

# Do Merger Announcements Enhance the Wealth of the Shareholders? Evidence from India Banking Sector

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## Abstract

The present study attempts to examine the impact of merger announcements on shareholders' wealth of respective banks in the Indian banking sector. The study considers 13 mergers which include the merger of both public sector and private sector banks. Event Study Methodology has been used for the analysis purpose. The study uses both a one-factor model and a two-factor model to calculate the cumulative abnormal return in various time windows. The notable findings of the study demonstrate that the market reaction towards the merger announcement is negative in both the public and private sector banks. The impact on public sector banks is more compared to the private sector banks as the resulting Cumulative Abnormal Return (CAR) values are negative and significant. Contrary to the above findings, the shareholders of Kotak Mahindra Bank and ING Vyasa Bank have gained wealth as a result of the merger as the market has reacted positively to the merger announcement.

**Keywords:** Event Study, Merger, Returns, Shareholders Wealth.

## Introduction

Off late the emergence of mergers and acquisitions (M&As) has generated huge attention around the world the reason being a rapid change in technology as well as the forces of globalization that have exposed the firms to face fierce competition to become more efficient and innovative and either increase the scope of operation and therefore firms are going for merger and acquisition. Predominantly, the key driving factor of mergers and acquisitions is competency among the firms of the same industry which puts focus on economies of scale. Thus, the firms are exploring various strategies to grow internally as well as externally by achieving economies of scale. Merger and Acquisition is one of the plausible options used by corporates to face market challenges and the banking industry is no exception to this trend, which is evident across the globe. The motive behind consolidation in European Countries is market driven whereas in many American countries, the government has taken up several initiatives to restructure the inefficient banks (1). Though the number of mergers in the US is more than the European countries, the impact of the merger process in European countries is quite positive than US.

Furthermore, Mergers and Acquisitions in European countries help in wealth creation for the shareholders of both the bidder and target banks (2 - 4). Many studies consider the merger process and its impact on bidder and target banks during consolidation in developed nations like the US and European countries. However, the developing and emerging countries are sidelined in this matter and only a handful of studies have been carried out on M&A in these nations.

The economic reforms and opening of the economy helped the Indian banking sector to undergo some considerable changes, out of which two major changes are notable such as increased competition and increased interest rate. In India, although some important committees from 1972 to 1978 appointed by the then Government highlighted the need to reshuffle the banking system, the drive for consolidation started with the proposal of Narasimham Committee recommendations in 1991. Despite facing numerous obstacles such as competition, governance concerns, regulatory hurdles, and size-related challenges, it is perceived as one of the key plans by the regulator and the government to deal with the prevailing challenges in the banking sector by exposing Indian banks to

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(Received 28<sup>th</sup> February 2024; Accepted 24<sup>th</sup> April 2024; Published 30<sup>th</sup> April 2024)

compete at the international level with globally active banks (5). The above fact can hugely be attributable to the fact that the Indian banking industry has a direct and significant impact on the world's economic growth considering the profitability, expected cost benefits, and scale efficiency. The subject matter of possible effects of merger announcements is assumed to be significant due to its value creation. Roll (6), indicates wealth migration between bidder banks and target bank shareholders in M&A, and no wealth is created in the process considering hubris hypothesis. In particular, whether the merger announcements create any shareholder's wealth or not has remained a puzzle since researchers have come up with mixed results. In the aforesaid backdrop, it is imperative to understand how M&A decision affects the shareholder's wealth in the banking industry of emerging markets like India. It is not only important for the investors but also for the market participants such as policymakers, analysts, market regulators, and accounting standard setters to evaluate the impact of M&A on the financial risk and recognize the significance of an event. Thus, the implications of the decisions are extensive which helps the investors to make their decision based on current market values and expected risk-return tradeoffs that are associated with their investments.

The value creation effect of consolidation of organizations is an important aspect of accounting and finance where the event study analysis is used extensively to study the impact of it on various factors related to the entities involved in it. A detailed look at the literature reveals that event study methodology is attempted mostly to examine the merger announcement effect on shareholder wealth creation in recent times. The present empirical research is an add-on to the existing pieces of literature on the effect of the merger announcement on the shareholder's wealth.

Dodd and Roubak (7) find that merger announcement has a significant and positive impact on shareholders wealth. Alberto and Murgia (2) examines the value of shareholders during the merger announcement in the European Banking sector from 1988 to 1997 where they find that there is a significant positive abnormal return. Similarly, Mylonidis and Kelnikola (8) with the help of event study analysis, conclude that the

combined effect of both bidder and target bank is positive and significant. However, Ismail and Davidson (9) show results slightly different from the above two. They embody that the target bank's earnings were positively abnormal in various window periods as the bidder bank aimed at increasing the market power as opposed to expanding the geographical enhancement.

Palmucci and Caruso (10) observe the market reaction during the consolidation to know whether there is positive value creation or not and the diversity of that value creation. By using the event study analysis, the paper finds that the acquiring bank is not getting any positive return whereas the shareholders of the target banks can get it. Liargovas and Repousis (11) analyze both shareholder wealth and the operating performance of the Greek Banking Sector during the merger. By using the Event study analysis, the paper demonstrates that ten days before the announcement, the shareholders get a remarkable positive cumulative abnormal return but afterward merger has no impact on wealth creation, and also the operating performance does not increase. Muneesh Kumar *et.al* (12) evaluate the wealth creation of shareholders during merger announcements in India. The result shows that merger has a mixed impact on wealth creation, limited impact on share price, and no impact on the liquidity of the shares of the anchor banks.

