stock return. Analysis of abnormal returns associated with the announcement of a corporate event is the core of event study analysis. The study uses following computation steps to measure the abnormal returns from M&A announcement.

Step 1: Computation of actual returns

Actual returns are the normal returns earned from a security. Actual return of security *i* at time *t* are computed using following formula:

$$R_{i,t} = \frac{P_1 - P_0}{P_0} \times 100 \dots\dots\dots(1)$$

P_1 is the security price at time t and P_0 is the security price at time $t-1$

Step 2: Computation of estimated returns

Estimated returns signify the expected returns from a security under provided market-conditions and risk associated. In present context, the expected returns are estimated using market model as

$$R_{i,t}^* = \alpha_i + \beta_i(R_{m,t}) + \varepsilon_{i,t} \dots\dots\dots(2)$$

Where, $R_{i,t}$ represents the estimated return on stock i at time t ; α_i and β_i are estimated parameters; α is a intercept term and β is beta coefficient; $R_{m,t}$ is the market return computed using S&PCNX 500.

The market-model regression findings for the estimated returns are provided in Appendix V; t-statistics findings indicate that the beta coefficient are highly significant for majority of the acquirers, signifying significant positive correlation between market returns and securities returns for the sample firms analyzed.

Step 3: Computation of abnormal returns

Abnormal returns ($AR_{i,t}$) signify excess of the actual returns over the estimated returns

$$AR_{i,t} = R_{i,t} - \{\alpha_i + \beta_i(R_{m,t}) + \varepsilon_{i,t}\} \dots\dots\dots(3)$$

Step 4: Computation of average abnormal returns (AAR)

The AAR for each day in the event window is computed as:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \dots\dots\dots(4)$$

Where, N is the number of firms.

Step 5: Computation of cumulative average abnormal returns (CAAR)

The cumulative impact of the M&A announcement on the security returns has been assessed in terms of cumulative average abnormal returns (CAAR); CAAR for a given security is the summation of daily average abnormal returns (AAR); the cumulative returns for an event window ranging from T_1 and T_2 would be estimated using following

equation:

$$CAAR_i(T_1T_2) = \sum_{i=T_1}^{T_2} AAR_{i,t} \dots\dots\dots(5)$$

Step 6: Computation of standard estimate for abnormal returns

Standard estimates for abnormal returns have been computed as:

$$\hat{S}(AAR) = \sqrt{\frac{\sum_{t=-145}^{-26} (AAR_t - \overline{AAR})^2}{119}} \dots\dots\dots(6)$$

Where, \overline{AAR} is computed as per Equation 7:

$$\overline{AAR} = \frac{\sum_{t=-145}^{-26} AAR_t}{120} \dots\dots\dots(7)$$

Step 7: t-statistics for Abnormal Returns during Event-Window

The t-statistics for AAR and CAAR during day t in the event widow is estimated as:

$$t - statistics (AAR) = \frac{AAR_t}{\hat{S}(AAR)} \dots\dots\dots(8)$$

$$t - statistics (CAAR) = \frac{CAAR_t}{(T_2 - T_1 + 1)^{\frac{1}{2}} \hat{S}(AAR)} \dots\dots\dots(9)$$

$$t - statistics (CAAR) = \frac{CAAR_t}{\hat{S}(AAR)\sqrt{N}} \dots\dots\dots(10)$$

Where, N= respective window period, $T_2 - T_1 + 1$

EMPIRICAL FINDINGS

Results of event study conducted to capture the abnormal returns associated with M&A announcements are on expected lines. Findings present empirical evidence that shareholders of acquirer firms experience statistically significant positive average abnormal returns (AAR) around the announcements date and cumulative average abnormal returns (CAAR) in multi-days event window (Tables 2 and 3). However, the impact of M&A announcements are temporary and generally persists for a week around announcement, with the profound impact on the announcement day or closer to it. The findings have been, largely, consistent for all the sectors covered by the study (Figures 3 and 4); additionally, no significant changes in returns pattern have been observed in different years.

Findings pertaining to auto-ancillary sector

For auto-ancillary sector, the AAR have been positive for sixteen days during 31-days window; inter-se, the more robust impact has been observed closer to the announcement date. For M&A announcements pertaining to 2002-08, the positive AAR have been noted for eight to nine days around announcement date; two to three days prior ($t=-3$) and four to five days ($t=+5$) after announcement (Table 2). The findings are similar for all the years, covered by the study. The trend of AAR and CAAR accruing to the shareholders of acquirer firms during the 31-days event- window are portrayed in Figures 5 and 6. Figures manifest positive trend related to AAR and CAAR for each year subsequent to M&A announcement from 2002 to 2008. All the seven lines (one for each year, *i.e.* six lines plus one for the aggregated period 2002-08), by and large, appear to be moving in congruence; implying M&A announcements provide consistent favorable short-term returns to investors in the Indian stock market.

An in-depth examination of event window from investors perspective indicates, the window ranging from day $t(-3)$ to day (-1) to be the most conducive/rewarding window, as maximum returns have been earned during this window period; the AAR of day $t(-1)$ seems to be high 2.43 per cent for all the years (2002-08); it is statistically significant (at 99 per cent confidence level).

From the perspective of cumulative returns, the increasing CAAR pattern has been observed from two or three days prior to announcement up to day $t(0)$, following modest growth for five to seven days thereafter (Figure 5). Relevant data indicates that windows of day $t(-2)$ to day $t(4)$ and from day $t(-2)$ to day $t(3)$ are most beneficial windows, registering significant accumulation of returns in range of 4.5 to 5 per cent. Thus, the findings are suggestive of such investments (made in shares of acquiring firms around announcement date of M&A) as rewarding (Table 8).

Equally significant finding is that the AAR pattern on the event date, *i.e.* day $t(0)$, appears to be negligible or even negative for most of the years. The excess selling pressure developed in the market, in response to the substantial hike in stock prices prior to announcement, perhaps could be the reason. Notwithstanding the substantial fall in the returns on day $t(0)$, the pattern of positive AAR has shown a modest revival, which continues for a few days. The resurgence of positive AAR wave after day $t(0)$ corroborates that the abnormal returns observed around announcement were due to affirmative investors' perceptions for M&A.

In view of preceding findings, it seems reasonable to conclude that M&A announcements in auto-ancillary sector are positive news for the investors in the stock market. The investors perceive M&A to be the value-creating decisions; as a consequence positive AAR starts triggering, as soon as the M&A announcements noise arrives in the market; however, it is not long lasting and vanishes within a week after announcement.

Pharmaceutical sector

Findings pertaining to pharmaceutical sector are, largely, on the pattern of auto-ancillary sector. Results (as anticipated) show favorable impact of M&A announcement on the stock-returns of acquirer firms from Indian pharmaceutical sector. Relevant data (contained in Table 4) indicates a positive drift in the AAR around the M&A announcement. The findings for all the years appear to be in congruence, as depicted by the parallel movement of the AAR and CAAR for all the years (Figures 7 and 8).

Results manifest positive abnormal returns for six days around M&A announcement, initiated from day t (-3) to day (2). The AAR up to day t (-4) seems to be virtually negative; there appears to be a positive momentum on day t (-3) in majority of the years covered by the study; in fact, the years 2004-05 and 2005-06 exhibit significant abnormal returns of 3 to 4 per cent. The AAR trend from day t (-2) to day t (0) also appears to be positive, yet, there has been a significant decline in returns in relation to returns observed on day t (-3); this might be due to the excess selling activity in the market in response to the substantial price rise observed in the market on day t (-3). The major impact of M&A announcement has been observed after the announcement date; findings indicate the day t (2) to be the most beneficial/rewarding day, reflecting the maximum or near to maximum returns during the entire window.

As far as accumulations of returns are concerned, negative CAAR has been noted during the entire window; implying no significant accumulated returns to the shareholders of the acquirer firms (Table 5 and Figure 8). CAAR from day t (-15) is evidencing a consistent decline; however, from the day t (-4) onwards, the declining tendency seems to have reduced as indicated by the upward slope of CAAR curve from day t (-3) to day t (2) (though negative), *prima-facie*, signifying returns accumulation in six days window (Figure 8).

