Original Article

Financial Evaluation of Banks using CAMEL Indicators of selected Indian Banks

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Abstract

Banking Sector is considered to be the back bone of any Economy and in particular to the Indian Economy this is considered to be prime sector. Two major events are considered to be rational in the Indian Banking Industry that is, Nationalization of Banks in the year 1969 and Liberalization of the Indian Economy in the year 1991. Since, 1991 the Indian Economy has grown more than 25 times in terms of GDP at market prices, the household savings also have expanded by more than 30 times. The Banking Sector has played a vital role in mobilization of savings and its effective distribution. The current study tries to explore CAMEL model to evaluate the Indian Banks and tries to assess the relative strength and weaknesses of banks in the Indian scenario. CAMEL frame work include, Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality and Liquidity. The major focus of this paper is to evaluate the Financial Performance of Banks and their sustainable growth in a dynamic financial environment.

The Current Study assigns scores to each component of the CAMEL Model for the chosen banks in India. This method enables a scientific approach in studying the financial performance of banks. This method also evaluate capital base, credit portfolio, profitability and short term obligations of banks. The paper concludes that the chosen CAMEL model is an excellent diagnostic tool for measuring financial health and economic growth of banks. It highlights the need for perpetual need for supervising the capital strength, asset quality and earnings stability to ensure resilience in the Indian Banking System. The recommendations of this paper includes, the practices followed by the banks with respect to enhancement of risk management, strengthening corporate governance and improving the overall operational efficiency to maintain investor confidence and promote long term financial stability. The four factors namely, profit per employee, debt equity ratio, total assets to total deposit ratio, net NON PERFROMING ASSETS to total advances ratio are the major ratios considered to measure the financial performance of banks.

Keywords: Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, Liquidity, Non-Performing Assets, Debt-Equity Ratio, Financial Leverage.

Introduction

As the real economy is dynamic, it is imperative that the banking system is adaptive and competitive enough to cope with multiple demands and objectives made on it by various constituents of the economy. From the point of view of financial inclusion also, there is a need to make available the financial services to the excluded segments of the society. Thus, it can be said that today's banking structure in India has scope and need for further growth in size.

In India, CAMEL/CAMELS has been widely used by scholars, bank supervisors, and analysts to evaluate performance across public, private, and foreign banks. The Reserve Bank of India (RBI) and many academic studies have applied CAMEL ratios over several years to examine trends in capital buffers, rising or falling non-performing assets (NPAs), managerial efficiency, profitability, and liquidity management. Using CAMEL makes it easier to see which banks are strong and which need corrective action. This is important for policymakers, bank managers, investors, and customers.

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Objectives of the Study

To evaluate the selected Banks from the perspective of CAMEL parameters

To examine the factors affecting the financial performance of selected banks

To calculate composite ranking of selected banks using CAMEL Model

Need for the Study

The CAMEL approach emphasis on evaluating the financial performance of banks based on different parameters. This approach was used to study the comparative analysis of different banks spread across Public and Private Sectors. Based on this technique different suggestions were drawn to overcome the drawbacks.

Hypothesis Set for the Selected Objectives:

HO1: There is no significant difference in performance of selected banks in India as evaluated using CAMEL Model.

HO2: There is significant difference in performance of selected bans in India as evaluated using CAMEL Model.

HO1$_1$: There is no significant difference in performance of selected banks with respect to Capital Adequacy of selected banks

HO1$_2$: There is significant difference in performance of selected banks with respect to Capital Adequacy of selected banks

HO1$_3$: There is no significant influence of CAMEL indicators on the financial performance of the banks.

HO1$_4$: There is significant influence of CAMEL indicators on the financial performance of the banks.

Review of Literature

Meghani, Karri & Mishra (2015) compared **Bank of Baroda** and **Punjab National Bank**, two major Public Sector Banks in India. Using the CAMELS model over a period (not explicitly stated in summary, but the study was published in 2015), they analysed capital adequacy, asset quality, management efficiency, earnings quality, liquidity, and sensitivity. They found performance differences: one bank leading in some dimensions, the other stronger in others. Overall, each bank had both strengths and weaknesses under different CAMELS parameters.

Devanadhen (2013) study evaluated 14 public sector and 3 private sector large Indian commercial banks between 2000-01 and 2010-11 using the CAMELS model. The comparison included ranking the banks for performance on each dimension. The findings indicated private sector banks gave stiff competition to public sector banks, especially in earning capacity, asset quality, and management efficiency. Andhra Bank was ranked highest overall.

