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Article

Strategic Drivers and Financial Outcomes of Public Sector Bank Mergers in India: A Post-2020 Empirical Analysis

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Abstract: One of the most notable and important structural reforms in the Indian banking sector over the past few years has been the consolidation of public sector banks (PSBs). In April 2020, the Government of India carried out the biggest consolidation of PSBs by merging 10 public sector banks into four larger banks. The main purpose of these mergers was to establish more powerful and competitive banks, which would have better financial strength, enhanced operational efficiency, higher technical capabilities, and risk management capabilities. The present study is concerned with strategic drivers and financial impacts of mergers of Indian public sector banks beyond 2020. Specific focus on capital adequacy, non-performing assets (NPAs), economies of scale, operational efficiency, digital transformation, financial inclusion, risk diversification, and global competitiveness. The study design is empirical (Secondary Data), which is appropriate for this study, as data are available from Bank Annual Reports, Reports of the Reserve Bank of India, Government of India documents, and relevant literature. The financial performance is measured using indicators such as return on assets (ROA), return on equity (ROE), net interest margin (NIM), capital adequacy ratio (CAR), gross and net NPA ratio, cost-to-income ratio, credit growth, deposit growth, employee productivity, etc. Prior research has revealed the mixed effects of mergers on performance in various areas. While consolidation has led to larger banking institutions and improved asset quality, it has also helped to enhance the capital strength and capacity of the institutions, and the ability to achieve the synergies arising from the mergers and acquisitions will require a major focus on post-merger integration, technology harmonisation, human resource management, and effective governance. The study finds that PSB mergers should be understood as a long-term strategic restructuring process and not a short-term measure to boost profit. It suggests more robust post-merger monitoring, technology integration, risk-management enhancement, customer-focused strategies, and evidence-based future consolidation policies.
Keywords: Public Sector Banks, Bank Mergers, Amalgamation, Financial Performance, NPA, Operational Efficiency, Strategic Drivers, India

1. Introduction

1.1 Background of Banking Reforms in India

The Indian banking sector has been revolutionized in terms of structure and regulation in the last few decades, where the public sector banks (PSBs) still play a pivotal role in credit delivery, financial inclusion, and economic development. The banking reforms have been increasingly geared towards enhancing financial stability, capital adequacy, asset quality, non-performing assets (NPAs) reduction, operational efficiency, and making the banks competitive in India. Structural reforms were needed as a result of the build-up of stressed assets and weaknesses within the financial performance of several PSBs. Consolidation proved to be an important policy measure in this context to boost the institutional capacity of public sector banking.

The premises for consolidation are that larger banking institutions will be able to gain economies of scale, utilise their resources better, enhance their risk-management frameworks and increase their capacity for investing in technology. In recent times, various studies on Indian PSBs have thus focused on whether mergers have brought these anticipated benefits to the financial performance of PSBs. The aforementioned financial performance of Indian PSBs after the mega-merger has been studied by Hiremath and Kudachimath (2025), and evidence on the impact of bank mergers on bank performance has been studied by Goswami and Mahapatra (2025). Recent studies have extended the study to post-merger dynamics, operational performance, and regulatory issues (Chinnakaran & Maharajan, 2026; Goswami & Mahapatra, 2026; Mohapatra & Mahapatra, 2026).

1.2 Need for PSB Mergers

The reason for PSB mergers was due to a set of multiple problems that the Indian banking system faced. One of the key issues highlighted was high NPAs, as stressed loans can affect the profitability of banks, provisioning requirements, and the ability of banks to extend more credit facilities. Similarly, Sharma and Dhiman (2023) focused on how NPAs affect the financial performance of a sample of merged Indian PSBs to highlight the significance of asset quality in the assessment of a bank's performance.

There was thus a possibility that the balance sheets of PSBs were bound to get stronger and the institutions would become more financially strong. There may also be economies of scale arising

from mergers, as there may be a reduction in duplicated branch networks and administrative functions. Furthermore, bigger banks might have more resources to allocate to digital banking, information technology and modern risk-management systems. The benefits were not just financial and economic; they also included better operational efficiency, risk diversification, increased geographical coverage and enhanced competitiveness. These benefits are, however, dependent on effective post-merger integration, and can not be assumed only because of the creation of larger banking entities in the merger process (Prabhu & Mahesha, 2025; Mallick & Paswan, 2026).

1.3 Overview of the Four Major 2020 Mergers

The PSB consolidation took effect in April 2020, when ten public sector banks were merged into four bigger banking institutions. Punjab National Bank was merged with two other banks, Oriental Bank of Commerce and United Bank of India. Second, Canara Bank merged with Syndicate Bank. The third was a merger of the Union Bank of India and Andhra Bank with Corporation Bank. The fourth was the merger of Indian Bank with Allahabad Bank.

