

## MERGER AND ACQUISITION ANNOUNCEMENT OF INDIAN BANKING SECTOR: A PRE-POST ANALYSIS OF STOCK MARKET REACTION

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**ABSTRACT.** With the recommendation of the Narasimham Committee (1991), the Indian banking sector saw a soar in M&A with the objective of value creation, but the existing literature does not provide any conclusive evidence in respect of value creation for shareholders. Therefore, in the present study, an attempt has been made to investigate whether the M&A announcement generates value to the shareholders or not. By employing event study methodology, the study observed significant negative abnormal returns during the post-M&A announcement period for both overall market and individual banking sector stock. The returns further deteriorated in the long run with significant negative BHAR. Thus, the study concludes that the M&A did not create value to the shareholders; instead, it deteriorate the shareholders' value.

### 1. INTRODUCTION

To face the challenges of globalization and rapid technological changes and to explore the opportunities, firms are going for inorganic growth through various strategies and alternatives and among them, merger and acquisition (M&A) is argued to be the most popular strategy as it helps in establishing a competitive edge over their rival firms (Kumar 2009,145). Over the period of time, Merger and Acquisition (M&A) has emerged as a valuable tool for strategic growth and expansion, providing a competitive edge in the market through increased market share, improved profitability and creation of synergy for the business (Reddy, Qamar, and Yahanpath 2019, 240). A merger can be defined as an amalgamation of all assets and liabilities of one company that are transferred to another company, called a transferee company, in exchange for payment in the form of equity shares, debentures, cash or a mixture of all. On the other hand, acquisition aims at gaining a controlling stake in the share capital of the target firm.

Considering the benefits of M&A, the Indian economy also witnessed a significant increase in M&A in the post-liberalization period. Apart from mergers and acquisitions in other sectors of the Indian economy, the Indian banking sector, on the recommendation of the Narasimham Committee I (1991), saw a swing in M&A to make the size of the Indian commercial banks comparable with those of global competitors. Reforms in the Indian banking system caught the soar with the nationalization of banks, and since then, it continued in various forms, while M&A emerged as the preferable reform strategy with at most eighty five (85) mergers and acquisitions to date (Kumar and Kuncolienkar 2020, 45). Initially, the motive behind M&A in the Indian banking sector was limited to strengthening and improving the banking system and accordingly, initiatives were undertaken to merge the weak or loss-making banks into strong and profit-making banks. However, over time, Indian banking witnessed a shift in the motives

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from profit-motive to synergy generation, growth, expansion and market capitalization (Mal and Gupta 2020, 74). Along with the shift in motive, globalization and liberalization have also led the corporation to become more aggressive and opt for mergers and acquisitions, which called for research to analyze the phenomenon in the short-run as well as in the long run and examine its effect on the firm's performance and the stock market.

However, research on the Indian stock market has presented a different viewpoint regarding the impact of the M&A and the subsequent synergy creation. One group of researchers, including Anand and Singh (2008, 35) and Rani, Yadav, and Jain (2015, 1), found the short-term synergy creation from the announcement as a reliable indicator of the future success of the merged firms; while Kumar (2009, 145), Khan and Ikram (2012, 155), Kalra Gupta and Bagga (2013, 263), Reddy Qamar and Yahanpath (2019, 240), and Kumar and Kuncolienkar (2020, 45) observed that not every merger and acquisition create wealth to the shareholders and neither generate synergy for the growth and expansion of the firms. However, the paradox does not end here and continues to be fathomless as the unfortunate consequences of M&A are unfolded by Gopalaswamy, Acharya and Malik (2008, 1) and Sinha and Gupta (2011, 240).

These prevailing differences and the lack of studies regarding the impact of M&A on the Indian stock market is the leading cause for initiating the present study. The outset of the present study shall be helpful for the investors in framing the investment strategy, as it shall remove the prevailing perplex situation and boost investors' confidence in the stock market.

The article thus, proceeds further as follows: the second section discusses the relevant literature; in the third section contains the details of the methodology; and the result is elaborately explained in the fourth section, and finally, the conclusion is drawn.

## 2. REVIEW OF LITERATURE

The merger announcement has a significant and positive impact on the wealth of both bidders and targets the bank's shareholders in the Indian banking sector (Anand & Singh, 2008). However, in post-merger, the cumulative returns saw a downward trend implying a negative impact of the M&A (Gopalaswamy et al., 2008). From the financial performance point of view, in post-merger, the Indian acquiring firms could generate synergy in the form of higher cash flow, more business diversification and cost-cutting (Kumar & Bansal, 2008). However, Kumar (2009) revealed that in post-merger, the acquiring firms showed no improvement compared to pre-merger values, and thus concluded that merger does not lead to synergy. In the words of Khan (2011), the merger and acquisitions have a positive impact on the financial performance of the Indian banking industry, and the banks could obtain efficiency that directly benefits the shareholders in the form of dividends. However, Sinha & Gupta (2011) raised concern as the liquidity condition deteriorated, as indicated by the current ratio in the post-merger. In another study, Kumar & Panneerselvam (2009) segregated the Mergers and acquisitions that occurred during 1998-2006 and observed positive abnormal returns around the immediate announcement period for the firms involved in M&A. It revealed that the acquirer firms were benefited from acquisition announcement and target firms were benefited from merger announcement. Khan & Ikram (2012), by analyzing the impact of Mergers and Announcements in the Indian Banking system, observed that neither before nor after the merger announcement, the investors could earn an abnormal return. Disapproving the outcome, Rani et al. (2013), Rani et al. (2015), and Mall & Gupta (2019) concluded that the M&A resulted in wealth creation for shareholders of the Indian acquirer banks as the market perceived that the M&A would enhance efficiency due to synergy. Kalra et al. (2013) conclude that the M&A did not significantly improve the financial performance of the Indian banks. Although the market reacted significantly to the merger announcement in the short run, in the long run, the market was efficient. The outcome is supported by Mal & Gupta (2020). Mohanty & Mishra (2014) detected that the financial performance improves substantially after the merger, indicating the synergy from the mergers. In another study, Aggarwal & Garg (2019) examined the merger's impact on the acquiring company's accounting-based performance and revealed that the profitability and