Antoniadis *et.al.* (13) examine the effect of the announcement of mergers and acquisitions on the shareholder value of three major Greek banks (two state-owned banks and one private bank). The study finds that the share price of two state-owned banks has risen as they are the target banks, whereas the private bank (bidder bank) displayed a negative return. Karamanos *et.al.* (14) examine the divergence between the expected return and actual return of the shareholders during consolidation in Greece's Banking Sector. The study suggests that the acquired bank creates more significant positive value than the acquiring bank, but overall, the merger neither creates nor destroys the shareholder's wealth.

Bhatta (15) examines the effect of the merger on shareholders' wealth creation and the post-merger impact, where ROA, ROE, cost efficiency, and capital are considered as independent variables and earning per share (EPS) is considered as dependent variable. The result shows that only

return on assets has an impact on earnings per share. Rahman et.al (16) observe the merger impact on the shareholder wealth of Pakistani banks. The study used event study methodology and found that the market response is negative towards the merger activity as they are getting negative abnormal returns. Asiri and Hameed (17) attempt to examine the shareholder's reaction to merger announcements where the study finds that the target banks are gaining more than the anchor banks. In the Indian context, few studies reflect the shareholder's wealth creation due to merger announcements.

Sudarsanam and Mahate (18) indicate negative abnormal returns for the bidder bank's shareholders. On the other hand, Leeth and Borg (19) observe that target firm shareholders earn positive abnormal returns. Anand and Singh (20) evaluate the impact of merger announcements on Indian private-sector banks during 1999-2005. The study, by using single factor and two-factor model, indicates that the results are similar to the European studies where both the anchor and target banks are getting positive and significant returns during consolidation. Venkatesan and Govindarajan (21) documented positive returns for both bidders as well as target shareholders. Das et.al, (22) evaluate shareholder's wealth creation during the big bank merger in India i.e., SBI and its Associates in the year of 2017. The results show that there is no substantial gain for the anchor bank, however, there is an overall gain for the target banks.

As evident from the literature, plenty of studies examined the effect of merger announcements on shareholders' wealth creation considering overseas bank mergers. The results from the above studies carry significant importance but are inconclusive. It is also indifferent in the Indian context because a handful of studies have been carried out covering merger events from the overall banking sector applying event study methodology. Thus, the study attempts to measure the market reaction in terms of wealth creation towards the merger announcement of both public and private sector banks in India.

The remaining part of the present paper is formed as follows: Section 3 describes the Data and Methodology. Section 4 illustrates the result and discussion. Section 5 concludes.

## Data and Methodology

**Data:** This study considers the consolidation of both Indian public and private sector bank mergers from 2005 to 2020. The daily stock price data of selected banks are taken to calculate the stock return. Market index BSE200 and Bank Nifty are considered to calculate market return and bank return respectively to analyze the value effects of bidder and target banks during the merger announcements. The required data have been collected from the Center for Monitoring Indian Economy (CMIE) Prowess and the official website of BSE. The sample data are collected six months i.e., 180 days before and after the merger announcement. The present study considers a total of 13 M&As, out of which 8 are public-sector bank mergers and 5 are private-sector bank mergers. The details of merger announcement dates of both public and private sector banks are mentioned in the following Table 1. Few target banks are excluded from the study since they are not listed, and their stock price data are not available.

**Methodology:** The study applies the Event Study methodology to measure the short-term impact of shareholder wealth during the consolidation, which is a prominent method to scrutinize the effect of a particular event on the dependent variable. Here, the stock price of selected banks is commonly used as the dependent variable. This model talks about changes in stock prices beyond the expectation, which is also known as Abnormal return. Fama, et. al, (23) in their paper "The Adjustment of Stock Prices to New Information" asserted that the efficient market reacts instantly to new information announcements and ultimately it affects the stock prices as all the information is already incorporated into prices. It also needs to be noted that, event study methodology is used by most of the notable studies to arrive at CAR (Cumulative Abnormal Return) during the different window periods (24-28).

This study follows the methodologies of (2) and (20) to evaluate the merger announcement effect on the shareholder's wealth of bidder banks and their target banks. This study considers five window periods that are 7 days (-3, +3), 21days (-10, +10), 45 days (-22, +22), 81 days (-40, +40), and 91 days (-45, +45) to examine the impact of merger announcement on the short-term shareholder's value. For this, two models Single

**Table 1:** Merger announcement date of Public and Private sector banks

Sl. No.	Bidder Banks	Target Banks	Date
<b>Public Sector Banks</b>			
1	Indian Overseas Bank (IOB)	Bharat Overseas Bank	7/4/2007
2	State Bank of India (SBI)	State Bank of Saurashtra State Bank of Mysore (SBM) State Bank of Hyderabad	26/08/2007
3	State Bank of India (SBI)	State Bank of Bikaner and Jaipur (SBBJ) State Bank of Patiala State Bank of Travancore (SBT) Bharatiya Mahila Bank	18/08/2016
4	Bank of Baroda (BOB)	Vijaya Bank Dena Bank	2/1/2018
5	Punjab National Bank (PNB)	Oriental Bank of Commerce (OBC) United Bank of India	21/05/2019
6	Canara Bank	Syndicate Bank	13/09/2019
7	Indian Bank	Allahabad Bank	30/08/2019
8	Union Bank of India	Andhra Bank Corporation Bank	9/9/2019
<b>Private Sector Banks</b>			
9	Federal Bank	Ganesh Bank of Kurundwad	9/1/2006
10	ICICI Bank	Sangali Bank	11/12/2006
11	HDFC Bank	Centurion Bank of Punjab	25/02/2008
12	ICICI Bank	Bank of Rajasthan	18/05/2010
	Kotak Mahindra	ING Vyasa Bank	
13	Bank		20/11/2014