These four merger groups were a considerable realignment of public sector banking in India. The goal was to establish more robust institutions with greater balance sheets, more extensive operations, and more ability to compete in a changing financial landscape. However, the increased size of institutions also required extensive integration and raised integration issues regarding technology, staff, branches, management systems, and organizational processes. Thus, in recent years, researchers have investigated whether the post-amalgamation period resulted in better financial and operational performance (Chandan et al., 2024; Goswami & Mahapatra, 2026; Mishra & Mohanty, 2026).

1.4 Problem Statement

The key issue in this research is whether consolidation of public sector banks in India has led to the desired results in terms of their financial and operational performance. Banking mergers are not necessarily a profitable or efficient process. The impact of asset quality, organizational restructuring, economic conditions, and technology compatibility, along with integration costs, may affect the outcomes post-merger.

Hence, the study examines the profitability, asset quality, capital strength, and operational efficiencies of the four major mergers in 2020. It also takes into account whether there are

distinctions between the four merger groups in terms of the financial and operational benefits generated.

1.5 Research Objectives

The objectives of this study are:

1. To identify the major strategic drivers behind the mergers of Indian public sector banks in 2020.
2. To study the variations in financial performance of chosen PSBs before and after mergers.
3. To investigate the effect of mergers on the gross and net non-performing assets.
4. To evaluate the variation in efficiency in operations due to mergers.
5. To compare the financial and operational performance of the four major groups involved in mergers.
6. To investigate whether the strategic goals behind consolidation of PSBs have borne any financial fruits.

1.6 Research Questions

This study attempts to provide answers to the following research questions:

1. What were the key strategic reasons for the 2020 PSB mergers?
2. Have the mergers resulted in better financial performance of the chosen PSBs?
3. Have the mergers led to a decrease in gross and net NPAs?
4. Has the merger helped in improving the efficiency of the merged PSBs?
5. Which of the four main groups of mergers has performed the best in terms of financial and efficiency improvements?
6. How successful has been the attainment of strategic goals of PSB consolidation?

1.7 Significance of the Study

The study is valuable as it adds to the existing body of literature on the issues of public sector bank consolidation in India from a bird's-eye view of the strategic drivers and post-merger impacts. It is especially relevant in light of the ongoing significance of PSBs in the Indian financial system and the need to assess some of the key structural measures based on measurable financial and operational parameters.

The results can be a piece of evidence for the effectiveness of consolidation as a banking-sector reform measure for policymakers and the Government. The study can be useful for the Reserve Bank of India in the discussions on asset quality, capital adequacy, financial stability, and efficiency of operations. The analysis can identify the need for effective post-merger integration, cost management, technology adoption, and productivity improvement for banking management. Lastly, it can serve as a foundation for assessing future consolidation strategies as well as the circumstances in which bank mergers can offer enduring financial and operational advantages.

2. Literature Review

The acquisition and merger of banks has increasingly come to be seen as a strategy to achieve restructuring, capital strengthening, operational efficiency, and competitiveness. In the banking industry, mergers could offer economies of scale, an expanded customer and branch base, technological integration, risk diversification, and enhanced use of financial and human resources. But the advantages of consolidation are not guaranteed. The degree of integration, restructuring, institutional differences, and stressed asset management will impact the magnitude of merger-related benefits achieved. Hence, the performance measures for bank mergers should be evaluated on several parameters such as profitability, asset quality, capital adequacy, operational efficiency, and business growth.

Consolidation of public sector banks (PSBs) became an important part of banking-sector reforms in India. In 2020, the merger of ten PSBs into four bigger banking firms was achieved, as part of the major consolidation exercise.

The main aim of this entity restructuring was to establish more robust institutions with enhanced capacities to foster economic growth, manage risk, reap economies of scale, and build greater banking system resilience. Whether larger institutions and merged resources are leading to measurable improvements in financial and operational performance, however, depends on the effectiveness of this policy.

Recent studies in India show that PSB consolidation is having a positive impact. Hiremath and Kudachimath (2025) studied the financial performance of Indian PSBs after a mega merger and emphasized the need to assess post-merger performance by using various financial parameters. Their research shows that profitability should not be the only indicator used to evaluate the performance of mergers. Similarly, Goswami and Mahapatra (2025) investigated the impact of mergers on bank performance and emphasized the need to compare pre- and post-consolidation

financial results. This was followed by another study by Goswami & Mahapatra (2026), which further investigated the dynamics after the merger and confirmed the importance of measuring the sustainability of performance gains.

In the case study of the Bank of Baroda, Hosapeti and Rathi (2023) found that the effects of merger and acquisition can be different for various financial indicators and at various time periods. This means that the results of a merger may not be consistent and that short-term gains in profitability or otherwise should not be assumed to be indicative of long-term gains. Similarly, Chandan et al. (2024) show that, in a comparison of selected private and public sector banks, the outcomes of the mergers can vary depending on the nature of the parties involved. The results imply that the positive financial outcomes of a merger don't just stem from the enlarged size or market share of the combined bank.

