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Shareholder's Reaction to Merger and Acquisition Announcement: Evidence from India's Manufacturing Sector

I. Gupta[a], T.V. Raman[b]
[a] Amity University Uttar Pradesh (AUUP), Noida, India;
[b] Birla Institute of Management and Technology (BIMTECH), Noida, India

ABSTRACT

Mergers and acquisitions performance is akin to financial perplex that researchers have been trying to solve. The objective of the study is to examine the reaction of shareholders to the announcement of mergers and acquisitions in the pre-event, around the event and during the post-event period of the Indian manufacturing firms. The event study research methodology has been used for analysis along with parametric and non-parametric tests. The study shows that investors can earn a significant return if they purchase shares of the acquiring company one day before and sell them one day after the announcement day. The findings concluded that while the announcement of a merger or acquisition generates a positive reaction, this reaction is only temporary and is swiftly diluted. This shows that investors initially overreacted to these announcements and took immediate corrective action. The study recommends to investors, "Earlier the shareholders sell, more the shareholders gains".

Keywords: Merger and Acquisition (M&A); event study methodology; Cumulative Average Abnormal Returns (CAAR); manufacturing sector; India

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1. INTRODUCTION

Every economic event has a dynamic effect on the market due to the decision complexity in the valuation of unanticipated events. The more complex the event is, the longer the time the market will need to absorb new information. The reaction of shareholders to merger and acquisition announcements gives an unbiased measure of the acquirers' profitability, with the assumption that stock market information is efficient.

Mergers and acquisition announcements create value for the acquiring firm's shareholders in various ways. Firstly, M&A boosts efficiency gains through economies of scale, scope, and vertical integration. Secondly, through the dissemination of know-how and R&D, the firm can get synergistic gains. Thirdly, M&As also result in cost reductions through the rationalization process, which entails a more optimal reallocation of production across merging firms, increased purchasing power, and the creation of internal capital markets [1].

Short-term effects are intriguing because they provide for instant trading possibilities; also, the reaction of the stock market towards mergers and acquisitions announcements can help in the prediction of mergers and acquisitions profitability. Event studies provide the most statistically reliable information on shareholder wealth creation in the event of a merger or acquisition announcement.

The present paper examines the impact of mergers and acquisitions announcements on shareholder's performance using the Event Study Approach. This paper is divided into six sections. Section 2 provides a detailed review of the literature. The sample selection and research methodology are described in section 3 and followed by section 4, in which empirical results of the study are presented. The conclusion of the study is presented in section 5 and the recommendation and findings are explained in section 6.

2. LITERATURE REVIEW

There is a substantial amount of research on the success of M&A activities. However, the objective of this paper is to primarily evaluate the performance of mergers and acquisitions from the perspective of the acquiring companies' shareholders. As a result,

the assessment of existing research focuses mainly on studies examining the effects of mergers and acquisition announcements on acquirer shareholders' wealth.

Reference [2] examined the mergers of Japanese firms from Jan 1, 1977, to December 31, 1984, using the sample of 157 acquiring firms and 20 acquired firms. In the case of an unaffiliated and unrelated merger, the analysis indicates that acquiring firms have positive but insignificant returns following the announcement. They also use equity size to categorize data into small and large firms. The findings show that the higher the ratio of acquired acquiring firms, the greater the gain to acquiring firms' shareholder wealth.

Reference [3], using a multivariate framework, examines the empirical literature on the impact of various determinants of shareholder wealth creation to acquiring firms and target firms. The study concludes that the target firm's shareholders earn about 22% and acquiring firm's earnings is around 0.5%. The use of equity financing has a significant impact on the wealth of both the target and acquiring firm shareholders. The return of acquiring firm is influenced by numerous bidders and the type of acquisition, whereas regulatory changes and tender offers influence the return of targets.

Reference [4] analysed the sample of 666 M&A deals from 1975 to 1991. The event window of (–42,126) days shows that acquirers earn a significant CAAR (cumulative average abnormal return) of 1.4% while target firms earn a CAAR of 26.3%.

Reference [5] examined the wealth effects of 114 Swiss acquisitions from 1990 to 2001. The event window (–1, +1) exhibits a significant positive cumulative abnormal return of 1.13%, but this positive CAR declines when the observation period is extended. The results also conclude a negative and smaller CAR for deals announced in early 1990. The domestic deals have higher CARs than cross-border deals for the event window (–10, +10) whereas the results are reversed for short intervals. They conclude that domestic and cross-border mergers are not significantly different.