Factor Model (SFM) and Two-factor Model (TFM) are used. The single-factor model considers the market return as the only independent variable. The market model of event study methodology indicates that the common market factor is the root of the relationship between returns on every individual asset which affects all aspects of return (23). In the case of the two-factor model, Bank Nifty returns are considered as a factor along with the market return. Fama and Miller (29) find that multiple independent and proportional stable variables can be used to measure abnormal returns. Cox and Portes (30), Alberto and Murgia (2) and Anand and Singh (20) contemplate both market return and bank return as independent variables to measure the effect on the stock return of respective banks. The expected returns of individual banks are estimated using the factor

loadings derived from both these models. The stock returns of banks are used as the dependent variable for both models. The specifications of both the models are as follows:

Single Factor Model:

$$R_{it} = \alpha_i + \beta_i \times R_{mt} + e_i \quad [1]$$

Two-Factor Model:

$$R_{it} = \alpha_i + \beta_1 \times R_{mt} + \beta_2 \times R_{bmt} + e_i \quad [2]$$

Where  $R_{it}$  denotes the returns of individual banks,  $R_{mt}$  refers to the market return and  $R_{bmt}$  refers to bank return at time period  $t$ .  $\alpha_i$  is the intercept term whereas  $\beta_1$  and  $\beta_2$  are the sensitivity coefficient of market return and bank return respectively.

Expected returns are subtracted from actual returns to obtain abnormal returns of the stocks. The procedure for calculating the abnormal return is as follows,

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad [3]$$

Where  $AR_{i,t}$  denotes the abnormal returns of the individual bank at time period  $t$  and  $E(R_{i,t})$  represents the expected returns.

Next, the Cumulative Abnormal Returns (CAR) for various time windows such as 7 and 27 days are estimated from the abnormal returns of banks. The following formula is used to arrive at CAR.

$$CAR_{it} = \sum_{t=-t_{ew}}^{t_{ew}} AR_{it} \quad [4]$$

Where  $CAR_{i,t}$  denotes the CAR of individual banks at time period  $t$ .  $-t_{ew}$  is the number of trading days before the event and  $t_{ew}$  is the number of trading days after the event date.

## Results and Discussion

Table 2 provides the CAR of public sector bidder banks obtained by using single factor model for different event windows. The CAR values of both SBI (2007), and PNB are insignificant in all the time windows starting from 7 days to 91 days. In the case of IOB, the CAR values of 21 days and 45 days are significant but negative which is an indication of loss of wealth of shareholders due to the merger announcement. Further, the results depict that the CAR values of Canara Bank, Indian Bank, and Union Bank of India are negatively significant during 45 days, 81 days, and 91 days respectively. It is also seen that; the CAR of Canara Bank and Union Bank of India are negatively significant during 21 days as the CAR values are -0.279 and -0.158. In the case of both SBI (2017) and BOB, the CAR values are significant during the 7-day window period as the values are -0.098 and -0.198 respectively. Hence, it is concluded that the mergers of bidder banks have not created wealth for their respective shareholders as the CAR values are negative in most of the mergers. The results are in line with the results of various mergers in other countries. Figure 1 is the graphical representation of the single-factor model of CAR of public sector bidder banks. The CAR graph lines are below the zero line which indicates that almost all the bidder banks are unable to generate wealth for their shareholders.

Table 3 provides the CAR of public sector bidder banks obtained by using the two-factor model for different event windows. The results demonstrate that the shareholders of bidder banks have not gained due to the merger announcement as the resulting CAR values are significantly negative. Though, it depicts positive CAR values in some of

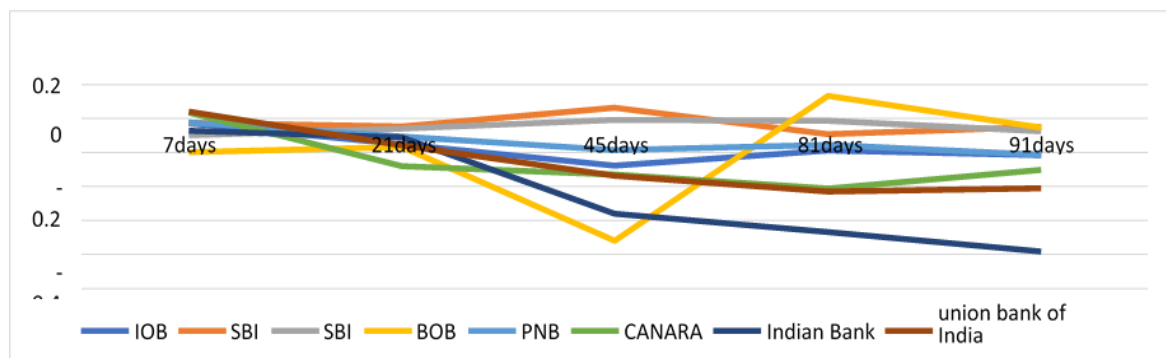
the cases but these values are statistically insignificant. The CAR values of SBI and BOB for 7 days time windows are -0.050 and -0.147 which are statistically significant at a 5% level of significance. In the case of 21days window, IOB, BOB, and Canara Bank are generating significant but negative CAR which are -0.134, -0.103, and -0.239 respectively. The results are indifferent in the case of 45 days time windows as the bidder banks such as IOB, Canara Bank, Indian Bank, and Union Bank of India provide significant negative returns which are -0.250, -0.205, -0.461, and -0.203 respectively. The CAR values for the bidder banks such as SBI (2017), Canara Bank, and Indian Bank are also significantly negative for both 81 days and 91 days (Indian Bank) time windows. These results are also in line with the evidence from other developed markets and economies. Figure 2 is the graphical representation of the two-factor model of CAR of public sector bidder banks, which also depict the incapability of bidder banks to generate wealth for shareholders as the CAR graph lines falls below the zero line for almost all the banks.