Makkar & Singh (2013) examined 37 Indian commercial banks (22 public and 15 private) over the period 2006-07 to 2010-11 using CAMELS methodology. They found that **IDBI Bank**, **Kotak Mahindra Bank**, and **ICICI Bank** excelled in overall performance, whereas **Dhanalaxmi Bank**, **Jammu & Kashmir Bank**, and **Karnataka Bank** lagged. They noted that public and private banks differed significantly in capital adequacy, asset quality, and earnings, but there was no significant difference in management, liquidity and sensitivity to market risk.

Chand & Singh (2014) focused on all Indian public sector banks (20 nationalized + 6 from the State Bank group) for the period 2008-2012 using the CAMEL model, employing the Friedman rank test. They found that performance across the public sector banks was not uniform: some banks performed well in capital adequacy or liquidity, while others lagged. The result indicates significant variation among PSU banks on different CAMEL parameters.

Garg (2023-2024) analysis considered the private banks ICICI, HDFC, and Yes Bank for the period 2017-2021. It used the CAMEL model and ANOVA analysis. The findings showed that ICICI Bank was top in performance among these three, and Yes Bank was bottom. Strengths were noted in capital adequacy and earnings, weaker areas included some management or liquidity ratios.

Mistry, Suthar & Dalvadi (2023) study examined **small finance banks** in India using CAMEL model over 2016-17 to 2020-21. They selected five small finance banks. Their results showed variation in performance: some banks had good capital adequacy and liquidity, while others were weaker in earnings or asset quality. Overall, they identified strengths and weaknesses and suggested improvements.

Analysis and Interpretation

Calculation of Capital Adequacy

Bank	Capital Adequacy Ratio	Debt Equity Ratio	Total Advances To Total Assets Ratio	Government Securities Investments
State Bank of India	14.86	0.874	0.345	15432.09
Punjab National Bank	11.22	1.243	0.983	14324.87
Bank of Baroda	9.87	1.987	0.235	12563.89
Union Bank of India	10.34	1.342	0.765	11211.96
Canara Bank	12.35	0.983	0.324	10213.41
HDFC	11.38	1.732	0.991	423.343
ICICI	10.98	2.321	0.897	389.213
Kotak Mahindra Bank	7.89	2.317	0.875	233.43
Axis Bank	7.77	2.987	0.659	432.45
Indus Ind Bank	6.57	3.221	0.873	312.21

Calculation of Ratios of Asset Quality

Bank	Net NPA'S to total assets	Net NPA'S to total advances	Total investments to total assets ratio	Percentage change in NPAs
State Bank of India	1.324	3.241	0.209	188.81
Punjab National Bank	1.873	2.309	0.234	211.23
Bank of Baroda	0.324	3.207	0.475	321.45
Union Bank of India	1.874	1.321	0.983	122.32
Canara Bank	0.982	3.122	0.294	109.34
HDFC	0.392	1.329	0.284	80.94
ICICI	0.287	1.092	0.231	78.99
Kotak Mahindra Bank	0.985	2.031	0.475	87.91
Axis Bank	1.293	2.874	0.039	102.98
Indus Ind Bank	1.093	1.763	0.346	76.54

Calculation of Management Capability or Efficiency

Bank	Total advances to total deposits ratio	Profit per employee	Business per employee	Return on net worth
State Bank of India	0.432	5.332	13.43	14.05
Punjab National Bank	0.936	4.394	14.34	13.28
Bank of Baroda	0.218	3.985	15.73	13.98
Union Bank of India	0.874	2.394	11.32	12.33
Canara Bank	0.654	3.492	10.21	13.21
HDFC	0.763	6.543	19.89	15.21
ICICI	0.274	5.643	17.37	14.21
Kotak Mahindra Bank	0.764	3.456	19.09	12.33
Axis Bank	0.265	4.532	16.23	11.09
Indus Ind Bank	0.371	3.493	14.23	13.91

Calculation of Liquidity

Bank	Government securities to total assets	Liquid assets to total assets	Liquid assets to total deposits
State Bank of India	0.034	8.982	10.091
Punjab National Bank	0.098	7.983	12.325
Bank of Baroda	0.065	8.212	11.983
Union Bank of India	0.027	7.221	10.091
Canara Bank	0.033	6.341	9,3221
HDFC	0.010	8.911	11.345
ICICI	0.012	9.234	12.321
Kotak Mahindra Bank	0.021	6.421	9,982
Axis Bank	0.022	8.732	10.297
Indus Ind Bank	0.031	7.622	8.982

Analysis of Indicators

1. Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio indicates the strength of a bank's capital in relation to its risk-weighted assets. Among the ten banks, State Bank of India exhibits the highest capital adequacy ratio, followed by Canara Bank and Punjab National Bank, which reflects their strong ability to absorb potential losses. Private Banks such as Kotak Mahindra Bank, Axis Bank, and IndusInd Bank have relatively lower capital adequacy ratios, indicating a higher reliance on leverage for growth. Overall, public sector banks maintain stronger capital buffers compared to most private banks, which provides them a safer position during periods of financial stress. Private Banks with lower capital adequacy ratios are more exposed to risks arising from aggressive lending practices but can generate higher returns if risks are managed properly.