Reference [6] analysed the announcement of mergers and acquisitions of European firms from 1998 to 2002. The acquirers earn a cumulative abnormal return of 1.35%, 0.56% and 0.22% on the event window (–30, +1), (–30, +30) and (–1, +30) respectively. They conclude that acquirers earn null on an average and target earns significant cumulative abnormal returns of 9% in (–30, +30). They also found that merger industries under government regulation result in the lower value creation than M&A announcements in unregulated industries.

Reference [7] examined the short-term effect of takeover bids on the announcement of European Merger and Acquisition deals from 1993 to 2000 including the sample of 228 deals. They found that announcements have a significant and positive impact on target and acquiring firms. An abnormal return of 9% is realized on the event day, with cumulative abnormal returns of around 23% over the event window starting two months before and including the event day. The study also found domestic bids create more significant returns than cross-border mergers and acquisitions.

Reference [8] has used meta-analysis methodology and found positive abnormal returns to acquiring and acquired firms on the event day (day 0). Initially, shareholders expect M&A activity will create synergy in the long term. However, the returns of acquired firms are significantly high, i.e., 0.70 whereas returns for acquiring firms in the same period are 0.09. The acquiring firms' returns are either insignificant or negative in the subsequent event days (day 1 and so on).

Reference [9] examines the sample of 4430 acquisitions made by US companies between 1985 and 1995. For 1985–1995 the cross-border effect is significant with –0.866% return, whereas the market-adjusted return for the three-day event window is 0.307% for cross-border acquirers and 1.173% for domestic acquirers. The cross-border effect is positive between 1985 and 1990, with a CAR of 0.310, however, it is not substantial. In contrast, for 1991–1995, the cross-border effect is 1.342% and highly substantial. They also discovered that domestic returns increased substantially in the second half of the sample period, while cross-border returns fell, albeit insignificantly.

Reference [10] analysed the cumulative abnormal returns of 1491 US companies from the period 1990 to 2003. In a three-day event window (–1, +1), there is a significant cumulative abnormal return of 1.02% to shareholders following the merger and acquisition announcement. The study also found that merger and

acquisition deal between unrelated companies generate significantly higher positive returns.

Reference [11] using the sample of 1177 merger and acquisition deals examined the shareholder returns of Indian firms from April 1996 to March 2008. The study examines the three areas: mode of payment, relatedness between target and acquirer, and listing effect. The study found that cash-financed deals perform better than stock-financed, relatedness between acquiring and target firms outperforms unrelatedness thus resulting in positive and significant abnormal returns to shareholders and lastly, the list of firms in case of domestic target firms provides more returns than unlisted target firms.

Reference [12] examined the merger announcement impact on the wealth of shareholders of the acquiring firm, acquired firm and combined firm. The findings of the study using the 34 firms conclude that shareholder of the acquiring firm earns 11.6% in an event window of 21 days. In contrast, the shareholders of the acquiring and combined do not earn significant positive returns.

Reference [13] examined the impact of cross-border mergers and acquisitions announcements on acquirers' performance. The findings of the event window, conclude that the shareholders have earned a significant abnormal return in the post M&A period.

Reference [14] used BSE-listed firms to examine the effect of domestic mergers on shareholder wealth between 2004 and 2014. Their findings show negative abnormal returns of 1.82 percent during the announcement time. The findings conclude that during the post-event short-run window period, Indian acquiring firms reduce shareholder wealth.

Reference [15] investigates the stock market's reaction to merger announcements for both the target and acquiring firms. The results show a pre-announcement period price run-up for both the target and acquirer companies, indicating knowledge leakage or the expectation of positive news. The acquiring firms' prices, on the other hand, were reduced in the post-announcement period. Over 10 days, the trend pattern for target and acquirer companies is noticeably inconsistent.

Reference [16] examined the wealth effects of cross-border acquisition announcements on acquiring enterprises during the years 2001–2017. The study analysed the 553 and 125 foreign acquisitions made by Indian and Chinese listed companies, respectively. On the day of the event, both Indian and Chinese investors reacted positively to the announcement of international acquisitions, with significant and positive average abnormal returns of 0.71 percent and 0.23 percent, respectively.

