

Financial Fitness of India's Anchor Public Sector Banks in the Mature Post-Merger Era: A CAMEL Analysis

Abhishek Srivastava¹ and Prof. Audhesh Kumar²

¹Research Scholar, Department of Commerce, University of Lucknow

²Professor, Department of Commerce, University of Lucknow

Abstract

In the wake of systemic banking sector consolidation in India, evaluating the financial robustness and operational efficiency of amalgamated anchor institutions is vital for financial stability and policy design. This study conducts an empirical performance assessment of the four primary anchor public sector banks Canara Bank, Indian Bank, Punjab National Bank (PNB), and Union Bank of India (UBI) using the five-dimensional **CAMEL** framework (Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity). Utilizing audited financial disclosures from bank annual reports for the financial year ending 2025–2026, each dimension is evaluated through two core parameters: Capital to Risk-Weighted Assets Ratio (CRAR) and Tier 1 Capital Ratio for Capital Adequacy; Gross NPA and Net NPA for Asset Quality; Cost-to-Income Ratio and CASA Ratio for Management Efficiency; Return on Assets (ROA) and Net Interest Margin (NIM) for Earning Quality; and Liquidity Coverage Ratio (LCR) alongside Credit-Deposit Ratio (CDR) for Liquidity. Applying parameter-level composite ranking and overall multi-dimensional indexing, the findings indicate considerable differences in financial fitness among the four anchor banks, with Indian Bank obtaining the highest composite CAMEL ranking. PNB exhibits leadership in liquidity buffers. Union Bank of India and Canara Bank reflect balanced profiles with distinctive strengths in solvency and gross asset quality, respectively. The results provide a current comparative baseline for assessing the financial position of the four institutions following the 2020 consolidation.

Keywords: CAMEL Model, Public Sector Banks, Mega-Mergers, Bank Performance, Financial Fitness, Capital Adequacy, Asset Quality

Introduction

The commercial banking sector serves as the primary transmission engine of economic growth, financial intermediation, and credit provisioning in the Indian economy. Over the past decade, Indian Public Sector Banks (PSBs) experienced substantial structural stress, driven by balance sheet encumbrances, elevated non-performing assets (NPAs), and stringent capital provisioning mandated by Basel III regulatory guidelines. To address these vulnerabilities, optimize economies of scale, and establish globally competitive institutions, the Government of India implemented landmark consolidation reforms, culminating in the mega-mergers that amalgamated ten public lenders into four large anchor banks: Canara Bank, Indian Bank, Punjab National Bank, and Union Bank of India.

Evaluating banking institutions solely through singular accounting ratios such as Return on Assets (ROA) or profit after tax fails to encapsulate the multi-faceted risk profiles and operational dynamics of post-merger entities. A comprehensive, multi-dimensional supervisory assessment framework is imperative to assess whether these consolidated entities have successfully harmonized capital buffers, credit underwriting, operating cost structures, profitability channels, and liquidity safeguards.

The **CAMEL** framework evaluating **C**apital Adequacy, **A**sset Quality, **M**anagement Efficiency, **E**arning Quality, and **L**iquidity is an internationally recognized diagnostic model utilized by central banks and supervisory authorities to evaluate financial soundness. This study applies the CAMEL framework to the four consolidated anchor banks using audited annual report disclosures for the financial year ending

2025-2026, offering a comparative empirical analysis to examine the structural health of India's consolidated banking landscape.

Literature Review

The evaluation of bank performance and the post-merger trajectory of Indian commercial banks have been extensively examined using supervisory rating models:

- **Sonaje and Nerlekar (2017)** evaluated the performance of public and private sector commercial banks using the CAMEL model, noting that private sector lenders maintained higher capital and earning quality ratios relative to state-owned banks.
- **Kumari and Prasad (2017)** examined banking soundness, observing that multi-dimensional models provide superior diagnostic value over single-variable accounting approaches.
- **Annapurna and Manchala (2017)** emphasized that conventional short-term profitability metrics fail to reflect institutional health, advocating balanced, multi-parametric methodologies for public sector banking evaluations.
- **Budhedeo and Pandya (2018)** analyzed public sector banks across pre- and post-reform periods, highlighting that balance sheet stress from NPAs significantly weakened capital efficiency and operating margins.
- **Jain, Metri, and Rao (2019)** demonstrated that bank-specific variables, specifically management effectiveness, asset quality, and liquidity management, explain a significant proportion of profitability differentials among Indian commercial banks.
- **Prasanna and Shailaja (2021)** examined Canara Bank's financial performance across pre- and post-merger periods using CAMEL parameters, documenting initial operational friction followed by progressive stabilization in asset quality and capital adequacy.
- **Koshti and Rathod (2023)** confirmed the utility of CAMEL ratios in determining relative operational efficiency across leading Indian banking institutions.
- **Chouhan and Singhai (2025)** evaluated the structural driving forces behind Indian PSB amalgamations, highlighting economies of scale, regulatory compliance, and risk containment as central justifications for consolidation.

