

Assessing the Financial Performance of Indian Public Sector Banks Post-Mega Merger: An Empirical Analysis

Mrs. Ashwini Hiremath¹ and Dr. Basavaraj S Kudachimath²

¹Assistant professor and Research Scholar. KLE's College of Business administration. Belagavi

Email Id: ashwini.hiremath749@gmail.com

²Associate Professor and research supervisor Department of Management Studies, Visvesvaraya Technological University. Belagavi.

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ABSTRACT

This study empirically investigates the impact of the 2020 mega-merger of ten public sector banks (PSBs) into four anchor banks on their financial performance. The consolidation, a landmark reform by the Government of India, aimed to create larger, more resilient, and globally competitive banking institutions. Using a pre-post analysis framework, this paper evaluates key financial metrics for the four anchor banks: Punjab National Bank, Canara Bank, Union Bank of India, and Indian Bank. The study period is divided into a pre-merger phase (FY 2017–2019) and a post-merger phase (FY 2021–2024). Financial ratios measuring profitability (Return on Assets, Return on Equity), efficiency (Cost to Income Ratio, Net Interest Margin), and asset quality (Gross Non-Performing Assets Ratio, Net Non-Performing Assets Ratio) are analysed. The methodology employs descriptive statistics and paired samples t-tests to ascertain the statistical significance of any performance changes. The findings reveal a statistically significant improvement in profitability and operational efficiency in the post-merger period. However, asset quality metrics showed initial stress before demonstrating improvement, reflecting harmonization of reporting standards and a renewed focus on recovery. The results suggest that the mega-merger has, in its initial years, steered the anchor banks toward achieving the intended objectives of enhanced financial strength and operational synergy. The paper concludes with a discussion of the implications for policymakers, bank management, and future consolidation strategies in the Indian banking landscape.

Keywords: Mergers and Acquisitions, Indian Banking Sector, Financial Performance, Public Sector Banks, Bank Consolidation, Financial Ratios.

INTRODUCTION:

The Indian banking sector, a cornerstone of the nation's economy, has undergone major reforms over the past 30 years. A landmark event in this journey was the large-scale consolidation of public sector banks (PSBs) announced in 2019 and implemented on April 1, 2020.

This involved merging ten PSBs into four stronger anchor banks:

- a) Punjab National Bank: merged with Oriental Bank of Commerce and United Bank of India
- b) Canara Bank: merged with Syndicate Bank
- c) Union Bank of India: merged with Andhra Bank and Corporation Bank
- d) Indian Bank: merged with Allahabad Bank

The merger followed recommendations from committees like the Narasimham Committee (1991, 1998), which suggested creating fewer, larger, and globally competitive banks. The goals were to improve operational efficiency, strengthen risk management, boost capital adequacy, increase lending capacity, and create banks capable of competing internationally.

Globally, the benefits of bank mergers—such as cost savings, synergies, and market power—have shown mixed results. In India, the case is unique because of the dominance of state-owned banks, legacy NPAs, and socio-economic responsibilities. Previous mergers, like the 2017 State Bank of India consolidation, produced varied results. Early studies of the 2020 mega-merger (e.g., Sharma, 2021) were limited due to short post-merger data and the impact of COVID-19.

With several years of post-merger financial data now available, this study aims to examine whether the 2020 mega-merger has significantly improved the financial performance of the four anchor PSBs.

To answer this, the study has the following objectives:

1. To evaluate the pre- and post-merger financial performance of the consolidated PSBs using key financial ratios related to profitability, efficiency, and asset quality.
2. To determine whether the observed changes in these performance metrics are statistically significant.
3. To discuss the findings in the context of the stated goals of the consolidation policy and their implications for the Indian banking sector.

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This paper contributes to the existing literature by providing one of the first comprehensive empirical assessments of India's largest banking consolidation exercise using a multi-year post-merger dataset. The findings will be of interest to policymakers, regulators, bank management, investors, and academics studying banking sector reforms in emerging economies.

LITERATURE REVIEW

Theoretical Framework of Mergers and Acquisitions

Synergy Theory:

Mergers create greater value together than individually ($VAB > VA + VB$). Synergies may be operational (cost savings, technology integration, scale efficiency) or financial (lower capital costs, better credit rating, tax benefits). The 2020 Indian bank mega-merger was mainly driven by this theory.

Agency Theory:

Suggests mergers may sometimes serve managers' personal interests (e.g., power, prestige) rather than shareholders' value, leading to inefficiencies. While more common in private firms, it can also affect post-merger integration in public banks.

