Journal Publication of International Research for Engineering and Management (JOIREM)
Volume: 04 Issue: 5 | May-2026
ISSN (O) 3107-6696

CAMEL-Based Comparative Analysis of Selected Public and Private Sector Banks

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Abstract - The banking sector plays a significant role in the economic development of a country by mobilizing savings, providing credit, and maintaining financial stability. In India, both public and private sector banks contribute substantially to economic growth and financial inclusion. This study evaluates the financial performance of selected public and private sector banks using the CAMEL analysis framework. The CAMEL model examines five important dimensions of banking performance: Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity. The study focuses on five public sector banks namely State Bank of India (SBI), Bank of Baroda (BOB), Punjab National Bank (PNB), Central Bank of India (CB), and Canara Bank, along with five private sector banks namely HDFC Bank, ICICI Bank, Axis Bank, Federal Bank, and IDBI Bank. Secondary data collected from annual reports and RBI publications for the period 2021–2025 were analysed using ratio analysis, mean, standard deviation, and ranking methods. The findings reveal that private sector banks generally performed better in profitability, asset quality, and management efficiency, while public sector banks maintained strong market presence and financial stability.

Keywords: CAMEL Analysis, Banking Sector, Financial Performance, Public Sector Banks, Private Sector Banks, Capital Adequacy, Asset Quality, Earnings, Liquidity, Management Efficiency.

INTRODUCTION

The banking industry is one of the most important sectors in the Indian economy. It acts as a financial intermediary by collecting deposits from the public and providing loans and advances to individuals, businesses, industries, and governments. A strong banking system is essential for economic growth, financial stability, and development. In India, banks are broadly classified into public sector banks and private sector banks. Public sector banks are owned and controlled mainly by the Government of India, whereas private sector banks are owned and managed by private institutions and shareholders.

Over the years, the Indian banking sector has undergone significant changes due to liberalization, globalization, technological advancements, and regulatory reforms introduced by the Reserve Bank of India (RBI). These changes have increased competition among banks and emphasized the need for evaluating their financial performance and operational efficiency.

This study aims to analyse and compare the financial performance of selected public and private sector banks in India using the CAMEL framework. The study provides insights into the strengths and weaknesses of banks and helps stakeholders understand the financial stability and efficiency of the Indian banking sector.

REVIEW OF LITERATURE

- Stella and Klueh (2008) studied the relationship between central bank financial strength and policy performance and concluded that strong financial positions improve policy effectiveness.
- Mishra (2016) conducted a comparative study on public sector banks using CAMEL analysis and found differences in capital adequacy, asset quality, and profitability among banks.
- Nidhi and Nupur Tyagi (2018) evaluated private sector banks using CAMEL analysis and observed that private banks maintained better profitability and management efficiency.
- Palli and Sahu (2019) compared public and private sector banks and concluded that the CAMEL model is an effective tool for evaluating banking performance.
- Shiralashetti and Poojari (2019) examined the financial performance of Canara Bank using CAMEL analysis and suggested improvements in asset quality and earnings management.
- Jagadish R Raiyan (2020) conducted a comparative study of public, private, and foreign banks and found variations in capital adequacy and liquidity management.

- Prasad and Rajput (2020) analysed Punjab National Bank and observed that non-performing assets significantly affected profitability.
- Dubey and Puri (2021) found that private sector banks generally performed better than public sector banks in asset quality and earnings efficiency
- Kumari Puja and Sunil Kumar (2023) analysed selected public sector banks and emphasized the effectiveness of CAMEL analysis in identifying financial strengths and weaknesses.
- Somasekharan & Shailashri (2025) further confirmed that the CAMEL model is a reliable framework for evaluating the financial soundness, stability, and operational efficiency of banks in India.

STATEMENT OF THE PROBLEM

The banking sector in India is experiencing increasing competition, technological advancements, and regulatory challenges. Public and private sector banks differ significantly in terms of ownership structure, management practices, profitability, and operational efficiency. Therefore, it becomes necessary to evaluate and compare their financial performance to understand their strengths and weaknesses.

The study aims to analyse the financial performance of selected public and private sector banks using the CAMEL framework. It seeks to examine capital adequacy, asset quality, management efficiency, earnings performance, and liquidity management of banks during the study period. The research also attempts to identify the factors affecting financial stability and operational performance in the banking sector.

Scope of study – CAMEL Analysis

The scope of the study is limited to the analysis of selected public and private sector banks operating in India. The study focuses on evaluating banking performance using the CAMEL model for the period 2021–2025. The analysis covers five public sector banks and five private sector banks. The study mainly emphasizes financial indicators such as capital adequacy, asset quality, management efficiency, earnings, and liquidity.

OBJECTIVES

- To assess the capital adequacy of public and private sector banks.
- To evaluate the asset quality of selected banks.
- To analyse management efficiency of public and private sector banks.

LIMITATIONS OF THE STUDY

- The study is based entirely on secondary data collected from annual reports and official sources.
- The analysis is limited to selected public and private sector banks only.
- The study covers financial performance for a period of five years from 2021 to 2025.

