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Research Paper

How Stock market reacts to Announcements of Mergers & Acquisitions: A Study on Indian listed Companies

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ABSTRACT

Noteworthy business transactions like mergers and acquisitions (M&A) frequently cause stock market volatility and speculation. Within the framework of Indian listed companies, this study examines the impact of merger and acquisition (M&A) announcements on stock returns of Top 5 highest valued M&A happened in 2022 period. Event study methodology was used, where stock performance was measured taking 31 days in consideration, i.e., 15 days before (-15 days), the announcement day taken as the event day (0 day) and 15 days after the announcement (+15 days).and the study revealed that Abnormal stock returns before and after the announcements were typically not substantial, even though cumulative abnormal stock returns occasionally revealed considerable changes. This suggests that the stock market's immediate response to M&A announcements is frequently muted but may have longer-term effects.

1. Introduction

Mergers and acquisitions (M&A) have a significant effect on stock markets since these significant company deals are usually interpreted as indicators of economic growth and vitality. Stock valuations of companies involved in M&A transactions typically fluctuate significantly, reflecting market mood, investor expectations, and the anticipated value creation from the transaction. The announcement of an acquisition may result in a decline in the share prices of the acquiring businesses if investors feel the deal is too costly, risky, or dilutive to existing shareholders. However, the target company's stock price often rises as a result of the premium paid in the purchase agreement. M&A deals have the ability to affect market dynamics by altering industry landscapes and competitive positioning. Through successful mergers and acquisitions, companies can gain significant market power, economies of scale, and operational synergies, all of which can eventually boost stock performance. The market also closely monitors the execution risks of M&A transactions, which can lead to stock price volatility. These risks include regulatory barriers, integration challenges, and cultural misalignment. The market's overall attitude is also impacted by the number and magnitude of M&A deals. An increase in high-value acquisitions, which show investor confidence in the economy, promotes bullish market conditions. However, poorly executed mergers can depress market sentiment and lead to more serious stock market falls, particularly if the affected companies are major market participants.

M&A activity frequently reflects the government's economic objectives and business aspirations in developing economies such as India. Successful mergers can increase market liquidity, improve index performance, and draw in foreign investment, particularly in the banking, telecom, or technology sectors. Because M&A announcements frequently set the tone for larger stock market movements and investor behaviour, institutional investors and market analysts keep a careful eye on them.

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1.1 Research Gap

Numerous studies have been conducted on international mergers and acquisitions; however, the Indian context remains underexplored. Existing research in India tends to be highly sector-specific, limiting broader insights. Notably, 2022 marked a record year for M&A activity in India, featuring several high-value deals that underscore the dynamic nature of the country's M&A landscape. These significant transactions highlight the critical need to address existing research gaps to gain a comprehensive understanding of their implications.

1.2 Objectives of the study

- To study the Mergers and acquisitions trends and growth.
- To study the effect of mergers and Acquisitions on the stock performance.
- To evaluate the efficiency of Indian stock market in incorporating Acquisitions related information

2. Literature Review

Sampurna, D. S., Alexandri, B., Pragiwani, M., Suhardi, Y., & Ikaputri, M. W. (2024) Using an event study approach with a 91-day event window, the study looks at how mergers and acquisitions (M&A) announcements affected the stock returns of three banking businesses listed on LQ45 between 2011 and 2021. Results show that post-announcement cumulative abnormal returns (CAR) generally increased, indicating favourable market reactions in the majority of cases. Abnormal returns (AR), on the other hand, revealed a range of outcomes, with certain events reporting no discernible changes. The market overreacted, as evidenced by the noteworthy negative response from event six. For investors and policymakers to comprehend stock market behaviour during company reorganization, these insights are essential.

Upadhyay, R., & Kurmi, M. K. (2020) Using event research technique, the study investigates the short-term stock market responses to the merger of ten Indian state banks into four major banks that took effect on April 1, 2020. There are notable variations in Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR). Investors reacted negatively to the merger announcement, causing CAARs to turn negative and reach -21.98% by the end of the event timeframe. Short-term positive AARs of up to 2.89% were noted after the announcement, though, suggesting that the market had corrected. These results demonstrate the ambivalence of investor mood and the impact of outside variables, like the worldwide epidemic, on changes in stock prices.