From the above review of literature, it has been observed that developed countries have been the focus of researchers and there are few studies in relation to emerging countries. This study contributes to the existing literature since many influencing factors in an emerging market differ significantly from those in developed markets. In this case, the acquirer and target are both from emerging markets (India). Previous research has focused on acquirers from developed markets and target firms from emerging and developed markets, therefore the current research is unique in terms of acquiring and target firms. Given the dearth of published work on this topic in the Indian context, examining the Indian capital market and industry context is opportune. Furthermore, the inconclusiveness of shareholders' positive returns or negative returns is the driving force behind this research. Thus, this study is a modest attempt to fill a research gap by analysing the impact of mergers and acquisition announcements on shareholder returns of acquiring firms. Based on the abovementioned literature review, the two following hypotheses are formulated:

Hypothesis I: There is a significant average abnormal return (AAR) during the event window due to the announcement of mergers and acquisitions.

Hypothesis II: There is a significant cumulative average abnormal return (CAAR) during the event window due to the announcement of mergers and acquisitions.

3. RESEARCH METHODOLOGY

3.1. Data Collection

The mergers and acquisitions that occurred from 2011 to 2020 has been collected from the daily closing price of the sample firms and the daily closing price of the market return. The market return has been measured by BSE SENSEX. The rationale behind selecting the BSE SENSEX as a market return is that the Bombay Stock Exchange is the oldest in Asia and the world's fastest stock exchange. It also ranks

among the top ten worldwide exchanges in market capitalization for its listed firms.

3.2. Sample Selection

The total number of deals that occurred from 2011 to 2020 is 913. The data has gone through various filters which excludes the following:

1. The deal purchase value is not disclosed,
2. Acquisition whose value is less than 50%,
3. Multiple acquisitions in one announcement,
4. If any confounding event and
5. Trading data is not available.

After using these filters, 105 manufacturing companies were selected for the study.

3.3. Mechanism of Event Study Methodology

The Event Study Approach has been used for analysis. They include techniques that are well-suited for evaluating the effect of numerous corporate events on stock returns and trading activities of publicly traded firms. They can also translate the flow of information into security pricing, thus focusing attention on the efficiency of the capital market.

3.3.1. Definition of Event

An event can be defined as an announcement of news from a company. This announcement passes on some information to the public which influences the reaction towards the stock. In this study, an Event can be defined as an announcement of a Merger and Acquisition.

3.3.2. Event Window

Firstly, the date announcement of Merger and Acquisition is identified as "Day 0". Day 0 is when the event is first announced to the public or made available in the domain of public information.

The 20 days before the event has been examined to capture the leakage effect because in a few cases the intent date is announced almost 10 trading days before the approval date. The event window analyzed also ensures that no confounding events occur during this period.

3.3.3. Estimation Window

The "Estimation Period" is the period used to estimate the "Normal Returns". These are the returns that occurred before the event and event window. The estimation window in this study is from –200 to –20 means the period from 200 days to 20 days pre to the event. Thus, a total of 180 trading days has been studied to ensure that it is not impacted by event-related returns. *Figure 1* describes the event and estimation window diagrammatically.

After defining the Event window and Estimation window, the event window has been further divided into smaller windows for in-depth analysis. Previous studies have used various event windows and there is no evidence in the literature on the ideal event window (Mousa and Restum, 2020). Thus, the various window has been analyzed to capture the leakage effect namely, (–10, 0), (–5, 0), (–1, 0), (0, 0) (0, +1); (–1, +1), (–2, +2), (–5, +5), (–10, +10) and (–20, +20)

3.3.4. Definition of Abnormal Return

The term "Abnormal Return" is the difference between the expected return and actual return in the absence of the event associated with Merger and Acquisition. In mathematical terms, it can be written as:

$$AR_{it} = R_{it} - ER_{it},$$

where AR_{it} is the Abnormal Return of stock i at time t; R_{it} is the actual return of stock i at time t; ER_{it} is the expected return of stock i at time t.

This study uses the Market Model method for the calculation of expected returns.