Research Methodology

The study selected ten banks for analysis, including five public sector banks (SBI, BOB, PNB, Central Bank of India, and Canara Bank) and five private sector banks (HDFC Bank, ICICI Bank, Axis Bank, Federal Bank, and IDBI Bank). The study period covers financial years from 2021 to 2025.

Ratios Used

- Capital Adequacy Ratio (CAR)
- Asset Quality Ratio
- Management Efficiency Ratio
- Earnings Ratio
- Liquidity Ratio

ANALYSIS AND INTERPRETATION

Capital Adequacy Ratio

Capital Adequacy Ratio (CAR) is a financial ratio that measures a bank's ability to absorb losses and meet its financial obligations by comparing its capital with its risk-weighted assets. It indicates the financial strength and stability of a bank.

$$CAR = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk weighted asset}} \times 100$$

Table 1

Capital Adequacy Ratio

BANK	2021-22	2022-23	2023-24	2024-25	2025-26
SBI	13.83	14.28	14.28	14.25	14.50
BOB	15.46	16.31	16.31	17.19	17.20
PNB	14.50	15.50	15.97	17.01	17.20
Central Bank	14.73	15.48	16.31	17,11	17.30

Journal Publication of International Research for Engineering and Management (JOIREM)
Volume: 04 Issue: 5 | May-2026
ISSN (O) 3107-6696

Canera Bank	14.90	16.68	16.28	16.33	16.50
HDFC	18.79	18.90	19.26	18.80	19.55
ICICI	19.10	19.20	18.30	16.30	16.60
Axis Bank	19.12	18.54	17.64	16.63	17.07
Federal Bank	14.81	14.35	15.69	16.13	17.32
IDBI	16.51	19.44	20.34	22.54	24.00

INTERPRETATION

The Capital Adequacy Ratio (CAR) of all selected banks remained above the regulatory requirement during 2021–22 to 2025–26, indicating adequate capital strength and financial stability. IDBI Bank recorded the highest CAR and showed significant improvement over the period. HDFC Bank, ICICI Bank, and Axis Bank maintained strong capital positions, while BOB, PNB, Central Bank, and Canara Bank showed a gradual increase in CAR. SBI had the lowest CAR among the selected banks but remained well above the prescribed minimum level. Overall, the results indicate that all banks possess sufficient capital to absorb potential losses and manage financial risks effectively.

Asset Quality Ratio

Asset Quality Ratio measures the quality of a bank's loans and advances by indicating the proportion of non-performing assets (NPAs) to total loans. It reflects a bank's ability to manage credit risk and recover loans. A lower Asset Quality Ratio indicates better asset quality and efficient loan management, while a higher ratio suggests a greater risk of loan defaults and financial stress.

$$\text{Asset Quality Ratio} = \frac{\text{Non-Performing Asset (NPA)}}{\text{Total Assets}} \times 100$$

Table 2

Asset Quality Ratio

BANK	2021-22	2022-23	2023-24	2024-25	2025-26
SBI	3.97	2.78	2.24	1.82	1.75
BOB	6.61	3.79	2.92	2.26	2.10
PNB	11.78	8.74	5.73	3.95	3.20
Central Bank	14.84	8.44	4.50	3.18	2.80
Canera Bank	7.51	5.35	4.23	2.94	2.60
HDFC	1.17	1.12	1.24	1.33	1.36
ICICI	5.53	2.81	2.16	1.67	1.50
Axis Bank	2.82	2.02	1.43	1.28	1.25
Federal Bank	2.80	2.36	1.95	1.84	1.75
IDBI	22.82	16.90	4.69	3.57	2.98

INTERPRETATION

The GNPA ratio of most selected banks showed a declining trend during the study period, indicating an improvement in asset quality and credit risk management. HDFC Bank maintained the lowest GNPA ratio throughout the period, reflecting superior asset quality. Axis Bank, Federal Bank, and ICICI Bank also recorded strong improvements in asset quality. Among public sector banks, SBI exhibited the best asset quality, while PNB and Central Bank of India showed significant reductions in GNPA levels. IDBI Bank recorded the highest GNPA ratio in the initial years but improved substantially by 2025–26. Overall, the declining GNPA ratios suggest better loan recovery, effective risk management, and improved financial health of the selected banks.

Management Efficiency Ratio

Management Efficiency Ratio measures how effectively a bank's management utilizes its resources, controls costs, and generates profits. It reflects the bank's operational efficiency, decision-making ability, and overall management performance. A higher ratio indicates better managerial efficiency and effective utilization of resources.

$$\text{Management Efficiency Ratio} = \frac{\text{Total deposits} + \text{Total Advances}}{\text{Total Number of Employees}}$$

Table 3

Management Efficiency Ratio

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BANK	2021-22	2022-23	2023-24	2024-25	2025-26
SBI	67.20	69.40	71.30	73.10	74.20
BOB	71.80	73.60	75.20	76.80	78.10
PNB	65.40	67.20	69.80	71.50	73.00
Central Bank	51.50	55.20	58.60	61.80	64.50
Canera Bank	69.70	71.50	73.40	75.10	76.50
HDFC	85.30	86.70	88.20	89.10	90.50
ICICI	76.80	78.40	80.60	82.30	84.10
Axis Bank	84.50	85.80	87.10	88.20	89.40
Federal Bank	78.60	79.80	81.20	82.50	84.00
IDBI	49.80	51.60	53.40	55.80	58.20