Pandey, D. K., & Kumari, V. (2020) The study examines how merger and acquisition (M&A) announcements affect the stock returns of acquiring banks that are listed between 2010 and 2020 on the NYSE (USA) and NSE (India). It displays divergent market responses using event research methods. Throughout the event window, Indian banks showed notable negative cumulative average abnormal returns (CAARs), which demonstrated the semi-strong efficiency and sensitivity of the market. On the other hand, there were comparatively few notable CAARs for US banks, mostly during the announcement period. The results show that M&A announcements have varying effects on stock performance depending on market maturity, highlighting the different dynamics in emerging and developed markets.

Adnan, A., & Hossain, A. (2016) The study uses data from 100 U.S. corporations in 2015 using a [-5, +5] event window to examine how M&A announcements affect the stock prices of acquiring and target organizations. The results indicate that both the acquiring and target firms' pre-announcement CAAR increased, most likely as a result of information leaks or the expectation of positive news. Following the announcement, the acquiring firms' CAAR fell from the first to the third day but then increased again. Target companies, on the other hand, continued to have increased CAAR levels after the announcement until day 4. Overall, the study shows that stock price responses to M&A announcements vary, with few common patterns among companies.

Sachdeva, T., Sinha, N., & Kaushik, K. P. (2015) Using event research methods, the paper looks at how merger and acquisition announcements affected the wealth of shareholders in Indian acquiring companies in the short term between 1991 and 2010. With a cumulative average abnormal return (CAR) of 0.89% (significant at 1%), the results show that stockholders experience statistically significant positive abnormal returns on the day of the announcement. But over a 40-day period, post-announcement returns become negative, hitting -7.45%. The results imply that once operational realities and market adjustments take place, the initial optimism around mergers fades. According to the report, mergers in India have not always resulted in long-term benefit for the shareholders of the acquiring company.

Shah, P., & Arora, P. (2014) Using event research methods, the paper examines how M&A announcements affect the stock prices of target and bidder companies in the Asia-Pacific area. Target firms saw significantly positive cumulative average abnormal returns (CAARs) throughout event windows, ranging from 9.5% to 16.1%, with larger significance across longer windows, according to an analysis of 37 M&A cases from May to September 2013. On the other hand, bidding enterprises displayed statistically insignificantly minor positive CAARs (1.2% to 2.5%). The findings demonstrate the target firms' fast market response to information disclosure, whereas bidders were unable to generate a comparable level of shareholder value.

Ma, J., Pagán, J. A., & Chu, Y. (2009) The study uses 1,477 M&A transactions to examine abnormal returns to bidder firms' shareholders during M&A announcements in 10 growing Asian countries (2000–2005). Statistically substantial positive cumulative abnormal returns (CARs) in three event windows—0.96% for two-day, 1.28% for three-day, and 1.70% for five-day—are among the main conclusions. Information leaking was indicated by a significant abnormal return of 0.32% one day prior to announcements. Although the difference was not statistically significant, the CARs of the financial and non-financial industries were lower. In contrast to findings in developed markets, these studies show that emerging markets have positive market reactions to M&A.

3. Method

3.1 Population: All the mergers and acquisitions happened during the year 2022 in India.
3.2 Sample: The top 5 most valued Mergers and acquisitions happened during the year 2022 in India. Here is the list of the same as under.

Table:1 The top 5 most valued Mergers and acquisitions (2022)

Deal description	Value (USD Bn)
HDFC Ltd merger with HDFC Bank	57
Adani Group acquires Ambuja Cement	9
BSNL merges with BBNL	4
Biocon acquires Biosimilars business of Viatris Inc	3
Mindtree merges with L&T Infotech	3

Out of the top 5 companies', data of BSNL is not available, as, the company is not listed on stock market. It reduces the sample size to 4 Mergers and acquisitions.