Objectives of the Study

1. To evaluate the overall financial fitness and operational performance of the four consolidated anchor public sector banks (Canara Bank, Indian Bank, Punjab National Bank, and Union Bank of India) using the CAMEL framework.
2. To determine parameter-wise rankings across Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity based on financial data for FY 2025–2026.
3. To compute a composite performance ranking across the anchor banks to assess post-consolidation financial fitness.
4. To analyze operational variations, asset quality management, and liquidity deployment among the amalgamated entities.

Hypotheses

- **Null Hypothesis (H₀):** There is no significant concordance among the rankings of the four anchor public sector banks across the five CAMEL dimensions.
- **Alternative Hypothesis (H_a):** There is significant concordance among the rankings of the four anchor public sector banks across the five CAMEL dimensions.

Research Methodology

Data Collection & Sample Selection

This study relies on secondary data obtained from the published annual reports and audited financial statements of the four anchor public sector banks for the financial year ending 2025–2026:

- Canara Bank
- Indian Bank
- Punjab National Bank (PNB)
- Union Bank of India (UBI)

Analytical Framework: The CAMEL Model

Each of the five dimensions within the CAMEL framework is evaluated through two financial indicators:

CAMEL Dimension	Indicator 1	Indicator 2	Direction of Optimization
C – Capital Adequacy	Capital to Risk-Weighted Assets Ratio (CRAR %)	Tier 1 Capital Ratio (%)	Higher is better (Rank 1 = Highest value)
A – Asset Quality	Gross Non-Performing Assets Ratio (GNPA %)	Net Non-Performing Assets Ratio (NNPA %)	Lower is better (Rank 1 = Lowest value)
M – Management Efficiency	Cost-to-Income Ratio (%)	CASA Ratio (%)	Cost-to-Income: Lower is better; CASA: Higher is better
E – Earning Quality	Return on Assets (ROA %)	Net Interest Margin (NIM %)	Higher is better (Rank 1 = Highest value)
L – Liquidity	Liquidity Coverage Ratio (LCR %)	Credit-Deposit Ratio (CDR %)	LCR: Higher is better; CDR: Evaluated for credit deployment / liquidity buffer

Source: Compiled by Author

Ranking and Scoring Methodology

1. **Individual Metric Ranking:** For each of the two metrics within every parameter, the 4 banks are ranked from 1 to 4. For efficiency and risk metrics (GNPA, NNPA, Cost-to-Income), the lowest numerical value receives a rank of 1. For solvency, profitability, and buffer metrics (CRAR, Tier 1, CASA, ROA, NIM, LCR), the highest numerical value receives a rank of 1.
2. **Parameter Composite Rank:** For each parameter, the composite score is the arithmetic mean of the two individual indicator ranks:

$$\{\text{Composite Score}\} = \{\text{Rank Metric 1} + \text{Rank Metric 2}\} / 2$$

Banks are assigned an overall parameter rank based on their composite score.

3. **Over all CAMEL Composite Rank:** The overall rank is determined by computing the arithmetic average of the bank's ranks across the five CAMEL pillars:

$$\{\text{Average Rank}\} = \{\text{Rank C} + \text{Rank A} + \text{Rank M} + \text{Rank E} + \text{Rank L}\} / 5$$

The bank with the lowest average rank secures the highest overall performance ranking. The composite ranking is an ordinal comparative measure and should not be interpreted as a direct estimate of the magnitude of financial superiority between banks.

