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Do Bank Mergers Improve Performance? Evidence from Indian Bank's Operational and Financial Metrics

K. Khasimpeera[1]*, S. Raghunatha Reddy[2]

[1]*Research Scholar, Department of Commerce, Yogi Vemana University and Assistant Professor, Department of Management, Annamacharya Institute of Technology and Sciences (Autonomous), Kadapa, Andhra Pradesh, 516003, India.*
[2]*Professor at Department of Commerce, Yogi Vemana University, Kadapa, Andhra Pradesh, 516005, India.*

Abstract. Bank mergers are a common strategy to enhance operational and financial performance in the banking industry. This study aims to evaluate the impact of mergers on banks in India by measuring various financial and operational metrics before and after the merger. This research employs a quantitative approach using secondary data analysis from financial reports of merged banks. Data from the pre-merger and post-merger periods were collected to compare key performance indicators, such as Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and operational efficiency ratio. A total of 10 merger cases over the last 10 years were analyzed using descriptive statistics and paired t-tests. The findings indicate that mergers positively impact several financial performance indicators. The average ROA increased from 0.85% to 1.25% within two years post-merger. ROE also rose by 2.5 percentage points. Additionally, operational efficiency improved, with the cost-to-income ratio decreasing from 48% to 43%. However, some banks experienced a decline in NIM from 3.2% to 2.9%, indicating challenges in maintaining profitability from interest-earning assets. These findings suggest that bank mergers in India generally provide benefits in terms of operational efficiency and profitability. However, the positive impact is not uniform, as some banks struggle to maintain net interest margins. Factors such as operational synergy, risk management, and regulatory policies play a role in post-merger outcomes. Bank mergers in India have a positive impact on financial and operational performance, despite certain challenges that need to be addressed. The findings of this study can serve as a reference for policymakers and bank management in designing more effective merger strategies in the future.

Keywords: Bank mergers, profitability, operational efficiency, financial stability, return on assets, return on equity.

*Corresponding author's email: khasim.mba2011@gmail.com, Telp.: -

1. Introduction

Bank mergers have become a prevalent strategy worldwide to enhance financial stability, increase market share, and improve operational efficiency (Jandik & Lallemand, 2014; Kumar & Suhas, 2010; Lootah et al., 2024; Zhang et al., 2021). The banking sector is an essential pillar of economic growth, and consolidation through mergers is often seen as a means to strengthen financial institutions, especially in times of economic uncertainty (Calzada et al., 2023; Farhan et al., 2024; Kamarudin, 2014; Panakaje et al., 2024). Governments and policymakers have encouraged bank mergers to create stronger, more resilient banks that can withstand financial crises. In India, the banking industry has undergone significant structural changes, with multiple high-profile mergers aimed at strengthening the sector (Chakraborty & Das, 2024). For instance, in April 2020, the Indian government facilitated the merger of Oriental Bank of Commerce and United Bank of India with Punjab National Bank to create a more robust banking entity (Das & Sahay, 2023; Sangeetha, 2020).

The primary motivations behind bank mergers include cost reduction, risk diversification, and capital enhancement (DeYoung, 1997; Lanine & Vander Vennet, 2007; Sandhu et al., 2023). When two or more banks merge, they can achieve economies of scale, reduce redundant operational costs, and streamline management structures. Additionally, larger merged banks are better positioned to absorb financial shocks and expand their credit portfolios. However, while mergers theoretically offer these advantages, their actual impact on financial performance remains debated. Some mergers lead to improved efficiency and profitability, while others encounter challenges such as operational disruptions, cultural mismatches, and increased costs in the short term.

Extensive research has examined the impact of bank mergers on financial performance across different economies (Dwumfour, 2019; Humphrey & Vale, 2004). Studies in developed markets such as the United States and Europe indicate that mergers often result in enhanced profitability, efficiency, and market dominance. For example, a study by Rose (1995) found that bank mergers in the U.S. led to significant improvements in cost efficiency and profitability. Similarly, European banking sector studies suggest that mergers and acquisitions (M&A) increase shareholder value and contribute to greater financial stability (Chung et al., 2024; Kodongo et al., 2022).

In emerging markets, however, the results are mixed. Studies in India, for instance, reveal both positive and negative outcomes of bank mergers (Patel et al., 2024; Soman & Punjani, 2024). Research by Hsu et al. (2024) suggests that while some mergers have successfully improved bank efficiency, others have resulted in short-term declines in performance due to integration challenges and restructuring costs. Another study by Ghosh (2022) found that the merger of State Bank of India (SBI) with its associate banks led to improvements in operational efficiency, but profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE) showed fluctuations in the immediate aftermath of the merger.

Despite the wealth of literature on bank mergers, several gaps remain, particularly in the context of Indian banking. First, while global studies provide insights into merger outcomes, their findings are not always applicable to India's banking structure, which is characterized by government intervention, regulatory complexities, and market-specific challenges. Second, most existing studies focus on macroeconomic implications rather than granular financial and operational metrics at the individual bank level. Third, while research has explored short-term performance fluctuations post-merger, fewer studies have examined long-term trends and whether the benefits of mergers sustain over time.

Additionally, prior studies often generalize merger outcomes without distinguishing between different types of banks, such as public sector banks (PSBs) and private sector banks (Karmakar et al., 2024; Maity & Sahu, 2023; Meenakshisundaram & Kannan, 2020). Since PSBs play a dominant role in India's banking industry, understanding how mergers impact their financial stability, risk exposure, and credit expansion is critical for future policymaking. This research aims to address these gaps by conducting a detailed financial performance analysis of merged Indian banks, focusing on key operational and financial indicators.

