

# **IMPACT OF MERGER ON FIRM PERFORMANCE AND SHAREHOLDER WEALTH: A STUDY OF ICICI BANK & BANK OF RAJASTHAN**

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## **ABSTRACT**

*The merger of Bank of Rajasthan with ICICI Bank is the seventh voluntary merger under section 44 A of the Banking Regulation Act 1949. This is the 4th acquisition in the series of acquisition by ICICI Bank- the largest private sector and second largest bank in India. This research paper analyses the impact of merger on the firm performance and shareholder wealth. Performance was measured in three perspectives viz. profitability, operational efficiency and business performance. Pre and post-merger comparison of financial performance of the bank was made, using financial ratio analysis approach, to determine whether the merger had led the bank to profitable situation or not. 14 financial ratios for 10 years were analysed. Event study has been conducted to gauge the stock market response to merger announcement. An event window of -7 to +7 and an estimation window of 180 days prior to the day of -7 have been used. The result of analysis shows that the performance of the bank has improved significantly in the post-merger period. The result of event study shows that the shareholders of BOR have gained more than that of ICICI shareholders.*

**Keywords:** Merger & Acquisition, Event Study, Financial Performance, Ratio Analysis.

## **INTRODUCTION:**

A competitive economy like India needs a robust and competitive banking industry. Our banking industry, as it exists today, is a result of various reforms that had been taken place in the past. Such reforms often paved way for banking consolidation, and as a result banks started to adopt inorganic way of growth in the form of merger and acquisition. This inorganic way of growth helps them to sustain in this competitive arena as it enabled them to withstand competition, enhance scale and scope of operation, widen the market base, entering to the unexplored market and so on. Bank consolidation in India is again attaining its momentum as the policy makers conceiving the idea of fewer but healthier banks. This consolidation in the banking sector may pave the way for stronger financial institutions with the capacity to meet corporate and infrastructure funding needs.

But mergers in general are challenging as it involve huge cost and it has financial and economic implication and if the deal fail it would have a severe impact on the company and the economy as well. Bank should not follow a herd mentality and should consider the deals if and only if they were able to justify it with strong economic rationale. Hence it would always be imperative to have a look at the merger deals taken place in the past, the result of which would be a fruitful resource in the hand of those who conceive the idea of merger in the future. This research paper analyzes the impact of merger on the firm performance and shareholder wealth. The merger of Bank of Rajasthan (BOR) with ICICI bank is selected as the merger case.

The performance of the company was analyzed from three perspectives viz. profitability, operational efficiency and business performance. Ratio analysis approach has been used to measure the performance. The researcher has computed 14 financial ratios for 10 years- 5 years each for pre and post-merger period. Then the difference in performance of pre and post-merger period was statistically tested and the result shows significant improvement in post-merger performance. Impact of merger announcement on stock price is gauged by market model event study methodology. Abnormal Return (AR) and Cumulative Abnormal Return (CAR) were calculated and tested for its statistical significance the result of which shows a positive CAR for BOR shareholders and negative CAR for ICICI shareholders.

## **LITERATURE REVIEW:**

There are a vast number of literature exist in the area of merger and acquisition. Many researchers have analyzed the impact of merger on the financial performance of the mergers entity. Goyal and Joshi (2011) who analyzed the series of mergers by ICICI bank during 1996-2010 revealed the success story of ICICI Bank to become a leading bank in India. Raiyani R (2011) compared the pre and post-merger performance of public and private banks in India by using CAMEL Model and concluded the private sector merged banks performed well as compared to the public sector merged banks. Singh (2009) analyzed the profit and cost efficiency of mergers in the Indian banking system and found that the mergers did not appear to adversely impact the cost efficiency and profit efficiency of banks.

Kalaichelvan K (2011) analyzed the implication of merger on liquidity, operating performance and profitability aspects and found that private banks were in better position in their pre-merger period as compared to post-merger performance, whereas the public sector banks have shown significant improvement in performance after the merger. Singh S (2015) analyzed ICICI bank merger with BOR and Sangli Bank and conclude that the performance of the bank had increased significantly during the post-merger period.

What would be the Stock market response to the merger announcement and its implication on the wealth of shareholders is another aspect focused by the researchers. Anand M & Jagandeep S (2008) have analyzed the impact of merger announcement on shareholders' wealth. He selected five merger cases and by using the single-factor model they found that average cumulative abnormal return (CAR) of the bidder banks is positive and substantial. The two-factor model results revealed that the merger announcement had generated positive and statistically significant returns to the shareholders of the bidder banks. Bihari S (2002) analyzed the impact of merger announcement in Indian banking sector on shareholders' wealth. An event study methodology with an event window of -40 to +40 has been used to explore the short term shareholder wealth effect and found that merger announcement in the Indian

banking industry can have both negative and positive effect on shareholders wealth for both bidder and target bank and negative for bidder banks.

