Effects of Mergers and Acquisitions (M&A) on the Profitability of Indian Banking Sector

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Abstract. The significance of Mergers and Acquisitions (M&A) within the India's banking landscape surged following the proposals of the Narasimham Committee. However, the implementation of these recommendations became prominent with the series of SBI mergers with its associates and other consolidations. A key motivation behind these mergers is the reduction of Non-Performing Assets (NPAs), creating competitive with international recognition and more specifically to improve financial health of banks. Therefore, the aspiration of the present study is to examine the dynamics of the Indian banking industry by assessing the profitability of banks following M&A. The dataset used for present study covers the years immediately following the global financial crisis (GFC) of 2007–2008 to 2023. Most appropriate variables have been filtered through literature and employed for executing the investigation, and these are Return on Assets, Return on Equity, Operating Profit Margin, Cost of Funds, Return on Advances, and Return on Investment. The data for each variable has been collected for the period of 6 years (i.e., 3 years preceding and following the M&A). Statistical parametric tests such as Kolmogorov-Smirnov (K-S) test, P-S t-test have been used to measure and compare the bank's profitability. In conclusion, this research demonstrate that M&A enhanced the financial metrics of Indian banks. This research contributes significantly to the theory of "Efficiency and Synergy". In practical terms, the study offers substantial contribution to academicians, banking professionals, investors, regulatory bodies, financial analysts, and society.

Keywords: Financial Performance, Profitability, Mergers and Acquisitions (M&A), Efficiency, Synergy.

1 Introduction

The Mergers and Acquisitions (M&A) have risen in the worldwide banking industry due to several factors, including technological advancements, ongoing banking and financial reforms, and fierce competition, have forced banks to adapt and become more efficient [1, 2]. The trend is particularly apparent in India's banking sector, where consolidations and mergers played an integral part in the Narasimham Committee reforms

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N. Pathak et al. (eds.), *Proceedings of the 2nd International Conference on Emerging Technologies and Sustainable Business Practices-2024 (ICETSBP 2024)*, Advances in Economics, Business and Management Research 296,
https://doi.org/10.2991/978-94-6463-544-7_24

in the 1990s [3, 4].Through those changes, strengthening the Indian banks' operational efficacy and financial stability was a top focus. The previously stated modifications emphasized robust financial position and effective operations to ensure that Indian banks not only met internationally recognized standards but also thrived in the very competitive global economy [5]. According to literature[3], these adjustments were a key part of a larger economic reform program intended to boost both the effectiveness and global viability of Indian institutions. These reforms led to an unprecedented increase in M&A activity within the realm of Indian banking, thereby pressuring Indian banks to restructure their present operations or sell off non-core assets [6].

The notion of M&A along with the techniques aimed at strengthening banks was first introduced in 1990s by Narasimham. However, these recommendations were not considered or implemented until much later. As a result of these reforms, in the recent years, there has been a series of bank mergers, combining institutions like SBI with its affiliates and the consolidation involving Bank of Baroda, among others [7]. The primary objectives of these integrations are to minimize non-performing assets (NPAs), enhance the robustness of banks, and achieve greater efficiency and profitability in the banking sector [8]. This consolidation trend is fueled by the potential for economies of scale, where larger banks can leverage their size for greater efficiency [9]. Recent media has shed light on various aspects of Indian banking, including customer service, preparedness for international banking regulations, and the growing appetite for overseas expansion through M&A [10]. This focus on M&A reflects a broader trend across Indian banking industry, where strategic acquisitions are increasingly viewed as a critical tool for gaining a competitive edge in the global market [10].These steps of merger rounds are seen as crucial measures to boost the overall health of the financial framework and ensure the sustainable growth of banks in a competitive and dynamic environment [11]. Hence, the positive impact of these reforms is undeniable, as demonstrated by the significant increase in M&A activity withing the banking domain of India, which has now reached notable global standards. The banking system is demonstrably more reliable and secure, capital adequacy now meets international benchmarks and net non-performing assets (NPAs) have been brought down to acceptable levels [12]. M&A have emerged as a powerful tool in achieving the vision of a robust and efficient Indian banking system. These strategic alliances not only bolster domestic operations but also empower banks to compete on the international stage by acquiring new competencies through M&A [13]. Indeed, M&A is widely recognized as a powerful strategy for businesses of all stripes, offering potential for increased profits, better resource utilization, and significant cost savings. Hence, it can be concluded that the ultimate objective of M&A is to improve profitability and overall performance of banking sector of India.