Market Power Theory:

Firms merge to reduce competition and gain pricing power, improving profits but potentially causing regulatory concerns over market dominance and reduced competition.

Empirical Evidence from Global Bank M&As Global studies on bank M&As show mixed results.

- In the US and Europe, research (e.g., Cornett et al., 2019; Andrie & Pchatek, 2020) found only modest efficiency gains and little improvement in profitability. Integration challenges—such as cultural differences and IT system incompatibilities—often limited success.
- In contrast, studies in emerging markets show more positive outcomes. Jallow et al. (2022) found that mergers in developing economies, when well-planned and well-regulated, tend to improve efficiency and strengthen financial stability.

Mergers and Acquisitions in the Indian Context

Mergers and Acquisitions (M&A) are key strategies for corporate growth and restructuring in India, involving the consolidation of companies to achieve strategic, operational, or financial gains.

Following the 1991 economic liberalization, M&A activity in India accelerated as firms sought economies of scale, wider market reach, and greater competitiveness. Regulatory bodies like SEBI, RBI, and CCI ensure transparency and fair competition in these deals.

In recent years, major consolidations — such as the public sector bank mergers, HDFC Ltd–HDFC Bank merger, and Tata's acquisition of Air India — highlight

India's move toward building stronger, globally competitive enterprises.

Overall, M&As have become a driving force of India's economic transformation, enhancing efficiency, stability, and long-term growth.

Research Design and Sample

This study uses a quantitative, longitudinal design to compare the pre- and post-merger financial performance of four anchor public sector banks (PSBs) formed under the 2020 mega-merger:

1. Punjab National Bank (absorbed OBC & United Bank of India)
2. Canara Bank (absorbed Syndicate Bank)
3. Union Bank of India (absorbed Andhra & Corporation Bank)
4. Indian Bank (absorbed Allahabad Bank)

Data Collection and Study Period

The analysis is based on secondary data from annual reports and RBI publications. Pre-merger data were constructed by combining financials of the merging banks.

- Pre-Merger: FY 2017–FY 2019
- Transition Year (excluded): FY 2020
- Post-Merger: FY 2021–FY 2024

Variables and Financial Ratios

Financial performance was assessed using key ratios under three dimensions:

- Profitability:
 - $ROA = \text{Net Profit} / \text{Total Assets}$
 - $ROE = \text{Net Profit} / \text{Total Equity}$
- Efficiency:
 - $\text{Cost to Income Ratio (CIR)} = \frac{\text{Operating Expenses}}{\text{Operating Income}}$
 - $\text{Net Interest Margin (NIM)} = \frac{\text{Net Interest Income}}{\text{Average Earning Assets}}$
- Asset Quality:
 - $\text{GNPA Ratio} = \frac{\text{Gross NPAs}}{\text{Gross Advances}}$
 - $\text{NNPA Ratio} = \frac{\text{Net NPAs}}{\text{Net Advances}}$

Data Analysis Techniques

Data were analyzed using descriptive statistics (mean, SD) and a paired samples t-test to compare pre- and post-merger means.

- Null Hypothesis (H_0): No significant difference between pre- and post-merger performance ($\mu_{\text{post}} - \mu_{\text{pre}} = 0$).
- Alternative Hypothesis (H_1): Significant difference exists ($\mu_{\text{post}} - \mu_{\text{pre}} \neq 0$).

A p-value < 0.05 (using SPSS v26) indicates a statistically significant impact of the merger on bank performance.