Jayadev & Sensarma (2007) analyzed six forced bank mergers during 1999 and 2006 to trace out the impact of merger on shareholders' wealth and found that shareholders of acquiring bank gained more than those of the acquired banks. Kumar and Suhas (2010) studied the value creation through mergers in the Indian banking sector. The study examined the impact of mergers on both the stock market wealth creation and operating performance. The results signify that merger announcements are value-creating activities for the acquirer banks whereas it eroded the shareholder wealth for the target banks.

**RESEARCH METHODS:**

This is an empirical study to measure the impact of merger on the financial performance and shareholder wealth. Ratio analysis has been used to measure the financial performance. Pre and post-merger comparison of financial data of the bank were made to determine whether the merger lead the bank to profitable situation or not. For pre and post-merger comparison of financial data, the study uses five years data before and five years data after the merger. Merger year is denoted as (T0) and pre and post-merger years are denoted as (T-5, T-4, T-3, T-2, T-1) and (T+1, T+2, T+3, T+4, T+5) respectively. The data were collected from prowiss database of CMIE and annual report of the bank. The researcher has excluded the data for the year (T0) from the analysis because of the belief that this year figures are unduly affected by the onetime merger cost making the comparison more difficult with the figures of other years.

An event study methodology with an event window of -7 to +7 and an estimation period of 180 days prior to the day of event window is used to measure the impact of merger announcement on stock prices. The first date of media announcement is taken as event day 'zero'. To calculate the Abnormal Return (AR), single factor market model has been used. Data for analysis- stock price and market index- were collected from the official website of Bombay Stock Exchange. BSE banking sector index 'bankex' is used as the market index while calculating expected return as the researcher of the view that sectoral index would be a best capture of volatility of stock price of companies belonging to a particular industry.

**RESULTS AND DISCUSSIONS:**

**Analysis of financial performance:**

The performance is analyzed in three perspectives namely profitability, operational efficiency and business performance. For measuring each perspectives, various financial ratios were used, the classification of which is presented in the table 4.1.1.

**Table 4.1.1: Classification of financial ratios**

<b>Financial perspective</b>	<b>Financial ratios</b>
Profitability	Net Profit Margin (NPM)
	Earnings per Share (EPS)
	Price – Earnings Ratio (P/E Ratio)
	Return on Equity (ROE)
	Return on Asset (ROA)
Operational efficiency	Total Asset Turnover Ratio (TATR)
	Interest Coverage Ratio (ICR)
	Credit-Deposit ratio (CDR)
	Efficiency Ratio (ER)
Business performance	Net Profit (NP)
	Total Advances (TAD)
	Aggregate Deposit (AD)
	Total Income (TI)
	Net Interest Income (NII)

**Source:** Author's Computation

To test the statistical significance of difference in pre and post-merger performance, independent sample t-test has been used. The researcher had put forwarded the following hypotheses;

**H01:** There is no significant difference between pre and post-merger profitability of merged banks.

**H02:** There is no significant difference between pre and post-merger operational efficiency of merged banks.

**H03:** There is no significant difference between pre and post-merger business performance of merged banks.

The result of analysis with respect to profitability ratios is shown in the following table;

**Table 4.1.2 Independent sample t-test of profitability ratios**

Ratio	Group	mean	Mean difference	S.E	d.f	t-value	p-value
NPM	Pre-merger	15.770	-5.2	1.876	8	-2.771	0.024*
	Post-merger	20.970					
EPS	Pre-merger	33.606	-37.428	9.511	8	3.935	0.004**
	Post-merger	71.034					
P/E ratio	Pre-merger	24.264	8.507	4.114	8	2.068	0.072
	Post-merger	15.757					
ROE	Pre-merger	11.348	-0.618	1.701	8	-0.363	0.726
	Post-merger	11.966					
ROA	Pre-merger	.0102	-0.005	0.009	8	-5.661	0.000**
	Post-merger	.0152					

**Source:** compiled and calculated from prowest and annual report of the bank

\* Significant at 5 per cent level

\*\* Significant at 1 per cent level

The results of analysis show that NPM, EPS and ROA have shown significant differences in pre and post-merger period. These three parameters with respect to profitability have improved following the merger deal as their mean value in post-merger period is greater than that of pre-merger value. However, there are no significant differences in P/E ratio and ROE. The test results for various operational efficiency parameters are depicted in table 4.1.3.