liquidity of the acquiring firms were positively impacted and the service sector outperformed manufacturing firms. The long-term impact of the merger and acquisition is analyzed by Kumar & Kuncolienkar (2020) using BHAR for the acquirer banks in India and found no significant and improved BHAR for acquirer banks in post-merger. In a market-based study, Reddy et al. (2019) studied the value created by the merger and acquisitions in Indian and Chinese markets and observed that, on average, Mergers and Announcement did not create value for both the markets. Similarly, Pandey & Kumari (2020) examined the impact of merger and acquisition announcements on the stock return of banks listed in the National stock exchange (NSE) and New York Stock Exchange (NYSE) and concluded that the announcement had generated abnormal returns for both the market. However, an emerging market like India is more sensitive than a developed market like the USA. While the study on the global sample of mergers and acquisitions from 47 countries by Yilmaz and Tanyeri (2016, 110) concluded that the M&A generates significant value to shareholders; however, the magnitude of the gain is higher in developed countries as compared to emerging markets. (Kinatader, Fabich and Wagner 2017, 190) examined the value determinants for shareholders of Domestic acquired and target firms within BRICS countries and observed that, on average, the target firm earned a positive return while acquirer firms lost slightly. However, the return of the pre-announcement period of target firms is negatively related to firm size and positively to GDP growth. Similarly, Amewu and Alagidede (2018, 606) examined the impact of the announcements of mergers and acquisitions of African firms between 2002 and 2015 and observed that the shareholder of the acquirer firms earned positive abnormal returns around the announcements. In another study, Tanna and Yousef (2019, 545) investigated the systematic risk of acquiring firms from the global sample and witnessed that the beta of the acquirer firms increases in the post-announcement, provided that the risk in the pre-announcement period is lower than the market risk. Further, the study found that the cash payment for the deal lowers the risk while stock payment increases the risk. A similar study conducted in the Brazilian stock market by Souza and Gartner (2019, 234) observed the positive impact of the merger and acquisition on the stock of newly merged acquiring banks. Teti and Tului (2020, 1) found positive and significant cumulative average abnormal returns for the target firms, and positive but insignificant CAAR is observed for the acquirer firm. In another study by (Rani Shauki and Prijadi 2020, 1) analysis was conducted by classifying the M&A based on motive and found that the synergy-motivated M&A has significantly higher long-term performance than the agency-motivated M&A. (Krishnan and Yakimenko 2022, 1) examined the effect of the capital ratio on the stock price during the announcement of M&A both for a short and long period and observed a significant negative abnormal return for an acquiring firm with lower capital ratio. However, in the long run, the abnormal return and performance are found to be significantly positive.

From the above review of relevant literature, it can be said that the announcement of a Merger and Acquisition has a significant bearing on the wealth of the shareholders; however, the market's reaction to the announcement varies depending upon the timing of the announcement, nature, type and size of the merger and estimation of the potential synergy from the merger. Since 2008, as literature unfolds, mergers and acquisitions have been a way to create synergy in all the sectors of the Indian economy, but not all mergers and acquisitions resulted in synergy, as evident from the literature reviewed above. Among sectors, the banking sector has also witnessed several mergers and acquisitions, and the literature has also provided extended work on the M&A of banks to observe its impact. However, contradictions exist among them and lack to provide a common notion with a clear picture of the impact on the event of M&A announcement; also, no study has considered the announcement done in the recent period on the Indian banking sector. Therefore, the present study has been undertaken to provide a conclusive and clear picture of the impact of the recent M&A announcement on the banking sector stock and to plug the existing research gap in the literature.

## 3. DATA METHODOLOGY

**3.1. Sample and Announcement Dates.** In the present study, the merger and acquisition of the Indian Public sector banks announced on 30 August 2019 has been considered, and the details of the acquirer and target banks are given in table no. 1:

Table No.1: Details Acquirer Banks and Target Banks							
Acquirer Banks	Average Profit		Average Size		Target Banks	Average Profit	Average Size
	(Rs. in Cr.)		(Rs. in trillion)				
	2015-2019	2020-2022	2015-2019	2020-2022		2015-2019	2015-2019
1. Punjab National Bank (PNB)	-4369.27	1,938.26	7.06	11.35	a) Oriental Bank of Commerce	-1195.45	2.45
2. Canara Bank (CANBANK)	-572.7	2,000.09	5.99	10.34	b) United Bank of India	-715.368	1.38
3. Union Bank (UNIONBANK)	-901.274	1746.763	4.44	9.37	a) Syndicated Bank	-1114.55	3.1
4. Indian Bank (INDIABANK)	940.634	2567.62	2.30	5.28	a) Andhra Bank	-969.21	2.20
					b) Corporation Bank	-1949.59	2.29
					a) Allahabad Bank	-2688.85	2.38

Source: Author's Compilation (Annual Reports of respective banks, ProwessIQ Database, MoneyControl.Com)

The daily stock prices of the acquirer banks have been collected from the official website of the Bombay stock exchange.

**3.2. Tools and Techniques.** In the present study, the event study methodology is employed, considering its effectiveness and reliability to empirically capture the market behaviour around the announcement of an event. Authors, namely Fama, Fisher, Jensen and Roll (1969, 1), Brown and Warner (1980, 2015), Peterson (1989, 36) and MacKinlay (1997, 13), played a critical role in enhancing, developing and popularizing the methodology among the finance scholar.

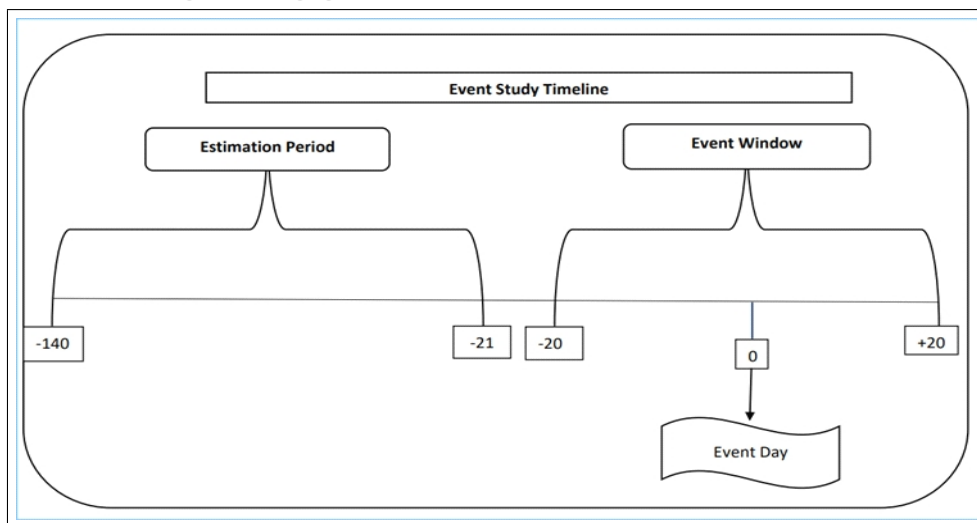


Figure 1: Event study Timeline (Source: Author's calculation)