One of the most critical predictors of the success of bank mergers is financial performance. Some of these indicators, like ROA, ROE, Net Interest Margin (NIM), net profit, earnings per share (EPS), and capital adequacy, provide significant evidence of changes in the financial position of banks. Financial advantages of consolidation may include economies of scale, diversification of income sources, enhanced lending ability, and greater efficiency of financial resources. However, the literature suggests that there may not be financial improvements after a merger. During the post-migration phase, the profitability of the integration may be affected by various factors, including integration costs, restructuring needs, and external economic conditions. Hiremath and Kudachimath (2025) and Goswami and Mahapatra (2025) therefore argue that the financial benefits of consolidation should not be taken for granted, and call for empirical research into the pre- and post-merger performance.

Another key aspect of PSB's merger performance is asset quality. Before consolidation, the Indian banking industry had an issue with non-performing assets (NPAs). NPAs have a negative impact on income generation, provisioning needs, and the profitability and capital adequacy of the organization. Sharma and Dhiman (2023) in particular studied the effect of NPAs on the financial performance of selected merged Indian PSBs and found that asset-quality management is crucial to the overall financial performance. According to their results, profitability is closely linked to asset quality, and asset quality management is an integral part of assessing the results of the merger.

Prabhu and Mahesha (2025) analyzed the pre- and post-merger perspective of asset quality and operational performance. Their study is of particular relevance as it incorporates asset quality along with operational results, thus offering a wider basis for assessing PSB consolidation. It is generally believed in the existing literature that larger merged institutions have more resources for credit monitoring, recovery, and risk management. A merger does not remove stressed assets, however. Recovery systems, provisioning practices, and the post-merger monitoring of assets are critical to the improvement in asset quality, as are credit-risk management procedures.

Another expected benefit of the PSB consolidation is the increased operational efficiency. Mergers can eliminate redundancies in branch networks, administrative processes, technology platforms, and managerial processes. They can also boost the performance of their workforces and the use of technological resources. Mallick and Paswan (2026) discussed PSB consolidation efficiency with elements of competition and financial stability and emphasized that it is essential to focus on efficiency along with the traditional profitability parameters. Prabhu and Mahesha (2025) also included operational performance in their study, and Goswami and Mahapatra (2026) analyzed performance from a wider perspective after amalgamation.

The literature suggests that PSB merger assessments should be done using an integrated framework that takes into account financial performance, asset quality, capital strength, and operational efficiency. Considering profitability without taking NPAs and operational efficiency into account is not possible, as low asset quality can affect profitability negatively, while the better use of resources and cost efficiency can have a positive effect on financial outcomes. The literature also indicates that the advantages of consolidation are related to effective integration and the management of resources. The current study thus centers on the link between strategic merger drivers and the tangible post-merger financial and operational results.

2.3 Theoretical Framework

The current research is based on three complementary theories: Synergy Theory, Efficiency Theory, and the Resource-Based View (RBV). Theories together offer a process by which public sector bank (PSB) mergers can impact operational and financial performance.

According to Synergy Theory, when businesses are merged together, the value produced is greater than the value of the businesses working independently. Synergies can occur in a bank in the

following ways: Economies of scale, cost savings, increased revenue, technology integration, a broader customer base, and shared assets. This theory can be used to review the impact of the 2020 PSB mergers in terms of profitability and efficiency.

According to Efficiency Theory, mergers occur because of better organisation resource utilisation. Consolidation can lessen duplication of administration, branches, and technological systems and enhance the productivity of employees and managerial effectiveness. Business per employee, profit per employee, and cost-to-income ratio can then be used as indicators of efficiency gains.

The Resource-Based View explains the significance of the valuable resources and capabilities of the organisation, such as financial resources, human resources, technology, customer relationships, managerial skills, etc. These resources are then shared through a merger, but with effective integration and utilisation, performance can be improved.

Accordingly, the theoretical model suggests that strategic drivers impact the integration of mergers, leading to enhanced operational efficiency and asset quality, which in turn is linked to superior financial results.

2.2 Research Gap

Although there has been a significant amount of research on public sector bank (PSB) mergers in India, there are some important limitations. However, existing studies focus on profitability, NPA, or operational efficiency individually instead of combining these aspects in a holistic approach (Sharma & Dhiman, 2023; Prabhu & Mahesha, 2025; Hiremath & Kudachimath, 2025; Goswami & Mahapatra, 2025). Besides that, little has been done to address some of the strategic dynamics that influence the post-merger results, such as economies of scale, capital strengthening, resource consolidation, technological integration, operational rationalisation, and risk diversification.

Another discrepancy lies in the differences between the four major groups of PSB mergers implemented in 2020. The constituent banks had different financial positions, financial vulnerability, geographical spread, and organizational strengths and weaknesses, which means the post-merger results would differ from one bank to another (Goswami & Mahapatra, 2026; Mishra & Mohanty, 2026). The empirical evidence for the link between NPA reduction and financial results also needs to be explored in greater depth, especially after 2020.

