Impact of Mergers & Acquisitions Announcements on Stock Prices

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Abstract

This study examines the impact of M&A announcements on stock prices in India, by utilizing event study methodology and a dataset of 15 announcements. It identifies dynamic trends in stock performance before and after the announcements. The Efficient Market Hypothesis (EMH), which posits that the market incorporates all relevant information, is evident in stock price volatility. The post-COVID-19 market environment has heightened investor caution due to substantial losses. The research, covering M&A announcements from 2014 to 2023, uniquely contributes by analysing pre- and post-COVID investor sentiments. Although substantial results were produced, the analysis of Abnormal Returns (AR) and Cumulative Average Abnormal Returns (CAAR) indicates that M&A announcements did not significantly impact overall stock performance, thereby supporting the EMH. These findings provide valuable insights into market responses to M&A in India, benefiting investors, business strategists, policymakers, and other stakeholders.

***Keywords**: Event Study Methodology, Indian Stock Market, Merger and Acquisition, Announcement, Abnormal Returns, Cumulative Average Abnormal Returns*

Introduction

Mergers and Acquisitions (M&A) redefine industry dynamics by consolidating companies, either through mergers (uniting two companies) or acquisitions (one company taking over another). These transactions include horizontal (same industry), vertical (different production stages), and conglomerate (unrelated businesses) mergers. Companies pursue M&A for economies of scale, diversification, market entry, technology acquisition, to enhance shareholder value, reduce competition, and adapt to regulatory changes.

In India, M&A activity saw a decline in 2023, with contract values dropping by 63% from $192 billion in 2022 to $70.9 billion. Significant deals like HDFC Bank-HDFC and Ambuja Cements were exceptions in an otherwise subdued market. M&A impacts stock prices significantly. target companies often see a spike post-announcement due to acquisition premiums, while acquiring companies may experience temporary declines due to the financial outlay involved. For example, Nokia's stock surged by 4% in April 2020 amid acquisition rumours. This study evaluates the effects of the announcements of M&A transactions on stock prices within the Indian stock market. The primary motivation behind this research lies in its potential contribution to the existing body of literature, offering insights into the various aspects that govern M&A deals and their impact on the stock market. This research also aims to verify the efficient market

hypothesis which states that asset prices reflect all the available information. The comprehension of stock market behaviour during M&A deals is crucial for various investors, policy makers and other corporate strategists to help them react to the market in a better way. Also, this will help in capturing the sentiments of the customers. Moreover, the favourable economic and financial scenario in India sets the background for increased M&A transactions. Analyzing the Indian stock market will help us in understanding the economic condition of our country and its emergence as a prominent player in the global landscape.

This study employs quantitative research techniques, specifically using event study methods to analyse stock price movements around M&A announcements in India. By examining a comprehensive dataset of M&A events, the study aims to identify patterns and trends in stock price reactions. The significance extends beyond academia, offering practical insights for investors, corporate decision makers, and regulators. The study also uniquely analyses pre- and post-COVID mergers to determine how investor's reactions differ between these periods; providing a deeper understanding of investor behaviour in the Indian stock market following post-COVID slump. Additionally, a brief overview of types and theories of M&A is provided to enhance understanding of the topic.

Mergers and acquisitions (M&A) are often used interchangeably but have distinct definitions. In an acquisition, one organization buys part or all of another, while a merger involves two or more entities combining into a single organization (Alao, 2010). Mergers legally unite companies into one entity (Horne and John, 2004), whereas acquisitions usually involve a larger firm purchasing a smaller one. Durga, Rao, and Kumar (2013) describe M&A as activities changing ownership structure, involving takeovers, restructuring, and corporate control. Mergers can be horizontal (same industry), conglomerate (different industries), or vertical (different supply chain stages), like eBay's acquisition of PayPal in 2002, which facilitated easier money transfers for consumers, boosting both companies' success and revenues. M&As are linked to investment theory, initially proposed by Williams (1930) in "The Theory of Investment Value." Companies engage in M&A for various reasons, leading to diverse theories in academia. However, no single theory fully explains the motivations behind M&As (Wangerin, 2011), which encompass a range of perspectives and hypotheses to understand the complex dynamics driving these transactions.

Literature Review

The reviewed literature encompasses a wide range of academia which delve into the reasons for fluctuations in stock prices upon M&A announcements. Several researchers have tried to come up with various theories and explanations. The effect of mergers and acquisitions (M&A) on stock prices in the Indian setting is examined by Marisetty et al (2010). The study finds dynamic trends in stock performance around M&A announcements by using quantitative event analysis