The working of event study methodology is divided into two sets of time parameters, first Estimation Period and the second is Event Window. During the estimation period, the parameters alpha and beta are calculated, which will be further utilized in calculating expected returns for the securities during the event window. The estimation period is typically chosen prior to the event window and the ideal length is chosen considering the benefits of a longer period. Based on previous studies, suitability and the advantage of a longer time horizon, an estimation length of 120 days is considered in the present study. The second important time

parameter is the event window; it is the period during which the impact of the event on the security return is examined. The length of the event window in the present study is decided to be 41 days based on previous studies and the possible impact of the event on the security return. The estimation period and event window are graphically presented in figure 1.

The actual analysis of the data series begins after finalizing the estimation period and event window. Initially, the daily returns from the security prices are calculated as per equation (1). In the present study, the excel function 'ln,' i.e., the natural log, is utilized in calculating the returns of securities. The calculated return exhibits no to minimal skewness and serial correlation; in other words, a natural log improves and enhances the normality of the return series.

$$R_{j,t} = \ln(P_{j,t}/P_{j,t-1}) \quad (1)$$

Here,

$R_{j,t}$  = Natural log return of security 'j' on time 't'.

$P_{j,t}$  = Price of security 'j' on time 't'.

$P_{j,t-1}$  = Price of security 'j' on time 't - 1'.

Proceeding further, the expected returns  $E(R)$  with the help of parameters calculated in the estimation period is calculated as per equation (2). The study has employed the Stata function as suggested by (Pacocco, Vena and Venegoni 2018, 461) for conducting the event study..

$$E(R_{j,t}) = \alpha_j + \beta_j * R_{mt} + \varepsilon_{jt} \quad (2)$$

Here,  $E(R_{j,t})$  is the expected return, alpha ( $\alpha_j$ ) and beta ( $\beta_j$ ) are the parameters calculated during the estimation period and  $R_{mt}$  is the returns of BSE Sensex.

In a further step, the abnormal returns ( $AR$ ) are calculated by subtracting the actual return ( $R_{j,t}$ ) with that of  $E(R)$  as follows:

$$AR_{j,t} = R_{j,t} - E(R) \quad (3)$$

Further, the abnormal returns are calculated for a pool of firms through the cross-sectional aggregation of the abnormal returns, calculated as follows:

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

Here,  $AARs$  are the average abnormal returns on time 't,' where N is the number of stocks under study.

To further dig insight into the behavior, the  $AAR$  is aggregated over a period of time and the impact of the event is observed within those shorter windows, known as cumulative average abnormal returns ( $CAAR$ ) and is calculated as follows:

$$CAAR_{(t1, t2)} = \sum_{t=t1}^{t2} AAR_t \quad (5)$$

Having completed the calculation of  $AAR$  and  $CAAR$ , the final step in the methodology is to examine the economic relevance of the  $AAR$  and  $CAAR$ , for the statistical significance of the same, is tested. In the present study, both parametric and non-parametric tests are employed for the said purpose.

#### **Parametric T-test**

$$T_{AARt} = \frac{AAR_t}{\sigma(AAR)} \quad (6)$$

Here,

$$\sigma(AAR) = \sqrt{\frac{\sum_{t=1}^{120} (\overline{AR}_t - \overline{\overline{AR}})^2}{T-2}}$$

$$\overline{\overline{AR}} = \frac{1}{120} \sum_{t=1}^{120} \overline{AR}_t$$

$$\overline{AR}_t = \frac{1}{N} \sum_{j=1}^N AR_{j,t}$$

$$T_{CAAR(t1,t2)} = \frac{CAAR_{(t1,t2)}}{\sqrt{(t1, t2) + 1 * \sigma(AAR_t)}} \quad (7)$$

**3.2.1. Non-Parametric Sign Test.** In the present study, Cowan generalized sign test is employed to examine whether the fraction of positive cumulative abnormal returns in the estimation period is in line with the positive CAAR in the event period. It is calculated as:

$$Z_{gsign} = ((\omega - N\hat{\rho}) / \sqrt{N(\hat{\rho})(1 - \hat{\rho})}) \quad (8)$$

Here,

$$\hat{\rho} = \frac{1}{N} \sum_{j=1}^N \frac{1}{L} \sum_{t=T1}^T \varphi_{i,t}$$

$N$ : indicates the number of sample firms

$L$ : indicates number of days in estimation period

$T$ : days in estimation period

$\varphi_i = 1$ , if sign is *+ve*, 0 otherwise

$\omega$  is the number of stocks with positive cumulative abnormal returns during the event window.

**3.3. Calculation of Buy and Hold Abnormal Return (BHAR).** The long-term performance of the securities in the post-announcement period is measured using the BHAR technique. In the present study, an event window of one (1) year holding period, ranging from 18 September 2019 to 18 September 2020, is considered to highlight the excess returns, if any, over and above the market return (Sensex return), i.e., returned enjoyed by an investor by buying the shares of the acquiring firm just after the particular merger. *BHAR* for each security in the present study is computed as:

$$BHAR_j = \prod_{t=1}^T (1 + R_{j,t}) - \prod_{t=1}^T (1 + R_{m,t}) \quad (9)$$

Here,

$T$  is the number of days in the post-announcement period (365 days in the present study, since one-year *BHAR* is considered)

$R_{j,t}$  = daily return of firm 'j' on time 't'

$R_{m,t}$  = daily return of market, 'm' on time 't'.

*BHAR* can also be averaged over the sample firms in a cross-sectional study to obtain Average *BHAR* (*ABHAR*). It is represented as :

$$ABHAR = \frac{1}{N} \sum_{j=1}^N BHAR_j \quad (10)$$

Here,

$N$  is the number of sample firms, five (5) for the present study.

Calculation of Test Statistics for *BHAR* and *ABHAR*

$$T_{BHAR_j} = \frac{BHAR_j}{\sigma(AR_j)} \quad (11)$$

$$T_{ABHAR} = \frac{ABHAR_t}{\sigma(AAR) * \sqrt{n}} \quad (12)$$

$n$  is the number of sample firms.