Understanding the real impact of bank mergers is crucial for multiple stakeholders, including policymakers, investors, banking professionals, and researchers (Hu et al., 2025; Lu, 2022; Pasiouras & Zopounidis, 2008). For policymakers, evaluating the effectiveness of mergers helps in designing regulatory frameworks that encourage consolidation while minimizing risks. Given the Indian government's continued push for bank consolidation, it is essential to assess whether mergers lead to tangible benefits or if alternative strategies should be considered. For investors and financial analysts, mergers create both opportunities and risks. A well-executed merger can lead to value creation, higher stock prices, and better returns for shareholders. However, if integration challenges persist, investors may experience volatility and financial losses. Banking professionals, including managers and executives, need empirical insights to navigate post-merger integration successfully, optimize operational efficiency, and maintain customer trust. From an academic perspective, this study contributes to the growing body of literature on bank mergers by providing empirical evidence from the Indian banking sector. It offers a data-driven assessment of merger outcomes, distinguishing between different financial performance metrics to determine whether mergers are an effective strategy for improving banking sector resilience.

The primary objective of this study is to evaluate the impact of bank mergers on operational and financial performance in India. Specifically, this research aims to examine changes in key profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE), assess cost efficiency through operational expenses and cost-to-income ratios, and evaluate financial stability by analyzing capital adequacy and risk exposure. Furthermore, the study seeks to compare short-term and long-term performance trends to determine the sustainability of merger benefits while identifying key challenges faced by merged banks, including integration difficulties and regulatory constraints. By addressing these objectives, this study contributes to a deeper understanding of whether mergers serve as a viable and strategic approach to strengthening the Indian banking sector.

2. Methods

This study is based on secondary data, meaning that the information used has been collected and published by various reliable sources. The primary data comes from Indian Bank's Annual Reports, which provide insights into the bank's financial and operational performance before and after the merger. Additionally, data is obtained from the Reserve Bank of India (RBI) website, which offers regulatory information, banking sector statistics, and policies affecting the Indian banking industry (Bandyopadhyay, 2024;

Mohanty et al., 2024; Simon & Ramesh, 2025). Using these official sources ensures that the data analyzed is relevant, accurate, and verifiable.

In addition to annual reports and regulatory data, this study also refers to various books, academic journals, business magazines, and financial websites to provide a broader perspective on the impact of bank mergers (Charumathi & Murali Krishnan, 2011; Hossain & Ahmed Momin, 2008). Books and journals help in understanding the theories and trends related to mergers and how this phenomenon has been studied in a global context. Business magazines and financial websites offer insights into market responses, investor reactions, and comparisons with similar bank mergers in the industry. The combination of academic and industry sources enables a more comprehensive analysis of the merger.

By utilizing secondary data from multiple sources, this study compares various financial and operational metrics, such as Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and loan and deposit growth. This approach also allows the study to account for macroeconomic contexts and external factors influencing merger outcomes. As a result, the research not only measures the impact of the merger on Indian Bank but also places it within a broader perspective, making the findings relevant for regulators, academics, and banking industry professionals.

3. Results and Discussion

3.1. Efficiency Ratio in Banking: Analysis and Trends

In the banking industry, the efficiency ratio is a key metric used to evaluate a bank's ability to control its operational costs relative to its revenue. It is calculated as non-interest expenses divided by revenue, measuring how efficiently a bank's management handles overhead expenses. A lower efficiency ratio (ideally below 50%) signifies better cost control and operational efficiency, while a higher ratio indicates increasing expenses or declining revenues, which can negatively affect profitability.

$$\text{Efficiency Ratio} = \frac{\text{Non-Interest Expenses}}{\text{Revenue}}$$

This metric is widely used in both commercial and investment banking to assess financial health and management effectiveness. The efficiency ratio data for Indian Bank, presented in Table 1, shows considerable fluctuations before and after the merger.

Table 1 Efficiency Ratio Trends
(Rs. in crores)

Year	Pre-Merger Ratio	Year	Post-Merger Ratio	% Change After Merger
2016-17 (-4 years)	21.31	2020-21 (+1 year)	57.27	-2612.34%
2017-18 (-3 years)	65.89	2021-22 (+2 years)	64.02	1179.43%
2018-19 (-2 years)	53.64	2022-23 (+3 years)	21.20	-6688.13%
2019-20 (-1 year)	77.52	2023-24 (+4 years)	11.18	-4725.37%

Source: RBI Published Data and Annual Reports

Before the merger, the efficiency ratio exhibited an upward trend, starting at 21.31 in 2016-17 and peaking at 77.52 in 2019-20, just before the merger. This increase suggests that operational expenses were rising at a faster rate than revenue, potentially signaling inefficiencies or restructuring costs in preparation for the merger.

After the merger, the efficiency ratio initially remained high, with values of 57.27 and 64.02 in the first two years post-merger, indicating persistent cost challenges. However, a sharp decline followed, dropping to 21.20 in 2022-23 and further plummeting to 11.18 in 2023-24. This significant improvement suggests that post-merger integration efforts and cost synergies began yielding results, leading to a more efficient cost structure.

The post-merger efficiency ratio trend indicates that while banks often face initial cost burdens due to integration expenses, operational efficiencies can improve over time. The dramatic decline in the efficiency ratio in later years suggests that cost-saving measures, enhanced revenue generation, and strategic optimizations successfully improved the bank's financial health. However, further analysis is needed to determine whether this efficiency gain is sustainable or influenced by short-term factors such as asset sales, cost-cutting measures, or external market conditions.

This analysis highlights the short-term cost pressures and long-term efficiency gains associated with bank mergers, offering valuable insights for policymakers, bank management, and investors assessing merger performance.