Table 4 provides the CAR of public sector target banks obtained by using single-factor model for different time windows. The CAR values of both SBT and SBBJ are significantly positive during the 7 and 91 days time window. It implies that the merger announcement has a significantly positive impact on its shareholder's wealth as the values are 0.051, 0.239 for SBT, and 0.045 and 0.296 for SBBJ respectively. However, in the case of SBM, the shareholder's wealth is negative but significant as the values are -0.138, -0.116, -0.286, and -0.252 in 7, 21, 45, and 81 days respectively. In the case of two target banks of BOB i.e., Vijaya and Dena Bank, Dena Bank generates significant positive wealth for its shareholders during the 7 days window as the CAR value is 0.127. However, the impact of the merger on the shareholders' wealth of Vijaya Bank is significantly negative as the CAR values are 0.178, -0.189, and -0.236 in 7, 21, and 45 days time windows respectively. It also seems that the remaining banks i.e., Syndicate Bank, Allahabad Bank, Andhra Bank, and Corporation Bank are showing almost similar results as the CAR values are negative and significant. The CAR Values of these banks are -0.172, -0.390, -0.493, -0.372 (syndicate bank) -0.378, -0.547, -0.513, (Allahabad bank), -0.088, -0.593, -0.929, -1.069 (Andhra

**Table 2:** CAR of Public Sector Bidder Banks (Single Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
IOB	-0.028	-0.153*	-0.277**	-0.188	-0.216
SBI (2007)	-0.025	-0.047	0.064	-0.092	-0.049
SBI (2017)	-0.098***	-0.06	-0.008	-0.013	-0.074
BOB	-0.198***	-0.167*	-0.718	0.134	-0.053
PNB	-0.022	-0.104	-0.184	-0.153	-0.212
Canara Bank	0.036	-0.279***	-0.331**	-0.412**	-0.302*
Indian Bank	-0.072	-0.11	-0.561***	-0.667***	-0.782***
Union Bank of India	0.042	-0.158*	-0.335**	-0.428**	-0.410**

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance

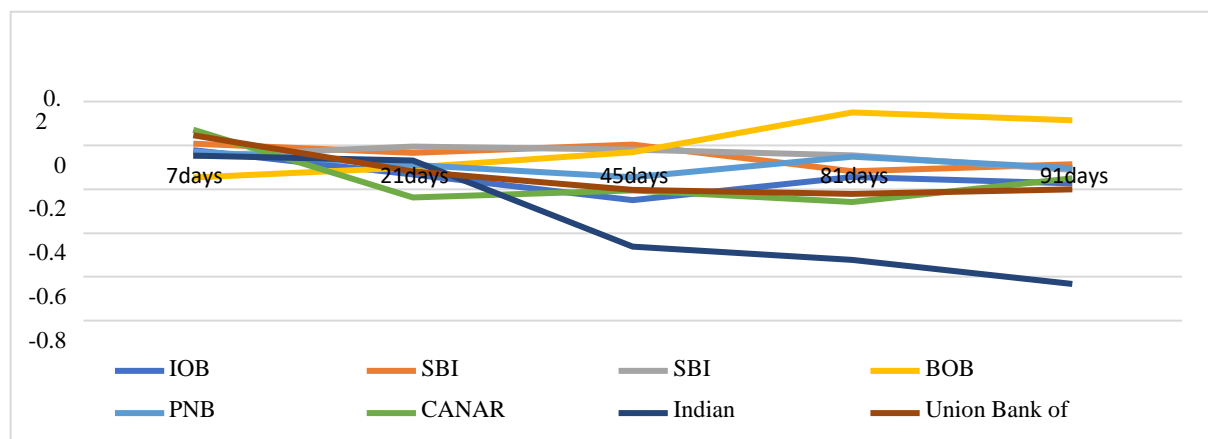


**Figure 1:** CAR of public sector bidder banks (Single factor model)

**Table 3:** CAR of Public Sector Bidder Banks (Two Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
IOB	-0.022	-0.134*	-0.250**	-0.146	-0.173
SBI (2007)	0.008	-0.034	0.001	-0.119	-0.087
SBI (2017)	-0.050***	-0.006	-0.021	-0.045*	-0.112
BOB	-0.147***	-0.103*	-0.032	0.150	0.114
PNB	-0.028	-0.089	-0.146	-0.051	-0.104
Canara Bank	0.071	-0.239***	-0.205**	-0.259*	-0.152
Indian Bank	-0.047	-0.068	-0.461***	-0.522***	-0.633***
Union Bank of India	0.046	-0.118	-0.203*	-0.221	-0.201