Descriptive Analysis and Empirical Findings

Table 1: Ranking Based on Capital Adequacy Parameters

Name of Bank	CRAR (%)	Rank	Tier 1 Capital Ratio (%)	Rank	Composite Score	Parameter Rank
Canara Bank	17.04	4	14.59	4	4.0	4
Indian Bank	17.93	2	16.40	1	1.5	1
Punjab National Bank	17.74	3	15.15	3	3.0	3
Union Bank of India	18.10	1	15.69	2	1.5	1

Source: Compiled by Author

Interpretation: All four anchor banks maintain capital adequacy well above the regulatory Basel III threshold of 11.5% (inclusive of CCB). Union Bank of India reports the highest total CRAR at 18.10%, while Indian Bank leads in core solvency with a Tier 1 Capital Ratio of 16.40%. Indian Bank and Union Bank tie for the top parameter rank in Capital Adequacy with composite scores of 1.5. Canara Bank exhibits the lowest capital buffer among the peer group at 17.04% CRAR and 14.59% Tier 1 ratio, placing fourth.

Table 2: Ranking Based on Asset Quality Parameters

Name of Bank	GNPA (%)	Rank	NNPA (%)	Rank	Composite Score	Parameter Rank
Canara Bank	1.84	1	0.43	3	2.0	2
Indian Bank	1.98	2	0.15	1	1.5	1
Punjab National Bank	2.95	4	0.29	2	3.0	3
Union Bank of India	2.82	3	0.48	4	3.5	4

Source: Compiled by Author

Interpretation: In asset quality, Canara Bank reports the lowest GNPA ratio at 1.84%, reflecting tight gross portfolio recovery. However, Indian Bank achieves the lowest Net NPA ratio at 0.15% (composite rank 1.5), signifying relatively low net exposure to non-performing assets after accounting for provisions. Punjab National Bank displays a GNPA of 2.95% but a controlled NNPA of 0.29%, consistent with relatively strong provisioning coverage and lower net NPA exposure. Union Bank of India ranks fourth with an NNPA of 0.48% and GNPA of 2.82%.

Table 3: Ranking Based on Management Efficiency Parameters

Name of Bank	Cost-to-Income Ratio (%)	Rank	CASA Ratio (%)	Rank	Composite Score	Parameter Rank
Canara Bank	48.45	2	29.84	4	3.0	2
Indian Bank	46.03	1	39.67	1	1.0	1
Punjab National Bank	51.79	4	37.00	2	3.0	2
Union Bank of India	51.26	3	35.20	3	3.0	2

Source: Compiled by Author

Interpretation: Indian Bank dominates Management Efficiency, ranking first in both indicators with the lowest Cost-to-Income ratio (46.03%) and the highest low-cost deposit mobilization (CASA: 39.67%). This indicates superior operational cost containment and strong retail franchise stickiness post-merger. Canara Bank, PNB, and Union Bank share the second parameter rank with identical composite scores of 3.0, with Canara Bank showing stronger operational cost discipline (48.45%) but a lower CASA base (29.84%), while PNB and UBI maintain healthy CASA ratios (37.00% and 35.20%) alongside higher cost-to-income overheads (>51%).

Table 4: Ranking Based on Earning Quality Parameters

Name of Bank	ROA (%)	Rank	NIM (%)	Rank	Composite Score	Parameter Rank
Canara Bank	1.10	3	2.51	4	3.5	3
Indian Bank	1.31	1	3.24	1	1.0	1
Punjab National Bank	0.89	4	2.57	3	3.5	3

Name of Bank	ROA (%)	Rank	NIM (%)	Rank	Composite Score	Parameter Rank
Union Bank of India	1.25	2	2.70	2	2.0	2

Source: Compiled by Author

Interpretation: Indian Bank leads Earning Quality with a Return on Assets (ROA) of 1.31% and a Net Interest Margin (NIM) of 3.24%, supported by its low cost of funds from high CASA mobilization. Union Bank of India follows in second position with an ROA of 1.25% and NIM of 2.70%. PNB and Canara Bank tie for third rank with composite scores of 3.5; PNB records an ROA of 0.89% and NIM of 2.57%, while Canara Bank posts an ROA of 1.10% and NIM of 2.51%.