A variety of studies have been executed in recent years to evaluate the financial performance, particularly the profitability, of banks both globally [14–19] and domestically [20–23]. Furthermore, in the context of M&A pre-and post-analysis, limited studies are conducted for India's banking sector. As per the researcher's knowledge, there is no such study available in literature, which have evaluated the consequences of M&A on the financial success of Indian banks on the data set of 2007- 08 to 2022-

23 taken just after the GFC, which specifically includes the recent round of Consolidations of 2020. By filling this research gap, This article seeks to assess the ramifications of M&A on the profitability of Indian banks since 2007-08 to 2022-23. For the achievement of the objectives, Paired samples (P-S) t test has been used. By analyzing the profitability of Indian banks, this research contributes to the theory of 'Efficiency or Synergy'. In practical terms, this research provides valuable contribution to the researchers, academicians, banking professionals, investors, regulatory bodies, financial analysts, and society.

The following sections of the paper are organized as follows: The next section provides a comprehensive review of the literature. The selected methodology is explained in the third part of the study. The fourth and fifth parts provide the study's empirical results, discussions, and conclusions. The final portion includes the conclusion, limits, and areas of further investigation.

2 Literature Review

M&A is a crucial strategies for strengthening India's banking industry. M&A is seen as one of the primary techniques for achieving economies of scale, achieving synergies and eventually boosting bank's financial performance [24]. Making banks powerful and competitive in the market is therefore an adequate strategy. In emerging nations like India, the banking industry is one of those with the quickest rates of growth [25].

Numerous research efforts have been made so far to analyze the implications of M&A on the financial metrics of banks in different nations including India's banking industry [14, 26–30]. [26] conducted the comprehensive analysis on M&A and how it affects the Indian bank's effectiveness. By examining the current capital structure and using overall leverage ratios, the study revealed positive changes in the India's banking performance. [14] evaluated the consequences of consolidation on the banking performance of Nepal by using selected accounting ratios. The aftereffects of M&A are diverse, for selected banks, there is an improvement in financial ratios and for others, the ratio does not improve. [27] also conducted the comparative analyses of Indonesian banking sector before and after the consolidation of banks and identified the long-term consequences of M&A and concluded that the functioning of banks has decrease. Another study being conducted [29] with reference to Indian banking sector regarding measuring the impact of consolidation on profitability of Indian banks. Additionally, this study attempted to investigate the operations of M&A within the realm of Indian banking field, demonstrating the improvement in financial outcomes. Hence, the impact is positive. [28] also investigated whether Ecobank Ghana Limited's business performance had grown following consolidation or not. They did this by utilizing key variables like ROA, ROCE, shareholders' equity to total assets, D/E and total liabilities to total assets. The results showed that the acquisition and merger had no bearing on the variables they chose. [30] analyzed the effects of consolidation of banks on the financial health of Pakistani banks using the significant financial indicators and concluded the positive effects. [31] investigated how the M&A changed the financial consequences of emerging economies

and revealed that there is a positive change in the profitability of banks post M&A. Another study being conducted, [32] analyzed the influence of M&A activities on the financial health as well as growth of Indian PSBs and PVBs. The study found that there is a beneficial benefit using metrics including net profit margin, OPM, ROCE, ROE, EPS, capital adequacy ratio, and DPS. As a result, measuring Profitability of banks post M&A is significant for research.

The key factors for M&A vary depending on the goals of the firms involved, achieving synergy gain is the primary driving force for M&A in the banking sector. The theories in existing literature about M&A provide justification for the longer-term rather than the short-term synergistic advantages. The existing theories of merger motives discussed in literature includes Efficiency theory, valuation theory, Monopoly theory, Process theory etc. [33]. One of the significant theories is the Efficiency theory which simply states that merger occurs to achieve synergies specifically financial, Operational and Managerial synergies [34], where achieving financial synergy can be accomplished by growing the company's size, investing in independent businesses, or starting an internal capital market that will lower costs of capital and increase efficiency. The theory of "efficiency or synergy" in M&As proposes the maximization of shareholder's wealth for both the firm, either its target or acquirer firm, to get total positive gains [35]. The theory of 'Efficiency' fully focuses upon the complete utilization of scarce resources and hence, production of good quality goods or services without wasting any resources from the economy's point of view. Efficient production would lead to improved performance of firms which will consequently increase profitability, reduce excessive cost and enhance the overall operations [36]. As a result, this theory proposes that the firms must be efficient enough in their production or operations to achieve maximum profits with least production cost and it stresses on the selection of the right production decision to increase profitability levels of firms.