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance

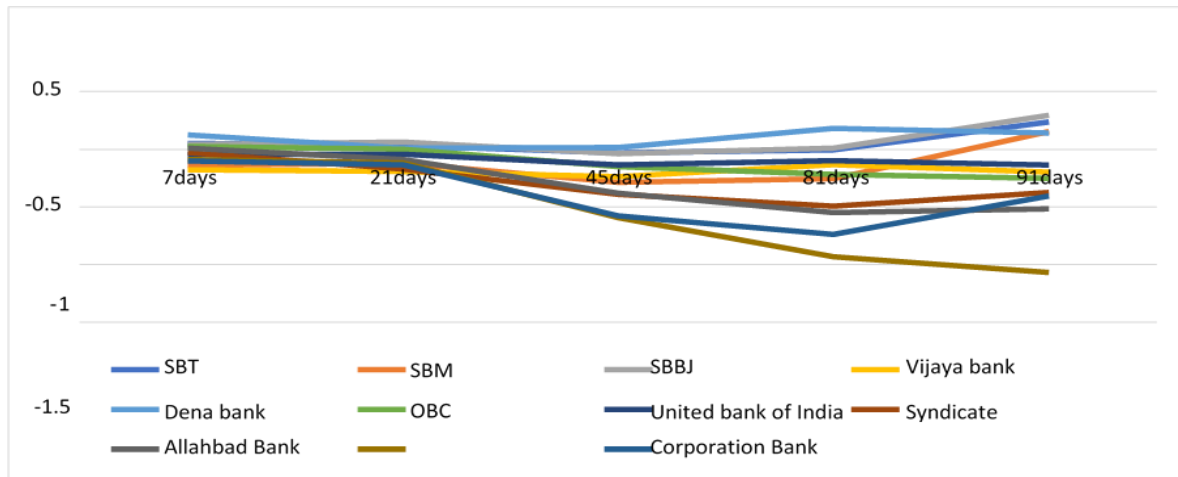


**Figure 2:** CAR of public sector bidder banks (Two factor model)

**Table 4:** CAR of Public Sector Target Banks (Single Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Bharat Overseas bank	NA	NA	NA	NA	NA
State Bank of Saurashtra	NA	NA	NA	NA	NA
SBT	0.051*	0.031	-0.029	-0.006	0.239**
SBM	-0.138***	-0.116**	-0.286**	-0.252**	0.155
SBBJ	0.045*	0.063	-0.036	0.010	0.296**
Vijaya bank	-0.178***	-0.189**	-0.236**	-0.133	-0.195
Dena bank	0.127***	0.012	0.018	0.182	0.141
OBC	0.026	0.001	-0.149	-0.216	-0.252
United Bank of India	-0.044	-0.042	-0.132	-0.098	-0.136
Syndicate bank	-0.026	-0.172*	-0.391***	-0.493***	-0.372*
Allahabad Bank	0.012	-0.086	-0.378**	-0.547***	-0.513**
Andhra Bank	-0.088*	-0.118	-0.593***	-0.929***	-1.069***
Corporation Bank	-0.101***	-0.134**	-0.576***	-0.739***	-0.403***

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance

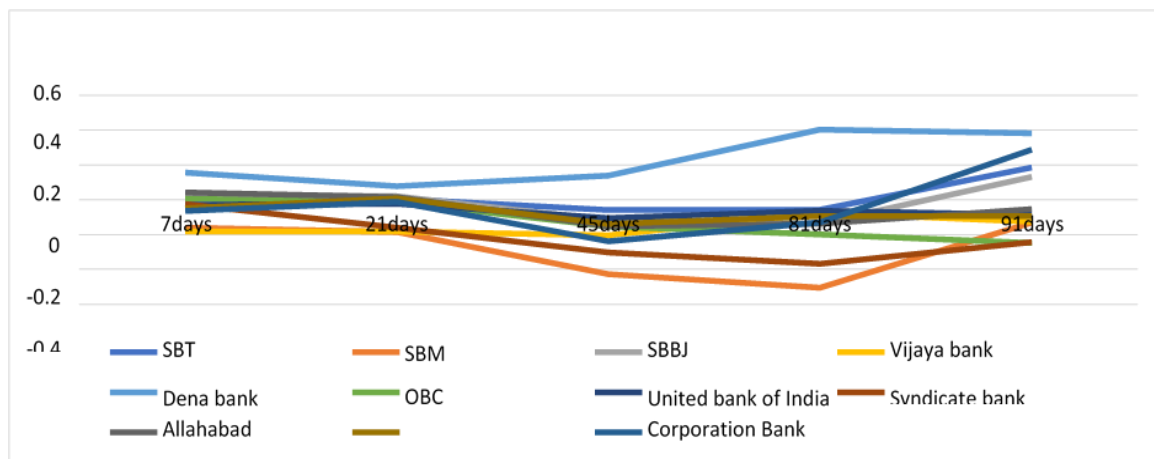


**Figure 3:** CAR of public sector target banks (Single factor model)

**Table 5:** CAR of Public Sector Target Banks (Two Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Bharat Overseas bank	NA	NA	NA	NA	NA
State Bank of Saurashtra	NA	NA	NA	NA	NA
SBT	0.037*	0.008	-0.056	-0.053	0.187**
SBM	-0.160***	-0.183*	-0.426**	-0.505*	-0.129
SBBJ	0.021*	0.021	-0.117	-0.134	0.134***
Vijaya bank	-0.179***	-0.179***	-0.201**	-0.074	-0.125
Dena bank	0.158***	0.079	0.139	0.404***	0.385***
OBC	0.006	-0.013	-0.152	-0.198	-0.247*
United Bank of India	-0.027	-0.021	-0.105	-0.061	-0.086
Syndicate bank	-0.023	-0.158*	-0.302**	-0.367*	-0.244
Allahabad Bank	0.045	0.017	-0.149	-0.136	-0.049
Andhra Bank	-0.047	0.009	-0.139	-0.093	-0.094
Corporation Bank	-0.063*	-0.011	-0.236**	-0.128	0.290**