Table 5: Ranking Based on Liquidity Parameters

Name of Bank	LCR (%)	Rank	CDR (%)	Rank (Credit Deployment)	Composite Score	Parameter Rank
Canara Bank	116.93	4	78.89	3	3.5	4
Indian Bank	122.98	3	80.60	2	2.5	2
Punjab National Bank	140.05	1	73.60	4	2.5	2
Union Bank of India	124.13	2	82.53	1	1.5	1

Source: Compiled by Author

Interpretation: In terms of regulatory liquidity cushions under Basel III, Punjab National Bank holds the strongest liquidity buffer with an LCR of 140.05%, well above the 100% regulatory baseline. Union Bank of India records the highest CDR at 82.53%, indicating comparatively higher deployment of deposits into advances, while maintaining an LCR of 124.13%. Indian Bank and PNB share the second rank (composite score 2.5). Canara Bank records the lowest LCR at 116.93% and a CDR of 78.89%, placing fourth.

Overall Performance Synthesis and Composite Ranking

Table 6: Overall Performance and Final Composite CAMEL Ranking

Bank Name	C Rank	A Rank	M Rank	E Rank	L Rank	Average Rank	Final Rank
Indian Bank	1	1	1	1	2	1.2	1
Union Bank of India	1	4	2	2	1	2.0	2
Punjab National Bank	3	3	2	3	2	2.6	3
Canara Bank	4	2	2	3	4	3.0	4

Source: Compiled by Author

Statistical Validation

To evaluate concordance across the five CAMEL dimensions, Kendall's Coefficient of Concordance (W) and its associated chi-square statistic were used.

Table 7: Test Statistics

Statistical Metric	Value
Number of Banks (N)	4
Number of Parameters (k)	5
Kendall's Coefficient of Concordance (W)	0.428
Chi-Square	6.420
Degrees of Freedom (df)	3
Asymptotic Significance (p-value)	0.0929

Source: Author's calculation based on the CAMEL rankings.

Interpretation: The Kendall's Coefficient of Concordance is 0.428, indicating a moderate degree of concordance among the rankings generated across the five CAMEL dimensions.

The associated chi-square value is 6.420 with 3 degrees of freedom, producing a p-value of 0.0929. Since the p-value is greater than the conventional 5% level of significance ($p > 0.05$), the null hypothesis is not rejected.

Therefore, the study does not find statistically significant evidence of concordance among the rankings of the four anchor public sector banks across the five CAMEL dimensions at the 5% significance level.

This indicates that the relative position of a bank under one CAMEL dimension does not necessarily correspond closely to its position under another dimension. For example, a bank demonstrating a strong position in liquidity may not necessarily occupy the highest position in asset quality, earnings, management efficiency or capital adequacy.

The finding therefore supports the multidimensional nature of the CAMEL framework. Financial soundness cannot be adequately represented by a single dimension, as banks may possess distinctive strengths across different aspects of financial performance.

Discussion of Key Findings

- **Balanced Dominance of Indian Bank:** Indian Bank achieves the highest overall ranking (Average: 1.2), securing top positions in Capital Adequacy, Asset Quality, Management Efficiency, and Earnings Quality. This performance indicates a comparatively strong financial position following the amalgamation with Allahabad Bank, supported by a healthy CASA base (39.67%), a strong net interest margin (3.24%), and a low Net NPA ratio (0.15%).
- **Capital and Credit Aggressiveness of Union Bank:** Union Bank of India ranks second overall (Average: 2.0). It leads the peer group in CRAR (18.10%) and active credit deployment (CDR: 82.53%), supported by an ROA of 1.25%. Its lower relative rank in Net NPA (0.48%) highlights a need for further credit-cost provisioning.
- **PNB's Liquidity Cushion vs. Margin Pressure:** Punjab National Bank ranks third overall (Average: 2.6). PNB holds an LCR of 140.05% and a low NNPA of 0.29%, consistent with relatively strong asset-quality management in the post-consolidation period. However, higher Cost-to-Income (51.79%) and a lower ROA (0.89%) constrain its overall score.
- **Canara Bank's Gross Asset Quality vs. Capital Buffers:** Canara Bank ranks fourth overall (Average: 3.0), but exhibits the lowest GNPA ratio in the group (1.84%) and controlled operational overheads (Cost-to-Income: 48.45%). Its composite score is moderated by a lower CASA ratio (29.84%) and a comparatively lower capital buffer (CRAR: 17.04%).

