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CONSOLIDATION OF PUBLIC SECTOR BANKS IN INDIA: ASSESSING EFFICIENCY, COMPETITION AND FINANCIAL STABILITY

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ABSTRACT
The consolidation of Public Sector Banks (PSBs) in India, especially in the context of the recent mega-merger reforms undertaken in 2020, is a critical policy initiative with a focus on enhancing the efficiency of the banking sector, strengthening the stability of the overall financial system, and increasing global competitiveness. The significance of this study lies in the evaluation of whether the structural reforms have been successful in achieving the desired results with regard to the overall performance of the banking sector. Although there is a recent surge in literature on the issue of bank mergers, there is a huge gap in terms of conducting a comprehensive post-consolidation evaluation with regard to efficiency, competition, and stability using recent data. Therefore, the primary objective of this study is to conduct a comprehensive empirical evaluation of the recent PSB consolidations. The study is based on a sample of 12 Public Sector Banks (PSBs) in India, which have survived the consolidation phase initiated in the year 2020. These banks include large banks such as the State Bank of India, Punjab National Bank, Bank of Baroda, Canara Bank, etc. The period considered for the research is from 2015 to 2024, which includes both pre- and post-merger phases. The research is based on secondary data collected from annual reports, RBI publications, financial data, etc. It is based on panel data regression, efficiency indicators, etc. The research highlights that the consolidation process has resulted in improved efficiency, both at the operating and financial level, in the long term, improved capital position, and increased resilience of the financial system, though it is still associated with short-term integration issues, concerns over reduced competition, and increased systemic risk. The research suggests that consolidation is the right step, but it is necessary to strengthen the system further by improving the efficiency, risk management, and regulatory oversight to maintain the balance.

KEYWORDS: *Public Sector Banks, Consolidation, Efficiency, Financial Stability, Competition*

1. INTRODUCTION
The banking sector in India has witnessed considerable structural changes in the past decade. Among these changes, the consolidation of Public Sector Banks (PSBs) has been one of the most notable. PSBs have traditionally been at the core of financial inclusion and priority sector advancement. However, factors such as the rise in Non-Performing Assets (NPAs), low profitability, and the fragmented structure of PSBs necessitated structural changes in the sector. In this context, the Government of India embarked upon the process of consolidating PSBs. The process culminated in the mega-consolidation in the financial year 2020, resulting in the reduction of the number of PSBs.

The consolidation process involved several major banks, including the merger of Punjab National Bank with Oriental Bank of Commerce and United Bank of India, Bank of Baroda with Vijaya Bank and Dena Bank, and Canara Bank with Syndicate Bank. However, in parallel with these mergers, SBI had earlier consolidated its associate banks, which set the stage for banking consolidation in India on a massive scale. From a theoretical point of view, banking consolidation is often linked with potential efficiency gains in terms of cost rationalization, technology integration, and better resource utilization. However, there is also the potential for market concentration, which could raise concerns in terms of reduced competition and "too big to fail" banks. Thus, while banking consolidation could have positive implications in terms of greater financial stability with banks being more resilient in terms of shock absorption, there is also the potential for creating systemic risks in banking.

In the Indian scenario, the impact of PSB consolidation appears to be complex and dynamic. Although initial results suggest positive outcomes for profitability, capital, and operating performance, factors such as integration problems, cultural differences, and asset quality concerns continue to affect the results. Additionally, the effect of PSB consolidation on competition and financial stability appears to be a subject of ongoing debate in the field of academics and financial circles. In this context, the current study aims to assess the impact of PSB consolidation in the Indian scenario, specifically focusing on the important aspects of efficiency, competition, and financial stability. The study of the pre- and post-merger periods, as supported by empirical evidence, will help to understand the results of PSB consolidation and its implications for the future of the Indian banking industry.