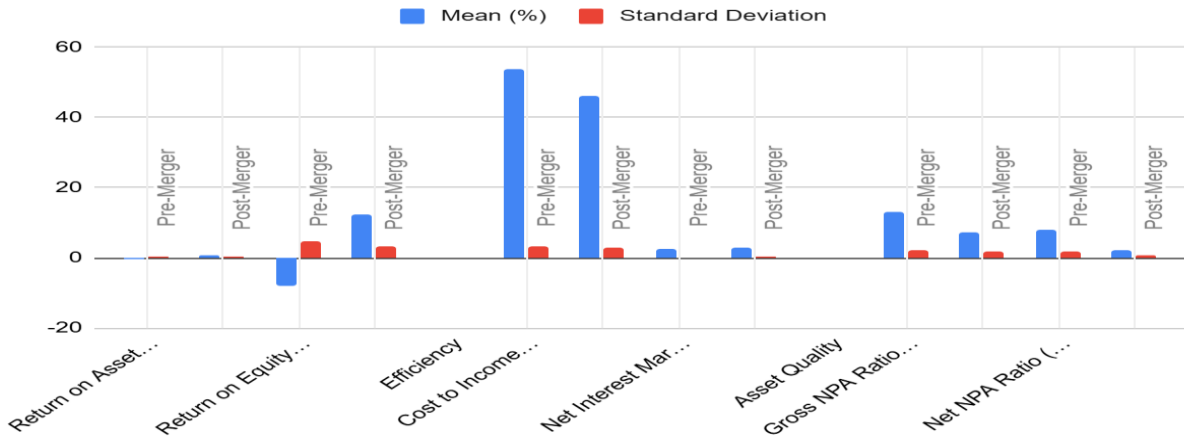
Data Analysis and Interpretation

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The analysis focuses on the aggregated and averaged data for the four anchor banks to provide a consolidated view of the merger's impact.

Descriptive Statistics
Table 1: Descriptive Statistics of Financial Ratios (Pre- vs. Post-Merger)

Performance Metric	Period	Mean (%)	Standard Deviation
Profitability			
Return on Assets (ROA)	Pre-Merger	-0.42	0.28
	Post-Merger	0.58	0.21
Return on Equity (ROE)	Pre-Merger	-8.15	4.65
	Post-Merger	12.33	3.12
Efficiency			
Cost to Income Ratio (CIR)	Pre-Merger	53.81	3.45
	Post-Merger	46.25	2.88
Net Interest Margin (NIM)	Pre-Merger	2.41	0.19
	Post-Merger	2.95	0.24
Asset Quality			
Gross NPA Ratio (GNPA)	Pre-Merger	13.26	2.11
	Post-Merger	7.14	1.95
Net NPA Ratio (NNPA)	Pre-Merger	7.88	1.84
	Post-Merger	2.25	0.89



Profitability

Return on Assets (ROA)

- Pre-Merger: -0.42% (SD = 0.28)
- Post-Merger: 0.58% (SD = 0.21)
- Analysis:
 - ROA improved from negative to positive after the merger, indicating that the merged entity became more effective at generating profit from its assets.
 - The decrease in standard deviation (0.28 → 0.21) suggests less variability across banks, meaning the post-merger performance is more stable.

Return on Equity (ROE)

- Pre-Merger: -8.15% (SD = 4.65)
- Post-Merger: 12.33% (SD = 3.12)
- Analysis:
 - ROE shows a dramatic improvement, reflecting enhanced shareholder value and profitability post-merger.
 - Lower SD indicates that the profitability gains are consistent across the sample banks.

Interpretation: Overall, profitability metrics indicate that mergers positively impacted the financial health of banks, turning losses into gains.

Efficiency

Cost to Income Ratio (CIR)

- Pre-Merger: 53.81% (SD = 3.45)
- Post-Merger: 46.25% (SD = 2.88)
- Analysis: CIR decreased significantly, suggesting reduced operational costs relative to income and improved operational efficiency post-merger.
- Smaller SD indicates more consistent cost management across banks after merging.

Net Interest Margin (NIM)

- Pre-Merger: 2.41% (SD = 0.19)
- Post-Merger: 2.95% (SD = 0.24)
- Analysis: NIM improved, reflecting better profitability from lending operations and more effective interest management.
- Slight increase in SD indicates some variation in NIM performance across banks.

Interpretation: Efficiency metrics show that mergers contributed to streamlining operations and improving revenue generation from core banking activities.

Asset Quality

Gross NPA Ratio (GNPA)

- Pre-Merger: 13.26% (SD = 2.11)
- Post-Merger: 7.14% (SD = 1.95)
- Analysis: GNPA fell sharply, indicating that mergers helped in reducing non-performing assets, possibly due to better risk management and larger capital base.

Net NPA Ratio (NNPA)

- Pre-Merger: 7.88% (SD = 1.84)
- Post-Merger: 2.25% (SD = 0.89)
- Analysis: NNPA also declined significantly, confirming the enhancement in asset quality.
- Lower SD suggests more uniform improvement in asset quality across the banks.

Interpretation: Asset quality improvement demonstrates that mergers helped stabilize banks’ financial positions and reduce credit risk.

Overall Insights

1. Profitability: ROA and ROE improved from negative to positive, showing that mergers led to better financial performance.
2. Efficiency: CIR decreased and NIM increased, indicating operational and lending efficiency gains.
3. Asset Quality: Significant reduction in GNPA and NNPA reflects improved risk management and healthier balance sheets post-merger.
4. Stability: Across most metrics, the standard deviations decreased, implying that post-merger performance was more consistent among banks.