#### 4. RESULTS AND DISCUSSION

Figure No.2 depicts the Acquirer banks' behavior around the merger announcements. From the movement of the AAR of Acquired banks, it can be inferred that the merger announcement has released certain information into the market, causing fluctuation in the stock market. The movement of AAR in the pre-announcement period indicates

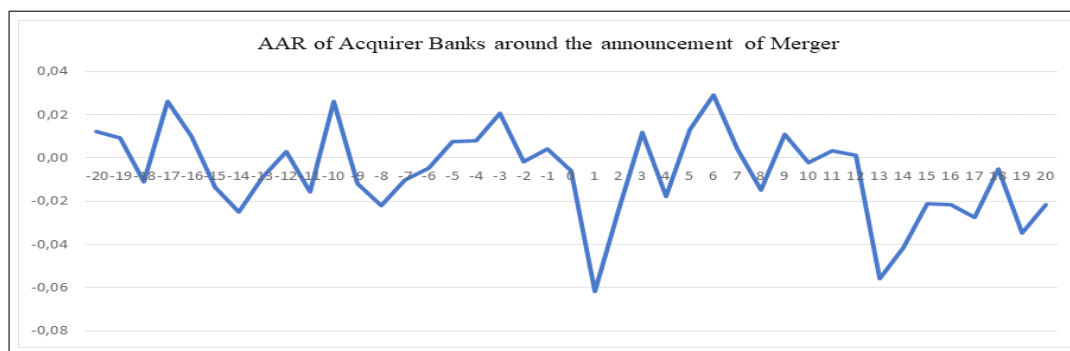


Figure 2: AAR of Acquirer Banks (*Source: Author's calculation*)

the leakage of information about the merger and it is an obvious situation in case of a governmental decision because many a times government itself gives an indication of events to be happening and also media houses leak the information before it is officially announced. Observing the AAR during the post-announcement period, it can be said the information is perceived negatively as a sharp decline is witnessed immediately after the announcement of the merger. Although the market started to bounce back, it is only on day 6 that an uprise is seen in the return series. After that, the market again started declining and continued till day 20 in the post-announcement period. From this, it can be said that the merger announcement has been negatively perceived by the market and appears to be a value-harming step rather than value generating step.

Further, the AAR is statistically tested through parametric t-test and non-parametric Wilcoxon sign test by utilizing the Stata commands suggested by Pacicco et al. (2018) and the same is presented in the table no.2 along with respective p-values.

Corresponding to p-values, the AAR during the pre-announcement period is significant for five days, of which three are positive and one is negative. This indicates the leakage of information, and the same has caused a positive impact on the stock of the Acquirer banks. However, on observing event day (day 0), the AAR is negative but insignificant; this insignificant AAR on event day can be attributed to the leakage of information. In other words, it can be said that since the information was already reached the market and, therefore, on the actual announcement day, the market did not respond. During the post-announcement period, the AAR is significant and negative on immediate days, i.e., on day 1 and 2, indicating the negative impact of the announcement on the stock price. In other words, it can be said that the market participants perceived the information released through the announcement in a negative manner, causing a negative impact on the stock price. However, significant positive AAR was witnessed on day 6, but the positiveness could not continue, and the market started reacting negatively, as seen from the significant negative AAR from day 13 to 20 in the post-announcement period. From the behavior of AAR during the post-announcement period, it can be concluded that the market is slow and inefficient in processing the information released through the announcement of the merger.

Corresponding to Wilcoxon sign tests, it can be witnessed that during the entire windows of 41 days (-20 days to + 20 days), the AAR is statistically significant, implying a significant

difference in the positive value of AAR in event windows as compared to that of the estimation period.

<b>Table No.2: AAR of Acquirer Banks</b>			
<b>along with test statistics</b>			
Days	AAR	P-values	Wilcoxon
-20	0.01	0.27	0.00**
-19	0.01	0.41	0.00**
-18	-0.01	0.32	0.07*
-17	0.03	0.02**	0.00**
-16	0.01	0.36	0.00**
-15	-0.01	0.21	0.00**
-14	-0.03	0.03**	0.00**
-13	-0.01	0.43	0.07*
-12	0.00	0.80	0.00**
-11	-0.02	0.15	0.07*
-10	0.03	0.02**	0.00**
-9	-0.01	0.28	0.07*
-8	-0.02	0.05*	0.07*
-7	-0.01	0.35	0.07*
-6	0.00	0.67	0.00**
-5	0.01	0.48	0.00**
-4	0.01	0.48	0.00**
-3	0.02	0.06*	0.00**
-2	0.00	0.86	0.00**
-1	0.00	0.69	0.00**
0	-0.01	0.59	0.00**
1	-0.06	0.00**	0.07*
2	-0.02	0.03**	1.00
3	0.01	0.28	0.00**
4	-0.02	0.11	0.07*
5	0.01	0.23	0.00**
6	0.03	0.01**	0.00**
7	0.00	0.69	0.00**
8	-0.01	0.18	0.07*
9	0.01	0.31	0.00**
10	0.00	0.86	0.00**
11	0.00	0.76	0.00**
12	0.00	0.91	0.00**
13	-0.06	0.00**	0.07*
14	-0.04	0.00**	0.07*
15	-0.02	0.06*	0.07*
16	-0.02	0.05*	0.07*
17	-0.03	0.01**	0.07*
18	-0.01	0.63	0.00**
19	-0.03	0.00**	0.07*
20	-0.02	0.05*	0.07*
Source: Author's Calculation. Significance			
level: ** p-value <0.05, * p-value <0.1			



Further to dig insight into the behavior of the stock, the CAAR is calculated by aggregating the AAR over multiple days and the same, along with t-statistics and Wilcoxon sign test, is presented in the table no.3.

<b>Table No.3: CAARs of Acquirer Banks</b>			
<b>along with test statistics</b>			
Windows	CAAR	P-values	Wilcoxon
(-20, -1)	0.00	0.96	0.00**
(1,20)	-0.27	0.00**	0.07*
(-1,1)	-0.06	0.00**	0.07*
(-2,2)	-0.09	0.00**	0.07*
(-2,0)	0.00	0.86	0.00**
(0,2)	-0.09	0.00**	0.07*
(0,1)	-0.07	0.00**	0.07*
(-1,0)	0.00	0.92	0.00**
(0,1)	-0.07	0.00**	0.07*
(-10,10)	-0.04	0.46	0.00**
(1,10)	-0.05	0.16	0.00**
(-20,20)	-0.28	0.00**	0.07*
Source: Author's Calculation. Significance level: ** p-value <0.05, * p-value <0.1			

From the windows of the pre-announcement period, i.e., (-20, -1), it is seen that the announcement has no significant impact, whereas the CAAR of the post-announcement period shows a significant and negative impact of the announcement. Similarly, the CAAR around the announcements, namely (-1,1), (-2,2), also showed a significant and negative impact on the stock return.