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance



**Figure 4:** CAR of public sector target banks (Two-factor model)

bank), -0.101, -0.134, -0.576, -0.739, -0.403 (Corporation bank) for 7days, 21days, 45days, 81days and 91 days event windows respectively. Figure 3 is the graphical representation of the single-factor model of CAR of public sector target banks. The graph clearly shows that SBT, SBBJ, and Dena Bank are creating positive wealth for their respective shareholders, as indicated by the positive CAR graph lines. However, for the remaining banks, the negative CAR graph lines indicate that they are unable to generate any wealth as a result of the merger.

Table 5 provides the CAR of public sector target banks obtained by using the two-factor model for different event windows. The results demonstrate that the shareholders of target banks have not gained much due to the merger announcement as the resulting CAR values are significantly negative for most of the banks. In the 7days to 81days window period SBM and Vijaya bank (except

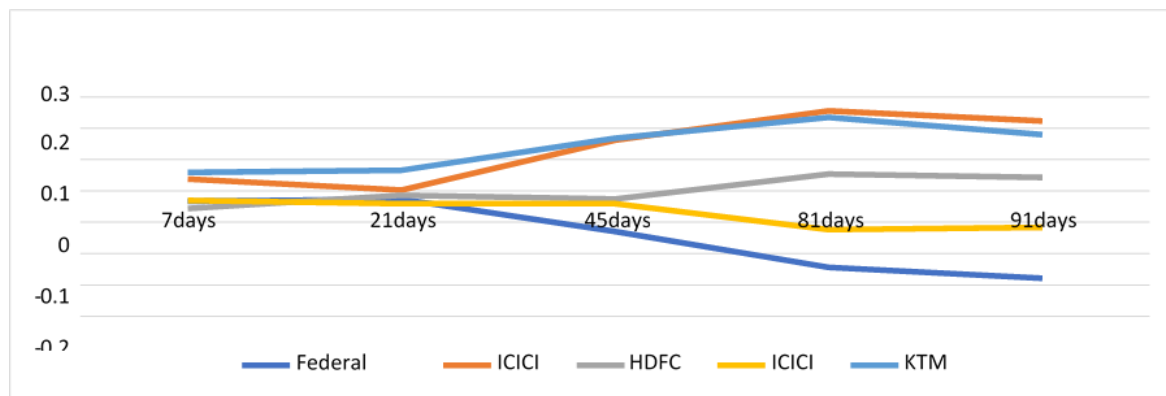
81days) are generating significant but negative CAR which are -0.160, -0.183, -0.426, -0.505, -0.1794, -0.179, -0.201 respectively. Similarly, the results are indifferent in the case of OBC, Syndicate Bank, and Corporation Bank during various window periods. It also depicts some positive and significant CAR values in some of the cases such as SBT, SBBJ (0.37, 0.187 and 0.021, 0.134) in 7days and 91days, Dena bank (0.15826, 0.40406, 0.38461) in 7days, 81days and 91days and Corporation Bank (0.290) in 91days window period respectively. These results are also in line with the shreds of evidence from other developed economies. Figure 4 is the graphical representation of the two-factor model of CAR of public sector target banks. It is clearly visible from the graph that in addition to the three banks such as SBT, SBBJ, and Dena Bank, the CAR graph line of Corporation Bank is also positive indicating wealth creation by bank for its shareholders.

**Table 6:** CAR of Private Sector Bidder Banks (Single Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Federal Bank	-0.032	-0.026	-0.129	-0.242	-0.278
ICICI (2006)	0.038	0.003	0.163	0.256	0.223
HDFC	-0.055	-0.013	-0.024	0.055	0.044
ICICI (2010)	-0.030	-0.039	-0.040	-0.122	-0.115
KTM	0.059*	0.066	0.167**	0.235**	0.181