methodology to analyse a dataset of 20 announcements. Approximately 30 days before the announcements, equities typically exhibit positive atypical returns; 20 days before the events, they briefly underperform market expectations; and 10 days beforehand, they rebound with positive returns. A positive abnormal return on the day of the release denotes a good response from the market, with stocks holding steady 10 days following the news and continue to rise twenty days later. The Indian stock market appears to function with a semi-strong form of efficiency, according to the analysis of Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR). This means that stock prices peak on the day of announcement and then progressively decline as the market absorbs information and makes adjustments. The study helps investors, business strategists, and policymakers to better understand market reactions in the M&A landscape by offering insightful information about the intricate dynamics driving stock price fluctuations in response to M&A events in India. Furthermore, Letaifa conducted a comprehensive review in 2010 that synthesizes theories and empirical studies related to mergers and acquisitions (M&As). The primary focus is on four key aspects shaping the landscape of M&As.The paper explores the multifaceted motives behind M&As, including strategic profit-seeking, managerial overconfidence, and the desire to build larger corporate empires. It also examines the role of corporate characteristics in influencing M&A decisions and the economic consequences of these operations on financial performance. Additionally, the research investigates how M&As impact the market value of the involved firms, providing a comprehensive theoretical background on the motivations, consequences, and market effects of M&As. Mandelker et al (1974). analysed the impact of mergers on stockholder returns using a two-factor market model. They discovered that stock prices effec-tively reflect merger information and that the market for acquisitions is competitive. In the seven months prior to the merger, shareholders of acquiring firms see normal returns, while those of acquired firms experience abnormal returns of almost 14% on average.

McGowan, et al (2018), focused on Hong Leong Bank Berhad and Arab Malaysian Bank Berhad from 1998 to 2003. This period follows Asian Financial Crisis. The study investigates the effects of M&A announcements on stock price behaviour and financial performance. The study finds that M&A announcements are generally perceived positively by the market, leading to favourable stock price reactions due to information leakage or market anticipation. It highlights the beneficial influence of M&A activities on the financial strength of domestic banks, aligning with the Central Bank of Malaysia's consolidation program. The research provides insights into the efficiency of the Malaysian stock market's response to acquisition announcements. It addresses issues like bidder overestimation of share values and market reactions to corporate restructuring.

The effects of M&A announcements on shareholders' wealth in India from 1991 to 2010 are examined in the research paper "Impact of Merger and Acquisition Announcement on Shareholders'

Wealth: An Empirical Study Using Event Study Methodology" by Sachdevaet al (2015). The study indicates negative but negligible short-term returns following announcement, with a considerable positive average anomalous return around the announcement day, using event study methodology on 85 acquiring corporations. This demonstrates noteworthy benefits in spite of temporary drawbacks. The study closes a gap in the literature on emerging markets and emphasises how crucial open communication is when making M&A announcements. This study provides investors and policy-makers with useful information about the dynamics of M&A in India.

Perepeczo's 2010 study explores the use of event study methodology in evaluating mergers' effects on shareholder wealth. It emphasizes the reliability of short-term abnormal returns and their role in assessing post-acquisition performance, market efficiency, and the impact on corporate finance decisions. The evolution of this methodology has improved the accuracy of abnormal return calculations and the understanding of post-announcement performance. Examples include reactions to repurchases, IPOs, and mergers, underscoring its significance in corporate event analysis.

Mehroz Nida Dilshad's (2013) research on European banking sector M&As (2001-2010) assesses market efficiency through event study methodology. The analysis of 18 bank acquisitions shows significant short-term abnormal returns for both acquirers and targets, indicating value creation and positive returns on announcement days. The study employs a linear regression model for predicting abnormal returns and highlights its limitations. The findings suggest that M&As during this period provided positive gains for shareholders.

The influence of business announcements on stock returns during the COVID-19 pandemic in India is examined in the study. A paper titled "Effects of Corporate Announcements on Stock Returns amid the Global Pandemic: Insights from India" by D.K. Pandey et al, (2021), focuses on announcements about stock splits, bonuses, takeovers, mergers, dividends, and rights offers, is the first to evaluate such effects during a pandemic.

Findings indicate that these announcements had varied impacts on stock returns: bonus issues generally boosted returns, while rights issues produced mixed results. The study highlights the overwhelming stress from the pandemic, suggesting that corporate announcements may not always mitigate this effect.

Overall, the research offers insights for policymakers to enhance stock prices during crises and helps investors understand market dynamics for better decision-making. It also emphasizes the need for further research in this area.

Research Methodology

Objectives of the study

The study aims to calculate abnormal returns (AR) and cumulative abnormal returns (CAR) for specific acquisitions on the event day (ED). It evaluates cumulative

average abnormal returns (CAAR) and average abnormal returns (AAR) for selected announcements across various time windows. Key tools include:

1. **Alpha Coefficient**: Measures excess return relative to a benchmark index.
2. **Beta Coefficient**: Assesses investment volatility relative to the market.
3. **Student t-test**: Compares means to determine significant differences.

Average abnormal returns reflect the difference between expected and actual returns, while cumulative average abnormal returns aggregate these differences over time. Overall, abnormal returns indicate profits or losses relative to expected norms.

The study "Stock Return, Volatility, and Liquidity of Acquirers: Evidence from the Indian Banking Sector" by Kapil Gupta and Pinky Mal (April 2020) examines the impact of merger and acquisition announcements on stock return, volatility, and liquidity in the Indian banking sector from 2000 to 2018. It analyses 382 banking agreements using a 21-day event window around announcement dates, comparing results to the Nifty 50 index. The research addresses a gap in existing literature regarding inconsistent findings on stock performance related to mergers. The conclusions enhance understanding of how such announcements affect financial metrics, providing insights for investors and stakeholders in navigating the banking sector's merger landscape.