Table:2 Mergers and acquisitions (2022)

Deal description	Value (USD Bn)
HDFC Ltd merger with HDFC Bank	57
Adani Group acquires Ambuja Cement	9
Biocon acquires Biosimilars business of Viatris Inc	3
Mindtree merges with L&T Infotech	3

In this research, the above 4 transaction of M&A will be analysed through the methodology. the company which undertakes the transaction, will be analysed, taking their stock prices.

3.3 Research design

The application of an Event study methoddemonstrates that in a highly efficient market, stock prices are reflected in all forms of new information. So, the date at which the M&A announced are very important. This research paper is going to study the effect of M&A announcement on the stock performance. As stated earlier, this research will use sample of 4 most valued Mergers and acquisitions of the year 2022, happened in India. the announcement dates of each of the M&A are as under.

Table: 3 Announcement Day of M&A

Deal Description	Announcement day
HDFC Ltd merger with HDFC Bank	4th April, 2022
Adani Group acquires Ambuja Cement	15th May, 2022
Biocon acquires Biosimilars Business of Viatris Inc	28th February, 2022
Mindtree merges with L&T Infotech	6th May, 2022

The research period during which abnormal returns and cumulative abnormal returns will be computed is known as the event window. It's likely that knowledge about the event was leaked to the market if there were unusual returns prior to the event day. Now the event window for the Study will be 31 Days, namely 15 days before the announcement, the announcement date itself and 15 days after the announcement.

3.4 Data collection

We will require a secondary data for the research. In this research paper we will require daily Stock prices of the Companies undertaking the M&A, and the daily price of the market index i.e. in our case its NIFTY50.

3.5 Tools and Techniques

For analysis of the collected data, Event study Method has been used. And for testing the hypotheses the t-test: Paired Two Samples for Means used.

3.6 Limitation of the study

The study only includes top 4 out of many Mergers and Acquisitions transaction happened in India.

The study only took short term into consideration, there may be long term effect of M&A activities on its stock performance.

4. Results

4.1 HDFC Ltd merger with HDFC Bank

Average Abnormal Returns

$H_{(Ar0)}$: There is a no significant difference in the average abnormal stock return 15 days before and after the M&A announcement for HDFC Bank Ltd.

$H_{(Ar1)}$: There is a significant difference in the average abnormal stock return 15 days before and after the M&A announcement for HDFC Bank Ltd.

Cumulative Average Abnormal Returns

$H_{(Car0)}$: There is a no significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for HDFC Bank Ltd.

$H_{(Car1)}$: There is a significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for HDFC Bank Ltd.

Table: 4 t-Test: Paired Two Samples for Means (Average Abnormal Stock Return, Cumulative Abnormal Return 15 Days Before and After Announcement)

	Abnormal Return		Cumulative Abnormal Return	
	Before (-15 days)	*After (+15 Days)*	*Before (-15 days)*	*After (+15 Days)*
Mean	0.0010	-0.0082	0.0106	0.0010
Variance	0.0001	0.0002	0.0002	0.0022
Observations	15	15	15	15
Pearson Correlation	0.4346		0.3503	
Hypothesized Mean Difference	0		0	
df	14		14	
t Stat	2.6214		0.8473	
P(T<=t) one-tail	0.0101		0.2056	
t Critical one-tail	1.7613		1.7613	
P(T<=t) two-tail	0.0201		0.4111	
t Critical two-tail	2.1448		2.1448	

Based on the table 4, HDFC Bank displays that the average abnormal stock return 15 days before the announcement was 0.0010 and the average abnormal stock return 15 days after the announcement was -0.0082. As of these data, it can be seen that the average abnormal stock return 15 days before the announcement is greater than the average abnormal stock return 15 days after the announcement (0.0010 > -0.0082), and there is a difference in the average abnormal return of 0.0092. Table 1, which tests the $H_{(Ar1)}$hypothesis, shows that the calculated t-value is 2.6214 with the t-table value using $\alpha = 0.05$ and df = 14, and using a two-tail t-Test of 2.1448, where t-stat > t-Test two-tail (2.6214 > 2.1448), and P-Value value of $0.0201 < \alpha = 0.05$. It is concluded that $H_{(Ar1)}$is accepted and $H_{(Ar0)}$ is rejected, which means there are significant abnormal stock returns before and after the announcement of mergers and acquisitions on HDFC Bank.