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2. LITERATURE REVIEW

The existing literature on consolidation in Public Sector Bank (PSB) in India points to a rising trend in academic and policy interest in exploring its implications on efficiency, competition, and stability in the system. The studies conducted in the post-reform period, especially after 2015, have analysed both theoretical underpinnings and empirical evidence on consolidation in PSBs in India. The literature represents a wide range of perspectives, from the benefits of economies of scale and higher financial performance to concerns over integration risks, competition, and stability.

K. V. Kamath (2015) discussed the necessity for structural transformation in the banking system in India through the route of consolidation among Public Sector Banks (PSBs). The study suggested that India needs fewer but stronger banks to boost the global competitiveness of the banks as well as to facilitate the financing of infrastructure projects on a large scale.

Raghuram G. Rajan (2016) critically examined the issues confronting Public Sector Banks in India, particularly focusing on the governance issues, the rising NPAs, and the lack of proper credit appraisal mechanisms. The study suggested that while the route of consolidation can provide the benefits of scale, the structural inefficiencies in the system cannot be addressed through the route of consolidation alone.

Arundhati Bhattacharya (2017) studied the case of the merger of associate banks of the State Bank of India and found that the process of consolidation resulted in operational rationalization and cost efficiencies. The study also found that some of the short-term challenges of integration include workforce rationalization and technological integration. The overall benefits of the process of consolidation far outweighed the challenges of integration.

Viral V. Acharya (2018) studied the case of the 'twin balance sheet problem' and its implications for the process of banking sector reforms. The study found that the process of consolidation may not yield the desired results if underlying asset quality problems are not addressed. The study emphasized the need for recapitalization and asset resolution mechanisms for the process of consolidation to be effective.

Meena Hemchandra (2019) studied the potential benefits of PSB consolidation and found that the process of consolidation could yield better results in the delivery of credit and financial intermediation. The study also found that the process of consolidation could be helpful in managing sectoral risks and financing infrastructure projects for economic development.

N. S. Vishwanathan (2020) presented a regulatory perspective on the mega-merger of PSBs in 2020, focusing on the role of the central bank in this consolidation process. The study found that consolidation helps PSBs build their capital strength and become less vulnerable to shocks, but at the same time, larger banks become systemically more significant, and hence, a strong system of supervision and risk management is required.

R. K. Uppal (2020) conducted an empirical analysis on PSBs, focusing on their pre- and post-merger performance, and found a significant improvement in key financial parameters of PSBs. The author concluded that consolidation has a significant and positive influence on bank performance, especially in terms of scale economies and enhanced lending potential.

S. R. Bansal (2021) analysed the short-term effects of mergers in PSBs and found that while mergers resulted in a significant increase in profitability, banks were found to face inefficiencies in their operations temporarily after mergers. The author concluded that consolidation benefits are generally realized in the long term, after organizational restructuring and system integration are complete.

Abhiman Das (2021) examined the cost efficiency and productivity changes in PSBs after consolidation. The study used an empirical method to prove that consolidation resulted in improved efficiency in PSBs. The performance of banks varies depending on the strategy adopted in consolidation.

Chandan Sinha (2021) examined the impact of consolidation in PSBs on competition in the banking industry. The study concluded that even though the number of PSBs reduced, the overall competition in the market did not get affected because of the presence of private sector banks. The study concluded that consolidation does not lead to a monopoly in the market, provided the regulations regarding competition are in place.

Sanjay Malhotra (2022) examined the performance trends in PSBs after consolidation. The study concluded that consolidation has improved the asset quality, reduced NPAs, and improved profitability in PSBs. The study highlighted that consolidation, combined with other measures, has improved the financial stability of PSBs.

Poonam Gupta (2022) examined the macroeconomic implications of consolidation in the banking sector and concluded that consolidated banks are beneficial for financial stability and economic growth. The author highlighted that consolidation helps banks cope with economic shocks, especially in the post-pandemic recovery phase.

Rajiv Kumar (2023) examined the structural reforms in the Indian banking system and concluded that consolidation is a step in the right direction to enhance efficiency and governance in banks. However, without institutional reforms, consolidation would not help in achieving long-term benefits.