Corresponding to Wilcoxon sign tests, it can be seen that during the entire CAAR windows, the CAAR is statistically significant, implying a significant difference in the positive value of CAAR in different windows compared to the estimation period.

Further in the study, the impact of the merger announcement on the Individual Banks is observed by calculating Abnormal Returns (ARs) and the statistical significance of the same is tested by employing a parametric t-test and non-parametric sign test.

#### Impact of the Merger Announcement on Individual Banks

Figure 2 displays the behavior of ARs of PNB around the announcement of the merger. From the behavior of ARs of PNB, it is witnessed that the information released through the announcement has brought volatility in the stock of PNB. The ARs in the pre-announcement period fluctuate between 0.04 to -0.05, while in the post-announcement period, the ARs fluctuate between 0.03 to -0.05. On the immediate next of the announcement, i.e., on day 1, the AR saw a sharp decline, indicating a negative stock reaction during the post-announcement period.

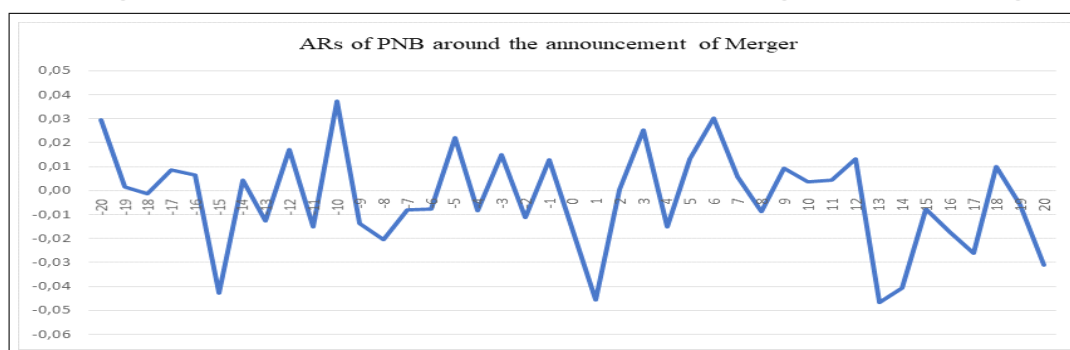


Figure 3: Abnormal Returns of Punjab National Bank (PNB) around the announcement of the merger (Source: Author's Calculation)

Similarly, the behavior of ARs of Canara Bank is presented in figure 3, from which it is observed that the stock is moderately stable around the 41 days event window. However, an uprise is seen in the ARs in the pre-announcement period on day 10 and downfall is witnessed on day 1 during the post-announcement period.

Further, the AR of both the banks are statistically tested through a parametric t-test and non-parametric Wilcoxon sign test by utilizing the Stata commands suggested by Pacicco et al. (2018), and the same is presented in the table no.4 along with respective p-values.

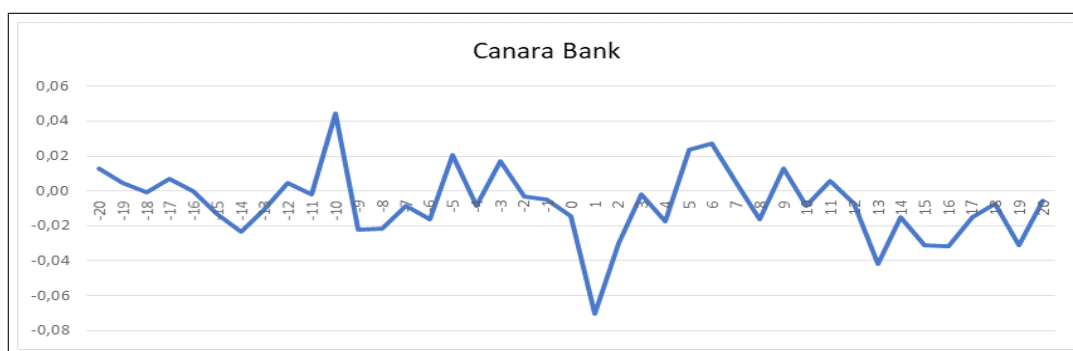


Figure 4: Abnormal Returns of Canara Bank (CANBNK) around the announcement of the merger (Source: Author's Calculation)

From the ARs of PNB, as displayed in table no.4, it is seen that the ARs in the pre-announcement period are significant for two days, of which one is positive and one is negative. This indicates the leakage of information and has confused the investors regarding the benefits of a merger. On event day, the ARs are negative but insignificant, indicating no impact; however, this inference could not be guaranteed as the information leakage is witnessed in the pre-announcement period. In other words, it can be said that due to the leakage of information, the stock did not react on the day of the actual announcement of the event. On observing the post-announcement period, it is witnessed that the ARs are significant on the immediate next day, i.e., on day 1 and on day 13, 14 and are negative, indicating negative stock reaction in the post-announcement period. In other way, it can also be inferred that the stock is slow and inefficient in processing the information released through the announcements.

From the ARs of Canara Bank, as displayed in table no.4, it is seen that the ARs in the pre-announcement period are positively significant for one day; this indicates the leakage of information and the same has been perceived positively by the market. On event day, the ARs are negative but insignificant, indicating no impact; however, this inference should be taken with caution as the information leakage is witnessed in the pre-announcement period. On observing the post-announcement period, it is witnessed that the ARs are significant on the immediate next day, i.e., on day 1, indicating a negative stock reaction in the post-announcement period.

Wilcoxon sign tests also depicted a similar result, implying a significant difference in the positive value of AR in event windows as compared to the estimation window.

Further to dig insight into the behavior of the stock, the CAR is calculated by aggregating the AR over multiple days, and the same, along with t-statistics and Wilcoxon sign test, is presented in table no.5.

From CAR of PNB, it is seen that during the windows of the pre and post-announcement period, i.e., (-20, -1) and (1,20), CAR is positive and negative, respectively but is insignificant, indicating no impact of the announcement. Whereas the CAR around the announcements, namely (0,1), is significant and negative, indicating the negative impact of the announcement on the stock return in small windows around the post-announcement period.