The window from day t (-3) to day (2) has been identified as the most beneficial window,

with maximum accumulation of returns of 2.8 per cent; additionally, significant CAAR of about 2 per cent has been observed in the window from day $t(-1)$ to day $t(2)$.

The findings corroborate positive impact of M&A announcements on stock-returns of the acquirer firms from pharmaceutical sector in India; nevertheless, the impact subsists for the very short-span of time, say, for a few days around M&A announcements.

Findings pertaining to IT sector

IT sector acquirer firms manifest positive abnormal returns and cumulative abnormal returns associated with M&A announcement. Results show a pattern of positive AAR throughout the event window for all the years analyzed; the AAR are positive for eighteen days for M&A announced during the years 2002 to 2008; within this, the returns for four days are statistically significant. The findings are, by and large, consistent for all the years.

Although, the spread of positive returns seems to be during the entire window, yet, the rigorous impact of M&A has been observed closer to the announcement date, either one-two days prior ($t=-2$) to announcements or on event-date itself. The AAR on $t(-1)$ or day $t(0)$ are positive and sizeable for most of the years analyzed, followed by significant fall on day $t(1)$ (Table 6 and Figure 9).

Rally of positive AAR evidenced throughout the window has yielded the accretion of significant returns during the event-window. For instance, the CAAR are positive during the entire-window for the years 2005 to 2008; consistent pattern of positive CAAR from day $t(-13)$ to day $t(+1)$ has been noted for the year 2002-03; similarly, positive CAAR for 27 days has been noted for the announcements pertaining to 2003-04. The maximum accumulation of returns has been evidenced in windows from day $t(-1$ to $+6)$, day $(-1$ to $+3)$, and day $(-1$ to $+4)$.

Findings signify the significant accretion of returns in relatively larger windows for IT sector *vis-a-vis* auto-ancillary and pharmaceutical sectors. For instance, for the M&A announcements during the period of study (2002-08) window from day $(-15$ to $+15)$ has been identified as most beneficial, evidencing the trail of positive AAR and CAAR during the entire window. Year-wise analysis also exhibits similar pattern of large conducive windows; for the year 2002-03, CAAR of 4.9 per cent have been noted from day $t(-13)$ to day $t(-1)$; year 2003-04 exhibits 8.5 per cent returns from day $t(-14)$ to day

t(-8); for year 2004-05 accretion of 20.27 per cent of CAAR has been noted from day t(-2) to day t(10); year 2005-06 has evidenced a significant accumulation of above 28 per cent of CAAR from day t(-15) to day (14); the year 2007-08 has evidenced the CAAR of nearly 12 per cent during the window of t(-15) to day t(2). The positive pattern of AAR and CAAR observed during the entire window reflects the confident behaviour of investors in the stock market, towards M&A announcement (Table 8).

In view of above findings, it is reasonable to conclude that M&A announcements information has a positive effect on the share-prices of the acquirer firms in India. M&A announcements are affirmative news of the investors in the stock market; investors associate M&A announcement with bright future prospects of the acquirer firms, leading to the favourable fluctuation in security prices for a few days around M&A announcement.

In view of these empirical evidences, signifying the significant abnormal returns and cumulative abnormal returns to the shareholders acquirer firms associated with M&A announcement, the hypothesis that acquirer firms' shareholders earn excess to normal returns associated with M&A announcement has been accepted.

CONCLUDING OBSERVATIONS

The paper addresses the impact of M&A announced in Indian corporate sector during the years 2002-08 on stock returns of acquirer firms. M&A panorama has undergone tremendous changes during different phases; recent/sixth M&A wave (the period covered by the study), in fact, was reckoned in India as M&A tsunami, with valuation touching USD 70 billion. Additionally, with the dynamism of environment (economic, regulatory, industrial, technological), material changes have been observed in corporate mission, vision and goals, risk taking attitude, investors sentiments, etc. The study adds value to literature by exploring the returns gained by shareholders of acquirer firms in India during recent M&A wave. Using multi-sectoral framework (involving acquirer firms from auto-ancillary, IT and pharmaceutical sector), with the sample-mix representative of manufacturing, service and ancillary sectors, the study has attempted to provide a comprehensive view of entire industry. Additionally, study captures exclusive impact of M&A (by cleaning the event window for contemporaneous events).

Results indicated that the M&A taken place in Indian corporate sectors during recent M&A wave were value-augmenting; empirical findings showed the average abnormal

returns (AAR) for few days and cumulative average abnormal returns (CAAR) in multi-days window earned by the shareholders of acquirer firms around M&A announcement during the event window.

Findings are suggestive of M&A announcement as positive information for investors in the Indian stock market. In other words, investors associate M&A as value-enhancing strategies.

Figure 1 exhibits, the Nifty returns observed during 2002 to 2012. The present sample covers two phases of economic development, first: accelerating phase (2002-2007) and the diminishing phase (2007-08). Irrespective of the fact, no significant difference has been observed in the pattern of returns across different phases of development. From this perspective, it is reasonable to conclude that market is more responsive towards current/latest events (a week older or slightly more).

Muti-sectoral framework of the study contributes in identifying the difference in M&A impact across sectors; results show better stock-returns as well as relatively larger return-conducting window for IT sector acquirer firms; where, auto-ancillary and pharmaceutical sectors have shown positive trails of AAR from two to three days prior to one to five days in the post-announcement window, for the IT sector, drift of positive abnormal returns has been noted in the entire window. Additionally, maximum impact of M&A announcement on acquirer firms affiliated to IT sector has been identified on the announcement date, whereas, the auto-ancillary and pharmaceutical sectors have shown negligible returns on the announcement date. Maximum abnormal returns for the auto-ancillary have been observed prior to announcement date and for the pharmaceutical sector prior to as well as two days after the announcement. The excess selling pressure developed in the stock market, in response to the unexpected highly lucrative prices observed prior to announcement, perhaps could have been the reason for low returns on zero date. The resurgence of the modest positive returns for few days, following the announcement day, indicates the possibility of the existence of speculative pressure (also) in the pre-announcement window that seems to have wiped out subsequent to the announcement; perhaps, this has caused the market to revert back to its normal price level. It is worth mentioning that M&A wave was primarily attributable to IT sector boom observed 2004 onwards. This perhaps could be the reason for better stock performance observed of IT sector. These findings are suggestive of industry induced M&A as more value-enhancing/return conducive.

Findings corroborate M&A as wealth-augmenting decisions for investors in the Indian stock market. Investors, from short-term investment perspective could gain substantial/good returns by planning the sale and purchase of the securities of Indian corporate acquirer firms closer to M&A announcement. From long-term investors' perspective, positive response of stock market around M&A announcement signals bright future prospects for the shareholders of the acquirer firms. The affirmative investors' response to M&A announcement is *prima-facie*, suggestive of M&A potential; however, the possibility of speculation cannot, perhaps, be completely ruled-out. Additionally, these decisions involve long gestation period; further, M&A along with financial restructuring, also involve integration of qualitative/non-financial aspects. For better assessment, it would be useful to incorporate all possible aspects likely to be influenced by M&A decisions (financial, non-financial, qualitative, quantitative, etc.).