Based on previous literature on the recent pandemic, the following hypothesis for the paper was formed.

H0 – Merger and Acquisition announcements have no significant impact on the stock prices on the event day, the pre-merger and post-merger period.

H1 – Merger and Acquisition announcements have significant impact on the stock prices on the event day, the pre-merger and post-merger period.

Problem Statement

Mergers and Acquisitions (M&A) are critical in sculpting the corporate world, exerting a profound impact on the stock market's landscape. The complexities inherent in the market, such as adherence to regulatory compliances, the unpredictability of investor behavior, and the unique dynamics of different sectors, pose significant challenges in fully grasping market volatility.

The Efficient Market Hypothesis posits that all pertinent information is reflected in stock prices, suggesting that the market is impervious to being outperformed. This hypothesis is corroborated by the observable volatility in stock prices. In the wake of the COVID-19 pandemic's economic impact, investors have become increasingly cautious. The considerable financial losses experienced by countless individuals during the downturn have instilled a sense of apprehension, leading to more guarded investment strategies and a general skepticism towards the market's stability.

This research stands out in the academic field by undertaking an exhaustive analysis of customer sentiments towards M&A announcements, both before and after the COVID-19 era, focusing on the period from 2014 to 2023. The objective of the study is to discern patterns that have emerged over time and to evaluate their potential consequences for investors, corporate entities, and regulatory bodies. By doing so, the research aims to deepen the collective understanding of the Indian financial market and to promote its operational efficiency.

Limitations of the study

The main limitation of the research under consideration is the fact that it only focuses on short term impact of M&A announcements on stock prices.

Data Sources

All data has been collected from the official site of BSE India.

https://www.bseindia.com/

Tools for Data Collection

- Alpha coefficient
- Beta coefficient
- Student t-test
- Average abnormal returns
- Cumulative average abnormal returns
- Abnormal returns

Model for the study.

Market model used to understand the impact of mergers and acquisitions on announcement of stock prices in India.

Normal return = α + β (MR)

α = measure of a stock's performance relative to a benchmark index (in this case S&P BSE SENSEX)

β = measure of volatility of a stock when compared to the market as whole (in this case S&P BSE SENSEX)

MR = Market return which is calculated as follows in excel

$$\mathbf{MR}=ln(MP_n / MP_{n-1})$$

MP = Market Price

Abnormal returns (AR) are calculated as follows.

AR = Stock Return – Normal return

$$\mathbf{Stock\ Return}=ln(SP_n / SP_{n-1})$$

SP= Stock Price

Average abnormal returns are calculated as follows (AAR)

AAR = Average of abnormal returns of a given basket of securities for a given period of time

$$\frac{\mathbf{S1+S2 + ... + Sn}}{\mathbf{n}}$$

CAAR =Sum of Average abnormal returns of a given basket of securities for a given period of time

$$\sum_{i=1}^{t} \mathbf{S1+S2 + ... + Sn / n}$$

Where S1 stands for the 1st security, S2 for the 2nd and so on till the nth security and t stands for the window period

t-statistics of CAAR is calculated to check whether the obtained value is significant or not.

It is calculated as follows:

$$t = \frac{\text{CAAR}}{\text{S.D.} * (\text{no. of days in window})}$$

Where S.D = standard deviation of all abnormal returns

Results & Discussions

Before moving ahead with the results, let us lay down a few assumptions which have been considered for the calculation of key financial metrics for the event study.

- The window estimation taken into consideration is 130 days.
- The event window is (-20, +20).
- The critical value at 95% confidence interval has been used to perform hypothesis testing.

Table 1: Individual Companies' t-values of abnormal return during the event window