<b>Table No.4: ARs of Individual Banks along with test statistics</b>						
Days	PNB	P-values	Wilcoxon	Canara Bank	P-values	Wilcoxon
-20	0.03	0.17	0.17	0.01	0.51	0.51
-19	0.00	0.94	0.94	0.00	0.82	0.82
-18	0.00	0.95	0.95	0.00	0.98	0.98
-17	0.01	0.69	0.69	0.01	0.72	0.72
-16	0.01	0.76	0.76	0.00	0.99	0.99
-15	-0.04	0.05*	0.05*	-0.01	0.50	0.50
-14	0.00	0.85	0.85	-0.02	0.24	0.24
-13	-0.01	0.56	0.56	-0.01	0.57	0.57
-12	0.02	0.44	0.44	0.00	0.83	0.83
-11	-0.02	0.48	0.48	0.00	0.91	0.91
-10	0.04	0.08*	0.08*	0.04	0.02**	0.02**
-9	-0.01	0.53	0.53	-0.02	0.26	0.26
-8	-0.02	0.34	0.34	-0.02	0.27	0.27
-7	-0.01	0.71	0.71	-0.01	0.66	0.66
-6	-0.01	0.73	0.73	-0.02	0.41	0.41
-5	0.02	0.31	0.31	0.02	0.30	0.30
-4	-0.01	0.70	0.70	-0.01	0.68	0.68
-3	0.01	0.49	0.49	0.02	0.38	0.38
-2	-0.01	0.61	0.61	0.00	0.88	0.88
-1	0.01	0.55	0.55	0.00	0.80	0.80
0	-0.02	0.47	0.47	-0.01	0.47	0.47
1	-0.05	0.04**	0.04**	-0.07	0.00**	0.00**
2	0.00	0.98	0.98	-0.03	0.13	0.13
3	0.03	0.24	0.24	0.00	0.91	0.91
4	-0.02	0.48	0.48	-0.02	0.38	0.38
5	0.01	0.54	0.54	0.02	0.24	0.24
6	0.03	0.16	0.16	0.03	0.17	0.17
7	0.01	0.79	0.79	0.01	0.78	0.78
8	-0.01	0.68	0.68	-0.02	0.41	0.41
9	0.01	0.67	0.67	0.01	0.52	0.52
10	0.00	0.87	0.87	-0.01	0.66	0.66
11	0.00	0.84	0.84	0.01	0.78	0.78
12	0.01	0.55	0.55	-0.01	0.72	0.72
13	-0.05	0.06*	0.06*	-0.04	0.07*	0.07*
14	-0.04	0.07*	0.07*	-0.02	0.46	0.46
15	-0.01	0.73	0.73	-0.03	0.11	0.11
16	-0.02	0.43	0.43	-0.03	0.11	0.11
17	-0.03	0.23	0.23	-0.02	0.45	0.45
18	0.01	0.65	0.65	-0.01	0.71	0.71
19	-0.01	0.78	0.78	-0.03	0.11	0.11
20	-0.03	0.15	0.15	-0.01	0.79	0.79
Source: Author's Calculation						
Significance level: ** p-value <0.05, * p-value <0.1						

Similarly, from the windows of the pre-announcement CAR of Canara Bank, i.e., (-20, -1), it is seen that the announcement has no significant impact, whereas the CAR of the post-announcement period shows a significant and negative impact of the announcement. Similarly, the CAR window around the announcements, namely (-1,1), (-2,2), (0,2), (0,1) and (-20, 20), also showed a significant and negative impact of the announcement on the stock return.

<b>Table No.5: CAR of Individual Banks along with test statistics</b>						
Windows	PNB	P-values	Wilcoxon	Canara Bank	P-values	Wilcoxon
(-20, -1)	0.01	0.90	0.90	-0.02	0.79	0.79
(1,20)	-0.13	0.21	0.21	-0.26	0.01**	0.01**
(-1,1)	-0.05	0.20	0.20	-0.09	0.01**	0.01**
(-2,2)	-0.06	0.23	0.23	-0.12	0.01**	0.01**
(-2,0)	-0.01	0.71	0.71	-0.02	0.52	0.52
(0,2)	-0.06	0.11	0.11	-0.11	0.00**	0.00**
(0,1)	-0.06	0.05*	0.05*	-0.08	0.00**	0.00**
(-1,0)	0.00	0.93	0.93	-0.02	0.49	0.49
(-10,10)	0.02	0.85	0.85	-0.09	0.34	0.34
(1,10)	0.02	0.80	0.80	-0.08	0.24	0.24
(-20,20)	-0.13	0.41	0.41	-0.30	0.04**	0.04**
Source: Author's Calculation						
Significance level: ** p-value <0.05, * p-value <0.1						

Proceeding further on examining the impact of the merger announcement on Individual banks, figure 4 and 5 represents the ARs of Union Bank and Indian Bank, respectively.

From the behavior of the AR of Union Bank, as depicted in figure 4, it is seen that the AR is moderately stable, implying that the information released did not impact the stock return. However, a downfall on day 1 and an uprise on day 6 are witnessed in the AR during the post-announcement period.

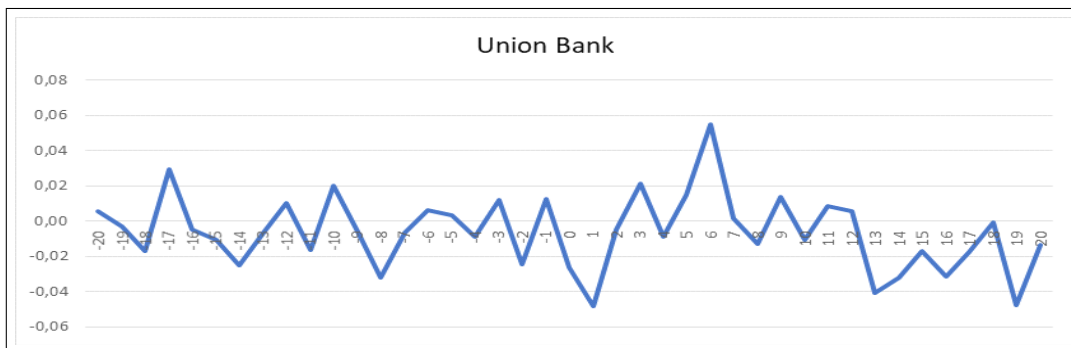


Figure 5: Abnormal Returns of Union Bank (UNIONBNK) around the announcement of the merger (Source: Author's Calculation)

Similarly, on observing the AR of Indian Bank, as depicted in figure 5, it is seen that the announcement has injected certain information into the market, causing volatility in the stock return.