In market model [17], the estimated return can be calculated using:

$$ER_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it},$$

where α_i is the intercept coefficient; β_i is the market return coefficient; R_{mt} is the coefficient of market return of stock I; ε_{it} is the error term.
This model assumes that α_i, β_i, and ε_{it} are assumed as perfectly correlated and thus becomes 0.

This model can be represented in other version which is called as "Market Adjusted Model" which can be expressed as:

$$AR_{it} = R_{it} - R_{mt}.$$

The *AR* of a particular stock on a particular day using the above market model can be calculated.

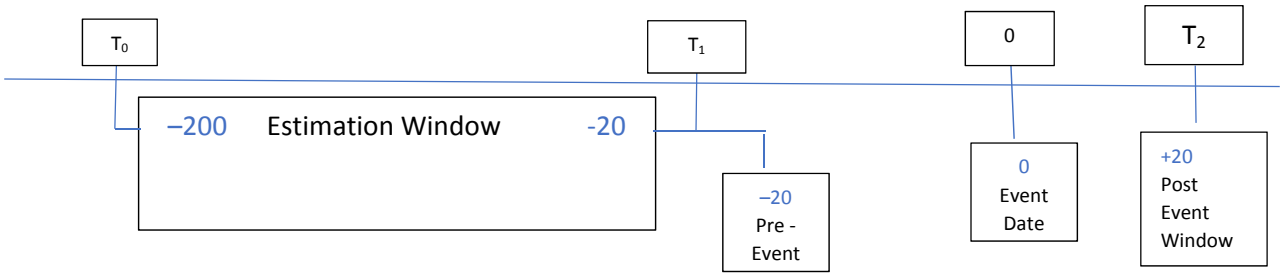

Fig. 1. **Timeline of Event Window**

Source: author's compilation.

Furthermore, since this study examines the impact of an event in the various window periods, from the aggregate of *AR* results, the average abnormal results (*AAR*) can be obtained.

$$AAR_t = \frac{1}{N}\sum_{j-1}^{N} AR_{jt},$$

where AAR_t is the average abnormal return at time *t*.

The sum of the daily average abnormal return over an interval of one, two or more trading days begins with day T_1 and ends with day T_2. Mathematically, the equation of *CAAR* is:

$$CAAR_{t1,t2} = \frac{1}{N}\sum_{j-1}^{N}\sum_{t=T1}^{T_2} 1^{AR_{jt}}.$$

3.3.5. Significance test for Event Study

The abnormal return robustness has been examined using the significance test i.e., parametric and non-parametric tests [16]. Five statistical tests were used to ensure that the results were reliable. As recommended, the three parametric and two non-parametric test statistics [18]. The tests are as follows:

1. Crude Dependence Adjustment test (CDA) [19];
2. Cross Sectional t-test [20];
3. Patell Z test [21];
4. Generalised Sign test [22];
5. Rank test [23].

4. EMPIRICAL RESULTS

This section reports the result of the merger and acquisition announcements impact on shareholder returns. It reports the average abnormal returns (AAR) and cumulative average abnormal return (CAAR) for each day with parametric and non-parametric tests (*Fig. 2*).

From *Fig. 2* it can be inferred that in the pre-announcement window i.e. 20 days before the event, the positive trend of abnormal returns has been observed from day to (–6) to t (–1). The AAR on event day, i.e., day (0), is 1.04%, the maximum in all the event days.

In the post announcement window, it is observed that the positive trend of AARs changes to a negative AAR trend. The AARs are positive till day (2) and that till day (20) there is a negative AAR pattern.

Thus, hypothesis 1 which states average abnormal returns are significant during the event window is accepted.

Furthermore, the returns are averaged over the event window to determine the net magnitude of the overall returns. The cumulative abnormal return (CAR) for each day over the 41-day event window is also shown in *Fig. 3*. The statistics indicate that CAAR becomes positive on day t (–6) and continues to be positive until day to (+21). The CAR value for day t (–6) starts at 0.12% and rises to about 2.22% on the day (0, 1) and 2.30% on the day (0, 2) which is maximum in the event window and then settles at 1.22%on the day (0, 20). This 1% drop in CAAR is attributable to the fact that AAR values are largely positive until the day (0, 2) and then turn negative for the most part during the post-announcement window.