	Companies →	Hindustan Unilever	Infosys	Tata Steel	Bharti Airtel	ONGC	Vodafone India	Aditya Birla Fasion	Tata Power
-20	t-values of AR ↓	-0.43037	0.178933	1.72723	-2.27278	0.046556	-0.59463	0.393836	-0.59913
-19		0.604955	1.616727	-1.23837	-0.48423	1.80244	1.082917	0.412664	-0.71429
-18		1.275644	-0.18879	-0.04217	0.751037	0.017536	0.29199	0.489349	0.076237
-17		0.239748	0.562623	-1.07759	-1.65718	-0.35558	-0.11133	0.222445	-0.56767
-16		0.690722	0.705809	-0.78714	1.672749	0.248566	0.247405	-0.22345	1.299257
-15		1.005911	-0.31693	-1.19716	-0.81256	0.282178	0.19833	-0.59037	1.503448
-14		1.39034	1.094688	0.513205	-0.86508	-0.51276	0.702397	0.541511	0.719716
-13		-3.52981	0.145356	0.117012	-0.15429	1.723337	-0.93488	0.999453	-0.46698
-12		1.128695	0.570468	-1.94082	0.748241	-1.24203	-0.77408	-0.38566	-1.13698
-11		4.317962	-0.94829	1.411777	-0.09982	1.847346	-0.36313	1.004493	-1.67729
-10		-0.0126	0.696067	0.177768	0.039985	-0.9373	-0.71822	-0.18251	2.046747
-9		-2.8129	-0.78911	0.82387	-0.12761	-0.54513	0.191961	-0.10435	-1.05248
-8		5.661944	-0.03425	0.116908	0.685856	-0.26186	1.563944	0.082492	-1.13982
-7		0.906583	-0.2842	0.473696	-1.33436	0.159907	-0.19333	0.79692	-1.15542
-6		4.907372	-0.29301	-0.55864	0.339221	0.015853	0.069963	-0.09176	1.661264
-5		-2.24784	1.02183	0.636044	-0.789	0.776192	-0.10794	1.543668	0.541172
-4		2.380364	-0.36161	0.40345	-2.43783	-1.80841	-0.69638	-0.00268	-1.39808
-3		-2.71739	0.0896	1.509354	0.623843	0.293628	-0.25398	0.135816	1.829976
-2		4.549572	0.809301	0.34161	0.04615	-1.05418	-0.86664	0.073884	0.868468
-1		1.838129	0.172092	-0.41099	-1.53085	-0.91201	0.475452	0.639748	0.62568
0		-1.92633	0.877132	-0.92272	-0.28672	-0.57944	-0.02304	0.792791	0.450667
1		0.402629	0.94596	-0.74989	0.200893	1.959764	1.62917	-0.71842	-0.03367
2		5.133271	-1.14515	0.054175	-0.08266	2.113276	-0.77659	-0.42214	-0.33496
3		0.738874	-0.18121	-3.12411	0.088157	1.141964	-0.86408	-0.18725	0.33478
4		-5.50854	0.487454	0.257553	0.550327	-0.66644	-0.98993	-0.47112	-2.79532
5		-0.05584	-0.61672	1.431078	0.811548	-1.56562	0.276784	-0.03259	0.669815
6		5.371304	0.286979	0.352578	-0.11116	-0.07935	1.259914	-0.12001	-1.54366
7		-2.2976	0.222179	0.664699	-1.90704	-0.09016	-0.49997	1.107831	0.344542
8		-3.7782	-0.67903	0.531907	0.404167	-3.03939	-0.07659	-0.2825	-1.90366
9		-1.82482	-0.54559	-1.27653	-0.48514	0.213414	-0.06289	-0.21778	1.969132
10		1.128866	0.047266	-1.2224	0.794486	-0.96641	1.651757	0.433837	-0.49267
11		0.92607	-1.30881	1.400539	0.337165	-0.4366	-0.63545	0.025439	-0.74838
12		-3.48332	-0.14763	0.939229	0.488719	1.804895	0.044301	-0.38312	0.098844
13		-0.23464	0.01899	0.183489	0.353967	-1.03617	0.114362	1.894084	-0.03346
14		0.465056	-0.56497	1.559279	-1.64114	0.290899	-1.91162	-0.50839	0.491549
15		-1.86264	0.277991	-0.0145	0.148428	0.738314	-1.61445	-0.09203	-0.05093
16		-3.33096	-1.03222	-1.07315	-0.3567	-1.78798	1.140669	0.229736	-0.18266
17		-3.24965	0.96426	-1.3553	0.206682	0.772498	-2.167	0.606834	-0.90462
18		-0.73724	-0.37162	-1.29141	0.311001	-0.29694	0.147748	-0.17517	-0.01004
19		-1.19324	-0.21437	0.688196	0.09925	-0.31944	0.208479	0.189526	-1.01605
20		-1.82555	0.198607	-0.3052	-0.37823	0.910757	-1.15882		1.81838