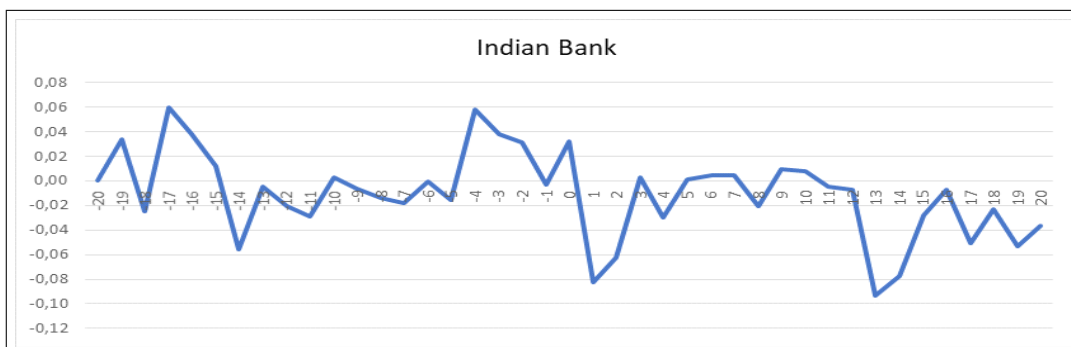


Figure 6: Abnormal Returns of Indian Bank (INDIANBNK) around the announcement of the merger (Source: Author's Calculation)

The uprise of AR on the day (-17) and (-4) indicates the leakage of information and the same has positively impacted the stock return, while the downfall of AR is witnessed on days 1 and 13, indicating the negative response of the stock after the announcement of the merger.

<b>Table No.6: AR of Individual Banks along with test statistics</b>						
Days	Union Bank	P-values	Wilcoxon	Indian Bank	P-value	Wilcoxon
-20	0.01	0.81	0.81	0.00	0.98	0.98
-19	0.00	0.91	0.91	0.03	0.13	0.13
-18	-0.02	0.49	0.49	-0.02	0.26	0.26
-17	0.03	0.24	0.24	0.06	0.01**	0.01**
-16	0.00	0.86	0.86	0.04	0.08*	0.08*
-15	-0.01	0.66	0.66	0.01	0.59	0.59
-14	-0.03	0.32	0.32	-0.06	0.01**	0.01**
-13	-0.01	0.79	0.79	0.00	0.85	0.85
-12	0.01	0.67	0.67	-0.02	0.35	0.35
-11	-0.02	0.51	0.51	-0.03	0.18	0.18
-10	0.02	0.42	0.42	0.00	0.90	0.90
-9	-0.01	0.81	0.81	-0.01	0.77	0.77
-8	-0.03	0.20	0.20	-0.01	0.54	0.54
-7	-0.01	0.80	0.80	-0.02	0.40	0.40
-6	0.01	0.81	0.81	0.00	0.97	0.97
-5	0.00	0.88	0.88	-0.02	0.49	0.49
-4	-0.01	0.73	0.73	0.06	0.01**	0.01**
-3	0.01	0.63	0.63	0.04	0.08*	0.08*
-2	-0.02	0.32	0.32	0.03	0.16	0.16
-1	0.01	0.62	0.62	0.00	0.90	0.90
0	-0.03	0.29	0.29	0.03	0.14	0.14
1	-0.05	0.06*	0.06	-0.08	0.00**	0.00**
2	0.00	0.84	0.84	-0.06	0.00**	0.00**
3	0.02	0.39	0.39	0.00	0.90	0.90
4	-0.01	0.72	0.72	-0.03	0.18	0.18
5	0.01	0.55	0.55	0.00	0.95	0.95
6	0.05	0.03**	0.03**	0.00	0.85	0.85
7	0.00	0.95	0.95	0.00	0.82	0.82
8	-0.01	0.61	0.61	-0.02	0.34	0.34
9	0.01	0.58	0.58	0.01	0.68	0.68
10	-0.01	0.67	0.67	0.01	0.72	0.72
11	0.01	0.73	0.73	0.00	0.82	0.82
12	0.01	0.82	0.82	-0.01	0.76	0.76
13	-0.04	0.16	0.16	-0.09	0.00**	0.00**
14	-0.03	0.22	0.22	-0.08	0.00**	0.00**
15	-0.02	0.50	0.50	-0.03	0.19	0.19
16	-0.03	0.21	0.21	-0.01	0.75	0.75
17	-0.02	0.48	0.48	-0.05	0.02**	0.02**
18	0.00	0.99	0.99	-0.02	0.29	0.29
19	-0.05	0.05	0.05*	-0.05	0.01**	0.01**
20	-0.01	0.59	0.59	-0.04	0.09*	0.09*

Source: Author's Calculation

Further, the AR of both the banks are statistically tested through parametric t-test and non-parametric Wilcoxon sign test and the same is presented in table no.6 along with respective p-values. From the AR of Union Bank, it is seen that none of the AR is significant during the

pre-announcement period, indicating no information leakage. On event day, the AR is negative but insignificant, implying no impact of the announcement. However, on the immediate next day of the event day, the AR is significantly negative, indicating the negative impact of the announcement, while the AR on day 6 is positively significant. From this, it can be inferred that the announcement has created ambiguity among the investors regarding the benefits of the announcement, which has put the investors in a dilemma so far as the investment in the stock is concerned. Similarly, on observing the AR of Indian Bank, it is witnessed that the AR of the Indian Bank is significant for four days in the pre-announcement period, of which three are positive and one is negative, which indicates the leakage of information and the same has positively impacted the stock of the Indian Bank. On the event day, the AR is positive and insignificant, indicating no impact; however, caution should be taken as information leakage is witnessed during the pre-announcement period. Similarly, on observing the AR during the post-announcement period, it is seen that the AR is significantly negative on day 1 and 2, indicating an immediate negative impact of the announcement. Moreover, in a similar pattern, the AR continued to be impacted by the announcement, as witnessed from the significant negative AR on day 13, 14, 17, 19 and 20.

Wilcoxon sign tests also depicted a similar result for both the banking stock, implying a significant difference in the positive value of AR in event windows as compared to the estimation window.