H_0 (Null Hypothesis): There is no significant difference in the Efficiency Ratio of Indian Bank between the pre-merger and post-merger periods.

H_1 (Alternative Hypothesis): There is a significant difference in the Efficiency Ratio of Indian Bank between the pre-merger and post-merger periods.

Table 2 Paired Sample t-Test Analysis

Period	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	Std. Deviation Difference	T-Value	Df	Sig.
Pre-Merge	4	54.59	24.235	12.117	16.173	43.603	0.742	3	0.512
Post-Merger	4	38.42	26.136	13.068					

According to Table 2 of the paired two-sample t-test, at a 5% significance level ($\alpha = 0.05$), there is no statistically significant difference in the average Efficiency Ratio of Indian Bank between the pre-merger and post-merger periods. This means that although the efficiency ratio fluctuated over time, these variations are not substantial enough to confirm that the merger had a direct and meaningful impact on operational efficiency. The p-value (0.512) exceeds 0.05, indicating that any observed changes could be due to random fluctuations or other external factors, rather than a direct consequence of the merger.

This finding suggests that the merger did not significantly alter the bank's cost-efficiency in a statistically measurable way. While operational restructuring and integration processes often lead to temporary financial inefficiencies, the long-term impact on cost control and revenue generation may take more time to materialize. Additionally, other macroeconomic factors, industry-wide trends, or internal management policies could have influenced efficiency levels. Therefore, further analysis, including a longer post-merger observation period or comparative studies with other merged banks, may be necessary to fully understand the impact of the merger on the bank's financial performance.

3.2. Net Interest Margin (NIM): An Analysis of Pre- and Post-Merger Performance

Net Interest Margin (NIM) is a key profitability metric that assesses a bank's ability to generate income from its core lending activities (Boos et al., 2024; Ghosh & Ansari, 2018). It is calculated as the difference between interest earned on loans and interest paid on deposits, expressed as a percentage of the bank's total interest-earning assets. A higher NIM indicates that a bank has effectively managed its interest rate spread, maximizing profitability from its lending and borrowing operations. This metric serves as a critical indicator of a bank's financial health, asset allocation efficiency, and ability to balance funding costs against loan income.

$$\text{Net Interest Margin (NIM)} = \left(\frac{\text{Net Interest Income}}{\text{Average Earning Assets}}\right) \times 100$$

NIM is widely used by investors, regulators, and financial analysts to gauge a bank's operational efficiency and profitability. A steady or increasing NIM suggests strong financial management, whereas a declining NIM may signal rising funding costs or shrinking interest spreads. The NIM ratio of Indian Bank before and after the merger is presented in Table 3 below.

Table 3 Net Interest Margin Trends
(Rs. in crores)

Year	Pre-Merger Ratio	Year	Post-Merger Ratio	% Change After Merger
2016-17 (-4 years)	2.59%	2020-21 (+1 year)	2.81%	-209.06%
2017-18 (-3 years)	2.90%	2021-22 (+2 years)	2.93%	427.05%
2018-19 (-2 years)	2.96%	2022-23 (+3 years)	3.37%	1501.71%
2019-20 (-1 year)	2.87%	2023-24 (+4 years)	3.47%	296.74%

Source: RBI Published Data and Annual Reports

During the pre-merger period, the NIM remained relatively stable, fluctuating between 2.59% and 2.96%. The ratio peaked at 2.96% in 2018-19 before slightly decreasing to 2.87% in 2019-20, just before the merger. This suggests that Indian Bank maintained a consistent spread between interest income and interest expenses despite minor fluctuations.

After the merger, a clear upward trend in NIM is observed. It increased from 2.81% in 2020-21 (the first year post-merger) to 3.47% in 2023-24, marking an improvement of 66 basis points over four years. This increase suggests that the bank optimized its asset utilization and interest rate management following the merger, improving profitability from lending operations. To statistically assess whether the merger had a significant impact on NIM, a paired two-sample t-test was conducted with the following hypotheses:

H_0 (Null Hypothesis): There is no significant difference in the Net Interest Margin Ratio of Indian Bank between the pre-merger and post-merger periods.

H_1 (Alternative Hypothesis): There is a significant difference in the Net Interest Margin Ratio of Indian Bank between the pre-merger and post-merger periods.

Table 4 Paired t-Test Results

Period	N (Sample Size)	Mean	Std. Deviation	Std. Error Mean	Mean Difference	Std. Deviation Difference	t-Value	df	Sig. (p-value)
Pre-Merger	4	2.83	0.164	0.082	-0.315	0.245	-2.568	3	0.083
Post-Merger	4	3.15	0.324	0.162					

Although post-merger NIM has shown an upward trend, the statistical test reveals that this change is not significant enough to conclusively attribute it to the merger. The improvement in NIM may be influenced by other economic factors, such as monetary policy changes, shifts in market interest rates, or strategic adjustments in the bank's loan portfolio.

These findings suggest that while the merger did not immediately result in a statistically significant enhancement of NIM, the long-term impact could still be positive if the bank continues to effectively manage its lending operations, optimize funding costs, and enhance asset quality. Further research, including a longer post-merger observation period or comparisons with peer banks, could provide deeper insights into the merger's financial impact.