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Table 1: Detailed description of sample selection, sector-wise (Auto-ancillary, pharmaceutical and IT sector)

Years	Total firms	Data unavailable	Unlisted firms	Firms with unclear window	Sample firms analyzed	Percentage (%)
<i>Auto-ancillary sector</i>						
2002-03	7	2	2	0	3	42.86
2003-04	11	2	4	1	4	36.36
2004-05	9	2	2	1	4	44.44
2005-06	6	2	2	0	2	33.33
2006-07	8	1	1	2	4	50
2007-08	9	0	2	5	2	22.22
Total	50	9	13	9	19	38
<i>Pharmaceutical sector</i>						
2002-03	22	3	5	4	10	45.45
2003-04	18	2	6	4	6	33.33
2004-05	11	2	1	5	3	27.27
2005-06	12	0	3	3	6	50
2006-07	18	0	0	0	9	50
2007-08	25	3	4	10	8	32
Total	106	10	19	26	42	39.62
<i>IT sector</i>						
2002-03	23	6	1	4	12	52.17
2003-04	23	5	6	3	9	39.13
2004-05	21	6	3	6	6	28.57
2005-06	30	8	6	9	7	23.33
2006-07	38	0	4	15	19	50
2007-08	50	0	4	24	22	44
Total	185	25	24	61	75	40.54

Table 2: Average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian auto-ancillary sector, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic
-15	-0.78	-0.69	1.09	0.37	-3.03	5.41**	-1.91	-0.45	1.15	0.69	-0.16	-0.12	-0.96	-0.19
-14	0.89	0.79	-0.6	-0.21	3.39	6.04**	-0.56	-0.13	2.01	1.22	0.55	0.41	-2.74	-0.55
-13	-2.69	(2.38)*	0.73	0.25	-2.24	3.02**	-0.86	-0.2	0.61	0.37	2.57	1.91	2.54	0.51
-12	-0.11	-0.09	0.17	0.06	-1.78	1.95	0.34	0.08	4.69	2.84**	-0.92	-0.68	-0.2	-0.04
-11	0.33	0.29	0.15	0.05	2.04	2.11*	-1.85	-0.43	4.14	2.51*	-0.93	-0.7	0.95	0.19
-10	0.52	0.46	0.93	0.32	1.27	0.77	1.59	0.37	-0.62	-0.37	-0.57	-0.42	-0.32	-0.06
-9	0.48	0.42	0.47	0.16	-0.47	0.17	1.3	0.3	-0.16	-0.1	1.39	1.04	0.76	0.15
-8	-0.51	-0.45	0.02	0.01	-2.23	2.98**	3.09	0.72	-2.95	-1.79	-1.74	-1.3	-0.93	-0.19
-7	-1.27	-1.12	0.47	0.16	-1.38	1.2	-2.42	-0.56	-2.61	-1.58	-0.72	-0.53	-1.03	-0.21
-6	0.16	0.14	0.15	0.05	1.46	1.05	-1.03	-0.24	-1.22	-0.74	0.48	0.36	0.38	0.08
-5	-0.49	-0.43	0.94	0.33	-2.67	4.23**	0.37	0.09	-0.63	-0.38	-	-	-1.12	-0.22
-4	-0.49	-0.43	-0.76	-0.26	-0.5	0.19	-0.8	-0.19	-0.92	-0.56	-0.32	-0.24	1.79	0.36
-3	0.08	0.08	-0.43	-0.15	0.32	0.03	-0.53	-0.12	1.31	0.79	0.52	0.39	6.57	1.31
-2	1.22	1.08	1.67	0.58	0.57	0.13	2.2	0.51	0.5	0.31	1.08	0.81	-1.22	-0.24
-1	2.43	2.15*	0.28	0.1	2.6	3.50**	3.09	0.72	1.37	0.83	4.35	3.25**	0.82	0.16
0-event date	-0.22	-0.2	-0.1	-0.03	-3.73	8.17**	2.99	0.7	0.4	0.25	0.56	0.42	-1.35	-0.27
1	0.13	0.11	-1	-0.34	1.64	1.33	0.69	0.16	0.95	0.57	-1.76	-1.32	1.62	0.32
2	0.26	0.23	-0.48	-0.16	0.99	0.45	0.39	0.09	-2.06	-1.25	1.21	0.9	-0.46	-0.09
3	0.72	0.64	0.01	-	0.72	0.22	1.42	0.33	-0.35	-0.21	0.72	0.54	-0.3	-0.06
4	0.85	0.75	-1.32	-0.46	1.36	0.9	2.66	0.62	1.29	0.78	-1.11	-0.83	-0.07	-0.01
5	0.5	0.44	1.58	0.54	0.15	-	2.58	0.6	-1.23	-0.75	-0.64	-0.47	0.72	0.14
6	-0.35	-0.31	0.61	0.21	0.81	0.29	-1.89	-0.44	-0.83	-0.5	-0.62	-0.46	1.2	0.24
7	0.43	0.38	1.16	0.4	1.15	0.62	2.27	0.53	-2.37	-1.44	-1.38	-1.03	-0.34	-0.07
8	0.38	0.34	-1.31	-0.45	2.49	3.21**	-0.55	-0.13	0.39	0.24	0.59	0.44	0.71	0.14
9	0.16	0.14	1.08	0.37	1.93	1.88	-0.52	-0.12	-1.8	-1.09	-0.88	-0.66	3.88	0.78
10	-0.47	-0.42	-1	-0.34	-1.54	1.48	-1.04	-0.24	1.19	0.72	0.68	0.51	1.45	0.29
11	-0.57	-0.5	0.98	0.34	2.86	4.27**	-3.83	-0.89	-1.91	-1.16	-0.84	-0.63	-0.55	-0.11
12	-0.8	-0.71	-1.25	-0.43	-1.94	2.29*	-2.64	-0.62	4.89	2.97**	-0.62	-0.47	8.3	1.66
13	0.59	0.52	0.29	0.1	0.45	0.07	0.4	0.09	-1.1	-0.67	2.92	2.18*	-0.9	-0.18
14	1.1	0.98	0.82	0.28	-1.17	0.89	-2.69	-0.63	10.27	6.22**	1.18	0.88	-2.91	-0.58
15	0.06	0.05	0.35	0.12	-0.68	0.33	-0.67	-0.16	2.09	1.27	-0.44	-0.33	-0.08	-0.02

* Significant at 95 per cent confidence level; ** significant at 99 per cent confidence level

Table 3: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian auto-ancillary sector, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic
-15	-0.78	-0.69	1.09	0.37	-3.03	-1.68	-1.91	-0.45	1.15	0.69	-0.16	-0.12	-0.96	-0.19
-14	0.11	0.07	0.49	0.14	0.36	0.14	-2.47	-0.41	3.16	1.35	0.4	0.21	-3.7	-0.52
-13	-2.58	-1.32	1.22	0.24	-1.88	-0.6	-3.33	-0.45	3.77	1.32	2.96	1.28	-1.16	-0.13
-12	-2.69	-1.19	1.39	0.24	-3.67	-1.02	-2.99	-0.35	8.46	2.56*	2.05	0.76	-1.36	-0.14
-11	-2.36	-0.93	1.54	0.24	-1.63	-0.4	-4.84	-0.5	12.6	3.42**	1.11	0.37	-0.41	-0.04
-10	-1.84	-0.66	2.47	0.35	-0.36	-0.08	-3.25	-0.31	11.99	2.97**	0.55	0.17	-0.73	-0.06
-9	-1.36	-0.46	2.94	0.38	-0.82	-0.17	-1.95	-0.17	11.83	2.71**	1.94	0.55	0.04	-
-8	-1.87	-0.59	2.96	0.36	-3.05	-0.6	1.14	0.09	8.88	1.90	0.21	0.05	-0.89	-0.06
-7	-3.14	-0.93	3.43	0.39	-4.43	-0.82	-1.28	-0.1	6.28	1.27	-0.51	-0.13	-1.92	-0.13
-6	-2.98	-0.83	3.58	0.39	-2.96	-0.52	-2.31	-0.17	5.06	0.97	-0.03	-0.01	-1.55	-0.1
-5	-3.47	-0.93	4.53	0.47	-5.63	-0.94	-1.94	-0.14	4.42	0.81	-0.03	-0.01	-2.67	-0.16
-4	-3.96	-1.01	3.77	0.38	-6.13	-0.98	-2.73	-0.18	3.51	0.61	-0.35	-0.08	-0.87	-0.05
-3	-3.88	-0.95	3.35	0.32	-5.81	-0.9	-3.26	-0.21	4.82	0.81	0.17	0.03	5.7	0.32
-2	-2.66	-0.63	5.02	0.46	-5.24	-0.78	-1.06	-0.07	5.32	0.86	1.25	0.25	4.48	0.24
-1	-0.23	-0.05	5.3	0.47	-2.64	-0.38	2.03	0.12	6.69	1.05	5.6	1.08	5.3	0.27
0-event date	-0.46	-0.1	5.2	0.45	-6.37	-0.88	5.02	0.29	7.09	1.07	6.16	1.15	3.95	0.2
1	-0.33	-0.07	4.2	0.35	-4.73	-0.64	5.71	0.32	8.04	1.18	4.4	0.8	5.57	0.27
2	-0.07	-0.01	3.72	0.3	-3.74	-0.49	6.1	0.34	5.98	0.85	5.61	0.99	5.1	0.24
3	0.66	0.13	3.73	0.29	-3.02	-0.39	7.52	0.4	5.63	0.78	6.33	1.08	4.8	0.22
4	1.51	0.3	2.41	0.19	-1.66	-0.21	10.19	0.53	6.92	0.94	5.22	0.87	4.73	0.21
5	2.01	0.39	3.99	0.3	-1.51	-0.18	12.77	0.65	5.69	0.75	4.58	0.75	5.45	0.24
6	1.65	0.31	4.59	0.34	-0.7	-0.08	10.88	0.54	4.86	0.63	3.97	0.63	6.65	0.28
7	2.08	0.38	5.75	0.41	0.45	0.05	13.15	0.64	2.49	0.31	2.59	0.4	6.3	0.26
8	2.46	0.44	4.44	0.31	2.94	0.33	12.6	0.6	2.88	0.36	3.18	0.48	7.01	0.29
9	2.62	0.46	5.51	0.38	4.87	0.54	12.08	0.56	1.08	0.13	2.3	0.34	10.89	0.44
10	2.14	0.37	4.51	0.31	3.32	0.36	11.04	0.5	2.27	0.27	2.98	0.44	12.34	0.48
11	1.58	0.27	5.5	0.36	6.19	0.66	7.21	0.32	0.36	0.04	2.14	0.31	11.79	0.45
12	0.78	0.13	4.25	0.28	4.25	0.45	4.57	0.2	5.25	0.6	1.52	0.21	20.09	0.76
13	1.37	0.22	4.54	0.29	4.7	0.48	4.96	0.21	4.15	0.47	4.44	0.61	19.19	0.71
14	2.47	0.4	5.36	0.34	3.52	0.36	2.27	0.1	14.42	1.6	5.62	0.77	16.27	0.59
15	2.53	0.4	5.71	0.35	2.85	0.28	1.6	0.07	16.51	1.8	5.18	0.69	16.19	0.58