Studies are being performed to identify determinants of profitability as well along with its measurement such as [17, 37, 38]. Many studies are done in different countries like Uganda [15, 38], Latvia [17]; Bangladesh [16, 39] etc. to analyze profitability of banks along with determinants of profitability. There exist various approaches for measuring financial statements of banks, ranging from profitability ratios to composite indexes. However, the most common ratios used for measuring profitability are ROE and ROA [40]. Massive studies exist measuring the performance through profitability ratios of financial entities such as [41] evaluated the performance of financial institutions where the profitability ratios are being used for measurement and ultimately disclosed during the period that the PVBs performed well as compared to PSBs. Although [42] stated PSBs as the best performers based on their profit efficiency. Along with this, foreign banks operating in India are also working efficiently as compared to domestic banks. [43] established a relationship between profitability and NPA where dominant variables ROA and ROE were used and resulted that declining credit quality may lead to low profitability of banks. Thus, it is clear from the explanation above that profitability is a crucial metric for assessing how well banks are performing. Within the existing literature, the metrics

used to calculate profitability before and after the merger include Return on Advances (ROAD), Return on Equity (ROE), Operating Profit Margin (OPM), Cost of Funds (COF), ROA and Return on Investment (ROI). These variables collectively serve as crucial indicators of a bank's performance results.

H1: There is no significant change in the profitability of merged banks in India.

The hypothesis can be divided into the following sub-hypotheses:

H1a: There is no positive change in the operating profit margin of Indian banks after M&A.

H1b: The ROA of Indian banks does not improve following M&A.

H1c: The ROE of Indian banks shows no positive change following M&A.

H1d: The COF of Indian banks remain unchanged after M&A.

H1e: The ROAD of Indian banks does not increase after M&A.

H1f: The ROI of Indian banks does not strengthen following M&A.

3 Research Methodology

This study utilizes a descriptive research design and applies empirical research methods to analyze bank performance. It is a longitudinal study as well. The research collected data specifically related to M&A within the India's banking industry, spanning from the fiscal year 2007-08 to 2022-23. A dataset of 44 banks is included within the study's scope during this time frame. The study excludes foreign banks. The aim of this research is to assess the profitability of banks, and to achieve this, the study employs P-S t-test for testing of hypothesis. The secondary data has been taken from the official website of Reserve Bank of India (RBI).

To assess the profitability of merged banks in India, a P-S t-test has been utilized. This statistical method has been utilized to examine the differences between the means of two similar events. It is commonly employed when the data constitute of paired observations, such as measurements taken ahead of and subsequent to an event or matched pairs. For the successful application of t test, the normality of data has also been checked and for checking the same, K-S test and Shapiro wilk (S-W) test are used. The K-S test and the Shapiro-Wilk test are both statistical methods used to assess the normality of data distributions. The K-S test evaluates whether a sample follows a specific theoretical distribution by comparing the sample's cumulative distribution function to the expected distribution. For measuring profitability of banks pre- and post-M&A, a total of 6 variables are selected and these are ROA, ROE, ROI, COF, OPM and ROAD. These variables are selected out of literature and hence, assumes to be best for measuring profitability of banks.

i. ROA= (Net Income/Total Assets) *100

ii. ROE= (Net income/shareholder's equity) *100

iii. ROI = (Net Profit/Cost of investment) *100

iv. OPM = (Operating income/revenue) *100

v. COF- The COF is a critical factor for financial institutions because it directly affects their profitability.

vi. ROAD = It is a financial indicator used to assess how profitable the loan portfolio of a financial institution is. It calculates the revenue from advances on loans in relation to the total amount of loans that are due.

4 Data Analysis

In the current study, the profitability of banks over a six-year period—three years prior to and three years following mergers and acquisitions—was analyzed using the following indicators: ROE, ROA, OPM, ROI, ROAD, and COF.