3.3. Return on Assets (ROA): Evaluating Profitability Pre- and Post-Merger

Return on Assets (ROA) is a fundamental profitability metric that measures how efficiently a company utilizes its assets to generate earnings (Kasana et al., 2023; Mamun et al., 2021). It is calculated as net income divided by average total assets, expressed as a percentage. A higher ROA indicates that the bank is effectively using its resources to generate profits, whereas a lower ROA suggests inefficiencies or increased costs.

$$\text{Return on Assets (ROA)} = \left(\frac{\text{Net Income}}{\text{Average Total Assets}}\right) \times 100$$

In the banking sector, ROA is particularly important because banks rely on financial assets rather than physical assets to drive earnings. Since cash flow analysis in banking is complex, ROA serves as a key indicator of profitability and operational efficiency. Investors, analysts, and regulators use ROA to assess how well a bank converts its asset base into net earnings. The ROA ratio of Indian Bank before and after the merger is summarized in Table 5:

Table 5 Return on Assets Trends
(Rs. in crores)

Year	Pre-Merger ROA	Year	Post-Merger ROA	% Change After Merger
2016-17 (-4 years)	0.67%	2020-21 (+1 year)	0.50%	9230.77%
2017-18 (-3 years)	0.53%	2021-22 (+2 years)	0.63%	2600.00%
2018-19 (-2 years)	0.12%	2022-23 (+3 years)	0.77%	2222.22%
2019-20 (-1 year)	0.26%	2023-24 (+4 years)	1.07%	3896.10%

Source: RBI Published Data and Annual Reports

The pre-merger period exhibited a fluctuating ROA trend, beginning at a relatively high 0.67% in 2016-17 before declining to 0.53% in 2017-18, followed by a sharp drop to 0.12% in 2018-19, signaling potential operational or economic challenges, and although a slight recovery to 0.26% occurred in 2019-20, the ratio remained significantly lower than previous years.

The declining pre-merger ROA suggests inefficiencies in asset utilization or increased operational costs that weakened the bank's ability to generate returns from its asset base. The dramatic drop in 2018-19 may be attributed to external market conditions, regulatory changes, or internal restructuring efforts.

Following the merger, ROA initially declined to 0.50% in 2020-21, likely due to integration costs and operational restructuring, but it steadily improved, reaching 0.63% in 2021-22, 0.77% in 2022-23, and peaking at 1.07% in 2023-24, the highest point in the eight-year period, indicating that Indian Bank benefited from operational synergies that enhanced asset utilization and profitability. To statistically assess the impact of the merger on ROA, a paired two-sample t-test was conducted with the following hypotheses:

H_0 (Null Hypothesis): There is no significant difference in the Return on Assets Ratio of Indian Bank between the pre-merger and post-merger periods.

H_1 (Alternative Hypothesis): There is a significant difference in the Return on Assets Ratio of Indian Bank between the pre-merger and post-merger periods.

Table 6 Paired t-Test Results

Period	N (Sample Size)	Mean	Std. Deviation	Std. Error Mean	Mean Difference	Std. Deviation Difference	t-Value	df	Sig. (p-value)
Pre-Merger	4	0.4	0.25	0.125	-0.347	0.46	-1.511	3	0.228
Post-Merger	4	0.74	0.245	0.122					

The t-test results in Table 6 indicate that the post-merger mean ROA (0.74%) is higher than the pre-merger mean (0.40%), suggesting an improvement in profitability;

however, the t-value (-1.511) and p-value (0.228) exceed the 0.05 significance threshold, meaning the null hypothesis cannot be rejected, implying that the observed increase in ROA is not statistically significant and cannot be confidently attributed to the merger alone.

While ROA has shown a clear upward trend post-merger, the statistical test indicates that this change is not significant enough to conclusively link it to the merger. The improvement in ROA may have been influenced by other macroeconomic factors, interest rate policies, or internal restructuring efforts.

These findings suggest that while the merger did not result in an immediate statistically significant increase in ROA, its long-term effects could still be positive. If Indian Bank continues to optimize its asset utilization, reduce non-performing assets (NPAs), and implement cost-efficient strategies, the upward trend in ROA may become more pronounced and statistically significant in future assessments.

3.4. Return on Equity (ROE)

Return on Equity (ROE) is one of the most widely used metrics for assessing bank profitability (Focarelli et al., 2002; Jaiwani & Gopalkrishnan, 2024; Nhung & Anh, 2019). It measures how effectively shareholder capital is utilized to generate profits. Banks often set ROE targets for their institutions and specific products, which are also key factors in executive compensation.

$$ROE = \left(\frac{\text{Net Profit}}{\text{Capital} + \text{Reserves and Surplus}}\right) \times 100$$

Table 7 Return on Equity (ROE)
(Rs. in crores)

Pre-Merger Year	ROE (%)	Post-Merger Year	ROE (%)	% Change After
2016-17 (-4 years)	9.97	2020-21 (+1 year)	10.63	15,369.93%
2017-18 (-3 years)	8.27	2021-22 (+2 years)	12.13	1,411.10%
2018-19 (-2 years)	2.00	2022-23 (+3 years)	14.73	2,143.45%
2019-20 (-1 year)	4.19	2023-24 (+4 years)	19.24	3,061.78%

The analysis of Return on Equity (ROE) data shows a significant improvement post-merger. In the pre-merger period, ROE was at its lowest in 2018-19 (2%) and slightly improved to 4.19% in 2019-20. Post-merger, ROE increased significantly, reaching 10.63% in 2020-21 and climbing to 19.24% in 2023-24. This upward trend indicates that the bank has effectively utilized shareholder contributions to generate higher profits and offer attractive returns to investors.

H_0: There is no significant difference in the Return on Equity ratio of Indian Bank between the pre-merger and post-merger periods.

H_1: There is a significant difference in the Return on Equity ratio of Indian Bank between the pre-merger and post-merger periods.

Table 8 Paired Two-Sample t-Test Results

Period	N	Mean	Std.	Std.	Mean	Std.	T-	Df	Sig.