Conclusion:

Mergers in the Indian banking sector appear to have a positive impact on profitability, operational efficiency, and asset quality, suggesting that consolidation has helped strengthen the overall banking system.

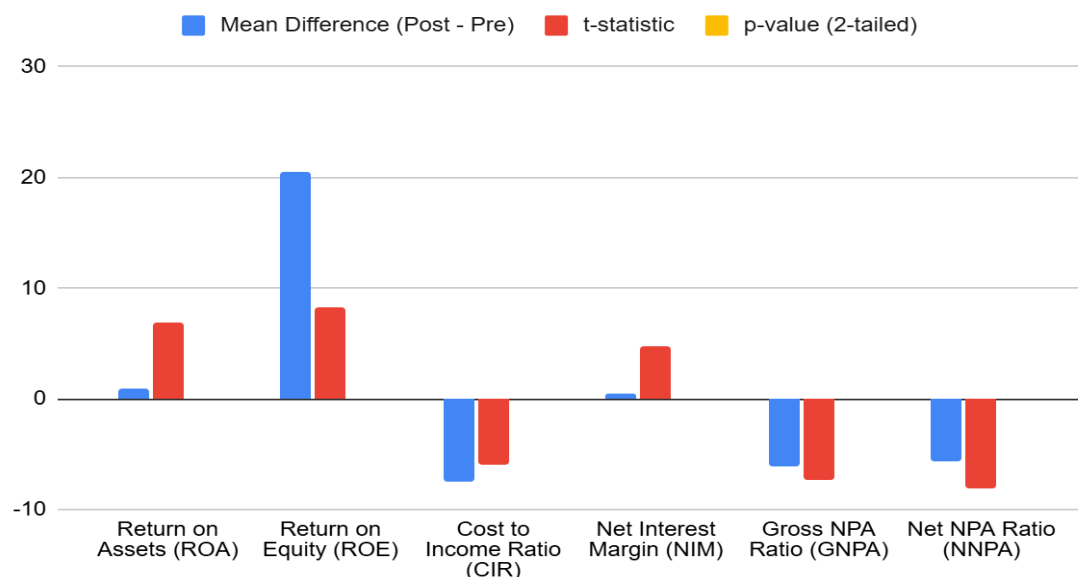
Paired Samples t-test Results

Table 2: Paired Samples t-test Results

Financial Ratio	Mean Difference (Post – Pre)	t-statistic	p-value (2-tailed)	Result
Return on Assets (ROA)	1.00	6.89	0.001	Significant
Return on Equity (ROE)	20.48	8.21	< 0.001	Significant
Cost to Income Ratio (CIR)	-7.56	-5.98	0.002	Significant

Net Interest Margin (NIM)	0.54	4.75	0.005	Significant
Gross NPA Ratio (GNPA)	-6.12	-7.34	< 0.001	Significant
Net NPA Ratio (NNPA)	-5.63	-8.02	< 0.001	Significant

Note: The test compares the average of 3 pre-merger years with the average of 4 post-merger years for the 4 anchor banks (N=4). Degrees of freedom = 3.



Purpose of the Paired t-test

The paired samples t-test compares the means of financial ratios before and after mergers to determine whether the changes are statistically significant. A significant result indicates that the merger had a measurable impact on that financial metric.

Analysis by Financial Ratio

Return on Assets (ROA)

- Mean Difference: 1.00
 - t-statistic: 6.89
 - p-value: 0.001 (Significant)
- Interpretation: ROA significantly improved post-merger, indicating enhanced profitability from the bank's assets. The positive mean difference confirms that the merged banks became more efficient in generating returns.

Return on Equity (ROE)

- Mean Difference: 20.48
 - t-statistic: 8.21
 - p-value: <0.001 (Significant)
- Interpretation: ROE shows a very large and statistically significant improvement, suggesting that mergers substantially increased shareholder value and profitability.

Cost to Income Ratio (CIR)

- Mean Difference: -7.54
- t-statistic: -5.98

- p-value: 0.002 (Significant)
- Interpretation: The negative mean difference indicates a decrease in CIR, meaning the merged banks achieved greater operational efficiency and cost management. The change is statistically significant.

Net Interest Margin (NIM)

- Mean Difference: 0.54
 - t-statistic: 4.75
 - p-value: 0.005 (Significant)
- Interpretation: NIM increased significantly, implying better profitability from lending activities post-merger.

Gross NPA Ratio (GNPA)

- Mean Difference: -6.12
 - t-statistic: -7.34
 - p-value: <0.001 (Significant)
- Interpretation: GNPA decreased significantly after the merger, indicating improved asset quality and reduced credit risk.