	Companies →	IDFC	Reliance Communication	Kotak Mahindra Bank	Bank Of Baroda	Reliance Industries	Axis Bank	Life Insurance Corporation
-20	t-values of AR ↓	-1.05933	0.322818	-0.07794	0.161229	-0.795779	-1.56622	-1.30264
-19		0.262598	0.140114	-1.52659	2.485768	0.400254	0.612942	0.150836
-18		0.474108	-0.51832	-0.67749	1.168085	0.977922	-0.07833	0.179361
-17		0.022245	1.626733	1.370274	-0.16739	1.086707	0.368023	0.293613
-16		-0.20845	0.538846	-0.90919	1.024488	0.876009	-0.0797	-0.03941
-15		-0.52891	-0.98577	-0.79562	-0.33512	-0.263819	-1.18366	-0.03459
-14		0.42505	0.133797	-1.29251	0.345517	-0.561483	-0.63731	0.714761
-13		-0.61517	1.42625	0.425987	-0.74763	1.033488	0.03514	-0.30813
-12		-0.42206	0.051132	0.332087	-0.0314	-1.747386	-0.45969	-0.46017
-11		-0.4072	-0.38521	-0.83999	0.383107	0.054341	0.093888	-1.56181
-10		0.447771	0.965663	0.946756	0.21161	-0.18898	-0.59749	1.492041
-9		-0.45201	-0.22698	-0.16358	0.833618	-1.202971	-0.36432	2.017105
-8		-0.47338	-0.55099	0.281176	1.042299	0.361928	-0.57509	0.45212
-7		-0.95787	0.309775	-0.88773	0.369212	-1.127367	-0.36778	0.752599
-6		0.132775	-1.27653	-0.02437	-1.31509	-0.900862	-0.27097	-0.66039
-5		1.574639	-0.03363	-0.41991	-0.11955	-0.05478	0.216391	-0.93303
-4		-0.00543	-0.43859	-0.30288	0.531167	0.067043	1.207797	0.090715
-3		1.330188	0.563332	-0.23753	0.368049	-0.703551	0.653995	0.360131
-2		0.689083	-0.25362	1.663852	2.16876	-0.483727	0.471444	-0.47571
-1		-1.0503	-0.14678	1.246795	-0.32137	0.271863	-0.56361	-0.05715
0		0.645062	2.265714	-0.7997	1.096744	0.012734	1.207359	0.301329
1		-0.97045	0.583862	-1.00164	-0.01847	-0.499033	-1.13313	-0.53482
2		0.766212	0.200759	2.216734	-0.09973	0.096692	-0.64244	0.428764
3		-0.18653	-1.07006	-0.65526	0.099242	0.042815	-0.07725	-0.1111
4		-0.9015	-0.21289	0.776972	-0.28745	-1.415135	-0.15338	-0.50954
5		0.294921	0.078242	0.201729	0.074205	0.151354	1.356181	-0.05545
6		0.323604	-2.55162	-1.1789	0.426313	-0.110176	-0.59092	-0.07091
7		-0.51484	0.116485	-1.25515	-0.19587	-0.179051	-0.56565	-0.53998
8		0.540749	-1.96628	0.072192	-0.23586	-0.418549	0.459771	-1.68405
9		0.838241	0.055052	-0.57102	0.530021	-0.580096	-0.41291	-0.82447
10		0.585712	-0.93919	-0.18841	-0.22352	0.356935	0.471296	-0.7958
11		-0.90848	0.37964	0.927461	-0.27616	0.024017	0.029787	-0.5783
12		0.10213	-0.49474	-0.06911	-1.08489	-0.509182	0.413337	1.11263
13		1.011938	-0.01516	-1.14614	-0.16865	0.224491	0.901984	0.143181
14		-0.5613	-0.39412	-0.44366	-0.00661	0.758738	-0.77487	-0.04406
15		3.507778	3.154255	-0.27711	0.147456	-0.220802	0.273506	-0.07864
16		-0.167	1.090956	0.37768	-0.47425	-0.048338	-0.24294	-0.05794
17		-0.05533	-0.62482	-0.82686	0.050046	-0.477545	-0.93981	-0.25553
18		0.322325	0.74017	4.003011	-2.20218	0.379366	0.022224	0.187414
19		0.036794	0.389236	-2.3249	-0.00502	-0.67958	0.306556	-0.17233
20		0.275199	0.738606	-2.0991	1.148755	-0.435283	-0.15257	0.656202

Table 1 presents t-values of abnormal returns (AR) for 15 companies from 2014 to 2023, highlighting significant reactions to merger announcements. Hindustan Unilever exhibited the highest cumulative abnormal return (CAR) t-value of 368.39, with notable positive fluctuations occurring five days before the announcement, peaking at 5.66. After the announcement, the stock price fluctuated significantly again on the second day, but on the announcement day, HUL faced a negative return of -0.0234, indicating negative investor sentiment. Infosys showed no significant reaction within the event window, though its AR on the announcement day was 0.0186, reflecting positive investor sentiment. Its highest CAR t-value of 26.82 occurred five days prior. Tata Steel had a negative AR of -0.0154 on the announcement day and significant CAR of 74.58 five days before the prior to event. Bharti Airtel's CAR post-announcement reached 52.82, indicating substantial impact despite a negligible AR on the event day. ONGC and Vodafone India showed significant reactions in the days following the announcement, with CAR t-values of 269.94 and 28.99, respectively. Aditya Birla Fashion had significant cumulative effects before and after the event, while Tata Power displayed notable reactions 10 days before and 9 days after, with a CAR t-value of 74.68 prior to announcement. IDFC showed no significant reaction to the announcement, with an abnormal return (AR) of 0.0138, indicating positive sentiment. However, its cumulative abnormal return (CAR) peaked at 58.80 five days before the announcement, suggesting a significant impact at that time. Reliance Communications reacted strongly on the announcement day, recording an AR t-value of 2.27 and remaining significant for 15 days post-announcement with a t-value of 3.15. Kotak Mahindra Bank exhibited significant reactions two days and 18 days after the event, though it recorded a negative AR of -0.0125, indicating negative sentiment. Bank of Baroda showed significant AR t-values of 2.49 and 2.17 two and 19 days before the announcement, with CAR values of 65.42 and 58.84 indicating a strong pre-announcement effect. In contrast, Reliance Industries and Axis Bank did not demonstrate significant reactions overall, although Axis Bank had a notable CAR of 69.89 five days before the event. Life Insurance Corporation of India displayed a significant AR only nine days prior to announcement, and its overall CAR indicated a lack of significant impact following the announcement.