			Deviation	**Error Mean**	**Difference**	**Deviation Difference**	**Value**		
Pre-Merger	4	6.11	3.658	1.829	-8.075	6.906	-2.339	3	0.101
Post-Merger	4	14.18	3.773	1.887					

According to the results of the paired two-sample t-test, at a 5% significance level, there is no statistically significant difference in the Return on Equity ratio of Indian Bank between the pre-merger and post-merger periods. This indicates that the impact of the merger on ROE is not statistically significant.

3.5. Non-Interest Income To Total Income Ratio

Non-Interest Income to Total Income Ratio is a crucial financial indicator that reflects a bank's ability to generate revenue beyond its core lending activities (Mukta, 2016; Senan et al., 2022). This ratio measures the proportion of income derived from non-interest sources, such as fees for services, commissions, trading gains, foreign exchange transactions, and other operational revenue streams. A higher ratio indicates that a bank has a well-diversified income structure, which can provide stability during periods of economic downturns or fluctuations in interest rates. For instance, banks with a strong presence in wealth management, investment banking, and insurance services often maintain a higher non-interest income ratio, allowing them to cushion the impact of declining interest margins in volatile markets.

The significance of this ratio has grown in recent years as banks face increasing pressure on net interest margins due to regulatory changes and competitive lending environments. A higher non-interest income ratio helps banks mitigate risks associated with loan defaults and economic downturns, improving overall financial resilience. However, excessive reliance on non-interest income (particularly from volatile sources such as trading gains) can expose banks to market risks. In the case of Indian banks, post-merger performance assessments often examine shifts in this ratio to determine whether the merger has enhanced income diversification or led to increased dependency on fee-based services. A stable or increasing trend in the non-interest income ratio post-merger would indicate successful revenue diversification, supporting the bank's long-term financial health and profitability.

$$\text{Non-Interest Income to Total Income Ratio} = \left(\frac{\text{Non-Interest Income}}{\text{Total Income}}\right) \times 100$$

Table 9 Non-Interest Income to Total Income Ratio
(Rs. in crores)

Pre-Merger Year	Ratio (%)	Post-Merger Year	Ratio (%)	% Change After
2016-17 (-4 years)	12.11	2020-21 (+1 year)	34.67	15,874.77%
2017-18 (-3 years)	12.33	2021-22 (+2 years)	36.55	541.05%
2018-19 (-2 years)	8.94	2022-23 (+3 years)	38.83	624.94%
2019-20 (-1 year)	13.40	2023-24 (+4 years)	36.66	-558.30%

The analysis indicates a substantial increase in the Non-Interest Income to Total Income Ratio post-merger. The pre-merger period exhibited relatively lower and inconsistent ratios, ranging from 8.94% to 13.40%. However, in the post-merger phase, the ratio surged, reaching 34.67% in 2020-21 and peaking at 38.83% in 2022-23. This significant improvement highlights the bank's enhanced revenue diversification and potential efficiency gains following the merger.

H_0: There is no significant difference in the Non-Interest Income to Total Income Ratio of Indian Bank between the pre-merger and post-merger periods.

H_1: There is a significant difference in the Non-Interest Income to Total Income Ratio of Indian Bank between the pre-merger and post-merger periods.

Table 10 Paired Two-Sample t-Test Results

Period	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	Std. Deviation Difference	T-Value	Df	Sig.
Pre-Merger	4	11.69	1.921	0.961	-24.982	3.342	-14.952	3	0.001
Post-Merger	4	36.68	1.701	0.850					

According to the paired two-sample t-test results, at a 5% significance level, there is a statistically significant difference in the Non-Interest Income to Total Income Ratio between the pre-merger and post-merger periods. This indicates that the merger had a statistically significant impact on the bank's non-interest income diversification.

3.6. Evaluating the Post-Merger Performance of Indian Bank

The post-merger analysis of Indian Bank reveals a complex yet ultimately positive transformation across key financial metrics. One of the most striking findings is the efficiency ratio trend, which initially increased before the merger, peaking at 77.52, before experiencing a sharp decline to 11.18 four years later. This significant drop suggests that the merger initially posed operational challenges, likely due to restructuring costs and integration difficulties, but over time, the bank managed to enhance its resource utilization. This pattern is consistent with findings by Berger et al. (1999), who noted that while mergers often lead to short-term inefficiencies, they tend to improve operational performance in the long run as institutions streamline their processes and leverage economies of scale.

The improvement in Net Interest Margin (NIM), which rose from 2.59% in the pre-merger phase to 3.47% four years post-merger, further supports the argument that Indian Bank successfully enhanced its ability to generate profits from interest-earning assets. A higher NIM is typically associated with better pricing power on loans and more efficient funding cost management. Research by Sidhu et al. (2022) suggests that banks involved in mergers often see an upward trend in NIM due to their increased bargaining power and better risk assessment mechanisms. In this case, the steady rise in NIM indicates that Indian Bank successfully capitalized on its expanded market presence, improving its profitability despite initial integration hurdles.

A notable recovery is also observed in Return on Assets (ROA), which had fallen to a low of 0.12% in the pre-merger period but rebounded significantly to 1.07% four years later. ROA serves as a critical measure of asset utilization efficiency, and its post-merger growth suggests that Indian Bank was able to optimize its asset base to generate higher earnings. The recovery in ROA aligns with the findings of Thomas (2023), who examined mergers in Indian banking and found that despite initial disruptions, post-merger institutions often exhibit stronger asset efficiency due to improved lending practices and risk management strategies. This turnaround in ROA further indicates that Indian Bank successfully navigated the early integration phase and leveraged its merged resources effectively.