* Significant at 90 per cent confidence level; ** significant at 95 per cent confidence level and *** significant at 99 per cent confidence level

Table 4: average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian pharmaceutical sector during, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic	AAR (%)	t-statistic
-15	-0.9	-1.29	-2.41	-1.70	-0.31	-0.15	-2.01	-0.56	1.08	0.62	-0.07	-0.06	-1.4	-1.33
-14	0.01	0.01	-0.57	-0.4	-3.47	-1.64	1.47	0.41	2.24	1.29	0.44	0.34	0.32	0.3
-13	0.21	0.29	-0.24	-0.17	-1.01	-0.47	1.94	0.54	3.48	2.00*	-0.7	-0.54	-0.97	-0.92
-12	-0.83	-1.19	1.88	1.32	-0.69	-0.32	-1.07	-0.3	-3.36	-1.93	-1.47	-1.12	-1.94	-1.85
-11	0.63	0.9	2.35	1.66	-2.43	-1.14	-1.08	-0.3	-0.67	-0.38	1.74	1.33	0.98	0.93
-10	-0.57	-0.82	-0.7	-0.5	0.5	0.24	2.41	0.67	-1.1	-0.63	-1.19	-0.91	-1.37	-1.3
-9	-0.27	-0.38	-1.49	-1.05	2.41	1.14	1.14	0.05	-0.54	-0.31	-0.31	-0.24	-0.36	-0.34
-8	-1.23	-1.77	-0.64	-0.45	-2.73	-1.28	-2.58	-0.72	-2.03	-1.17	0.26	0.2	-1.5	-1.43
-7	-0.22	-0.31	-0.32	-0.22	0.49	0.23	3.16	0.88	0.87	0.5	-1.31	-1.01	-1.94	1.85
-6	-0.15	-0.21	-0.09	-0.07	-1.05	-0.49	-0.74	-0.21	0.14	0.08	0.52	0.4	-0.35	-0.34
-5	-0.34	-0.48	-0.36	-0.25	-1.06	-0.5	-0.97	-0.27	0.41	0.24	0.98	0.75	-1.86	-1.77
-4	-0.67	-0.96	-0.01	-0.01	-1.43	-0.67	-1.26	-0.35	-2.15	-1.23	0.71	0.55	-1.2	-1.14
-3	0.91	1.31	0.07	0.05	-0.16	-0.07	3.02	0.84	4.11	2.36*	0.87	0.66	-0.99	-0.94
-2	-0.35	-0.51	-1.54	-1.09	-1.29	-0.61	3.14	0.87	0.84	0.48	-1.66	-1.27	1.22	1.16
-1	0.56	0.81	-0.23	-0.16	0.55	0.26	-6.13	-1.70	2.14	1.23	2	1.53	1.74	1.65
0-event date	0.11	0.16	-0.46	-0.32	-0.28	-0.13	1.58	0.44	-0.47	-0.27	0.16	0.12	1.17	1.11
1	0.85	1.21	0.46	0.32	-0.46	-0.22	5.85	1.63	-2.41	-1.39	1.19	0.91	2.88	2.75**
2	0.7	1.01	1.08	0.76	1.66	0.78	6.95	1.93*	-0.16	-0.09	0.28	0.22	-2.43	(2.31)*
3	-0.07	-0.11	0.25	0.18	-0.9	-0.42	0.45	0.13	-0.93	-0.53	0.71	0.55	-0.4	-0.38
4	-0.32	-0.45	-1.25	-0.88	-1.25	-0.59	-2.08	-0.58	1.17	0.68	0.84	0.64	-0.13	-0.13
5	-0.85	-1.22	0.79	0.56	-4.19	-1.97	-3.29	-0.92	-1.54	-0.89	0.61	0.46	-0.84	-0.8
6	-1.03	-1.48	0.68	0.48	-1.44	-0.68	-7.14	-1.99	-1.24	-0.71	-0.13	-0.1	-1.5	-1.43
7	-0.79	-1.13	-0.17	-1.03	-1.03	-0.49	-1.23	-0.34	-1.54	-0.89	-0.52	-0.4	-1	-0.95
8	-0.76	-1.09	-0.53	-0.38	-3.15	-1.48	0.8	0.22	-0.24	-0.14	-0.4	-0.31	-0.94	-0.9
9	0.31	0.45	1.85	1.31	-0.03	-0.02	-4.88	-1.36	0.85	0.49	0.5	0.38	-0.17	-0.16
10	0.42	0.6	-1.14	-0.81	-0.43	-0.2	-2.46	-0.69	3.99	2.29*	1.91	1.46	-0.38	-0.37
11	0.33	0.47	-0.82	-0.58	-0.02	-0.01	-2.21	-0.61	0.45	0.26	2.14	1.64	1.27	1.21
12	-0.64	-0.91	-1.27	-0.89	-0.93	-0.44	-0.4	-1.11	-4.41	(2.54)**	1.75	1.34	1.12	1.07
13	0.07	0.1	0.25	0.17	-2.31	-1.09	1.86	0.52	1.93	1.11	-1.12	-0.86	0.61	0.58
14	-0.14	-0.2	1.87	1.32	-2.3	-1.08	-4.31	-1.2	-1.52	-0.88	0.7	0.54	0.65	0.62
15	-0.68	-0.98	-0.25	-0.18	-1.05	-0.49	-3.85	-1.07	0.05	0.03	-1.39	-1.06	0.69	0.66

* Significant at 95 per cent confidence level; ** significant at 99 per cent confidence level