Further to dig insight into the behavior of the stock, the CAR is calculated by aggregating the AR over multiple days, and the same, along with t-statistics and Wilcoxon sign test, is presented in table no.7 for both Union Bank and Indian Bank.

Windows	Union Bank	P-values	Wilcoxon	Indian Bank	P-value	Wilcoxon
(-20, -1)	-0.06	0.61	0.61	0.08	0.44	0.44
(1,20)	-0.16	0.17	0.17	-0.55	0.00**	0.00**
(-1,1)	-0.06	0.16	0.16	-0.05	0.17	0.17
(-2,2)	-0.09	0.11	0.11	-0.08	0.09*	0.09*
(-2,0)	-0.04	0.37	0.37	0.06	0.11	0.11
(0,2)	-0.08	0.07*	0.07*	-0.11	0.00**	0.00**
(0,1)	-0.07	0.03**	0.03**	-0.05	0.11	0.11
(-1,0)	-0.01	0.69	0.69	0.03	0.35	0.35
(-10,10)	-0.03	0.81	0.81	-0.06	0.58	0.58
(1,10)	0.02	0.80	0.80	-0.17	0.02**	0.02**
(-20,20)	-0.25	0.17	0.17	-0.43	0.01**	0.01**

Source: Author's Calculation

From the CAR windows of Union Bank during the pre and post-announcement period, i.e., (-20, -1) and (1, 20), it is seen that the announcement had no significant impact on the stock of Union Bank. While, the CAR around the announcements, namely (0, 2), and (0, 1), showed a significant and negative impact of the announcement on the stock return. Similarly, the CAR windows of Indian Bank during pre-announcement window (-20, -1) showed insignificant impact, while the post-announcement window of (1,20) and (1,10) showed significant negative CAR, implying a negative impact of the announcement on stock returns. Similar, significant negative CAR is witnessed during the small windows of (0,2), (-2, 2) and the large window of (-20, 20).

	PNB	CANBNK	UNIONBNK	INDIANBNK
1 Year BHAR	-0.54	-0.57	-0.58	-0.67
t-BHAR	-23.57*	-24.96*	-25.59*	-29.52*
Source: Author's calculation				
Significant at 5% level (+/-1.96)				

To provide evidence on the impact of the M&A acquisition on acquirer banks for a longer period, the study has employed buy and hold abnormal returns (BHAR) techniques, and the same is presented in table no. 8 for each bank for one year.

The BHAR for the shareholders of PNB is found to be negative and statistically significant at a 5 percent significant level. A similar result is obtained from the one (1) year BHAR for each acquirer bank. Among all, INDIANBNK is the worst sufferer with a -0.67 return. The result of the individual BHAR is supported by the mean BHAR (ABHAR). The ABHAR is measured over each day (daily) for one (1) year by considering all the acquiring banks under one portfolio and the result is displayed in table no.9, which indicates significant negative ABHAR for one (1) year, implying negative impact of the merger in the long run.

<b>Table No.9: One (1) Year ABHAR of the entire sample</b>	
1 Year ABHAR	-0.55
t-ABHAR	-2.01*
Source: Author's calculation	
Significant at 5% level (+/-1.96)	

## 5. CONCLUSION

In the present study, with a sample size of four (4) acquirer banks and six (6) target banks, the author examined the reaction of the stock of the acquirer banks on the announcement of merger and acquisition both in the short-term and long-term using the event study methodology and BHAR Technique. In the study, the impact during the short-run window is analyzed in two different folds. Initially, the impact of the M&A announcement on the overall market is examined by calculating AAR and CAAR, which gives the bigger picture of the impact; after which, the reaction of individual banks is observed by calculating AR and CAR.

On observing the reaction of the entire Acquirer firms on the announcement of the merger and acquisition, it is witnessed that the market has perceived the information of the merger before it was officially announcement. Moreover, the same has positively impacted the stock returns during the pre-announcement period; however, a significant negative reaction is observed on the immediate next day of the announcement of the merger. From this, it can be said that in the pre-announcement period, the investors perceived the information about the merger in a positive way, but as the merger was announced, the market showed a negative sentiment which may be because the expectation of the market was not matched. However, on the event day, the AAR is negative but insignificant; this insignificant of AAR on event day can be attributed to the leakage of information. In other words, it can be said that since the information has already reached the market and, therefore, on the actual announcement day, the market did not respond.

Further, by observing the CAAR around the announcement, (-1,1) and (-2,2), it is evident that the announcement has impacted the stock return negatively. A similar result is also observed from the 1-year ABHAR. Thus, the study concludes that the announcements of mergers have a negative impact on the stock return both in the short and long run for stock of all the acquirer banks.

Further, on observing the behaviour of individual banks by calculating the AR, it is witnessed that the ARs in pre-announcement period are significant for all banks except for the Union bank, indicating the leakage of information relating to the merger. However, on the post-announcement period, the AR of all the acquirer banks is negatively significant, which indicates that the announcement has been perceived negatively by the market participants. In other words, it can be said that the market is slow and inefficient in processing the information released through the announcement of the merger. A similar result is depicted by the CAR when smaller windows around the announcements date have been taken. The outset of the

present study is in line with Gopalaswamy et al. (2008), Sinha & Gupta (2011) but in contrast with the studies conducted by Anand & Singh (2008) and Khan (2011).

The downfall in the stock return can be associated with the mismatch between the recommendations of the Narasimham Committee (1998) and the policy adopted by the government for the M&A in the banking sectors. The committee cautioned that mergers should happen between banks with equivalent size and profitability (RBI, 2001), however, this warning was unheard in this merger and the small-sized bank, syndicated bank (Rs. 3.1 trillion) is merged with banks double of its size, Canara bank (Rs. 7 trillion); a loss-making Allahabad bank (Rs. -2688.85 Cr. profit over 2015 to 2019) is merged with profit-making Indian Bank (Rs. 940.634. profit over 2015 to 2019). Considering the noncompliance to the recommendation a negative sentiment prevailed in the market regarding the announcements of the M&A of the banks, which subsequently resulted in the negative stock return around the announcements.

In this study, only the Indian Public sector banks have been studied to see the impact of Mergers and Acquisition announcements on their share prices. However, a further study with other sectors and more numbers of M&A announcement can be conducted to observe and compare the impact of the M&A on their respective share prices. Again, event study, along with other statistical tool such as Regression can be employed for better insight of the impact.

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The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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