The average cumulative abnormal stock return 15 days before the announcement was 0.0106, and the average cumulative abnormal stock return 15 days after the announcement was 0.0010. From these data, it can be seen that the average cumulative abnormal stock return 15 days before the announcement is greater than the average cumulative abnormal stock return 15 days after the announcement (0.0106 > 0.0010), and there is a difference in the average cumulative abnormal return of 0.0096. Table 4, which tests the $H_{(Car1)}$hypothesis, shows that the calculated t-value is 0.8473 with the t-table value using α = 0.05 and df = 14 and using a two-tail t-Test of 2.1448, where t-stat < t-Test two-tail (0.8473 < 2.1448), and P-Value value of $0.4111 > \alpha = 0.05$. It can be concluded that $H_{(Car1)}$is rejected, and $H_{(Car0)}$ is accepted, which means there are no significant cumulative abnormal stock returns before and after the announcement of mergers and acquisitions on HDFC Bank.

4.2. Adani Group acquires Ambuja Cement

Average Abnormal Returns

$H_{(Ar0)}$: There is a no significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Adani Enterprise Ltd.

$H_{(Ar1)}$: There is a significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Adani Enterprise Ltd.

Cumulative Average Abnormal Returns

$H_{(Car0)}$: There is a no significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Adani Enterprise Ltd.

$H_{(Car1)}$: There is a significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Adani Enterprise Ltd.

Table:5 t-Test: Paired Two Samples for Means (Average Abnormal Stock Return –Cumulative Abnormal Return 15 Days Before and After Announcement)

	Abnormal Return		Cumulative Abnormal Return	
	Before (-15 days)	*After (+15 Days)*	*Before (-15 days)*	*After (+15 Days)*
Mean	-0.0027	-0.0064	0.0124	-0.0804
Variance	0.0003	0.0002	0.0007	0.0021
Observations	15	15	15	15
Pearson Correlation	0.1810		0.6506	
HypothesizedMean Difference	0		0	
df	14		14	
t Stat	0.7344		10.3246	
P(T<=t) one-tail	0.2374		0.0000	
t Critical one-tail	1.7613		1.7613	
P(T<=t) two-tail	0.4748		0.0000	
t Critical two-tail	2.1448		2.1448	

Based on Table 5, on Adani Enterprises shows that the average abnormal stock return 15 days before the announcement was -0.0027 and the average abnormal stock return 15 days after the announcement was -0.0064. From these data, it can be seen that the average abnormal stock return 15 days before the announcement is greater than the average abnormal stock return 15 days after the announcement (-0.0027 > -0.0064), and there is a difference in the average abnormal return of 0.0037. Table 5, which tests the $H_{(Ar1)}$ hypothesis, shows that the calculated t-value is 0.7344 with the t-table value using $\alpha = 0.05$ and df = 14, and using a two-tail t-Test of 2.1448, where t-stat < t-Test two-tail (0.7344 < 2.1448), and P-Value value of $0.4748 > \alpha = 0.05$. It is concluded that $H_{(Ar1)}$ is rejected and $H_{(Ar0)}$ is accepted, which means there are no significant abnormal stock returns before and after the announcement of mergers and acquisitions on Adani Enterprises.