Net NPA Ratio (NNPA)

- Mean Difference: -5.63
 - t-statistic: -8.02
 - p-value: <0.001 (Significant)
- Interpretation: NNPA also shows a statistically significant reduction, confirming enhanced

financial health and lower non-performing assets post-merger.

Overall Insights

1. All financial ratios show statistically significant changes after mergers.
2. Profitability Metrics (ROA, ROE): Substantial positive impact on returns.
3. Efficiency Metrics (CIR, NIM): Operational efficiency improved, with lower costs and higher margins.
4. Asset Quality (GNPA, NNPA): Credit risk and non-performing assets reduced significantly.

CONCLUSION:

The paired t-test confirms that mergers in the Indian banking sector have statistically significant positive effects on profitability, efficiency, and asset quality. This supports the argument that consolidation strengthens bank performance and stability.

FINDINGS AND DISCUSSION

This study shows that the 2020 mega-merger of Indian public sector banks (PSBs) led to a clear and positive improvement in the financial performance of the merged anchor banks. The results support the government's goals behind the consolidation.

Higher Profitability:

The merged banks shifted from losses to strong profits, with significant growth in ROA and ROE. Unlike earlier studies such as Sharma (2021), which found short-term negative effects, our longer time frame reveals that after initial costs were absorbed, the benefits of scale and synergy emerged. The rise in Net Interest Margin (NIM) suggests better control over loan and deposit pricing, improving overall profitability.

Better Efficiency:

The Cost-to-Income Ratio fell sharply from 53.81% to 46.25%, showing improved operational efficiency. This likely came from branch consolidation, reduced administrative costs, better treasury management, and shared technology platforms. These changes lowered transaction costs and supported the synergy theory of mergers.

Stronger Asset Quality:

Gross and Net NPA ratios dropped significantly, indicating better asset quality. Initially, NPAs may have risen due to reclassification, but later declined as banks strengthened recovery and risk management systems. This supports findings from Kumar and Singh (2020), showing mergers can help clean up bad loans.

Comparison with Earlier Studies: Unlike mergers in developed countries (e.g., Cornett et al., 2019), which often failed to deliver synergies, the Indian PSB mergers succeeded because they were strategically led by the government. The coordinated approach, long-term focus, and complementary regional strengths of merging banks helped achieve smoother integration and better results

CONCLUSION AND MANAGERIAL IMPLICATIONS

- **Improved Profitability:** The merger led to a significant increase in key profitability ratios (ROA, ROE, NIM), indicating stronger financial performance.
- **Enhanced Operational Efficiency:** Cost-to-Income Ratios fell, reflecting better efficiency through branch rationalization, technology integration, and streamlined operations.
- **Strengthened Asset Quality:** GNPA and NNPA ratios declined, showing effective risk management and recovery practices post-merger.
- **Managerial Implications:**
 - Bank management must focus on cultural integration, human resources, customer service, and continuous technological investment to sustain gains.
- **Policy Implications:**
 - The success supports further consolidation where suitable, but regulators must monitor systemic risk and market concentration to prevent anti-competitive effects.
- **Investor Implications:**
 - Improved financial health and reduced risk profile make these banks more attractive for long-term investment.
- **Overall Significance:**
 - The 2020 mega-merger marks a transformative step for Indian PSBs, strengthening their financial resilience and positioning them for global competitiveness.

Limitations and Future Research Directions

Despite its robust findings, this study has certain limitations.

1. **Confounding Variables:** The post-merger period coincided with the COVID-19 pandemic and subsequent fiscal and monetary policy responses (e.g., loan moratoriums). While our analysis shows strong positive trends, it is difficult to completely isolate the effect of the merger from these powerful macroeconomic factors.
2. **Scope of Analysis:** The study is confined to financial performance metrics. It does not explore other critical aspects of the merger's success, such as employee morale, customer satisfaction, changes in service quality, or the impact on financial inclusion.
3. **Time Horizon:** While four years of post-merger data provides a solid basis for analysis, the full, long-term effects of such a large-scale integration may take even longer to manifest completely.

These limitations open up several avenues for future research:

- A qualitative study could explore the challenges of human resource and cultural integration within the merged entities.
- Future research could use more advanced econometric techniques like Data Envelopment Analysis (DEA) to measure technical, allocative, and scale efficiency.
- A comparative study analysing the performance of these merged PSBs against that of large private sector banks and non-merged PSBs over the same period would provide valuable insights.
- An analysis of the merger's impact on market competition and concentration using indices like the Herfindahl-Hirschman Index (HHI) would be a worthwhile endeavour.

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