Table 5: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian pharmaceutical sector, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic
-15	-0.9	-1.29	-2.41	-1.7*	-0.31	-0.15	-2.01	-0.56	1.08	0.62	-0.07	-0.06	-1.4	-1.33
-14	-0.89	-0.91	-2.98	-1.49	-3.79	-1.26	-0.53	-0.1	3.32	1.35	0.37	0.2	-1.08	-0.73
-13	-0.69	-0.57	-3.22	-1.31	-4.79	-1.3	-1.41	0.23	6.79	2.25*	-0.33	-0.15	-2.05	-1.13
-12	-1.52	-1.09	-1.34	-0.47	-5.48	-1.29	0.34	0.05	3.43	0.99	-1.8	-0.69	-3.99	-1.90
-11	-0.89	-0.57	1.01	0.32	-7.91	-1.67	-0.74	-0.09	2.77	0.71	-0.06	-0.02	-3.01	-1.28
-10	-1.45	-0.85	0.3	0.09	-7.4	-1.42	1.67	0.19	1.67	0.39	-1.26	-0.39	-4.38	-1.70
-9	-1.72	-0.93	-1.18	-0.32	-4.99	-0.89	1.85	0.19	1.13	0.25	-1.57	-0.45	-4.74	-1.71
-8	-2.96	-1.5	-1.82	-0.45	-7.72	-1.28	-0.74	-0.07	-0.9	-0.18	-1.31	-0.35	-6.24	(2.10)*
-7	-3.17	-1.52	-2.14	-0.5	-7.23	-1.13	2.42	0.22	-0.03	-0.01	-2.62	-0.67	-8.18	(2.60)**
-6	-3.32	-1.5	-2.23	-0.5	-8.28	-1.23	1.68	0.15	0.11	0.02	-2.1	-0.51	-8.53	(2.57)*
-5	-3.65	-1.58	-2.59	-0.55	-9.34	-1.33	0.71	0.06	0.52	0.09	-1.12	-0.26	-10.4	(2.99)**
-4	-4.32	-1.79	-2.61	-0.53	-10.77	-1.47	-0.55	-0.04	-1.63	-0.27	-0.41	-0.09	-11.59	(3.19)**
-3	-3.41	-1.36	-2.54	-0.5	-10.93	-1.43	2.47	0.19	2.48	0.4	0.46	0.1	-12.58	(3.32)**
-2	-3.76	-1.44	-4.08	-0.77	-12.23	-1.54	5.61	0.42	3.32	0.51	-1.21	-0.25	-11.36	(2.89)**
-1	-3.2	-1.19	-4.31	-0.79	-11.68	-1.42	-0.52	-0.04	5.47	0.81	0.79	0.16	-9.62	(2.37)*
0-event date	-3.09	-1.11	-4.77	-0.84	-11.95	-1.41	1.05	0.07	5	0.72	0.95	0.18	-8.46	(2.01)*
1	-2.24	-0.78	-4.31	-0.74	-12.41	-1.42	6.91	0.47	2.59	0.36	2.14	0.4	-5.57	-1.29
2	-1.54	-0.52	-3.23	-0.54	-10.75	-1.19	13.85	0.91	2.43	0.33	2.42	0.44	-8	-1.80
3	-1.62	-0.53	-2.98	-0.48	-11.65	-1.26	14.31	0.91	1.5	0.2	3.13	0.55	-8.4	-1.84
4	-1.93	-0.62	-4.23	-0.67	-12.9	-1.36	12.23	0.76	2.68	0.34	3.97	0.68	-8.53	-1.82
5	-2.78	-0.87	-3.43	-0.53	-17.09	-1.76	8.94	0.54	1.13	0.14	4.58	0.76	-9.37	-1.95
6	-3.82	-1.17	-2.75	-0.41	-18.53	-1.86	1.8	0.11	-0.1	-0.01	4.44	0.73	-10.87	(2.21)*
7	-4.6	-1.38	-2.92	-0.43	-19.56	-1.92	0.58	0.03	-1.65	-0.2	3.93	0.63	-11.87	(2.36)*
8	-5.37	-1.57	-3.46	-0.5	-22.71	(2.18)*	1.38	0.08	-1.88	-0.22	3.53	0.55	-12.81	(2.49)*
9	-5.05	-1.45	-1.6	-0.23	-22.74	(2.14)*	-3.5	-0.19	-1.03	-0.12	4.03	0.62	-12.98	(2.47)*
10	-4.63	-1.3	-2.74	-0.38	-23.17	(2.14)*	-5.96	-0.33	2.96	0.33	5.94	0.89	-13.37	(2.50)*
11	-4.31	-1.19	-3.56	-0.48	-23.19	(2.10)*	-8.17	-0.44	3.41	0.38	8.08	1.19	-12.1	(2.22)*
12	-4.94	-1.34	-4.83	-0.64	-24.12	(2.15)*	-8.58	-0.45	-1.01	-0.11	9.83	1.42	-10.98	-1.98
13	-4.87	-1.3	-4.58	-0.6	-26.43	(2.31)*	-6.72	-0.35	0.92	0.1	8.71	1.24	-10.37	-1.83
14	-5.01	-1.31	-2.71	-0.35	-28.73	(2.47)*	-11.03	-0.56	-0.6	-0.06	9.42	1.32	-9.72	1.69
15	-5.7	-1.47	-2.96	-0.38	-29.77	(2.52)*	-14.88	-0.74	-0.56	-0.06	8.03	1.1	-9.03	-1.54

* Significant at 95 per cent confidence level; ** significant at 99 per cent confidence level

Table 6: Average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian IT sector, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	AAR (%)	t- statistic	AAR (%)	t-statistic	AAR (%)	t- statistic	AAR (%)	t- statistic	AAR (%)	t- statistic	AAR (%)	t- statistic	AAR (%)	t- statistic
-15	1.26	2.08*	-0.24	-0.13	-0.2	-0.11	2.05	0.89	5	0.86	0.07	0.05	1.74	2.27*
-14	1.26	2.09*	-0.27	-0.14	3.05	1.64	0.64	0.28	2.34	0.4	0.65	0.52	1.47	1.92
-13	1.15	1.90	1.95	1.04	2.09	1.13	1.85	0.8	-0.46	-0.08	0.81	0.64	0.88	1.14
-12	-0.8	-1.32	-1.26	-0.67	-0.99	-0.53	1.24	0.53	-3.02	-0.52	0.31	0.25	-0.77	-1
-11	0.47	0.77	1.06	0.57	3.24	1.74	-0.82	-0.35	0.18	0.03	0.43	0.34	-0.62	-0.81
-10	0.06	0.1	-0.16	-0.09	-1.7	-0.91	0.41	0.18	-1.28	-0.22	0.54	0.43	1.16	1.52
-9	0.74	1.22	1.15	0.61	-0.65	-0.35	-1.06	-0.46	0.65	0.11	1.47	1.17	1.29	1.68
-8	0.8	1.32	1.14	0.61	3.47	1.87	-3.89	-1.68	3	0.52	-0.01	-0.01	0.35	0.46
-7	0.05	0.08	1.01	0.54	-0.17	-0.09	-4.02	-1.74	0.48	0.08	1.05	0.83	0.06	0.08
-6	-0.02	-0.04	-0.74	-0.4	-2.87	-1.54	0.75	0.32	0.26	0.05	1.36	1.08	0.58	0.76
-5	0.26	0.43	0.58	0.31	-1.69	-0.91	-1.2	-0.52	0.54	0.09	-0.09	-0.07	1.46	1.91
-4	-0.44	-0.73	-0.93	-0.5	1.19	0.64	-1.94	-0.84	-0.15	-0.03	-0.38	-0.3	-0.59	-0.76
-3	-0.18	-0.3	1.11	0.6	-2.51	-1.35	-3.52	-1.52	0.6	0.1	-1.89	-1.5	1.72	2.24*
-2	-0.21	-0.35	-2.79	-1.49	-0.68	-0.37	0.33	0.14	3.33	0.58	0.06	0.04	-0.18	-0.24
-1	0.54	0.89	1.43	0.76	-0.36	-0.19	1.02	0.44	1.79	0.31	-0.22	-0.18	0.18	0.23
0	1.34	2.21*	-0.32	-0.17	1.24	0.67	1.25	0.54	3.33	0.58	1.31	1.04	1.62	2.12*
1	-0.51	-0.84	-0.37	-0.2	-2.93	-1.57	-4.39	-1.90	1.17	0.2	0.81	0.64	0.27	0.36
2	0.23	0.38	-3.53	(1.89)***	1.16	0.62	1.67	0.72	-1.19	-0.21	2.02	1.6	1.21	1.58
3	0.03	0.04	-1.9	-1.02	1.07	0.57	2.74	1.18	0.15	0.03	0.27	0.21	-0.28	-0.37
4	0.69	1.14	0.2	0.1	0.17	0.09	0.76	0.33	1.84	0.32	3.62	2.87**	-0.88	-1.15
5	0.39	0.65	1.37	0.73	-0.83	-0.45	4.4	1.90	-1.03	-0.18	-1.05	-0.83	0.52	0.68
6	0.31	0.51	-1.98	-1.06	1.92	1.03	4.03	1.74	-1.12	-0.19	0.07	0.06	0.54	0.7
7	-0.23	-0.38	-0.21	-0.11	-3.67	-1.97	5.81	2.51*	0.77	0.13	0.47	0.37	-1.29	-1.68
8	-0.37	-0.61	-3.58	(1.92)***	1.22	0.66	2.54	1.1	3.06	0.53	-2.35	-1.86	-0.31	-0.4
9	0.33	0.54	-0.69	-0.37	1.28	0.69	-3.54	-1.53	1.31	0.23	2.33	1.85	0.18	0.23
10	0.7	1.16	1.8	0.96	1.14	0.61	3.65	1.58	1.64	0.28	-1.48	-1.17	-0.21	-0.28
11	-0.84	-1.39	-1.83	-0.98	-2.2	-1.18	-0.53	-0.23	0.5	0.09	-2.08	1.65	0.41	0.53
12	-0.74	-1.22	-0.4	-0.22	-2.9	-1.56	-1.3	-0.56	1.78	0.31	-1.92	-1.52	-0.15	-0.2
13	0.44	0.73	0.82	0.44	3.19	1.71	-0.04	-0.02	3.07	0.53	-1.23	-0.98	-1.01	-1.32
14	-0.53	-0.88	1.39	0.75	-0.42	-0.23	-4.58	-1.98	0.31	0.05	-1.63	-1.29	-0.26	-0.34
15	0.16	0.27	0.78	0.42	-0.26	-0.14	-0.13	-0.05	-0.6	-0.1	-0.72	-0.57	0.86	1.12