**Table 4.1.3- Independent sample t-test of operational efficiency ratios**

Ratio	Group	Mean	Mean difference	S.E of mean	d.f	t-value	p-value
TATR	Pre-merger	0.0674	-0.0046	0.0058	8	-0.787	0.454
	Post-merger	0.0720					
ICR	Pre-merger	0.2204	-0.1058	0.0319	8	-3.319	0.011*
	Post-merger	0.3262					
CDR	Pre-merger	91.4732	-9.253	3.122	8	-2.963	0.018*
	Post-merger	100.7258					
ER	Pre-merger	0.7380	0.0944	0.0188	8	5.012	0.001**
	Post-merger	0.6436					

**Source:** compiled and calculated from prowest and annual report of the bank

\*Significant at 5 per cent level

\*\*Significant at 1 per cent level

It can be concluded from the results of analysis that all operational efficiency parameters except TATR show significant differences in their pre and post-merger period. ICR and CDR have improved significantly as their post-merger mean value is greater than their pre-merger value. It should be noted that as ER is the ratio of expenses to revenue, a low ER shows profitable position to bank. Here, the operational efficiency with respect to ER has also improved as its post-merger mean value is less than that of pre-merger value.

**Table 4.1.4 Pre and post-merger business performance of ICICI & BOR**

Ratio	Group	Mean	Mean difference	S.E of mean	d.f	t-value	p-value
NP	Pre-merger	3114.27	-5071.318	1158.18	8	-4.379	0.002**
	Post-merger	8185.588					
TAD	Pre-merger	175472.158	-121841.386	39398.31	8	-3.093	0.015*
	Post-merger	297313.544					
AD	Pre-merger	191638.202	-101800.216	36270.19	8	-2.807	0.023*
	Post-merger	293438.418					
TI	Pre-merger	28096.396	-194950992	7361.84	8	-2.648	0.029*
	Post-merger	47592.388					
NII	Pre-merger	5866.512	-7960.016	2095.06	8	-3.799	0.005**
	Post-merger	13826.528					

**Source:** compiled and calculated from prowest and annual report of the bank

\* Significant at 5 per cent level

\*\* Significant at 1 per cent level

The test result for various business performance parameters as shown in table 4.1.4 reveals that all the parameters with respect to business performance namely NP, TAD, AD, TI and NII has shown significant differences in their pre and post-merger period. It is interesting to note that business performance with respect to all these parameters have improved following the merger deal as their post-merger mean value is greater than that of pre-merger value.

**Impact of merger on shareholder wealth:**

An event study is oftentimes the first step in a sequence of analysis that aims at identifying the determinants of stock market responses to distinct event types. Here an event study has been conducted to measure the impact of merger announcement by ICICI and BOR on the wealth of shareholders. An event window of -7 to +7 with an estimation window of 180 days prior to the event window has been used. The first date of media announcement is taken as event day ‘zero’. To calculate the Abnormal Return (AR), single factor market model has been used. To measure the impact of merger announcement, following procedures were adopted;

1. The historical stock prices of the sample bank and corresponding market index were collected for the event study duration of -180 to +7 days of merger announcement (with an event window of -7 to +7 and a clean period data of 180 days preceding the event window). For market index, the banking sector index of BSE ‘Bankex’ is used.
2. Then, the actual return from the security(Rit) as well as corresponding market return(Rmt) were computed using the following formula:

$$R_{it} = \ln (P_t/P_{t-1})$$

R<sub>it</sub> = Return from the individual security on day ‘t’

ln= Natural logarithm

P<sub>t</sub> = Closing price on day ‘t’.

P<sub>t-1</sub> = Closing price on day ‘(t-1)’

$$R_{mt} = \ln ((I_t / I_{t-1}))$$

I<sub>t</sub> = Market Index on day t

I<sub>t-1</sub> = Market Index on day t-1

3. A regression analysis is performed using the actual daily return of each bank (R<sub>i</sub>) as dependent variable and the corresponding daily market return (R<sub>m</sub>) as independent variable over the pre-event period (180 days prior to the event period of -7 to +7) to obtain the intercept α (alpha) and standardized coefficient β (beta) for each Bank separately.

$$R_i = \alpha_i + \beta_i R_m + \epsilon_i$$

Here, R<sub>i</sub> is the individual stock return and R<sub>m</sub> is the market return. α and β are the regression coefficients. ε<sub>i</sub> is the statistical error term with E(ε<sub>i</sub>)=0. Following table show the α and β of each bank.