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance





**Figure 5:** CAR of private sector bidder banks (Single factor model)

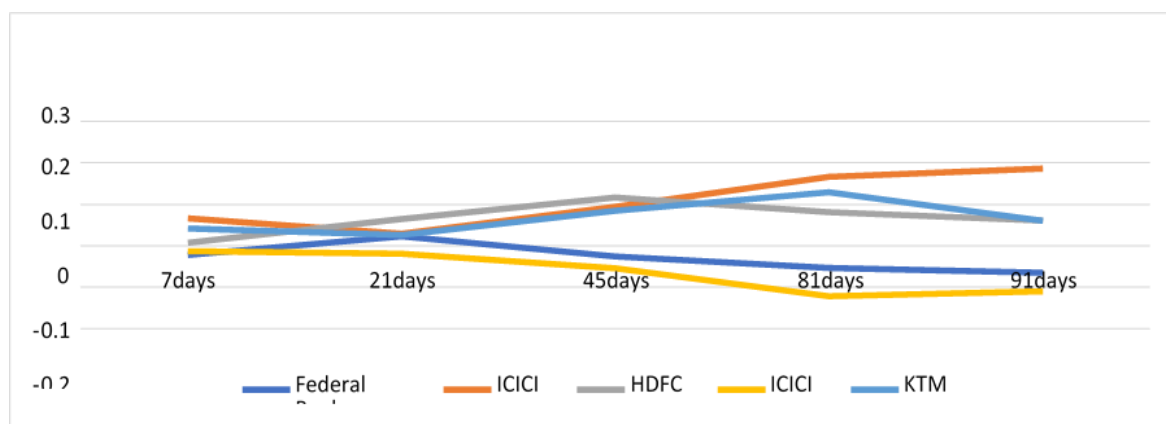
Table 6 demonstrates the CAR of private sector bidder banks obtained by using single-factor model for different event windows. It is observed that the CAR of Federal Bank, HDFC Bank, and ICICI Bank (2010) is negative and insignificant in the case of all the event windows. In the case of ICICI Bank (2006), though CAR values are positive but insignificant. Whereas in the case of KTM Bank, the car values are positive and significant. The CAR values in 7 days 45 days and 81 days are 0.058, 0.167, 0.235 respectively which indicates that the merger of KTM Bank has created wealth for its shareholders. Hence, it is concluded that one out of

five private mergers are generating wealth in the case of private sector bidder banks under the single-factor model. Figure 5 is the graphical representation of the single-factor model of CAR of private sector bidder banks. A closer look at the graph shows that the CAR graph lines of KTM, ICICI (2006), and HDFC are positive. However, the results are statistically significant only for KTM, whereas they are statistically insignificant for ICICI and HDFC Bank. Conversely, the CAR graph lines for other private sector bidder banks are negative, indicating their inability to create any wealth for their respective shareholders.

**Table 7:** CAR of Private Sector Bidder Banks (Two Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Federal Bank	-0.022	0.023	-0.025	-0.053	-0.065
ICICI (2006)	0.067	0.029	0.094	0.168	0.186
HDFC	0.008	0.065	0.117	0.081	0.061
ICICI (2010)	-0.012	-0.018	-0.053	-0.120	-0.109
KTM	0.043	0.027	0.085	0.129	0.061

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1%level of significance

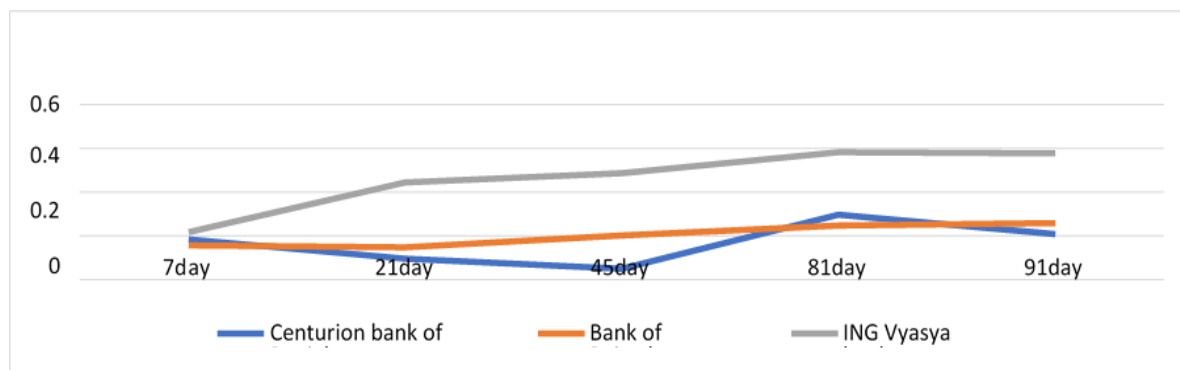


**Figure 6:** CAR of private sector bidder banks (Two-factor model)

**Table 8:** CAR of Private Sector Target Banks (Single Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Ganesh Bank of Kurundwad	NA	NA	NA	NA	NA
Sangali bank	NA	NA	NA	NA	NA
Centurion Bank of Punjab	-0.015	-0.105	-0.149	0.097	0.009
Bank of Rajasthan	-0.044	-0.052	0.001	0.048	0.059
ING Vyasya bank	0.018	0.246***	0.287***	0.384***	0.378***

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance

**Figure 7:** CAR of private sector target banks (Single factor Model)

The above Table 7 shows the CAR of private sector bidder banks by using the two-factor model. It is visible from the above table that, the shareholders do not gain anything out of the merger of the private sector bidder bank owing to the fact that the CAR values in the case of all the event windows are statistically insignificant. Figure 6 is the graphical representation of the two-factor model of CAR of private sector bidder banks. The above figure clearly illustrates that the graph line of ICICI Bank (2006) gradually increases after a 45-day time window. Conversely, in the case of KTM Bank, although the graph line increases above the zero line, it starts declining after an 81-day time window. The overall graph of private sector bidder banks indicates that there is no creation of wealth for the shareholders of the respective banks.