* Significant at 95 per cent confidence level; ** significant at 99 per cent confidence level

Table 7: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from mergers and acquisitions announcement in Indian IT sector, 2002-08

Event Days	2002-08		2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic	CAAR (%)	t-statistic
-15	1.26	2.08*	-0.24	-0.13	-0.2	-0.11	2.05	0.89	5	0.86	0.07	0.05	1.74	2.27*
-14	2.52	2.95**	-0.51	-0.19	2.85	1.08	2.69	0.82	7.34	0.9	0.72	0.4	3.21	2.97**
-13	3.67	3.51**	1.44	0.44	4.94	1.53	4.54	1.13	6.88	0.69	1.52	0.7	4.09	3.08**
-12	2.88	2.38*	0.18	0.05	3.95	1.06	5.78	1.25	3.86	0.33	1.84	0.73	3.32	2.17*
-11	3.34	2.47*	1.24	0.3	7.19	1.73	4.96	0.96	4.04	0.31	2.27	0.8	2.7	1.58
-10	3.4	2.30*	1.07	0.23	5.49	1.21	5.37	0.95	2.77	0.2	2.8	0.91	3.86	2.06*
-9	4.14	2.59**	2.22	0.45	4.84	0.98	4.31	0.7	3.41	0.22	4.27	1.28	5.15	2.54**
-8	4.94	2.89**	3.36	0.64	8.31	1.58	4.42	0.06	6.41	0.39	4.26	1.2	5.5	2.54**
-7	4.98	2.75**	4.37	0.78	8.15	1.46	-3.6	-0.52	6.89	0.4	5.31	1.4	5.56	2.42*
-6	4.96	2.59**	3.63	0.61	5.27	0.9	-2.85	-0.39	7.15	0.39	6.66	1.67	6.14	2.54**
-5	5.22	2.60**	4.21	0.68	3.58	0.58	-4.05	-0.53	7.69	0.4	6.58	1.57	7.6	2.99**
-4	4.78	2.28*	3.28	0.51	4.77	0.74	-5.99	-0.75	7.54	0.38	6.19	1.42	7.02	2.65**
-3	4.59	2.11*	4.4	0.65	2.27	0.34	-9.51	-1.14	8.14	0.39	4.3	0.95	8.74	3.16**
-2	4.38	1.94	1.61	0.23	1.58	0.23	-9.18	-1.06	11.47	0.53	4.36	0.92	8.55	2.98**
-1	4.92	2.10*	3.04	0.42	1.23	0.17	-8.15	-0.91	13.25	0.59	4.14	0.85	8.73	2.94**
0	6.26	2.59**	2.72	0.36	2.46	0.33	-6.9	-0.75	16.59	0.72	5.45	1.08	10.35	3.38**
1	5.75	2.31*	2.35	0.3	-0.46	-0.06	-11.29	-1.18	17.76	0.74	6.26	1.2	10.63	3.37**
2	5.98	2.33*	-1.18	-0.15	0.69	0.09	-9.62	-0.98	16.57	0.67	8.27	1.55	11.84	3.64**
3	6.01	2.28*	-3.08	-0.38	1.76	0.22	-6.88	-0.88	16.72	0.66	8.54	1.56	11.55	3.46**
4	6.69	2.47**	-2.89	-0.35	1.93	0.23	-6.12	-0.59	18.56	0.72	12.16	2.16*	10.67	3.12**
5	7.09	2.56*	-1.52	-0.18	1.1	0.13	-1.72	-0.16	17.54	0.66	11.11	1.92	11.19	3.19**
6	7.4	2.61**	-3.49	-0.4	3.02	0.35	2.32	0.21	16.42	0.6	11.18	1.89	11.73	3.27**
7	7.17	2.47**	-3.7	-0.41	-0.65	-0.07	8.13	0.73	17.19	0.62	11.65	1.93	10.44	2.84**
8	6.8	2.29*	-7.29	-0.8	0.57	0.06	10.66	0.94	20.25	0.71	9.3	1.51	10.13	2.70**
9	7.13	2.36*	-7.98	-0.85	1.85	0.2	7.12	0.62	21.56	0.74	11.63	1.85	10.31	2.69**
10	7.83	2.54**	-6.18	-0.65	2.99	0.32	10.77	0.91	23.2	0.79	10.15	1.58	10.1	2.58**
11	6.98	2.22*	-8.01	-0.82	0.79	0.08	10.24	0.85	23.69	0.79	8.07	1.23	10.5	2.64**
12	6.25	1.95	-8.41	-0.85	-2.11	-0.21	8.93	0.73	25.47	0.83	6.15	0.92	10.35	2.55*
13	6.68	2.05*	-7.6	-0.75	1.08	0.11	8.89	0.71	28.54	0.92	4.92	0.73	9.34	2.26*
14	6.15	1.86	-6.2	-0.61	0.66	0.06	4.31	0.34	28.85	0.91	3.29	0.48	9.08	2.16*
15	6.31	1.87	-5.42	-0.52	0.4	0.04	4.18	0.32	28.25	0.88	2.57	0.37	9.94	2.33**

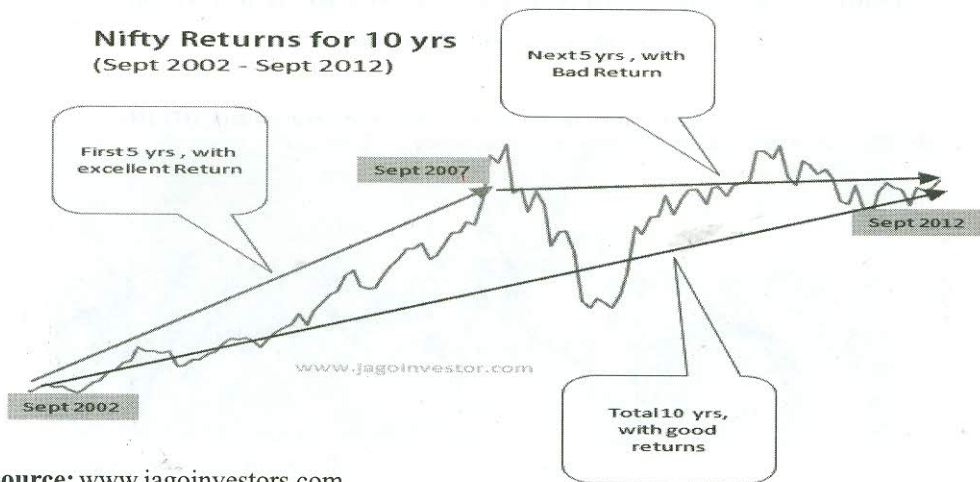
* Significant at 95 per cent confidence level; ** significant at 99 per cent confidence level