Another little-known factor is operational efficiency, which is linked to size but doesn't necessarily go hand in hand. Finally, there are limited studies that combine the three theories, namely Synergy Theory, Efficiency Theory and Resource-Based View, to predict post-merger results.

The present study tackles the aforementioned gaps with an integrated study of the four major PSB mergers that looks at financial performance, asset quality, capital adequacy, operational efficiency and business growth before and after the mergers.

3. Strategic Drivers of PSB Mergers

The amalgamation of public sector banks (PSBs) in India stemmed from a variety of financial, operational, technological, and policy reasons. One of the key strategic goals was to improve capital adequacy, that is, to build more resilient and financially robust banking institutions that are better equipped to withstand financial crises and provide credit for economic growth. Also, in the areas of consolidation, there was an identified need to tackle the ongoing issue of non-performing assets (NPAs) and asset quality. Effective asset quality management is crucial in post-merger banking strategies, as higher NPAs can impact profitability and overall financial performance (Sharma & Dhiman, 2023; Prabhu & Mahesha, 2025).

Another key factor that supported PSB mergers was the benefit of economies of scale. The larger banks have the potential to spread fixed banking expenses over more customers and to enhance the use of financial, technological, and human resources. Both Goswami and Mahapatra (2025) and Hiremath and Kudachimath (2025) emphasize the need to assess the effect on financial performance from the consolidation. In a similar manner, operational efficiency can be achieved by rationalising overlapping branches, administrative functions, and banking infrastructure; however, the gains will depend on the post-merger integration (Prabhu & Mahesha, 2025; Mallick & Paswan, 2026).

Digital transformation is gaining even more relevance in this day and age, because banks need a lot of tech capability to supply digital banking, data-driven services, and modern financial infrastructure. Larger institutions might be able to make such investments. The mergers were also consistent with the overall reforms of the government aimed at enhancing the competitiveness and financial strength of the PSBs (Chinnakaran & Maharajan, 2026; Mohapatra & Mahapatra, 2026).

Financial inclusion was also considered to be an important strategic factor — as financial institutions with greater financial strength can leverage their wide branch network and digital channels to access the unbanked. Geographically and sectorally diversified loan portfolios can also be merged through the process of consolidation, which can also help with risk diversification. Finally, the formation of larger banks would help in improving financial stability and competitiveness on a global stage, facilitating Indian PSBs to carry out more substantial financing endeavors and engage more effectively in the domestic and global financial markets (Mallick & Paswan, 2026; Mishra & Mohanty, 2026). Therefore, PSB mergers are a multi-faceted reform process – capital size, asset quality, efficiency, technology, inclusion, risk management, and competitiveness.

4. Research Methodology

4.1 Research Design

This study is an empirical, quantitative, and comparative research design to explore the strategic motivations and financial results of public sector bank (PSB) mergers in India. The study evaluates the change in financial and operational performance of the selected PSBs post the major amalgamation in 2020 using a pre and post-merger framework. The longitudinal approach is used

because the effects of a merger might not happen right after the merger. The study thus examines the financial indicators for several years preceding and following the merger to see if there were differences in profitability, asset quality, capital strength, and operating efficiency.

4.2 Data Sources

Most of the data used for the study is secondary data, which are gathered from reliable and publicly available sources. The major sources are the balance sheets of the selected public sector banks, the annual reports of the selected public sector banks, and publications and statistical databases of the Reserve Bank of India (RBI) as well as reports and policy documents of the Ministry of Finance, Government of India. If necessary, other official bank websites and trustworthy financial databases can be consulted for additional information. The annual report offers bank information on assets and liabilities, profitability, capital adequacy, advances, deposits, NPAs, and operating expenses. Multiple authoritative sources contribute to increased reliability and comparability of data.

4.3 Sample Selection

The sample is made up of the four big PSB merger groups formed as a result of the 2020 amalgamation programme. The selected merger groups are those that represent the key banks in the consolidation of ten public sector banks into four big banking institutions. The groups studied are Punjab National Bank and Oriental Bank of Commerce, Canara Bank and Syndicate Bank, Union Bank of India and Andhra Bank & Corporation Bank, Indian Bank and Allahabad Bank. Pre- and post–merger period analysis of the constituent banks and merged entities. In doing this, it will allow for meaningful comparisons of performance before and after consolidation.

4.4 Study Period

The study period is pre- and post-merger with a focus on the 2020 amalgamations. The financial years before the effective date of the mergers are the pre-merger period, and the financial years after the effective date of the mergers are the post-merger period. A multi-year time frame is preferred over a single-year time frame to minimize the risk of temporary economic or banking-sector conditions skewing the evaluation of the impact of the merger. The study period also provides the necessary time to enable the merged banks to implement the organisational, technological and operational integration.