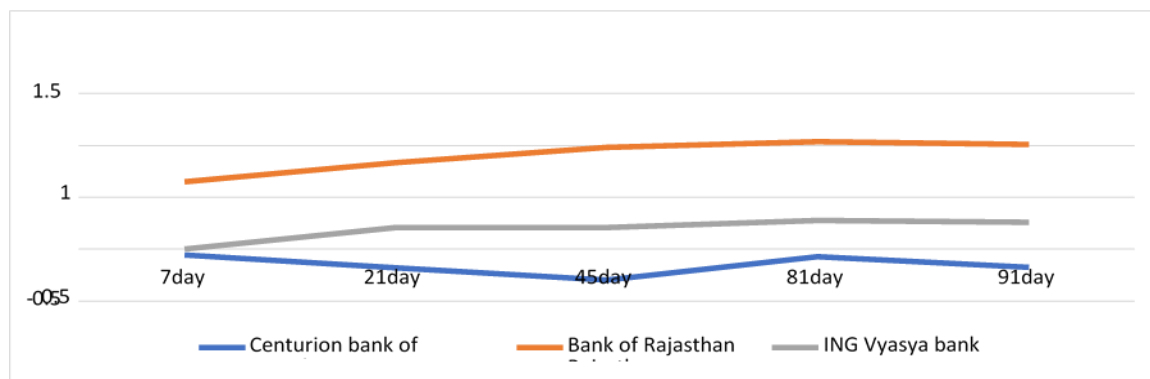
The above Table 8 depicts the CAR of private sector

target banks by using single-factor model. Out of all the mergers of private sector target banks, the shareholders of ING Vyasya Bank have gained as the resulting CAR values are positive and significant. The CAR values in the case of 21 days, 45 days, 81 days, and 91 days are 0.246, 0.287, 0.384, and 0.378 respectively. The other private sector target banks have not created wealth for their respective shareholders as the car values are statistically insignificant and almost negative. Figure 7 is the graphical representation of the single-factor model of CAR of private sector target banks, where it is visible that the graph line of ING Vyasya Bank i.e., the target bank of KTM Bank is increases above zero line from 7 days time window to 91 days time window. It depicts that there is positive and significant wealth creation for shareholders of ING Vyasya Bank.

**Table 9:** CAR of Private Sector Target Banks (Two Factor Model)

Banks/Event Windows	(-3, +3)	(-10, +10)	(-22, +22)	(-40, +40)	(-45, +45)
Ganesh Bank of Kurundwad	NA	NA	NA	NA	NA
Sangali bank	NA	NA	NA	NA	NA
Centurion Bank of Punjab	-0.055	-0.179	-0.297	-0.072	-0.176
Bank of Rajasthan	0.649***	0.835***	0.978***	1.037***	1.006***
ING Vyasya bank	0.004	0.211***	0.212**	0.279**	0.261**

\*Significant at 10% level of significance, \*\*Significant at 5% level of significance, \*\*\*Significant at 1% level of significance



**Figure 8:** CAR of private sector target banks (Two factor model)

The above Table 9, explains the CAR of private sector target banks by using the two-factor model. The above result depicts that the private sector target bank i.e., Bank of Rajasthan has created significantly positive wealth for its shareholders during all window periods such as 0.649, 0.835, 0.978, 1.037, and 1.006 during 7 days to 91 days event window periods respectively. And in the case of ING Vyasya Bank the shareholders have gained 4 window periods as the CAR values are positive and significant. The CAR values in the case of 21 days, 45 days, 81 days, and 91 days are 0.211, 0.212, 0.279, and 0.261 respectively. Thus, it can be concluded that two target private sector banks have gained significantly due to the merger announcement. Figure- 8 is the graphical representation of the two-factor model of CAR of private sector target banks. The CAR graph line of Bank of Rajasthan and ING Vyasya Bank are positive whereas it is negative for Centurion Bank of India. It clearly demonstrates that these two banks generate significant positive for their respective shareholders.

## Conclusion

The upsurge in bank consolidation through Mergers and Acquisitions has become a global phenomenon. Many countries are adopting the restructuring of the banking industry as a business strategy for expanding the size, and efficiency, improving the financial stability, and profitability (31). Thus, the present study attempts to explore the short-term effect of merger announcements in the Indian Banking Sector.

The study considers thirteen mergers over a time period from 2005 to 2020 to examine the impact of merger announcements in the Indian banking sector, which includes the mergers of both public and private sector banks. The event study methodology is used to verify the above impact on

the shareholder's wealth of the respective bidder and target banks. For that, the announcement date is considered as an event date, and various time windows such as 7 days, 21 days, 45 days, 81 days, and 91 days are considered to examine the impact. The Cumulative Abnormal Return (CAR) of these time windows is calculated to arrive at the results. The overall findings of the study show that the impact of merger announcement is negative in the case of both bidder and target banks of the public sector and private sector respectively. The results contradict the findings of (20) and (32). However, the impact is more on public sector banks as the resulting CAR values are negative and significant as compared to the CAR values of private sector banks. It indicates that the shareholders of the bidder and target banks of both sectors have not created any significant wealth out of the merger announcement over all the time windows. The results of the KTM and ING Vyasya Bank merger are an exception to the above results as the resulting CAR values are positive and significant. The above findings are in line with the results of other studies such as (10, 11, 16, 33). Hence, the study concludes that the overall impact of merger announcements is negative in the case of both public and private sector banks of the Indian banking sector. Though the results of one merger are different from others, it should not create an illusion about the findings, as it cannot compensate for the overall impact of other merger announcements on the Indian banking sector. The present study is limited to the short-term impact of M&A announcements. Further studies can be carried out considering the long-term impact which may be able to highlight the real consequences of a merger. The study contributes to the literature of M&A considering event study methodology.

## Abbreviation

Nil.

## Acknowledgement

Not Applicable.

## Author Contributions

All the authors have made equal and significant contribution for the study.

## Conflict of Interest

The authors declare that there is no conflict of interest regarding the study.

## Ethics Approval

Not applicable

## Funding

There is no outsource funding for this study.

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