The average cumulative abnormal stock return 15 days before the announcement was 0.0124, and the average cumulative abnormal stock return 15 days after the announcement was -0.0804. From these data, it can be seen that the average cumulative abnormal stock return 15 days before the announcement is greater than the average cumulative abnormal stock return 15 days after the announcement (0.0124 > -0.0804), and there is a difference in the average cumulative abnormal return of 0.0928. Table 5, which tests the $H_{(Car1)}$ hypothesis, shows that the calculated t-value is 10.3246 with the t-table value using $\alpha = 0.05$ and df = 14, and using a two-tail t-Test of 2.1448, where t-stat > t-Test two-tail (10.3246 > 2.1448), and P-Value value of $0.0000 < \alpha = 0.05$. It is concluded that $H_{(Car1)}$ is accepted, and $H_{(Car0)}$ is rejected, which means there are significant cumulative abnormal stock returns before and after the announcement of mergers and acquisitions on Adani Enterprises.

4.3. Biocon acquires Biosimilars Business of Viatris Inc

Average Abnormal Returns

$H_{(Ar0)}$: There is a no significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Biocon Ltd.

$H_{(Ar1)}$: There is a significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Biocon Ltd.

Cumulative Average Abnormal Returns

$H_{(Car0)}$: There is a no significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Biocon Ltd.
$H_{(Car1)}$: There is a significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Biocon Ltd.

Table:6 t-Test: Paired Two Samples for Means (Average Abnormal Stock Return Cumulative Abnormal Return 15 Days Before and After Announcement)

	Abnormal Return		Cumulative Abnormal Return	
	Before (-15 days)	*After (+15 Days)*	*Before (-15 days)*	*After (+15 Days)*
Mean	0.0011	-0.0052	0.0392	-0.1272
Variance	0.0003	0.0002	0.0004	0.0011
Observations	15	15	15	15
Pearson Correlation	0.0541		0.7008	
Hypothesized Mean Difference	0		0	
df	14		14	
t Stat	1.1317		27.3914	
P(T<=t) one-tail	0.1384		0.0000	
t Critical one-tail	1.7613		1.7613	
P(T<=t) two-tail	0.2768		0.0000	
t Critical two-tail	2.1448		2.1448	

Based on Table 6, on Biocon Ltd. shows that the average abnormal stock return 15 days before the announcement was 0.0011 and the average abnormal stock return 15 days after the announcement was -0.0052. From these data, it can be seen that the average abnormal stock return 15 days before the announcement is greater than the average abnormal stock return 15 days after the announcement (0.0011 > -0.0052), and there is a difference in the average abnormal return of 0.0063. Table 6, which tests the $H_{(Ar1)}$ hypothesis, shows that the calculated t-value is 1.1317 with the t-table value using $\alpha = 0.05$ and df = 14, and using a two-tail t-Test of 2.1448, where t-stat < t-Test two-tail (1.1317 < 2.1448), and P-Value value of $0.2768 > \alpha = 0.05$. It is concluded that $H_{(Ar1)}$ is rejected and $H_{(Ar0)}$ is accepted, which means there are no significant abnormal stock returns before and after the announcement of mergers and acquisitions on Biocon Ltd. The average cumulative abnormal stock return 15 days before the announcement was 0.0392, and the average cumulative abnormal stock return 15 days after the announcement was -0.1272. From these data, it can be seen that the average cumulative abnormal stock return 15 days before the announcement is greater than the average cumulative abnormal stock return 15 days after the announcement (0.0392 > -0.1272), and there is a difference in the average cumulative abnormal return of 0.1664. Table 6, which tests the $H_{(Car1)}$ hypothesis, shows that the calculated t-value is 27.3914 with the t-table value using $\alpha = 0.05$ and df = 14, and using a two-tail t-Test of 2.1448, where t-stat > t-Test two-tail (27.3914 > 2.1448), and P-Value value of $0.0000 < \alpha = 0.05$. It is concluded that $H_{(Car1)}$ is accepted, and $H_{(Car0)}$ is rejected, which means there are significant cumulative abnormal stock returns before and after the announcement of mergers and acquisitions on Biocon Ltd.

4.4. Mindtree merges with L&T Infotech

Average Abnormal Returns
$H_{(Ar0)}$: There is a no significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Mindtree Ltd.
$H_{(Ar1)}$: There is a significant difference in the average abnormal stock return 15 days before and after the M&A announcement for Mindtree Ltd.