The CAAR values for various before the announcement event window (–10, 0), (–5, 0) and (–1,0), are 0.69%, 1.39% and 0.53% respectively, which are quite impressive (*Table*). The CAAR for window (–5, 0) is 1.39% which is maximum and highly significant at a 5% significance level under the Crude Dependence Test, making it the most important event window. Furthermore, the various other event windows are

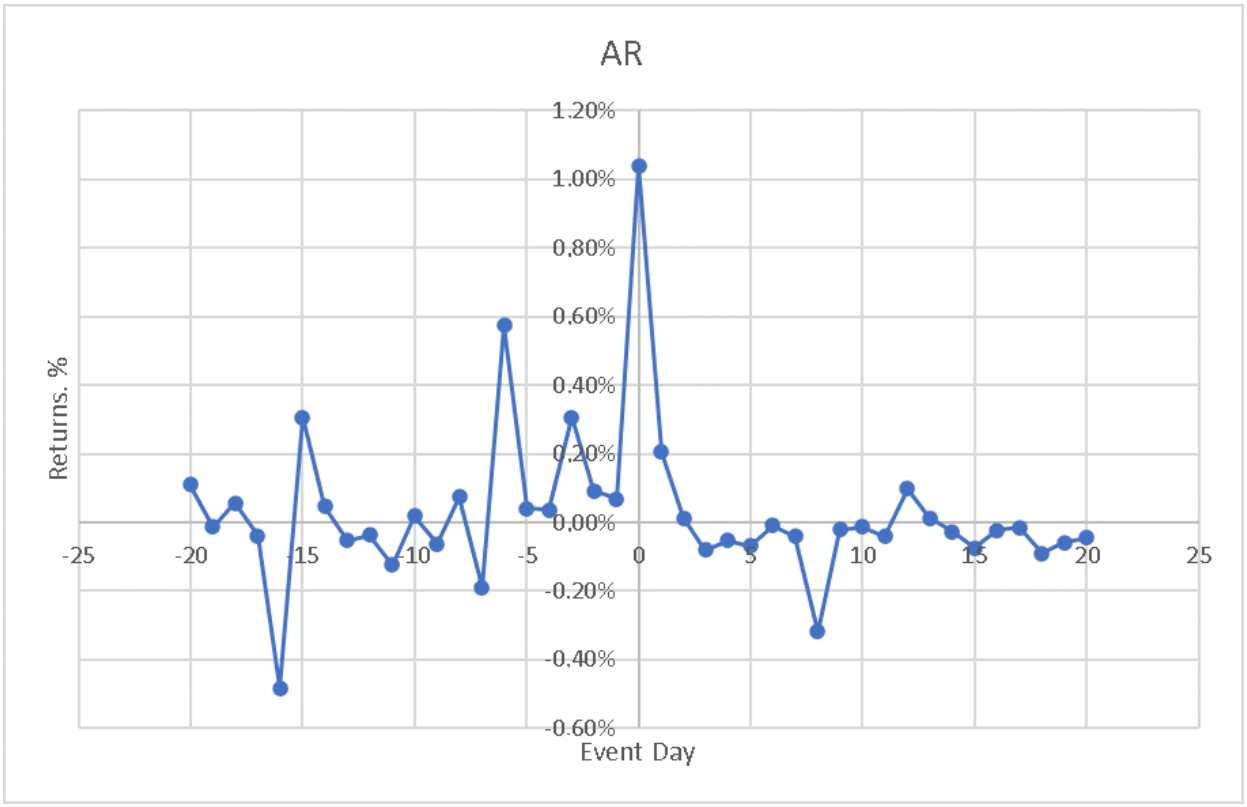

Fig. 2. **Average Abnormal Returns during the event window**

Source: author's compilation.