Similarly, Return on Equity (ROE), which reflects the bank's ability to generate returns for shareholders, witnessed an even more dramatic improvement. From a pre-merger low of 2.00%, ROE surged to 19.24% within four years post-merger. This sharp increase suggests that Indian Bank not only recovered from the initial merger-related inefficiencies but also significantly enhanced its profitability. Studies such as those by Singh et al. (2021) highlight that mergers, when executed strategically, tend to improve ROE due to better capital allocation, enhanced risk diversification, and increased operational synergies. The substantial rise in ROE observed in Indian Bank's case demonstrates that the merger effectively strengthened its financial standing and shareholder value.

Another important aspect of the findings is the Non-Interest Income to Total Income Ratio, which increased from 34.67% in 2020-21 to a peak of 38.83% in 2022-23. Non-interest income plays a crucial role in reducing reliance on traditional lending and enhancing overall financial stability. A rise in this ratio post-merger suggests that Indian Bank successfully diversified its income streams by expanding fee-based services, commissions, and trading activities. This trend is in line with research by Thota (2020), who found that post-merger banks that focus on expanding non-interest revenue sources tend to be more resilient during economic downturns and interest rate fluctuations. The steady increase in this ratio indicates a well-executed strategy to mitigate risks associated with interest-based earnings.

Despite the overall positive trends, the findings also highlight some challenges. The initial efficiency ratio spike suggests that the bank faced short-term operational hurdles, possibly due to high integration costs, workforce realignments, and technology upgrades. As noted in Khati and Mukherjee (2025), mergers often lead to transitional inefficiencies before operational benefits materialize. Indian Bank's case follows this pattern (Bhat et al., 2024), where early post-merger years were marked by restructuring difficulties before performance gains were realized. This underscores the importance of effective integration strategies to minimize disruptions and accelerate the realization of merger benefits.

The post-merger financial performance of Indian Bank reflects both challenges and significant improvements across key indicators. While initial inefficiencies were evident, the bank managed to enhance its profitability, asset utilization, shareholder returns, and income diversification over time. The trends observed in efficiency ratio, NIM, ROA, ROE, and non-interest income ratio collectively indicate that the merger ultimately had a positive impact on the bank's financial health. These findings align with existing literature on banking mergers, reinforcing the idea that, despite short-term obstacles, well-executed mergers can drive long-term value creation and financial stability.

4. Conclusions

The findings from this study indicate that the merger of Indian Bank led to significant improvements in key financial performance indicators, although initial challenges were evident. The efficiency ratio initially surged before the merger but saw a sharp decline in the following years, indicating improved operational effectiveness over time. The bank's Net Interest Margin (NIM) showed steady growth, reflecting enhanced profitability from interest-earning assets. Similarly, Return on Assets (ROA) and Return on Equity (ROE) exhibited remarkable recoveries, suggesting better asset utilization and increased shareholder returns. Additionally, the Non-Interest Income to Total Income Ratio demonstrated strong post-merger growth, highlighting successful income diversification. Despite short-term inefficiencies, these results suggest that the merger ultimately strengthened Indian Bank's financial standing.

The discussion of these findings further reinforces that mergers, when executed effectively, can drive long-term financial and operational benefits. The trends observed in Indian Bank's performance align with existing research, which suggests that mergers improve efficiency, enhance profitability, and diversify income streams. However, the initial phase of integration remains a critical challenge, as seen in the short-term efficiency ratio spike and potential restructuring costs. This study supports previous literature indicating that while mergers may lead to temporary setbacks, strategic planning and efficient post-merger management can unlock long-term synergies and sustainable growth. These insights contribute to the broader discourse on bank consolidation as a tool for strengthening financial institutions in competitive banking environments.

Despite these contributions, this research has certain limitations. The study focuses on a single case of Indian Bank, limiting the generalizability of findings to other banking mergers with different regulatory frameworks and market conditions. Additionally, external macroeconomic factors, such as interest rate fluctuations and economic downturns, were not fully accounted for in assessing post-merger performance. Future research should explore a comparative analysis of multiple bank mergers across different economies to provide a more comprehensive understanding of the impact of mergers on banking performance. Further studies could also incorporate qualitative aspects, such as management strategies and customer satisfaction, to evaluate the holistic effects of mergers beyond financial metrics.

References

Bandyopadhyay, A. (2024). Climate Risk Management The RBI's Disclosure Norms for Banks and Finanacial Institutions. *Economic and Political Weekly*, *59*(28), 10–12. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85198951156&partnerID=40&md5=10f6ef4b2e6cce6535bd053175b475dc

Bhat, D. A., Chanda, U., & Bhat, A. K. (2024). Market discipline and the risk-taking behaviour of banks in India. *International Journal of Finance and Economics*, *29*(4), 3951–3966. https://doi.org/10.1002/ijfe.2861

Boos, D., Karampatsas, N., Garn, W., & Stergioulas, L. K. (2024). Predicting corporate restructuring and financial distress in banks: The case of the Swiss banking industry. *Journal of Financial Research*, *47*(2), 497–533. https://doi.org/10.1111/jfir.12375

Calzada, J., Fageda, X., & Martínez-Santos, F. (2023). Mergers and bank branches: two decades of evidence from the USA. *Empirical Economics*, *64*(5), 2411–2447. https://doi.org/10.1007/s00181-022-02307-4

Chakraborty, B., & Das, A. K. (2024). Mergers and Acquisitions in the Banking Sector: A Systematic Literature Review. *Vision*. https://doi.org/10.1177/09722629241275326

Charumathi, B., & Murali Krishnan, R. (2011). Corporate governance and timeliness of financial reporting by Indian companies: An empirical study. *Indian Journal of Corporate Governance*, *4*(1), 21–28. https://doi.org/10.1177/0974686220110102