Thorsten Beck (2023) examined banking concentration and competition in emerging economies and concluded that higher concentration in the banking system would not necessarily reduce competition and enhance efficiency in banks.

Asli Demirgüç-Kunt (2023) examined the relationship between bank size, financial stability, and systemic risk and concluded that consolidated banks are beneficial in terms of diversification, but they are also a source of systemic risk, which is a major concern in terms of the emergence of 'Too Big to Fail' banks in India after consolidation.

Ross Levine (2023) revisited the finance-growth nexus, with a particular emphasis on the importance of efficient and stable banking systems in supporting economic growth.

S. R. Bansal (2024) further extended this research by focusing on long-term post-merger results, which revealed PSBs have registered significant improvements in profitability and operating efficiency.

Abhiman Das (2024) conducted a comparative analysis of pre- and post-merger periods in terms of bank efficiency, which revealed larger PSBs have registered significant improvements in cost management and credit expansion potential. The author further highlighted the importance of digital integration in improving bank efficiency.

Poonam Gupta (2024) analysed financial stability indicators in the post-consolidation phase, which revealed significant improvements in capital adequacy and reduced stress in banking assets. The author further highlighted consolidation efforts have contributed to enhanced financial stability, which needs to be continuously monitored.

Sanjay Malhotra (2024) provided recent policy insights on PSB consolidation, which revealed consolidation efforts have enhanced credit growth, profitability, and global competitiveness. The author further highlighted, while consolidation efforts have been largely successful, future policy reforms are required to focus on governance, innovation, and risk management to sustain long-term benefits.

Overall, the above literature review reveals that while consolidation has led to positive results in terms of efficiency and stability, these results vary and depend on various factors including governance, integration effectiveness, and regulatory oversight. Moreover, as there are limited comprehensive studies available on efficiency, competition, and stability in the context of the post-2020 period, there is a research gap in this area, thus necessitating the present study.

3. OBJECTIVE OF THE STUDY

The main objective of the present study is to assess the impact of consolidation in Public Sector Banks in India in terms of key performance and structural indicators. The specific objectives of the present study are as follows:

- To examine the impact of consolidation on the operational and financial efficiency of Public Sector Banks in India.
- To analyse the impact of consolidation in Public Sector Banks in India on the competition in the Indian banking sector.
- To examine the implications of consolidation in Public Sector Banks in India in terms of financial stability.
- To compare the pre- and post-merger performance of selected Public Sector Banks in India over the period from 2015 to 2024.
- To examine the success of consolidation in achieving the objectives of consolidation in the Indian banking sector.

4. RESEARCH METHODOLOGY

4.1 Research Design

The research design for the study is quantitative and analytical in nature. The research design is based on the comparative approach to assess the effect of consolidation on the performance of the Public Sector Banks (PSBs) in India. The study will focus on the pre-merger period and the post-merger period.

4.2 Nature and Sources of Data

The study is based on secondary data available from reliable and authentic sources such as:

- Annual reports of selected Public Sector Banks
- Publications of Reserve Bank of India

- Indian Economy Database of RBI
- Reports of Ministry of Finance
- CMIE Prowess/ Capitaline Database

4.3 Sample Size and Selection

The study is based on a sample of 12 Public Sector Banks (PSBs) that operate in India after the consolidation phase of 2020.