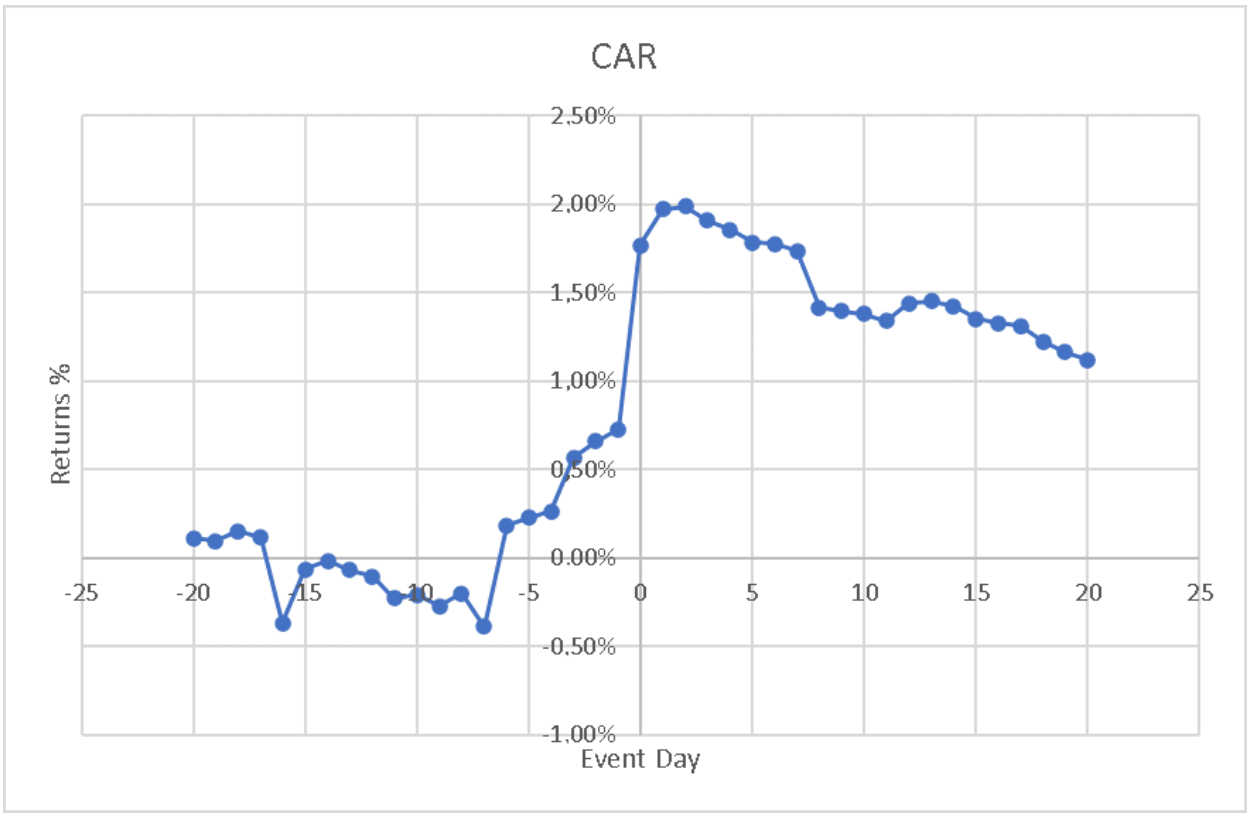

Fig. 3. **Cumulative Average Abnormal Returns during the event window**

Source: author's calculation.

Table

Result of CAAR with Parametric test and Non–Parametric test

		Parametric test						Non-Parametric test			
Event Window	CAAR	CSSD	Prob	CDA	Prob	Patell Z	Prob	Sign Test	Prob	Rank Test	Prob
(-20,+20)	0.0005	-0.0327	0.3581	-0.2430	0.3878	0.0590	0.6848	0.1920	0.2210	0.4130	0.6130
(-10,+10)	0.0047	-0.5015	0.1257	-3.8180	0.0001*	-0.0135	0.5972	-0.5170	0.1140	-0.1130	0.5830
(-5,+5)	0.0041	-0.0229	0.1737	-2.2792	0.0206*	-0.1004	0.5997	-0.0550	0.3220	0.1820	0.338*
(-2,+2)	0.0122	0.0226	0.0218*	0.0115	0.1131	-0.0184	0.4614	-0.3320	0.5010	0.4130	0.9540
(-1,+1)	0.0036	0.3240	0.0231*	-2.7120	0.0000*	-0.0194	0.0124*	0.2950	0.241*	0.1910	0.6120
(0,0)	0.0026	0.1043	0.1387	-1.1267	0.3993	-0.0144	0.4806	0.3270	0.2410	0.1210	0.6170
(-10, 0)	0.0069	0.6024	0.1252	4.1038	0.0000*	0.0289	0.4849	-0.0410	0.3950	0.1250	0.6520
(-5,0)	0.0139	0.5389	0.2251	3.1590	0.0000*	0.0299	0.3841	0.1600	0.237*	0.4130	0.5910
(-1,+0)	0.0053	0.1043	0.2387	1.4679	0.0245*	0.0132	0.06745*	1.2100	0.009*	0.2130	0.322*
(0,+1)	0.0011	-0.0578	0.1941	-1.0915	0.0000*	-0.0220	0.0644*	3.2100	0.6100	0.1830	0.6510