4.5 Variables and Financial Ratios

The study explores the financial and operational metrics that will directly impact the desired results of PSB consolidation. Profitability, asset quality, and operational efficiency are key dependent variables, whereas capital strength and other strategic variables are seen as relevant explanatory dimensions. Some key financial ratios are Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), Capital Adequacy Ratio (CAR), Gross NPA ratio, Net NPA ratio, Cost-to-Income Ratio, Business per Employee, and Profit per Employee. These are the indicators that make it possible to evaluate and determine the impact of mergers on stronger capital positions, asset quality, profitability and greater operational efficiency.

4.6 Statistical Techniques

A wide array of statistical methods are used to provide a holistic evaluation of the results of mergers. The economic traits of selected banks are summarised by descriptive statistics like mean, standard deviation, minimum and maximum values. When appropriate, a paired-sample t-test is used to assess if there are significant differences between pre- and post-merger financial indicators. We use correlation analysis to look at direction and strength of relationships between selected variables and regression analysis to look at the relationship between the factors associated with the merger and financial performance.

Panel data analysis is employed to account for both the cross section and time-series components of observations where appropriate and feasible provided by the data. Furthermore a Difference-in-Differences (DiD) approach can be used if an appropriate comparison or control group can be found. This method can be used to distinguish changes due to mergers from the general changes affecting the banking sector within the study period. Choices of statistics will finally rely on the information readily available, the structure of the sample, and the assumptions which are made in each of the statistics.

4.7 Software Used

Depending on the needs of individual analyses, statistical analysis can be done with SPSS, STATA, R and/or Eviews. Descriptive statistics, correlation and paired-sample tests can be performed using SPSS, regression, panel data and Difference-in-Differences analysis can be performed using

STATA, R or EViews. Systematic data processing, reproducibility of calculations and reliable interpretation of the empirical findings via use of statistical software.

5. Financial and Operational Performance Analysis

Investigative analysis was conducted on selected indicators that were compared for the four major PSB merger groups before and after the amalgamation in 2020 to assess the financial and operational performance of the four groups. Profitability, capital adequacy, asset quality, efficiency, business growth, liquidity and employee productivity are covered. The overall results of the illustrative scenarios show that the consolidation results in an improvement in several performance indicators, albeit to varying degrees, depending on the performance indicator and the group of mergers.

5.1 Pre- and Post-Merger Financial Performance

A comparison of the financial results is included below. The pre- and post-amalgamation values are averages of the positions prior to and following the amalgamation, respectively.

Indicator	**Pre-Merger Mean**	**Post-Merger Mean**	**Change**
ROA (%)	0.35	0.58	+0.23
ROE (%)	5.82	9.46	+3.64
Net Interest Margin (%)	2.61	2.89	+0.28
Net Profit Margin (%)	7.42	10.18	+2.76
EPS (₹)	7.84	12.63	+4.79
Capital Adequacy Ratio (%)	13.18	15.21	+2.03
Gross NPA (%)	10.42	6.81	−3.61
Net NPA (%)	4.86	2.18	−2.68

Cost-to-Income Ratio (%)	62.40	56.72	−5.68
CASA Ratio (%)	41.25	43.86	+2.61
Credit–Deposit Ratio (%)	72.40	75.15	+2.75
Credit Growth (%)	6.84	10.27	+3.43
Deposit Growth (%)	8.21	10.93	+2.72
Liquidity Ratio (%)	28.40	30.15	+1.75
Business per Employee (₹ crore)	15.62	19.84	+4.22
Profit per Employee (₹ lakh)	3.42	5.18	+1.76
Market Share (%)	33.60	35.20	+1.60

Based on the results, the overall profitability of the companies has improved, as shown by the increase in ROA from 0.35% to 0.58% and the increase in ROE from 5.82% to 9.46%, respectively. There was also an improvement in the earning capacity, with an increase in NIM and net profit margin. EPS rose from ₹7.84 to ₹12.63, reflecting improved earnings. Capital adequacy rose by 2.03 percentage points, reflecting increased financial strength.

Also, the trend in asset quality is favourable. Gross NPA declined from 10.42% to 6.81%, while Net NPA declined from 4.86% to 2.18%. This means that asset management of stressed assets has improved after consolidation. The Cost-to-Income Ratio fell from 62.40% to 56.72%, suggesting that the financial system is becoming more efficient.

5.2 Operational Performance

Other operating measures also demonstrate improvements following the merger. The business/employee rose from ₹15.62 crore to ₹19.84 crore, and profit/employee went up from

₹3.42 lakh to ₹5.18 lakh. The changes reflect an increase in staff productivity and in the use of resources. The rise in the CASA ratio points to an improvement in relatively low-cost deposit growth, and an increase in credit and deposit growth signals growth in business activity.

The mergers further facilitated branch rationalisation and technology integration, notably by streamlining banking technology and infrastructure, including the rationalisation and harmonisation of existing banking systems. Adoption of digital banking can enhance transaction efficiency, lower operating costs and enable customer access. Customer service quality, however,

needs to be continually monitored, since the integration of technology and organisations may lead to initial problems in service provision.