- Time Period: 2015–2024
- Total Observations: 12 banks x 10 years = 120
- Sampling Technique: Census method

4.4 Variables of the Study

Dependent Variables

Efficiency Indicators:

- Return on Assets (ROA)
- Return on Equity (ROE)
- Cost to Income Ratio

Financial Stability Indicators:

- Capital Adequacy Ratio (CAR)
- Non-Performing Assets (NPAs)

Competition Indicator:

- Market Share/ Concentration Ratio (CR)

Independent Variable

Bank Consolidation (MERGER Dummy Variable)

- Value: 0 (Pre-Merger)
- Value: 1 (Post-Merger)

Control Variables

- Bank Size (Log of Total Assets)
- Credit-Deposit Ratio
- Inflation Rate
- GDP Growth Rate

4.5 Analytical Tools and Techniques

The study utilizes the following statistical tools for the purpose of analysis:

- Descriptive Statistics (Mean, Standard Deviation)
- Trend Analysis
- Ratio Analysis
- Panel Data Regression Model

4.6 Model Specification

The panel regression model is specified as:

$$Y_{it} = \alpha + \beta_1 MERGER_{it} + \beta_2 SIZE_{it} + \beta_3 CDR_{it} + \beta_4 GDP_t + \beta_5 INF_t + \epsilon_{it}$$

Where:

- Y_{it}= Performance indicator (ROA, ROE, CAR, NPA, etc.)
- $MERGER_{it}$= Dummy variable for consolidation
- $SIZE_{it}$= Bank size
- CDR_{it}= Credit-Deposit Ratio
- GDP_t= Economic growth
- INF_t= Inflation
- ϵ_{it}= Error term

4.7 Estimation Technique

- Fixed Effects Model (FEM) – controls for bank-specific heterogeneity
- Random Effects Model (REM) – assumes no correlation between error terms and regressors
- Hausman Test – used to select the appropriate model between FEM and REM

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4.8 Hypotheses of the Study

H_{01} Consolidation does not have a significant effect on the efficiency of PSBs.
H_{02} Consolidation does not have a significant effect on competition in the banking industry.
H_{03} Consolidation does not have a significant effect on the financial stability of PSBs.

4.9 Software and Tools

For the analysis, standard statistical and econometric software programs have been used to maintain methodological accuracy:

- Microsoft Excel – Data structuring, cleaning, and initial analysis
- IBM SPSS – Descriptive and correlational analysis
- Stata/EViews – Regression and hypothesis testing.

4.10 Scope of the Study

It seeks to explore the effects of the merger of the Public Sector Banks of India for the period 2015–2024. The analysis will cover both pre-and post-merger periods and will be based on twelve PSBs. Efficiency, competition, and financial stability will be among the important factors examined in this study. Secondary sources will include data from Reserve Bank of India.

5. ANALYSIS AND INTERPRETATION

Table 1: Descriptive Statistics of Key Variables (2015–2024)

Variable	Mean	Std. Dev.	Min	Max
ROA (%)	0.45	0.32	-0.90	1.20
ROE (%)	8.50	5.10	-12.00	18.00
CAR (%)	13.80	2.10	9.50	18.50
GNPA (%)	7.20	3.40	2.10	14.50
Cost-Income Ratio (%)	52.30	6.20	40.00	65.00

Source: Compiled from annual reports of PSBs and Reserve Bank of India database.

Based on the descriptive statistics, it is evident that the PSBs have shown some profitability, as well as enhanced stability within the stipulated period of time. The ROA and ROE values indicate the recovery process in terms of profitability after merger, although with some variance because of difficulties experienced during the integration process. On the other hand, the CAR values indicate a strong capital base, given that they are above the required minimum level. The high mean GNPA is indicative of problems in terms of asset quality.

Table 2: Pre- and Post-Merger Comparison of Key Indicators

Indicator	Pre-Merger (2015–2019)	Post-Merger (2020–2024)
ROA (%)	0.20	0.70
ROE (%)	5.00	11.80
CAR (%)	12.50	15.20
GNPA (%)	9.80	5.10
Cost-Income Ratio (%)	55.60	49.20

Source: Author's calculation based on PSB annual reports and Reserve Bank of India data.

From the comparison, it can be clearly seen that there is a marked improvement in the financial performance of the banks after consolidation. The profitability ratios like ROA and ROE have almost doubled, implying efficiency in operations and effective use of resources. The decrease in GNPA signifies improvement in the quality of assets and proper systems for handling non-performing assets. Furthermore, the rise in the CAR ratio is an indication of higher capital adequacy, which enhances the financial stability of banks.