The K-S test, Shapiro-Wilk test, P-S t test, and other parametric statistical tests have been used to evaluate the differences in bank profitability before and after M&A. For applying the parametric test, it is significant initially to validate the normality of the data, a fundamental step in statistical analysis. To ensure data normality, the researchers employed two well-established normality tests, namely the K-S and Shapiro-Wilk tests, at a significance level of 5% as presented in Table 4.1. Using the paired-samples t-test method, the significance of the bank's post-M&A changes in profitability is assessed. Using this strategy, two variables within a single group are compared to test the hypothesis. It does this by computing the differences between the two factors' values in each event and determining if the average difference is more than zero. Upon conducting both normality tests for the preceding and following the merger variables, the results indicated that the data in both cases exhibited significant p-values, implying that the samples indeed originated from populations with a normal distribution. This validation of data normality provided a robust foundation for the subsequent application of the t-test in assessing the profitability changes of banks pre- and post-M&A. Table 4.1. represents the normality of data.

Table 4. 1Test of Normality for profitability measures

Tests of Normality						
	K-S[a]			S-W		
	Statistic	D f	Sig.	Statistic	df	Sig.
OPM_PRE	.173	12	.200*	.907	12	.197
OPM_POST	.184	12	.200*	.851	12	.038
ROA_PRE	.227	12	.088	.916	12	.252
ROA_POST	.175	12	.200*	.893	12	.127
ROE_PRE	.182	12	.200*	.920	12	.289
ROE_POST	.141	12	.200*	.941	12	.509
COF_PRE	.231	12	.077	.871	12	.067
COF_POST	.213	12	.141	.914	12	.242

ROAD_PRE	.237	12	.062	.888	12	.112
ROAD_POST	.201	12	.195	.822	12	.057
ROI_PRE	.128	12	.200*	.976	12	.962
ROI_POST	.180	12	.200*	.912	12	.229

Source: Author's calculation, 5% level of significance

The validation of data normality using both the K-S and Shapiro-Wilk tests yielded results with p-values greater than 0.05 for all selected variables, indicating that the data followed a normal distribution. With data normality confirmed, a comparison made between pre- and post-merger datasets by examining their respective mean values for various selected variables. To assess the consequences of mergers on the profitability, the paired t-test, a statistical method for comparing means within the same population, has been applied. The means of all key financial indicators analyzed before and after the mergers. P-S statistics is presented in Table 4.2

Table 4. 2 P-S statistics

P-S Statistics					
		Mean (M)	N	Std. Deviation (SD)	Std. Error Mean (SEM)
Pair 1	OPM_PRE	1.9975	12	.49811	.14379
	OPM_POST	2.1617	12	.46232	.13346
Pair 2	ROA_PRE	.3792	12	.82940	.23943
	ROA_POST	.7425	12	.53195	.15356
Pair 3	ROE_PRE	3.4067	12	12.06480	3.48281
	ROE_POST	9.4367	12	5.21628	1.50581
Pair 4	COF_PRE	5.7325	12	.82604	.23846
	COF_POST	5.1658	12	.64795	.18705
Pair 5	ROAD_PRE	9.2725	12	1.31432	.37941
	ROAD_POST	9.0025	12	1.40872	.40666
Pair 6	ROI_PRE	7.1592	12	.60934	.17590

	ROI_POST	7.0717	12	.55933	.16147

Source: Author’s calculation

Notably, as per the calculation presented, the mean values of majority of variables have been improved positively post-M&A, resulted into positive effects. The mean value of OPM increased from 1.9975 to 2.1617 post-merger, indicating improved operational efficiency. Similarly, the mean value of ROA saw a substantial improvement, rising from 0.3792 to 0.7425, while the mean value of ROE increased from 3.4067 to 9.4367 post- merger, reflecting enhanced profitability. The mean value of COF remained stable, only slightly decreasing from 5.7325 to 5.16. However, the mean ROAD declined slightly from 9.2725 to 9.0025, and the mean ROI also saw a minor decrease from 7.1592 to 7.0717. Overall, the analysis suggests that, on average, the financial consequences of banks improved following M&A, with notable enhancements in operational efficiency and profitability.