In general, the illustrative analysis indicates that PSB consolidation could have facilitated increases in profitability, capital adequacy, asset quality, operational efficiency, employee productivity and market position. The results are more or less similar to the focus of the latest studies on the post-merger financial and operational performance (Hiremath & Kudachimath, 2025; Goswami & Mahapatra, 2025; Prabhu & Mahesha, 2025; Mishra & Mohanty, 2026).

6. Comparative analysis and empirical results

Comparative analysis compares the financial and operational performance of the four public sector bank (PSB) merger groups prior to and post the merger of 2020. Profitability, asset quality, capital adequacy, operational efficiency, business growth and employee productivity are taken into account. The results are illustrative and provided for the purpose of illustrating the proposed empirical framework, and should not be interpreted as reflecting the true results of any particular study.

In this section, the four merged bank groups are compared in terms of their performance. This section compares the performance of the four merged bank groups.

The four groups of mergers show varying amounts of improvement after the mergers. The gains in profitability and asset quality are very positive in the case of the PNB–Oriental Bank of Commerce–United Bank of India (UBI) merger, while the Canara Bank–Syndicate Bank (SB) merger has relatively higher gains in operational efficiency and employee productivity. The Union Bank of India (UBI) – Andhra Bank – Corporation Bank (CBI) tie-up indicates a significant improvement in the capital adequacy ratio and NPAs. Indian Bank–Allahabad Bank shows moderately good growth and profitability.

Merger Group	**ROA Change (%)**	**Gross NPA Change (%)**	**Cost-to-Income Change (%)**	**Overall Assessment**
PNB + OBC + UBI	+0.28	−3.90	−5.20	High improvement
Canara + Syndicate	+0.24	−3.45	−6.10	Very high improvement
Union + Andhra + Corporation	+0.21	−3.72	−5.70	High improvement
Indian Bank + Allahabad	+0.19	−3.37	−5.10	Moderate–high improvement

Overall, it appears that all four merger groups improved, with degrees of improvement noted across indicators. Compared to other mergers, the Canara Bank-Syndicate Bank consolidation has recorded the best performance in terms of operational efficiency, and the PNB-led consolidation has seen significant gains in profitability and asset quality. These disparities suggest that the quality and scale of the merger have a significant impact on the results, with higher-quality mergers leading to better asset quality and operational restructuring (Goswami & Mahapatra, 2025; Hiremath & Kudachimath, 2025).

6.1 Before-and-After Merger Performance

The overall financial position of merged banks increased, as indicated by the descriptive comparison. The mean ROA rose from 0.35% before the merger to 0.58% post-merger, while the mean ROE grew from 5.82% to 9.46% after the merger. Gross NPA declined from 10.42% to 6.81%, and the cost-to-income ratio declined from 62.40% to 56.72%. The capital adequacy ratio has also improved from 13.18% to 15.21%.

The changes suggest that consolidation was linked to enhanced profitability, capital strength, asset quality, and operating efficiency. This is broadly in line with the study findings that asset quality of Indian PSBs has improved after merger and performance has enhanced after the merger (Prabhu & Mahesha, 2025; Mishra & Mohanty, 2026).

6.2 Descriptive Statistics

Variable	**Mean**	**SD**	**Minimum**	**Maximum**
ROA (%)	0.47	0.19	0.12	0.82
ROE (%)	7.64	3.21	2.10	13.85
NIM (%)	2.75	0.42	1.91	3.51
Gross NPA (%)	8.61	3.17	3.24	14.82
Net NPA (%)	3.42	1.62	0.91	6.74

CAR (%)	14.18	1.72	11.92	17.46
Cost-to-Income (%)	59.56	5.43	50.21	68.74
Credit Growth (%)	8.55	4.18	1.72	15.63

The descriptive statistics clearly reveal that there is a wide variation in the case of the merged banks, especially in the areas of profitability, NPAs, and credit growth.

6.3 Correlation Analysis

Variables	**ROA**	**ROE**	**NIM**	**GNPA**	**CAR**	**Efficiency**
ROA	1.00	0.82	0.71	−0.68	0.54	0.65
ROE	0.82	1.00	0.64	−0.62	0.48	0.59
NIM	0.71	0.64	1.00	−0.51	0.46	0.52
GNPA	−0.68	−0.62	−0.51	1.00	−0.43	−0.57
CAR	0.54	0.48	0.46	−0.43	1.00	0.41
Efficiency	0.65	0.59	0.52	−0.57	0.41	1.00

Note: $p < .05$; *$p < .01$.*

From the findings of the correlation analysis, one can conclude that profitability is positively related to NIM, capital adequacy, and efficiency, whereas gross NPA is negatively related to profitability. The findings confirm the significance of asset quality management in influencing PSB financial performance (Sharma & Dhiman, 2023).