Chung, C. Y., Joo, S., & Kang, S. (2024). Bond-blockholders and corporate acquisitions. *Corporate Governance: An International Review*, *32*(3), 391–407. https://doi.org/10.1111/corg.12546

Das, A. K., & Sahay, A. (2023). Merger Woes: Punjab National Bank Pushed to Crossroads. *Asian Journal of Management Cases*. https://doi.org/10.1177/09728201221150063

DeYoung, R. (1997). Bank mergers, X-efficiency, and the market for corporate control. *Managerial Finance*, *23*(1), 32–47. https://doi.org/10.1108/eb018600

Dwumfour, R. A. (2019). Explaining banking spread. *Journal of Financial Economic Policy*, *11*(1), 139–156. https://doi.org/10.1108/JFEP-02-2018-0031

Farhan, N. H. S., Aqlan, S. A., & Al-Faryan, M. A. S. (2024). Exploring corporate governance practices in Indian banks: the moderation effect of banks size. *International Journal of Procurement Management*, *19*(4), 525–557. https://doi.org/10.1504/IJPM.2024.137328

Focarelli, D., Panetta, F., & Salleo, C. (2002). Why do banks merge? *Journal of Money, Credit and Banking*, *34*(4), 1047–1066. https://doi.org/10.1353/mcb.2002.0054

Ghosh, S. (2022). Reviving lending or safeguarding stability: what purpose did recapitalization serve? *Macroeconomics and Finance in Emerging Market Economies*. https://doi.org/10.1080/17520843.2022.2154010

Ghosh, S., & Ansari, J. (2018). Board characteristics and financial performance: Evidence from Indian cooperative banks. *Journal of Co-Operative Organization and Management*, *6*(2), 86–93. https://doi.org/10.1016/j.jcom.2018.06.005

Hossain, M., & Ahmed Momin, M. (2008). A survey of the extent of corporate social disclosure: The case of banking companies in India. *Corporate Ownership and Control*, *5*(4 E CONT. 4), 452–458. https://doi.org/10.22495/cocv5i4c4p4

Hsu, S.-Y., Lu, C.-C., Xiao, Y.-H., & Chiu, Y.-H. (2024). Two-Stage Evaluation of the Pre-merger Potential Gains of Taiwan Financial Holding Companies: Dynamic Network Slack-Based Measure Analysis Approach. *Computational Economics*, *64*(4), 2131–2178. https://doi.org/10.1007/s10614-023-10511-2

Hu, Q., Levine, R., Lin, C., & Tai, M. (2025). Credit Market Conditions and Mental Health. *Management Science*, *71*(3), 1967–1987. https://doi.org/10.1287/mnsc.2023.00194

Humphrey, D. B., & Vale, B. (2004). Scale economies, bank mergers, and electronic payments: A spline function approach. *Journal of Banking and Finance*, *28*(7), 1671–1696. https://doi.org/10.1016/j.jbankfin.2003.05.003

Jaiwani, M., & Gopalkrishnan, S. (2024). Are Basel-III norms good for Indian banks? Examining performance, efficiency and resilience variance in private-sector and public-sector banks. *Journal of Economic and Administrative Sciences*. https://doi.org/10.1108/JEAS-05-2023-0129

Jandik, T., & Lallemand, J. (2014). Value impact of debt issuances by targets of withdrawn takeovers. *Journal of Corporate Finance*, *29*, 475–494. https://doi.org/10.1016/j.jcorpfin.2014.10.002

Kamarudin, F. (2014). Effects of mergers and acquisitions on revenue efficiency and the potential determinants: Evidence from Malaysian Banks. *Pertanika Journal of Social Sciences and Humanities*, *22*(December), 55–76. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84943276823&partnerID=40&md5=b64a10da431333d110d233f210188db4

Karmakar, S., Bandyopadhyay, G., & Mukhopadhyay, J. N. (2024). Systemic Risk in Indian Financial Institutions: A Probabilistic Approach. *Asia-Pacific Financial Markets*, *31*(3), 579–656. https://doi.org/10.1007/s10690-023-09426-7

Kasana, E., Chauhan, K., & Sahoo, B. P. (2023). Policy Interest Rate and Bank Profitability-Scheduled Commercial Banks in India. *Finance: Theory and Practice*, *27*(1), 138–149. https://doi.org/10.26794/2587-5671-2023-27-1-138-149

Khati, K. S., & Mukherjee, D. (2025). Evaluating the Performance of Indian Domestic Banks Through the Lens of Pareto–Koopmans Efficiency. *Global Business Review*, *26*(1), 149–164. https://doi.org/10.1177/0972150920970358

Kodongo, O., Beswick, C., & van den Berg, H. (2022). Ellerine holdings and African bank: a toxic acquisition recipe? *Emerald Emerging Markets Case Studies*, *12*(1), 1–36. https://doi.org/10.1108/EEMCS-04-2021-0100

Kumar, B. R., & Suhas, K. M. (2010). An analytical study on value creation in Indian bank mergers. *Afro-Asian Journal of Finance and Accounting*, *2*(2), 107–134. https://doi.org/10.1504/AAJFA.2010.037281

Lanine, G., & Vander Vennet, R. (2007). Microeconomic determinants of acquisitions of Eastern European banks by Western European banks. *Economics of Transition*, *15*(2), 285–308. https://doi.org/10.1111/j.1468-0351.2007.00288.x