Source: author's calculation.

used to assess the leakage effect of M&A. The CAAR of 0.11% on the day (0, 1) which is significant at a 5% significance level under the Crude dependence test and Patell Z test, indicate that an investor can earn a significant on purchasing shares of the acquiring company one day before the announcement day and selling them one day after the announcement day.

Lastly, in event windows (−20, +20), (−10, +10), (−5, +5), (−2, +2), and (−1, +1) the CAAR values of 0.36%, 1.22%, 0.41%, 0.47% and 0.05% respectively which are statistically significant at 5% significance level, indicate that M&A announcements have a significant short-term influence on investors. Thus, hypothesis 2 which states that there is a significant difference in cumulative abnormal returns during the event window is accepted.

These findings are in sync with the results drawn by [11–14, 16] and contrast with the findings.

From the abovementioned findings, it can be concluded that, while the announcement of a merger or acquisition generates a positive reaction, this reaction is only temporary and is swiftly diluted. Despite the fact that the findings of the announcement day are statistically significant, the reaction is not very strong and is quickly neutralized within a short period. This shows that the initial overreaction is followed by a significant correction.

5. CONCLUSION

The paper has examined whether merger and acquisition announcements create value for shareholders of the acquiring firms. To analyse this objective, an event study methodology which examines has been used which examine short-term shareholder gains. The merger and acquisition from the period 2011 to 2020 have been analysed. The findings of the paper infer that acquiring firm shareholders earns statistically significant positive AR on announcement day as well as statistically significant CARs over multi day event windows. Before the announcement, the market begins to react. Investors begin to respond as soon as the announcement information is made public, and the stock price rises dramatically, providing investors with positive abnormal returns. This reaction shows that investors perceive synergies in mergers and acquisitions as advantageous. The positive returns observed on the announcement day and during the pre-event window is consistent with Indian management expectations of synergies. This could be because corporations purchase other companies for strategic reasons, such as taking advantage of economies of scale and scope and leveraging available resources and competencies, thereby expanding the scope for value creation. In post-event window, the negative abnormal returns are supported by the behavioral hypothesis which presumes that shareholders of acquiring firms experience negative returns during the post-event window.

In a nutshell, initially, investors believe that the announcement of a merger and acquisition is favorable to them. Although the shift from positive reaction before and on the day of the announcement

to the negative reaction after the announcement implies that investors originally overreacted to these announcements and took quick corrective action which can be observed from negative AARs.

6. RECOMMENDATIONS AND LIMITATIONS

The study has few recommendations for investors and managers. An investor can gain significant returns if they purchase the share on the event day and sells them one day post the event. "Earlier the shareholders sell, more the shareholders gains" is the main recommendation for investors. The preliminary findings presented here draw the attention of management, who may interpret the initial increase in stock price around announcement dates as a sign of positive shareholder reaction. Still, in reality, it is an overreaction of investors towards the announcement.

Every study has certain limitation. This study considers only the Manufacturing Sector of Indian acquiring firms. Thus, results cannot be generalized for other sectors. Thus, this research can be extended to other sectors viz. service sector, construction sector, mining sector and electricity sector. Furthermore, due to complexity in data collection, only acquiring firm data has been analysed, thus target firm data has not been considered. Besides these limitations, this study provides a view of the behavioural perception of investors' reactions to mergers and acquisitions announcements.

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ABOUT THE AUTHORS

Isha Gupta — Research Scholar at Amity College of Commerce and Finance, Amity University Uttar Pradesh (AUUP), Noida, India
https://orcid.org/0000-0003-3103-6279
Corresponding author
ishagupta74@gmail.com

Thanikella V. Raman — MBA, PhD in Management, Assoc. Prof., Department of Accounting and Finance, Birla Institute of Management and Technology (BIMTECH), Noida, India
https://orcid.org/0000-0002-4335-3450
tvraman@amity.edu

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