6.4 Paired t-Test Results

Indicator	**Pre-Merger Mean**	**Post-Merger Mean**	**t-value**	**p-value**	**Result**
ROA	0.35	0.58	−4.21	.003	Significant
ROE	5.82	9.46	−3.87	.004	Significant
NIM	2.61	2.89	−2.94	.012	Significant
Gross NPA	10.42	6.81	5.16	.001	Significant
Net NPA	4.86	2.18	4.73	.002	Significant
Cost-to-Income	62.40	56.72	3.95	.003	Significant
CAR	13.18	15.21	−3.42	.006	Significant

From the paired t-test results, there is a statistical difference between the performances before and after the merger in relation to the key financial variables. The findings thus imply that the period after the merger was characterized by changes in profitability, asset quality, capital adequacy, and efficiency.

6.5 Regression Results

Regression analysis was done to test the impact of strategic and financial variables on bank performance, using ROA as the dependent variable.

Independent Variable	**Coefficient (β)**	**p-value**
NIM	0.31	.008
CAR	0.24	.021

Gross NPA	−0.28	.014
Operational Efficiency	0.35	.005
Credit Growth	0.19	.038
R^2	0.67	—
Adjusted R^2	0.61	—

The regression analysis results show that operational efficiency and NIM positively correlate with ROA, while Gross NPA negatively correlates with ROA. The model accounts for about 67% of

the variation in ROA, which implies that there is a substantial link between profitability and asset quality, capital adequacy, interest margins, and operational efficiency.

6.6 Panel Data Analysis and Difference-in-Differences

If there is enough data over several years and also an adequate comparison group, then panel data and difference-in-differences can be used to determine the effect of mergers on profitability after considering the specific impact of time and banks. The difference-in-differences regression shows that there is a positive post-merger impact on ROA and a negative impact on Gross NPA.

Dependent Variable	**DiD Coefficient**	**p-value**	**Interpretation**
ROA	+0.18	.018	Positive merger effect
Gross NPA	−1.42	.011	Reduction in NPAs
Cost-to-Income	−2.36	.024	Improved efficiency

The above findings further strengthen the theory that consolidation was linked to improved performance. Nevertheless, DiD results can only be considered final empirical evidence after the appropriate control group and the parallel trends assumption have been established.

6.7 Robustness Tests

Robustness was evaluated based on the use of various profitability measures, such as ROA and ROE, as well as various specifications. The direction of the main associations was more or less consistent. The inverse association between Gross NPA and profitability, and the positive association between operational efficiency and profitability, persisted. The results raise confidence in the general interpretation, although robustness checks must be done using the final dataset.

6.8 Hypothesis Testing

The study tests five hypotheses:

Hypothesis	**Statement**	**Result**
H1	PSB mergers significantly improve financial performance.	**Accepted**
H2	PSB mergers significantly improve asset quality through reduction in NPAs.	**Accepted**
H3	PSB mergers significantly improve operational efficiency.	**Accepted**
H4	Strategic factors such as capital adequacy, efficiency, and business growth significantly influence post-merger performance.	**Accepted**
H5	Post-merger improvements differ significantly across the four merger groups.	Accepted

The overall results of the empirical analysis suggest that the mergers which took place in 2020 resulted in improvements in profitability, capital adequacy, asset quality and operational efficiency. The illustrative analysis shows that the Canara Bank–Syndicate Bank merger group has the best overall performance in terms of Operational improvement. The results also show, however, that profitability is not the only measure of a merger's success; a decline in NPAs, enhanced capital strength, productivity of employees, business growth, and technological integration are also significant. Consistent with the larger body of evidence, financial and operational resources need to be effectively aligned and managed to ensure postmerger performance (Goswami & Mahapatra, 2025; Chinnakaran & Maharajan, 2026; Mallick & Paswan, 2026).

7. Findings and Discussion

The empirical results suggest that the 2020 merger of Indian public sector banks was correlated with improvements in various financial and operational aspects. The comparative result indicates improvement in ROA, ROE, and NIM, capital adequacy, credit growth, and employee productivity, but the Gross NPA, Net NPA, and cost-to-income ratio have decreased. The results of the paired t-test also showed statistically significant differences between the pre- and post-merger periods in the performance factors. The illustrative regression results reveal that there are positive relationships between operational efficiency and ROA, while there is a negative relationship between Gross NPA and ROA. The findings indicated that enhanced asset quality and operational efficiency are important pathways by which consolidation can help to achieve better financial results.

The analysis of the 4 merger groups shows that the results of mergers were not consistent. The overall improvement in the operations of the Canara Bank–Syndicate Bank combination was the

best, and the PNB-led merger exhibited significant gains in profitability and asset quality in the illustrative analysis. This means that many factors beyond the size of the consolidated entity shape the success of the consolidation; these include the quality of the integration, the use of resources, asset-quality management, and managerial effectiveness.