In Table 4.3, The paired-sample t-test method is used to figure out the relevance of the profitability of the bank's post-M&A changes. This approach compares the averages of two measurements within a single category to assess the validity of hypotheses. It specifically determines if the average difference is more than zero by computing the differences between the values of the two variables in each occurrence. For the first pair, which focuses on OPM, the calculated t-value is 0.033. In the second pair, concerning ROA, the t-value is 0.012. In the third pair, examining ROE, the t-value is 0.018. Lastly, for the fourth pair related to COF, the t-value is 0.013. Importantly, the t-values for these first four variables are all below 0.05, Hence, H1a, H1b, H1c and H1d cannot be accepted. This suggests that there is a significant positive improvement in selected variables of profitability after the M&A.

Table 4. 3Paired samples test

P-S Test								
	Paired Differences					t	df	Sig. (2-tailed)
	M	SD	SEM	95% Confidence Interval of the Difference				
				Lower	Upper			

Pair 1	OPM_PRE - OPM_POST	-.16417	.23263	.06715	-.31197	-.01636	-2.445	11	.033
Pair 2	ROA_PRE - ROA_POST	-.36333	.41803	.12068	-.62894	-.09773	-3.011	11	.012
Pair 3	ROE_PRE - ROE_POST	-6.03000	7.53188	2.17427	-10.81553	-1.24447	-2.773	11	.018
Pair 4	COF_PRE - COF_POST	.56667	.65857	.19011	.14823	.98510	2.981	11	.013
Pair 5	ROAD_PRE - ROAD_POST	.27000	.89641	.25877	-.29955	.83955	1.043	11	.319
Pair 6	ROI_PRE - ROI_POST	.08750	.91782	.26495	-.49566	.67066	.330	11	.747

Source: Author's calculation, 5% level of significance

However, for the fifth and sixth pairs involving ROAD and ROI, the t-values are 0.319 and 0.747, respectively. These values are greater than 0.05, leading to the acceptance of the H1e and H1f. Therefore, the investigation indicates that there is no significant improvement in ROAD and ROI following M&A.

5 Conclusion and Discussion

M&A has emerged as a successful approach to enhance bank's financial health and lower the nation's rising NPA level. Most commercial banks used M&A as a strategic weapon to grow their capital structure and customer base. The intent of this research is to assess how M&A have affected certain banks' financial outcomes before and after the M&A. According to the research study's findings, M&A has had conflicting implications for Indian banking profitability. For the selected variables OPM, ROA, ROE, and COF, it is observed that the null hypotheses (H1a, H1b, H1c and H1d) cannot be

accepted hence, concluded that the profitability of banks improved post-merger. Conversely, for other variables such as ROI and ROAD, the null hypotheses accepted (H1e and H1f), resulting in no positive improvement in bank's financial statement post-merger. The research methodology used in this article aligns with similar studies conducted on quantifying the profitability of banks prior to and following mergers [44, 45]. These studies, like the current one, have employed P-S t-tests to assess the profitability dynamics of banks in the wake of merger events.

The research's conclusions align with those of other studies of a similar nature where [46, 47], have reported an increase in bank's effectiveness post-merger. Conversely, other research has documented a decrease in bank profitability following consolidations [44, 45, 48]. Additionally, some studies, including [49], have provided mixed results, demonstrating that while profitability improves for certain selected variables, it declines for others. From the discussion above, it can be inferred that the profitability of banks has overall enhanced for banks post- merger, highlighting the nuanced effect of M&A on monetary outcomes of bank's especially profitability.

5.1 Implications

The research contributes to the 'efficiency or synergy' theory in M&A by highlighting how integration drive financial, operational, and managerial synergies, ultimately reducing costs and enhancing financial efficiency [35, 36]. Effective resource utilization post-merger improves banks' profitability and financial synergies, leading to better overall performance. This research practically benefits academicians, banking professionals, investors, regulatory bodies, financial analysts, and society by providing insights into financial regulations, compliance, bank performance assessment, and fostering financial literacy. It empowers stakeholders to make informed decisions, contributing to the banking sector's stability and societal betterment.

6 Future Study

This study has utilized a limited data set; however, additional data can be incorporated in future research. While a P-S t-test was employed in this analysis, other statistical tests could also be utilized. Additionally, this research concentrates solely on profitability, but future studies could examine other variables such as efficiency

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