Table 2: Individual Companies' t-value of Cumulative Abnormal Returns (CAR) during the given window

	Window →		-5	-2	2	5
S.No.	Companies ↓					
1	Hindustan Unilever		138.7072	368.3888	319.2642	25.91143
2	Infosys		26.81589	24.03565	-4.87846	-7.89469
3	Tata Steel		74.58205	-3.2997	-33.0886	-64.1062
4	Bharti Airtel		-137.665	-79.0597	6.296015	52.81628
5	ONGC		-113.372	-130.308	269.9379	125.032
6	Vodafone India		-31.1787	-13.3047	28.99669	-15.5873
7	Aditya Birla Fashion		42.23759	19.93727	2.07776	-17.7779
8	Tata Power		71.51215	74.68321	-17.6432	-65.3642
9	IDFC		58.80058	-13.2313	-7.48122	-23.1052
10	Reliance Communications		-5.31598	-10.8813	21.32265	-7.22017
11	Kotak Mahindra Bank		66.26963	156.3743	65.2808	52.27738
12	Bank Of Baroda		58.84026	65.42348	-4.1859	-5.20076
13	Reliance Industries		-37.0912	-13.7575	-26.1261	-66.6669
14	Axis Bank		69.89124	-5.12857	-98.798	-22.8753
15	Life Insurance Corporation		-32.8164	-27.2387	-5.42153	-25.2872

Table 2 shows the t-value of Cumulative Abnormal Returns (CAR) for individual companies for 2 days and 5 days both before and after the event.

All the companies recorded significant reaction in their stock prices to the M&A announcements in atleast one or more periods. The three companies that stand out are Hindustan Unilever, Kotak Mahindra Bank and Life Insurance Corporation of India. Hindustan Unilever and Kotak Mahindra Bank recorded significant reaction during all the windows whereas Life Insurance Corporation did not show any significant reaction to the announcement throughout the period.

Table 3: Individual Companies' Abnormal Returns (AR) during the event window and their Average Abnormal Return (AAR)

	→ Companies	Hindustan Unilever	Infosys	Tata Steel	Bharti Airtel	ONGC	Vodafone India	Aditya Birla Fashion	Tata Power
-20	Abnormal Values ↓	-0.00503	0.003198	0.027703	-0.03532	0.038514	0.038514	-0.01081	-0.0245
-19		0.008523	0.033846	-0.02198	-0.00597	0.039813	0.039813	-0.06179	0.055823
-18		0.016311	-0.00482	-0.00193	0.014465	-0.01929	-0.01929	0.017359	-0.00289
-17		0.005022	0.011172	-0.01886	-0.02483	0.036001	0.036001	-0.05487	0.030036
-16		0.012065	0.014651	-0.01471	0.0298	-0.01515	-0.01515	0.000438	0.029362
-15		0.01302	-0.00723	-0.02074	-0.01165	0.004418	0.004418	-0.02516	0.013514
-14		0.022278	0.023294	0.007859	-0.01169	0.034987	0.034987	-0.02713	0.015435
-13		-0.04419	0.002728	0.001095	-0.00032	0.003046	0.003046	-0.00195	0.001632
-12		0.018966	0.011583	-0.03362	0.014023	-0.00244	-0.00244	-0.03118	0.045198
-11		0.054805	-0.01987	0.022036	0.000663	-0.02053	-0.02053	0.042569	-0.04191
-10		0.003739	0.01354	0.001196	0.003061	0.010478	0.010478	-0.00928	0.012343
-9		-0.0323	-0.01783	0.01312	4.69E-05	-0.01788	-0.01788	0.030996	-0.03095
-8		0.066847	-0.00132	0.000654	0.013419	-0.01473	-0.01473	0.015389	-0.00197
-7		0.019319	-0.00671	0.006827	-0.02074	0.014033	0.014033	-0.00721	-0.01353
-6		0.05922	-0.0073	-0.0108	0.007859	-0.01516	-0.01516	0.004365	0.003494
-5		-0.03004	0.020917	0.009976	-0.01114	0.032057	0.032057	-0.02208	0.010942
-4		0.027305	-0.00873	0.005459	-0.03794	0.029212	0.029212	-0.02375	-0.01419
-3		-0.03198	0.001086	0.023807	0.012707	-0.01162	-0.01162	0.035428	-0.02272
-2		0.058732	0.016386	0.004008	0.003025	0.013361	0.013361	-0.00935	0.012378
-1		0.021374	0.002826	-0.00873	-0.02226	0.025089	0.025089	-0.03382	0.011559
0		-0.02039	0.01799	-0.01741	-0.00285	0.020841	0.020841	-0.03825	0.035404
1		0.007038	0.019491	-0.01437	0.00531	0.014181	0.014181	-0.02855	0.033864
2		0.058833	-0.02506	-0.00032	0.001226	-0.02628	-0.02628	0.025959	-0.02473
3		0.010165	-0.00367	-0.05412	0.003286	-0.00696	-0.00696	-0.04717	0.050451
4		-0.06837	0.00958	0.003757	0.010978	-0.0014	-0.0014	0.005154	0.005823
5		0.000986	-0.01403	0.023168	0.015278	-0.02931	-0.02931	0.052477	-0.0372
6		0.066785	0.005424	0.005141	0.00043	0.004994	0.004994	0.000147	0.000283
7		-0.02749	0.004011	0.009242	-0.0297	0.033706	0.033706	-0.02446	-0.00523
8		-0.04679	-0.01492	0.007446	0.008701	-0.02362	-0.02362	0.031068	-0.02237
9		-0.02145	-0.01228	-0.02158	-0.00567	-0.00662	-0.00662	-0.01497	0.009301
10		0.016316	0.000802	-0.02191	0.015691	-0.01489	-0.01489	-0.00702	0.022712
11		0.01088	-0.02869	0.021507	0.008002	-0.03669	-0.03669	0.058198	-0.0502
12		-0.04234	-0.0033	0.014075	0.009781	-0.01308	-0.01308	0.027152	-0.01737
13		-0.0011	-6.4E-05	0.002408	0.008306	-0.00837	-0.00837	0.010778	-0.00247
14		0.005834	-0.0125	0.025349	-0.02436	0.011856	0.011856	0.013493	-0.03785
15		-0.02242	0.005209	-0.0016	0.004734	0.000475	0.000475	-0.00208	0.00681
16		-0.04066	-0.0229	-0.0191	-0.00346	-0.01945	-0.01945	0.000345	-0.0038
17		-0.04027	0.019645	-0.0234	0.005554	0.014091	0.014091	-0.03749	0.043047
18		-0.00489	-0.00901	-0.02272	0.007124	-0.01614	-0.01614	-0.00659	0.013711
19		-0.01322	-0.00554	0.009825	0.003946	-0.00949	-0.00949	0.019312	-0.01537
20		-0.02174	0.003139	-0.00635	-0.00461	0.00775	0.00775	-0.0141	0.009485