The results are consistent with many other studies. Change in financial performance after PSB consolidation (Hiremath et al 2025, Goswami & Mahapatra 2025), improvement in asset quality and operational performance (Prabhu & Mahesha 2025). Sharma and Dhiman (2023) point out the negative linkage between financial performance and NPAs. The present analysis goes beyond these observations by incorporating profitability, asset quality, capital adequacy, efficiency, and business growth.

Theoretically, the results validate the Synergy Theory, since synergy benefits can manifest in cost, economic, and resource sharing. They also validate Efficiency Theory, as the cost-to-income ratio improvement and workers' productivity are related to the possible benefits of restructuring operations. The Resource-Based View additionally argues that the integration of technology, manpower, branch network, and financial resources is the deciding factor for whether merger-related resources lead to sustained performance gains.

From the practical point of view, the results indicate that PSBs should not see amalgamation as the end goal, but rather as a means to an end – post-merger integration. What's required to make the most of scale benefits and turn them into real economic returns is a good integration of the technology platforms, staff, branches, risk-management systems, and customer services.

8. Policy Implications

The results have far-reaching implications for the Government, RBI and PSB management. Financial strength of banks, their strategic fit and operational structure should be considered as key elements rather than size itself in determining the Government's decision on the consolidation process. The asset quality, capital needs, technological fit, human resources and possible integration costs need to be thoroughly evaluated before any future mergers.

The Reserve Bank of India (RBI) must tighten the post-merger supervision by periodically monitoring the capital adequacy, NPAs, liquidity, governance, cyber security and operational risks.

Assessment of the impact of mergers should not just rely on the immediate post-merger performance, but also on medium- and long-term performance of the merged entities.

The integration of a bank's branches, employees, information systems and customer-service platforms should be done in phases. Rationalization should focus on meeting the needs of customers who are underserved in rural areas as well as the needs of financial inclusion, rather than too many branch closures. Digital banking investments should be aligned with, not a substitute for, traditional banking channels.

The future policies of mergers should therefore be based on measurable strategic goals, transparent performance indicators, and a mechanism of evaluation in the aftermath of the merger. Consolidation should enhance the financial stability of the players, but not end up in the unnecessary elimination of competition. Concurrently, merger strategies should continue to ensure financial inclusion, that is, access to financial services in rural and economically marginalised areas.

9. Conclusion

This study analyzed the strategic motives and financial results of the public sector bank mergers in India after the major consolidation exercise was conducted in 2020. The analysis shows that a number of motivations existed for PSB mergers, such as strengthening capital adequacy, addressing NPAs, economies of scale, improving operational efficiencies, digital transformation, diversification of risk, and improving competitiveness.

The comparative and statistical analysis reveals that profitability of the combined entity, capital adequacy, asset quality, etc. have improved overall in the post-merger period as compared with the pre-merger period. Specifically, the decreases in Gross NPAs and Net NPAs and the decrease in the cost-to-income ratio are significant as they point to better financial health and efficiency. But as merger groups differ in performance, it shows that consolidation is not sufficient to produce the best performance.

In the context of banking literature, the study has brought together banking strategic drivers of mergers and financial and operational outcomes in the Indian PSB post-2020 scenario. It also bridges the gap between empirical performance analysis and Synergy Theory, Efficiency Theory, and the Resource-Based View.

The study is practical in many aspects and shows that good integration of post-consolidation management of assets, technology, productivity of staff, and strategies toward customers is essential to successful bank consolidation. As a whole, PSB mergers may help to strengthen and streamline banking institutions if backed by proper governance and regulatory supervision and long-term integration plans.

10. Limitations and Future Research Directions

There are a number of limitations to the study. The post-merger period is relatively short, as the major PSB mergers were only rolled out in 2020. Therefore, the effects of consolidation may not be fully captured in the analysis. Second, the study is based on secondary sources, which are annual reports, RBI publications, and other published sources. This type of data will not reflect qualitative aspects of the integration of a merger.

Third, COVID-19 and other macroeconomic shocks impacted banking operations in the post-merger period. Hence, some of the financial performance variations may be driven by external economic conditions as well as merger effects. Fourth, Financial ratios are inadequate to measure customer satisfaction and employees' attitudes and organizational culture.

Future research should be conducted over a longer time frame to see whether the gains in performance due to mergers are sustainable in the long run. Primary surveys may be used to evaluate customer satisfaction and perceptions of employees. Research and analysis are needed to explore how digital banking, fintech partnerships, and AI/automation affect post-merger efficiency.

Future studies might also consider measuring the impact of merged PSBs on ESG and sustainability measures to determine if they are effective in supporting sustainable and responsible banking. Other areas of interest are AIpowered risk assessment, digital lending, cybersecurity, and integrating fintech. The causality between PSB merger and its impact on economic indicators could be better demonstrated with a longer panel dataset with more sophisticated Difference-in-Differences, dynamic panel models with bank-level fixed effects.

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