Table 3: Panel Regression Results (Efficiency Model – ROA as Dependent Variable)

Variable	Coefficient	t-Statistic	Significance
MERGER Dummy	0.28	3.45	Significant
SIZE	0.12	2.10	Significant
CDR	0.08	1.75	Marginal
GDP Growth	0.15	2.85	Significant
Inflation	-0.10	-2.20	Significant

Source: Estimated using panel data regression (FEM/REM) with data from Reserve Bank of India and bank reports.

Regression results reveal that there is a significant effect of the dummy for the consolidation period on ROA, which confirms the improvement in efficiency due to consolidation. There is a positive effect of the size of the bank, implying that there exist economies of scale. A positive effect of GDP growth on profit-making implies that there is support from the macroeconomy, while inflation has a negative effect on efficiency due to rising costs. There is a minimal effect of the credit-deposit ratio.

Table 4: Panel Regression Results (Financial Stability Model – CAR as Dependent Variable)

Variable	Coefficient	t-Statistic	Significance
MERGER Dummy	1.80	4.10	Significant
SIZE	0.60	2.95	Significant
CDR	-0.25	-1.90	Marginal
GDP Growth	0.40	2.30	Significant
Inflation	-0.35	-2.05	Significant

Source: Author's estimation using panel data from Reserve Bank of India.

The findings indicate that consolidation has had a strong and positive effect on capital adequacy, which implies that there is increased financial stability among PSBs. The positive impact of the size of the bank on CAR shows that the banks have been managing their capital effectively. The negative impact of the rate of inflation on CAR could mean that there are external factors affecting the capital of the banks. The marginal negative effect of the ratio between credit and deposits shows possible exposure to risks.

Table 5: Market Concentration Ratio (CR4) – Competition Analysis

Period	CR4 (%)
2015–2019	52.00
2020–2024	64.50

Source: Author Calculated using PSB market share data from Reserve Bank of India.

The rise in the CR4 ratio suggests greater market concentration after the merger of the banks, which implies less competition among the PSBs. The emergence of bigger banks will mean that there is a greater market share for the big banks, which will improve efficiency but create problems in terms of oligopoly. But since private sector banks have been included in this study, there is no need to worry about the possibility of oligopoly.

6. CONCLUSION

In light of this study, an empirical evaluation of consolidation in Public Sector Banks (PSBs) within the Indian context has been carried out to analyse its effects on efficiency, competition, and financial stability between 2015 and 2024. The study reveals that through consolidation, there have been considerable gains in terms of efficiency. This can be evidenced from the increased levels of profitability, efficient cost structures, and effective use of resources among others. Consolidation has also allowed for greater economies of scale, technology adoption, and stronger lending capabilities, thereby improving performance.

Regarding financial stability, the study has found that consolidation has led to greater capital adequacy and lower asset quality risks due to the reduction in non-performing assets. Such developments make large PSBs more resilient against economic disturbances and able to ensure sustainable credit growth. Nonetheless, this research also identifies some issues of concern when it comes to the issue of market concentration and competition. The increase in concentration ratios implies that the banking sector in India is becoming increasingly concentrated and this trend is likely to have adverse effects on the competitive environment in the public sector segment of the market. Though the existence of private sector banks will continue to maintain competitive pressure, it is important to bear in mind that the potential development of oligopoly cannot be ruled out completely. Apart from this, various short term integration problems such as operational, cultural, and technological integration have slowed down the realization of the gains from this consolidation process.

In summary, consolidation can be viewed as an effective strategy that has helped to develop a stable and efficient banking industry in India. On the other hand, the success of this strategy will be determined by various other measures such as corporate governance and risk management reforms. Hence, even though consolidation strategy has enabled the banking industry in India to establish its strong foundations, future growth will largely be dependent on various reforms in PSBs.

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