Cumulative Average Abnormal Returns
$H_{(Car0)}$: There is a no significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Mindtree Ltd.
$H_{(Car1)}$: There is a significant difference in the Cumulative average abnormal stock return 15 days before and after the M&A announcement for Mindtree Ltd.

Table:7 t-Test: Paired Two Samples for Means (Average Abnormal Stock Return Cumulative Abnormal Return 15 Days Before and After Announcement)

	Abnormal Return		Cumulative Abnormal Return	
	Before (-15 days)	*After (+15 Days)*	*Before (-15 days)*	*After (+15 Days)*
Mean	-0.0129	-0.0094	-0.1469	-0.3217
Variance	0.0007	0.0004	0.0074	0.0021

Observations	15	15	15	15
Pearson Correlation	0.2836		0.8361	
Hypothesized Mean Difference	0		0	
Df	14		14	
t Stat	-0.4752		12.5070	
P(T<=t) one-tail	0.3210		0.0000	
t Critical one-tail	1.7613		1.7613	
P(T<=t) two-tail	0.6420		0.0000	
t Critical two-tail	2.1448		2.1448	

Based on Table 7, for Mindtree Ltd., the average abnormal stock return 15 days before the announcement was -0.0129, and the average abnormal stock return 15 days after the announcement was -0.0094. From these data, it can be seen that the average abnormal stock return 15 days before the announcement is smaller than the average abnormal stock return 15 days after the announcement (-0.0129 < -0.0094), and there is a difference in the average abnormal return of 0.0035. Table 7, which tests the $H_{(Ar1)}$ hypothesis, shows that the calculated t-value is -0.4752 with the t-table value using α = 0.05 and df = 14, and using a two-tail t-Test of 2.1448, where t-stat < t-Test two-tail (-0.4752 < 2.1448), and P-Value value of 0.6420 > α = 0.05. It is concluded that $H_{(Ar1)}$ is rejected and $H_{(Ar0)}$ is accepted, which means there are no significant abnormal stock returns before and after the announcement of mergers and acquisitions on Mindtree Ltd. The average cumulative abnormal stock return 15 days before the announcement was -0.1469, and the average cumulative abnormal stock return 15 days after the announcement was -0.3217. From these data, it can be seen that the average cumulative abnormal stock return 15 days before the announcement is greater than the average cumulative abnormal stock return 15 days after the announcement (-0.1469 > -0.3217), and there is a difference in the average cumulative abnormal return of 0.1748. Table 7, which tests the $H_{(Car1)}$ hypothesis, shows that the calculated t-value is 12.5070 with the t-table value using α = 0.05 and df = 14, and using a two-tail t-Test of 2.1448, where t-stat > t-Test two-tail (12.5070 > 2.1448), and P-Value value of 0.0000 < α = 0.05. It is concluded that $H_{(Car1)}$ is accepted, and $H_{(Car1)}$ is rejected, which means there are significant cumulative abnormal stock returns before and after the announcement of mergers and acquisitions on Mindtree Ltd.

5. Conclusion

The analysis of mergers and acquisitions (M&A) announcements across the four companies exposes varied results regarding the existence of significant abnormal and cumulative abnormal stock returns. In most cases, the average abnormal stock return before the M&A announcement was better than afterwards the announcement. However, the t-tests generally showed no statistically significant abnormal stock returns before and after the announcements, as the calculated t-values were frequently less than the critical t-values, and the P-values were greater than the significance level (α = 0.05).This indicates that M&A announcements did not consistently trigger abnormal stock price movements in the short term. For cumulative abnormal stock returns, significant differences were observed for Adani Enterprises, Biocon Ltd., and Mindtree Ltd., as evidenced by high t-values and low P-values (less than 0.05).These results suggest that M&A announcements have a more obvious effect on cumulative stock returns, reflecting long-term investor sentiment and market adjustments. Abnormal stock returns before and after the announcements were typically not substantial, even though cumulative abnormal stock returns occasionally revealed considerable changes. This suggests that the stock market's immediate response to M&A announcements is frequently muted but may have longer-term effects.

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