Table 8: Cumulative average abnormal returns (CAAR) to acquirers firms' shareholders in different window-breakups, from M&A announcements in Indian Auto-ancillary, Pharmaceutical, and IT Sector during the years 2002-08

Event Window (Days)	Auto-ancillary Sector (N=18)		Pharmaceutical Sector (N=38)		IT Sector (N=60)	
	CAAR (%)	t-statistics	CAAR (%)	t-statistics	CAAR (%)	t-statistics
17(-15 to 2)	-0.07	-0.01	-1.54	-0.52	5.98	2.33**
13(-10 to 2)	-0.17	-0.04	-0.65	-0.26	3.46	1.58
10(-7 to 2)	1.81	0.51	1.41	0.64	1.04	0.55
7(-5 to 2)	2.92	0.91	1.77	0.9	1.02	0.6
5(-5 to 0)	2.53	0.91	0.22	0.13	1.3	0.88
6(-5 to 1)	2.65	0.89	1.07	0.58	0.79	0.5
7(-5 to 2)	2.92	0.91	1.77	0.9	1.02	0.6
8(-5 to 3)	3.64	1.07	1.7	0.81	1.05	0.58
9(-5 to 4)	4.49	1.26	1.38	0.63	1.74	0.91
10(-5+5)	4.99	1.33	0.53	0.23	2.13	1.06
3 (-1 to +1)	2.33	1.19	1.52	1.26	1.37	1.31
5 (-2 to +2)	3.81	1.51	1.87	1.2	1.39	1.02
7 (-3 to +3)	4.62	1.54	2.7	1.47	1.23	0.77
9 (-4 to +4)	4.98	1.47	1.72	0.82	1.48	0.81
11 (-5 to +5)	4.99	1.33	0.53	0.23	2.13	1.06
5 (-3 to +2)	3.89	1.41	2.78	1.63	1.2	0.81
5(-2+3)	4.53	1.64	1.79	1.05	1.41	0.95
6(-2+4)	5.38	1.8*	1.48	0.8	2.1	1.31
21(-10 to +10)	4.5	0.87	-3.75	-1.17	4.49	1.62
31 (-15 to +15)	2.53	0.4	-5.7	-1.47	6.31	1.87
(-1 to+1)	2.33	1.19	1.52	1.26	1.37	1.31
(-1 to+2)	2.59	1.15	2.22	1.59	1.6	1.32
(-1 to+3)	3.31	1.31	2.15	1.38	1.62	1.2
(-1 to+4)	4.17	1.51	1.83	1.07	2.31	1.56
(-1 to+5)	4.67	1.56	0.98	0.53	2.7	1.69
(-1 to+6)	4.31	1.35	-0.05	-0.03	3.01	1.76
(-1 to+7)	4.74	1.4	-0.84	-0.4	2.78	1.53
(-1 to+8)	5.12	1.43	-1.6	-0.73	2.41	1.26
(-1 to+9)	5.28	1.41	-1.29	-0.56	2.74	1.37
(-1 to+10)	4.8	1.23	-0.87	-0.36	3.44	1.64
(-1 to+11)	4.24	1.04	-0.54	-0.22	2.6	1.19
(-1 to+12)	3.44	0.81	-1.18	-0.45	1.86	0.82

*significant at 95 per cent confidence level and ** significant at 99 per cent confidence level

Figure 1: Nifty returns during the years 2002 to 2012



Source: www.jagoinvestors.com

Figure 2: Estimation time line for computation of abnormal returns

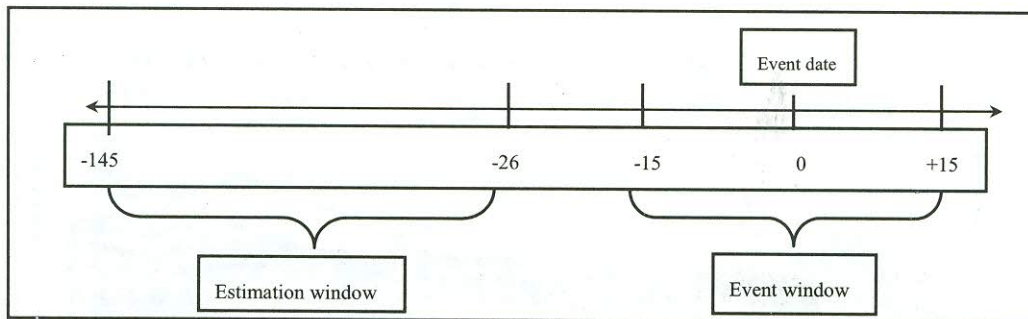


Figure 3: Average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian auto-ancillary sector, 2002-08

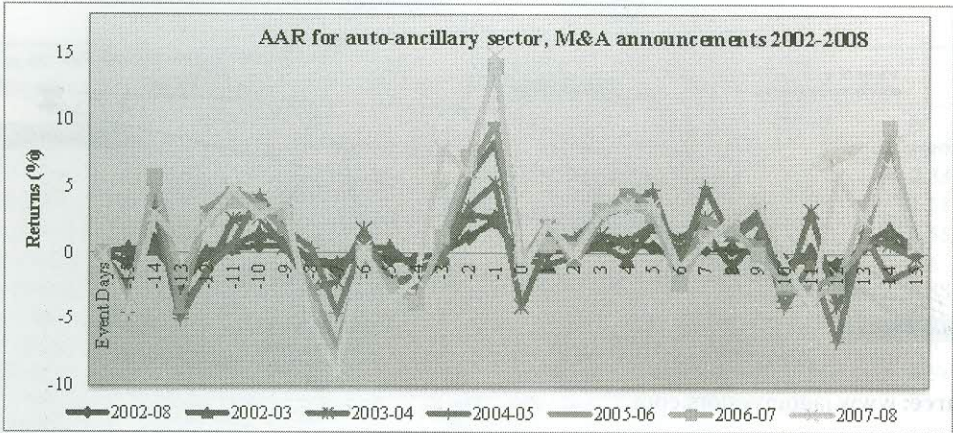


Figure 4: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian auto-ancillary sector, 2002-08

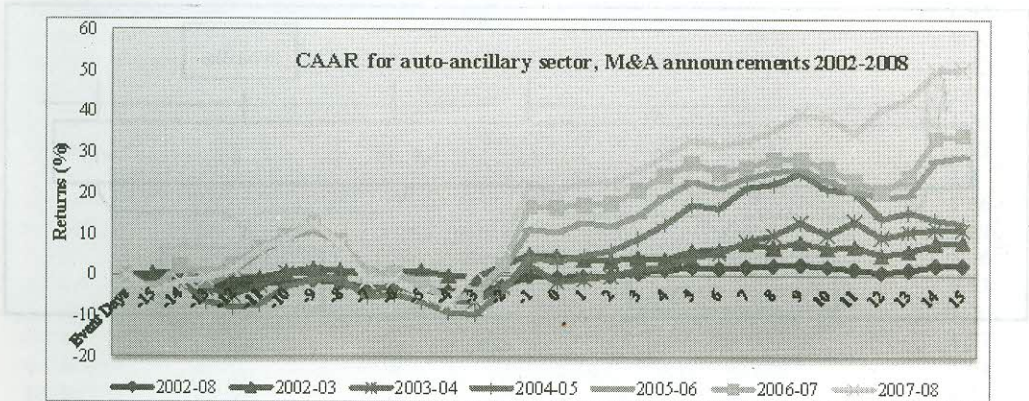


Figure 5: Average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian pharmaceutical sector, 2002-08

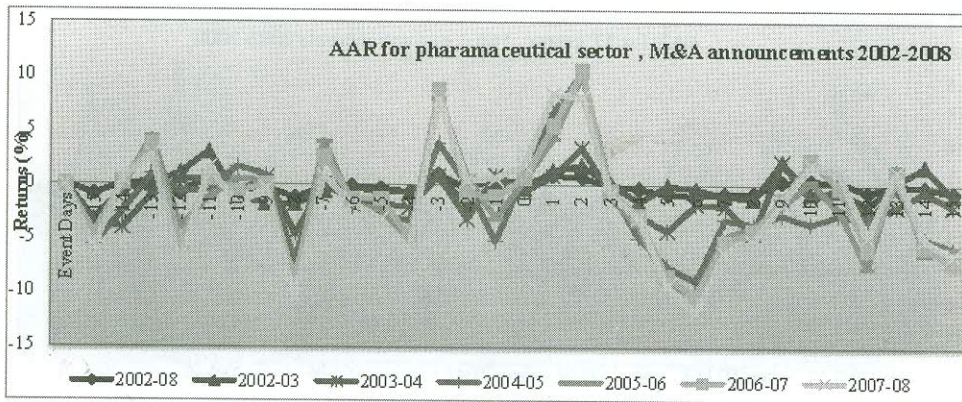


Figure 6: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian pharmaceutical sector, 2002-08