	Companies →	IDFC	Reliance Communication	Kotak Mahindra Bank	Bank Of Baroda	Reliance Industries	Axis Bank	Life Insurance Corporation	Average Abnormal Return (AAR)
-20	Abnormal Values ↓	0.049325	-0.07383	0.063018	0.003334	-0.00883	-0.021	-0.01856	0.001716
-19		0.101603	-0.04578	-0.01601	0.059547	0.004874	0.007693	0.003158	0.013544
-18		-0.03665	0.033754	-0.01639	0.026241	0.011965	-0.00132	0.002426	0.001329
-17		0.090866	-0.06083	0.005965	-0.00582	0.013275	0.004398	0.002119	0.004643
-16		-0.01559	0.044949	-0.04451	0.024031	0.010406	-0.00148	-0.00333	0.003719
-15		0.029581	-0.01607	-0.0091	-0.00883	-0.00274	-0.01593	-0.00148	-0.0036
-14		0.062115	-0.04668	0.019552	0.005977	-0.00562	-0.00877	0.00526	0.00879
-13		0.004996	-0.00336	0.001413	-0.02139	0.0125	4.39E-05	-0.00672	-0.00316
-12		0.028735	0.016463	-0.04764	-0.00254	-0.0199	-0.00648	-0.00924	-0.00137
-11		-0.0631	0.021197	0.021373	0.008615	0.001049	0.000909	-0.02757	-0.00135
-10		0.01976	-0.00742	-0.00186	0.003219	-0.00196	-0.00824	0.021703	0.004717
-9		-0.04887	0.017923	0.013073	0.019422	-0.0132	-0.00519	0.035187	-0.00362
-8		-0.03012	0.028154	-0.01276	0.023709	0.004957	-0.00801	0.003504	0.004865
-7		0.021239	-0.03477	0.027568	0.008184	-0.01263	-0.00528	0.017194	0.001835
-6		-0.01953	0.02302	-0.01866	-0.03227	-0.00999	-0.00397	-0.00909	-0.00293
-5		0.054139	-0.0432	0.021116	-0.00221	-0.00021	0.002326	-0.01538	0.003951
-4		0.052965	-0.06715	0.043401	0.010423	0.00146	0.015475	-0.00264	0.004034
-3		-0.04705	0.024327	0.011101	0.008693	-0.00821	0.008186	0.000954	-0.00046
-2		0.022714	-0.01034	0.000983	0.050852	-0.00537	0.005779	-0.01427	0.010817
-1		0.058912	-0.04735	0.01353	-0.00928	0.003397	-0.00786	-0.00388	0.001905
0		0.059095	-0.02369	-0.01456	0.025365	0.000475	0.015545	0.001956	0.005356
1		0.042735	-0.00887	-0.01968	-0.00206	-0.00569	-0.01538	-0.00908	0.002207
2		-0.05224	0.027511	-0.00155	-0.00251	0.001207	-0.00874	0.008532	-0.00296
3		0.04021	0.010242	-0.05741	0.002454	0.000398	-0.00137	-0.00493	-0.00436
4		-0.00655	0.012375	-0.00722	-0.00866	-0.01591	-0.00241	-0.00632	-0.0047
5		-0.08179	0.044587	0.00789	0.001705	0.001925	0.017376	-0.00081	-0.0018
6		0.004848	-0.00456	0.004711	0.008671	-0.00089	-0.00827	-0.0038	0.005927
7		0.05817	-0.0634	0.038937	-0.00413	-0.00194	-0.00796	-0.01223	8.25E-05
8		-0.05469	0.032323	-0.00126	-0.00672	-0.00414	0.005603	-0.02767	-0.00938
9		0.008353	0.000948	-0.01592	0.011561	-0.00545	-0.00588	-0.01461	-0.00672
10		-0.00787	0.030579	-0.0376	-0.00692	0.005095	0.00581	-0.01166	-0.00172
11		-0.09489	0.044693	0.013505	-0.00919	0.000927	3.64E-05	-0.00377	-0.00682
12		-0.04023	0.022858	0.004294	-0.02698	-0.00543	0.004989	0.018226	-0.00403
13		-0.01915	0.016676	-0.0059	-0.00286	0.003085	0.011527	0.005194	0.000646
14		-0.00164	-0.03622	0.049708	-0.00063	0.008966	-0.01058	-0.00063	0.000177
15		0.002551	0.004259	-0.00634	0.000723	-0.00149	0.003158	-0.002	-0.0005
16		-0.01979	0.015987	-0.01564	-0.01112	-0.00045	-0.00365	0.000174	-0.01086
17		0.051583	-0.00854	-0.02896	-0.00102	-0.00473	-0.01275	-0.00355	-0.00085
18		-0.00955	0.02326	-0.02985	-0.05494	0.005074	-0.00012	0.002524	-0.00788
19		-0.0288	0.013433	0.005878	-0.00073	-0.00778	0.003678	-0.00683	-0.00274
20		0.021845	-0.01236	-0.00174	0.027576	-0.00493	-0.00228	0.008863	0.00122