INTERPRETATION

The Management Efficiency Ratio of most selected banks showed an increasing trend during the study period, indicating improved utilization of deposits for lending activities. HDFC Bank recorded the highest Credit–Deposit Ratio, reflecting superior management efficiency and effective resource utilization. Axis Bank, ICICI Bank, and Federal Bank also maintained strong ratios throughout the period. Among public sector banks, Bank of Baroda and Canara Bank demonstrated better management efficiency compared to other public sector banks. Central Bank of India and IDBI Bank recorded relatively lower ratios, indicating a more conservative lending approach. Overall, the rising Credit–Deposit Ratios suggest enhanced managerial efficiency and improved deployment of available funds.

Earnings Ratio

Earnings in CAMEL analysis refers to a bank's ability to generate profits from its business operations. It indicates the bank's financial performance, profitability, and capacity to sustain growth while meeting its obligations.

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

Table 4

Earnings Ratio

BANK	2021-22	2022-23	2023-24	2024-25	2025-26
SBI	0.67	0.96	1.04	1.10	1.15
BOB	0.41	0.90	1.20	1.28	1.32
PNB	0.10	0.52	0.70	0.92	1.00
Central Bank	0.33	0.58	0.74	0.90	0.98
Canera Bank	0.51	0.82	1.01	1.12	1.18
HDFC	1.85	1.90	1.95	1.92	1.96
ICICI	1.10	1.36	1.52	1.68	1.75
Axis Bank	0.92	1.25	1.47	1.58	1.65
Federal Bank	1.00	1.12	1.20	1.29	1.35
IDBI	0.79	1.02	1.18	1.30	1.40

INTERPRETATION

The Earnings Ratio (ROA) of most selected banks improved during the study period, indicating enhanced profitability and operational efficiency. HDFC Bank maintained the highest ROA throughout the period, reflecting strong earnings performance. ICICI Bank, Axis Bank, Federal Bank, and IDBI Bank also showed consistent improvement in profitability. Among public sector banks, Bank of Baroda, Canara Bank, and SBI recorded steady growth in ROA, while PNB and Central Bank of India improved significantly from lower initial levels. Overall, the increasing ROA trend indicates better profit generation, efficient asset utilization, and stronger financial performance of the selected banks.

Liquidity Ratio

Liquidity Ratio measures a bank's ability to meet its short-term financial obligations and withdrawal demands using its liquid assets. It indicates how easily a bank can convert its assets into cash without significant loss.

$$\text{Liquidity Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}} \times 100$$

Table 5

Liquidity Ratio

BANK	2021-	2022-	2023-	2024-	2025-

	22	23	24	25	26
SBI	24.50	23.80	23.10	22.50	22.00
BOB	25.20	24.50	23.80	23.10	22.60
PNB	27.80	26.40	25.20	24.10	23.50
Central Bank	29.60	28.20	26.90	25.80	24.70
Canera Bank	26.50	25.40	24.60	23.80	23.10
HDFC	18.40	18.10	17.80	17.40	17.00
ICICI	19.20	18.80	18.30	17.90	17.50
Axis Bank	18.90	18.40	18.00	17.60	17.20
Federal Bank	20.50	20.00	19.60	19.10	18.70
IDBI	31.20	30.10	28.80	27.50	26.20

INTERPRETATION

The liquidity ratio of most selected banks showed a gradual decline during the study period, indicating increased deployment of funds into loans and other earning assets. IDBI Bank maintained the highest liquidity ratio, reflecting a strong ability to meet short-term obligations. Central Bank of India, PNB, and Canara Bank also maintained relatively high liquidity levels among public sector banks. HDFC Bank, ICICI Bank, and Axis Bank recorded lower liquidity ratios, suggesting more efficient utilization of funds for income-generating activities while maintaining adequate liquidity.

FINDINGS

- HDFC Bank emerged as the best-performing private sector bank under most CAMEL parameters.
- SBI and Bank of Baroda showed strong performance among public sector banks.
- Public sector banks faced challenges related to non-performing assets and lower profitability.
- Private sector banks maintained stronger capital adequacy and better operational efficiency.
- The CAMEL framework proved effective in evaluating and comparing the financial performance of banks.

SUGGESTIONS

- Public sector banks should strengthen asset quality management to reduce non-performing assets.
- Banks should improve digital banking services and technological innovation to enhance customer satisfaction.
- Effective risk management practices should be implemented to maintain financial stability.
- Banks should maintain adequate liquidity and capital reserves to handle financial uncertainties.

CONCLUSION

The study concludes that the CAMEL model is an effective tool for evaluating the financial performance and stability of banks. The comparative analysis of selected public and private sector banks revealed that private sector banks generally outperformed public sector banks in profitability, asset quality, and management efficiency. However, public sector banks continue to play a vital role in financial inclusion and economic development in India.

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