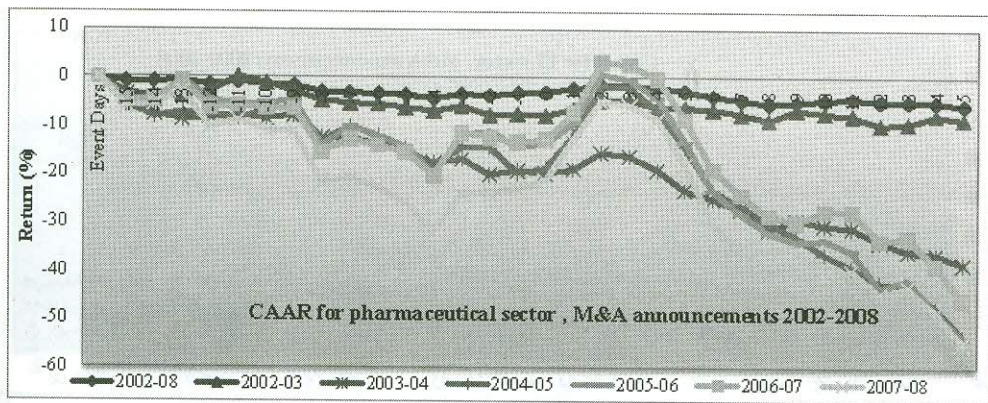


Figure 7: Average abnormal returns (AAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian IT sector, 2002-08

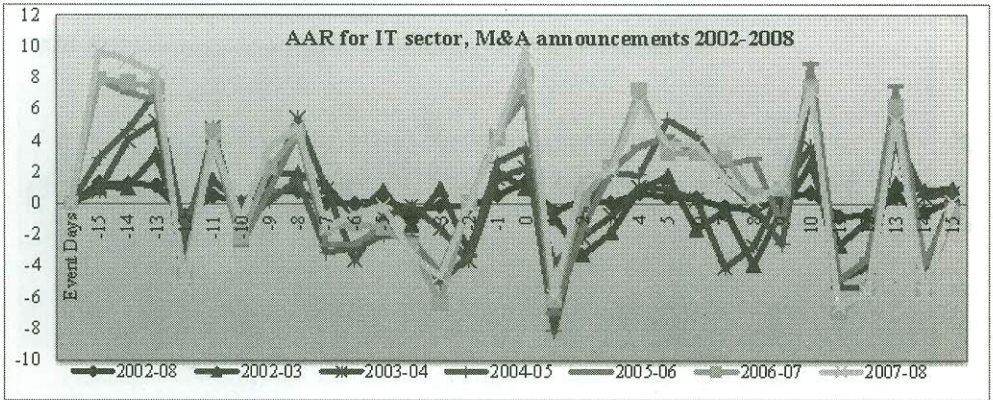


Figure 8: Cumulative average abnormal returns (CAAR) during 31 days-event window for shareholders of acquirer firms from M&A announcement in Indian IT sector, 2002-08

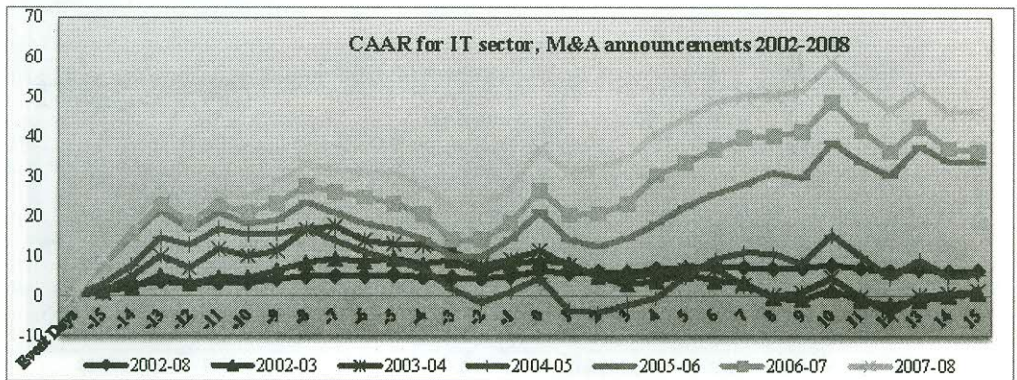


Figure 9: Average abnormal returns (AAR) accruing to shareholders of acquirer firms during an event window of 31 days for M&A announced in Indian auto-ancillary, IT, and pharmaceutical sector during 2002-08

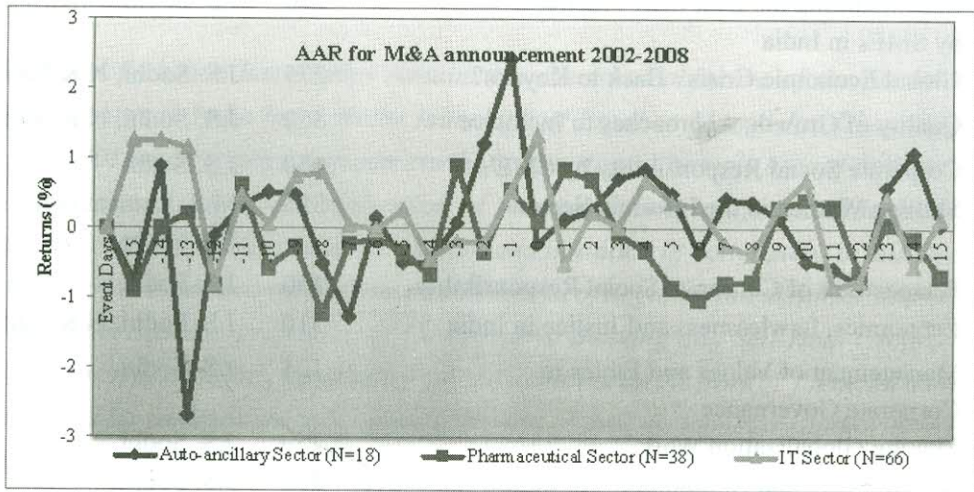
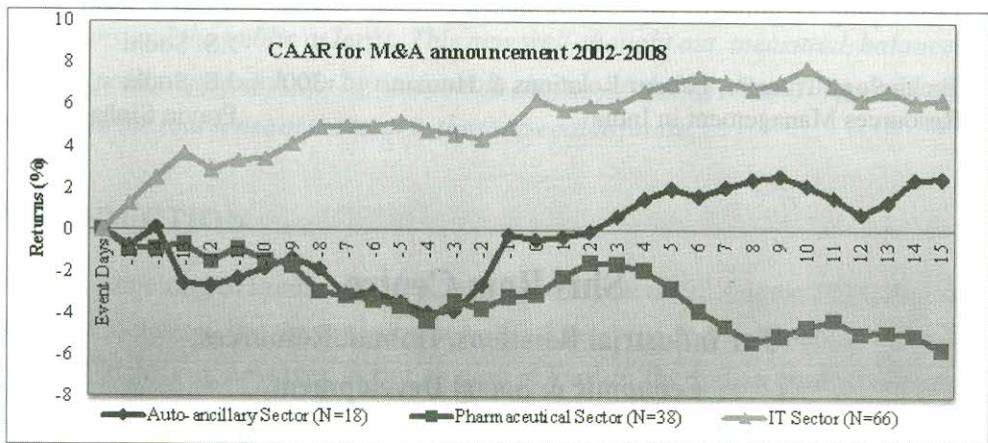


Figure 10: Cumulative average abnormal returns (CAAR) accruing to shareholders of acquirer firms during an event window of 31 days for M&A announced in Indian auto-ancillary, IT, and pharmaceutical sector during 2002-08





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