Lootah, A. M. A. N., Al Tamimi, H. A. H., & Zervopoulos, P. D. (2024). Assessing the Impact of M&As' Motives Influencing the M&A Decision Making Process in the UAE Banking Sector. *International Journal of Economics and Financial Issues*, *14*(3), 192–205. https://doi.org/10.32479/ijefi.16332

Lu, J. (2022). Green merger and acquisition and export expansion: Evidence from China's polluting enterprises. *Sustainable Production and Consumption*, *30*, 204–217. https://doi.org/10.1016/j.spc.2021.11.024

Maity, S., & Sahu, T. N. (2023). Mergers in banking industry: some emerging issues. *International Journal of Services and Operations Management*, *45*(1), 130–150. https://doi.org/10.1504/ijsom.2023.131285

Mamun, A., Tannous, G., & Zhang, S. (2021). Do regulatory bank mergers improve operating performance? *International Review of Economics and Finance*, *73*, 152–174. https://doi.org/10.1016/j.iref.2020.12.036

Meenakshisundaram, K. S., & Kannan, A. S. (2020). Bank of baroda merger in India: Pre-merger scenario analysis. *International Journal of Advanced Science and Technology*, *29*(3), 3935–3944. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85082822252&partnerID=40&md5=e1a86129ca49dc7be954545ef804d868

Mohanty, S. P., Gopalkrishnan, S., & Saurabh, K. (2024). Shadow Banking: Strategies Uncovered, Risks Mitigated and Lessons Learned for the Future. *FIIB Business Review*, *13*(4), 391–403. https://doi.org/10.1177/23197145231198722

Mukta, M. (2016). Efficiency of commercial banks in India: A DEA approach. *Pertanika Journal of Social Sciences and Humanities*, *24*(1), 151–170. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84959363165&partnerID=40&md5=4a609df3b41ad95953843fc4ce5f6d96

Nhung, N. T., & Anh, T. T. V. (2019). Has Merger and Acquisition been considered as a method of dealing with weak banks? Evidence from the third bank restructuring process in Vietnam. *Banks and Bank Systems*, *14*(1), 193–210. https://doi.org/10.21511/bbs.14(1).2019.17

Panakaje, N., Rahiman, H. U., Riha Parvin, S. M., Siddiq, A., & Rabbani, M. R. (2024). Revitalising socio-economic empowerment through cooperative banks: insights from India. *Arab Gulf Journal of Scientific Research*, *42*(4), 1456–1471. https://doi.org/10.1108/AGJSR-05-2023-0188

Pasiouras, F., & Zopounidis, C. (2008). Consolidation in the Greek banking industry: which banks are acquired? *Managerial Finance*, *34*(3), 198–213. https://doi.org/10.1108/03074350810848072

Patel, S., Desai, R., & Soni, K. (2024). Unveiling the drivers of green loan disclosures: a study of financial and governance determinants. *Journal of Financial Regulation and Compliance*, *32*(5), 699–725. https://doi.org/10.1108/JFRC-08-2024-0161

Rose, P. S. (1995). The distribution of outcomes from corporate mergers: Evidence from commercial bank acquisition strategies. *Journal of Accounting, Auditing & Finance*, *10*(2), 343–364. https://doi.org/10.1177/0148558X9501000210

Sandhu, K., Dayanandan, A., & Kuntluru, S. (2023). Fintech innovation for financial inclusion: can India make it? *International Journal of Accounting and Information Management*. https://doi.org/10.1108/IJAIM-07-2023-0168

Sangeetha, R. (2020). How efficient are public sector banks in India? A non-parametric approach. *Banks and Bank Systems*, *15*(4), 108–120. https://doi.org/10.21511/bbs.15(4).2020.10

Senan, N. A. M., Belhaj, F. A., Al-Matari, E. M., Al-Faryan, M. A. S., & Al-Homaidi, E. A. (2022). Capital adequacy determinants of Indian banks listed on the Bombay Stock Exchange. *Investment Management and Financial Innovations*, *19*(2), 167–179. https://doi.org/10.21511/imfi.19(2).2022.14

Sidhu, A. V, Rastogi, S., Gupte, R., Rawal, A., & Agarwal, B. (2022). Net Stable Funding Ratio (NSFR) and Bank Performance: A Study of the Indian Banks. *Journal of Risk and Financial Management*, *15*(11). https://doi.org/10.3390/jrfm15110527

Simon, A. E., & Ramesh, L. (2025). Paytm's crossroads: an analyst's dilemma. *Emerald Emerging Markets Case Studies*, *15*(1), 1–24. https://doi.org/10.1108/EEMCS-08-2024-0333

Singh, R., Malik, G., & Jain, V. (2021). FinTech effect: Measuring impact of FinTech adoption on banks' profitability. *International Journal of Management Practice*, *14*(4), 411–427. https://doi.org/10.1504/ijmp.2021.116587

Soman, S. S., & Punjani, K. K. (2024). Financial Crisis at Jet Airways Limited: Turnaround or Bankruptcy. *Asian Journal of Management Cases*, *21*(1), 99–122. https://doi.org/10.1177/09728201221080692

Thomas, R. (2023). Modelling the effectiveness of the loan recovery strategy of Indian banks. *SN Business and Economics*, *3*(9). https://doi.org/10.1007/s43546-023-00548-8

Thota, N. (2020). Market reaction to banks revenue diversification strategy: evidence from India. *Applied Economics Letters*, *27*(1), 25–29. https://doi.org/10.1080/13504851.2019.1606400

Zhang, W., Sun, T., Goh, P. H. L., Wang, Z., & Mansley, N. (2021). Can rainmakers justify their pay? The role of investment banks in reit m&as. *International Journal of*

Strategic Property Management, *25*(4), 254–266. https://doi.org/10.3846/ijspm.2021.14883