**Table 4.2.1: Alpha and Beta of each bank**

Name of the Bank	Alpha	Beta
ICICI Bank	-0.00038	1.287417
Bank of Rajasthan	-0.00016	1.050181

Source: Authors’ computation

4. Then we calculated the Expected Return (ER). Market model approach is used to find out the ER. Market model assumes that all interrelationships among returns on individual assets arise from a common market factor that affects the return on all assets (Fama et al., 1969). The expected return of each stock for each day during the event period (from day -7 to +7) was calculated as:

$$ER = \alpha + \beta (R_m)$$

5. Then we calculated the abnormal return (AR) which is defined as the difference between actual return (R) and expected return (ER) for each day in the event window. The magnitude of abnormal returns provides a direct measure of unexpected change in security holders’ wealth associated with the event (Kothari and Warner, 2004).

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

Then we tested the statistical significance of AR by using t-statistic.

$$t = AR_t / S(AR_t)$$

Where,  $AR_t$  is defined as the abnormal return on day  $t$  and  $S(AR_t)$  is the estimate of standard deviation of the abnormal returns in the estimation period. After determining the abnormal return of each security, we computed Cumulative Abnormal Return (CAR) to identify the cumulative impact on the abnormal return and to identify the real impact of the event.

$$CAR_i = \sum_{t=k}^l AR_{it}$$

CAR = Cumulative abnormal return for stock  $i$  for the period beginning with  $t = k$  and ending with  $t = l$ . The abnormal return to the shareholders of both banks on account of merger announcement has been computed and is given in table 4.2.2. The shareholders of BOR have gained significant positive abnormal return for five consecutive days. There is statistically significant negative AR for ICICI bank in day 0 and 1 indicating a negative impact. However it has gained significant positive AR on day 5 and 6.

**Table 4.2.2 AR of ICICI & BOR**

Day	ICICI (t-value)	BOR(t-value)
-7	-0.00072 (-0.067)	-0.05958* (-1.967)
-6	-0.00158(-0.147)	-0.00145(-0.048)
-5	-0.01443(-1.342)	-0.03199 (-1.056)
-4	0.00693(0.644)	-0.00598 (-0.197)
-3	0.00753 (0.700)	0.02329 (0.769)
-2	-0.00218 (-0.202)	0.04329 (1.429)
-1	-0.00828 (-0.770)	0.18657* (6.160)
0	-0.02208* (-2.053)	0.22592* (7.459)
1	-0.05712* (-5.311)	0.08797* (2.904)
2	0.00880 (0.818)	0.10007* (3.304)
3	-0.00012 (-0.011)	0.10109* (3.337)
4	-0.01617 (-1.504)	0.02395 (0.791)
5	0.06116* (5.686)	0.00446 (0.147)
6	0.02600* (2.417)	-0.02267 (-0.748)
7	0.01701 (1.582)	0.01228 (0.406)

Source: Author’s Computation

\*indicates significant at 5 per cent level

To measure the cumulative impact of the event on shareholder wealth, CAR is calculated and is tested for its statistical significance the result of which has been given in the table 4.2.3

**Table 4.2.2- CAR of ICICI & BOR**

Event window	ICICI (t-value)	BOR(t-value)
-1,0,1	-0.0875*(-4.707)	0.5005* (9.56)
-3,0,3	-0.0734*(-2.587)	0.7682* (9.61)
-5,0,5	-0.0359(-1.01)	0.7586* (7.57)
-7,0,7	0.0048(0.115)	0.6872* (5.87)

**Source:** Author's Computation

\*indicates significant at 5 per cent level

The test result shows statistically significant CAR in all window period for BOR shareholders and during the event window of -1,0,1 & -3,0,3 for ICICI shareholders. During the event window of (-1,0,1) which shows the immediate response of the market, the cumulative return of the ICICI shareholders eroded to the extent of 8 percentage whereas the shareholders of BOR have gained to the extent of 50 per cent. The ICICI return further declined to the extent of 7.34 per cent in the event window -3,0,3 which indicated that the merger resulted in value erosion to the wealth of shareholders. But it shows a positive contribution to the wealth of BOR shareholders as their CAR is increased to the extent of 68.72 per cent during the study period.

#### **CONCLUSION:**

This paper evaluates the impact of merger of BOR with ICICI bank on the financial performance and shareholder wealth. The performance was measured using financial ratios. The researcher has collected five years data for pre and post-merger period and was analyzed by means of independent sample t-test. The result shows that, the NPM, EPS and ROA have improved following the merger deal whereas the P/E ratio and ROE not differ significantly in pre and post-merger period, with respect to profitability parameter. As far as operational efficiency parameters were concerned, ICR, CDR and ER have improved following the merger but TATR did not differ significantly. Similarly, all the business performance parameters have improved following the merger deal. The impact of merger on wealth of shareholders is measured using event study methodology. The result shows that the merger announcement contributed positively to the wealth of shareholders of BOR and negatively to the wealth of shareholders of BOR.

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