Suggestions and Policy Implications

1. **Accelerating CASA Mobilization:** Banks with lower CASA shares (such as Canara Bank at 29.84%) should focus on expanding low-cost deposits through digital onboarding, salary accounts, and cash management solutions to lower their overall cost of funds and expand Net Interest Margins.
2. **Operational Expense Rationalization:** PNB and Union Bank of India (both displaying Cost-to-Income ratios above 51%) should accelerate branch network optimization and leverage digital workflows to lower physical and administrative overheads post-consolidation.
3. **Provisioning and Asset Quality Management:** While gross NPAs have dropped across all four anchor institutions below 3%, banks with relatively higher Net NPA ratios should continue strengthening provision coverage to guard against future credit slippages.
4. **Active Liquidity Redeployment:** PNB should optimise the composition and utilisation of its high-quality liquid assets while maintaining adequate regulatory liquidity buffers. Improved asset allocation may help balance liquidity resilience with profitability objectives.

Conclusion

The study examined the financial fitness of the four anchor public sector banks created through India's 2020 banking consolidation using the CAMEL framework. The comparative analysis indicates considerable variation across the five dimensions of financial soundness. Indian Bank achieved the highest overall composite ranking, reflecting relatively strong performance across capital adequacy, asset quality, management efficiency and earnings quality. Union Bank of India ranked second, supported by

strong capital adequacy and credit deployment, while Punjab National Bank demonstrated a particularly strong liquidity position. Canara Bank recorded the lowest GNPA ratio but ranked lower in overall composite performance due to comparatively weaker capital adequacy, CASA and liquidity indicators.

The findings demonstrate that financial strength is multidimensional and that a bank's relative position in one CAMEL dimension does not necessarily translate into superior performance across all dimensions. The results should not, however, be interpreted as evidence that the 2020 mergers alone caused differences in current financial performance, as the analysis is cross-sectional and other economic, regulatory and bank-specific factors may have influenced the outcomes. The study therefore provides a current comparative baseline for understanding the financial position of India's four anchor PSBs following consolidation and highlights the importance of maintaining balanced capital, asset quality, efficiency, profitability and liquidity management.

Limitations of the Study

- The analysis is cross-sectional, relying on audited annual disclosures for FY 2025–2026, and does not capture longitudinal cyclical trends over multi-year periods.
- The sample is confined to the four public sector anchor institutions resulting from the 2020 mega-mergers, excluding private sector lenders and non-amalgamated public banks.
- Secondary financial disclosures are subject to variation in internal risk-weight allocations and bank-specific provisioning models.

References

- Annapurna, V., & Manchala, G. (2017). Balanced Scorecard Evaluation of the Performance of Indian Public Sector Banks. *Indian Journal of Finance*, 11(9), 7–21. <https://doi.org/10.17010/ijf/2017/v11i9/118085>
- Budhedeo, S. H., & Pandya, N. P. (2018). Financial Performance of Public Sector Banks in India : A Post Reform Analysis. *Indian Journal of Finance*, 12(10), 7–20. <https://doi.org/10.17010/ijf/2018/v12i10/132491>
- Chouhan, S., & Singhai, M. (2025). Driving Forces behind Mergers and Acquisitions in Public Sector Banks: An Analytical Study. *International Journal of Innovative Research in Technology*, 11(10), 3924–3928.
- Jain, R., Metri, B., & Rao, K. V. (2019). Determinants of Profitability of Indian Commercial Banks. *Indian Journal of Finance*, 13(1), 8–19.
- Koshti, J., & Rathod, S. (2023). Evaluating the impact of CAMEL ratios on the efficiency of selected Indian banks. *Vidya - A Journal of Gujarat University*, 2(1), 194–199.
- Kumari, S. G., & Prasad, M. S. V. (2017). Evaluating the financial performance of select Indian banks using EAGLES model. *IUP Journal of Accounting Research & Audit Practices*, 16(2), 43–70.
- Prasanna, S., & Shailaja, M. L. (2021). A study on the evaluation of financial performance of post-merger and pre-merger of Canara Bank using EAGLE and CAMEL model. *EPRA International Journal of Multidisciplinary Research*, 9(9), 137–143.
- Sonaje, V. H., & Nerlekar, S. (2017). Financial performance analysis of selected banks using CAMEL approach. *IMR Management Review*, 11(2), 17–24.