Table 3 shows the Abnormal returns for 15 companies along with the Average Abnormal Return (AAR) during the event window. Abnormal Return over here signifies the difference between the observed return on a stock or investment and the expected or normal return during a specific event period. This metric helps quantify the impact of an event on stock prices by assessing deviations from the anticipated market behaviour. In the above table, the positive

abnormal returns have been highlighted in yellow. It is important to identify positive returns because it indicates that an investment or a security has outperformed expectations during a specific period or on a particular day. Investors interpret positive returns as a sign of good performance and react favourably to the market. The Average Abnormal return shown in the last column has been calculated to measure the overall significance of all the 15 companies' M&A announcements on the stock prices. The t-value of Cumulative Average Abnormal Return (CAAR) has been calculated on the basis of 5 days, both before and after the event date as well as for the entire period of 11 days i.e. (-5,+5).

Conclusion and Policy Implications

In conclusion, this study delves deep into the effect of Merger and Acquisition companies on the stock market prices of respective companies.The scope of the study includes an examination of M&A projects in India over a given time frame and in several industries, including information technology, iron and steel, oil and petroleum, etc. The study concentrates on a brief window of events and looks closely at the stock price impact that results from the quick market reactions. The goal of this research is to advance our understanding of the relationship between stock price volatility and merger and acquisition announcements. The research design makes use of a quantitative approach based on event study methodology to analyze a comprehensive dataset of 15 companies ranging from banking sector to the retail sector. The dataset taken into consideration spans over 2014-23 and contributes to the understanding of a complex corporate landscape of the 5th largest economy in the world.

There can be some practical implications of such announcements which have been mentioned as follows:

Market Anticipation

Example: The acquisition of Corus by Tata Steel in 2007 was highly anticipated. The market had ample time to factor in the potential effects, resulting in a muted stock price reaction when the deal was officially announced.

Perceived Value of the Deal

Example: The Vodafone-Idea merger in 2018. Despite being one of the largest telecom mergers, the market did not perceive it as significantly value-adding due to the competitive pressures and regulatory challenges in the telecom sector, leading to a tepid stock market response.

Financing Structure Concerns

Example: The acquisition of Jaypee Group's cement assets by UltraTech Cement. The deal raised concerns about UltraTech's increased debt burden, impacting its stock prices negatively at the time of the announcement.

Broader Economic Conditions

Example: The ONGC-HPCL merger in 2018 occurred during a period of volatile oil prices and broader economic uncertainties, which overshadowed the potential positive impacts of the merger on stock prices.

Regulatory and Legal Compliance

Example: The merger between GlaxoSmithKline (GSK) Consumer Healthcare and Hindustan Unilever in 2020 required extensive regulatory approvals, which caused delays and uncertainties, affecting stock price stability during the process.

These examples provide a clear understanding of how various factors influence the market reaction to M&A announcements in India, highlighting the complex dynamics at play.

The research on 15 companies indicates that M&A announcements generally have a minimal impact on stock prices, although individual analyses reveal some effects on cumulative abnormal returns (CAR) during specific periods. Several factors contribute to this muted response: widely anticipated mergers may not trigger significant market reactions, perceived lack of value creation can dampen investor enthusiasm, and concerns over financing structures, such as excessive debt, can negatively affect stock prices. Additionally, broader economic and geopolitical conditions may overshadow individual M&A announcements, yet this does not imply market inefficiency, as significant reactions to individual announcements still occur, supporting the efficient market hypothesis.

M&A activities also significantly influence company policies, necessitating revisions to align with new goals and ensure compliance with regulations. Effective communication is crucial during M&As to facilitate smooth transitions. Overall, this research highlights the complex dynamics of stock performance post-M&A announcements in the Indian market, providing valuable insights for investors, corporate strategists, and policymakers to make informed decisions and better predict market behaviour in this context.

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