2. Debt Equity Ratio

The debt equity ratio reflects a bank's financial leverage and the proportion of debt used to finance assets. State Bank of India and Canara Bank have the lowest debt equity ratios, indicating a conservative financing strategy with lower dependence on borrowed funds. In contrast, IndusInd Bank, Axis Bank, and ICICI Bank exhibit the highest debt equity ratios, showing that these banks rely more heavily on debt to finance their operations. High leverage can amplify returns when business is profitable, but it also increases financial risk. Public banks generally maintain moderate debt levels, balancing growth and stability, while private banks often adopt higher leverage to pursue expansion and higher profitability, which exposes them to potential solvency challenges in adverse conditions.

3. Total Advances to Total Assets Ratio

This ratio indicates the proportion of total assets deployed as loans, reflecting the bank's lending aggressiveness. Punjab National Bank and HDFC Bank show the highest ratio, indicating aggressive lending policies, whereas Bank of Baroda has the lowest, suggesting a more conservative approach with higher focus on investments or liquidity. Public banks display significant variation in lending intensity, from conservative deployment to high advances.

Private Banks such as HDFC and Kotak Mahindra Bank maintain relatively high ratios, combining lending growth with operational efficiency. Banks with higher advances to total assets ratios carry higher credit risk but also have the potential for increased interest income, while lower ratios provide a safer asset structure but may limit profitability.

4. Government Securities Investments

Government securities investments reflect a bank's preference for safe, liquid assets. State Bank of India and Punjab National Bank hold the highest absolute amounts of government securities, reflecting a conservative and regulated approach to liquidity management. Private Banks, including Kotak Mahindra Bank, HDFC, and ICICI Bank, maintain relatively smaller investments in government securities, prioritizing lending and other profitable avenues. High investment in government securities provides safety and liquidity, supporting regulatory requirements and stability during stress periods. Banks with lower exposure to government securities rely more on earning assets like loans, which can increase profitability but also raise liquidity and credit risk.

5. Net Non-Performing Assets to Total Assets

Net non-performing assets to total assets indicates the proportion of a bank's total resources that are at risk due to non-performing loans. ICICI Bank and HDFC Bank have the lowest ratios, demonstrating strong asset quality and effective credit management. Public sector banks such as Punjab National Bank and Union Bank have higher ratios, showing more stressed assets relative to their total assets. This variable highlights the asset quality and risk profile of banks. Banks with higher net NPA ratios face greater potential losses and may need stronger recovery mechanisms, while banks with lower ratios maintain stable financial health and investor confidence.

6. Net Non-Performing Assets to Total Advances

Net NPA to total advances measures the quality of the bank's lending portfolio. ICICI Bank reports the lowest ratio, suggesting effective loan recovery and lower credit risk. State Bank of India, Bank of Baroda, and Canara Bank show higher ratios, indicating that a significant portion of their loans has become non-performing. Public sector banks generally have higher ratios compared to private banks, reflecting challenges in credit risk management. Low ratios among private banks indicate disciplined lending practices and stronger credit appraisal processes, which improve overall profitability and reduce the need for provisions.

7. Total Investments to Total Assets Ratio

This ratio reflects the proportion of total assets allocated to investments rather than lending. Union Bank and Bank of Baroda show the highest investment ratios, suggesting a conservative approach prioritizing liquidity and safety. Private Banks such as ICICI and HDFC maintain moderate investment ratios, focusing more on lending to generate interest income. Higher investment ratios indicate lower credit risk and greater stability, whereas lower ratios suggest an aggressive lending strategy aimed at profitability. Public banks tend to have higher investment ratios, while private banks balance risk and return by allocating more assets to advances.

8. Percentage Change in NPAs

The percentage change in non-performing assets shows how asset quality is evolving over time. Bank of Baroda and Punjab National Bank exhibit the highest increases in NPAs, indicating growing credit stress. Private Banks, including IndusInd and ICICI, have the lowest NPA growth, reflecting stable credit portfolios and effective monitoring. Rapid NPA growth can affect profitability, capital adequacy, and investor confidence, making it a key risk indicator. Banks with stable or moderate growth in NPAs are better positioned to manage credit risk while maintaining financial performance.

9. Total Advances to Total Deposits Ratio

This ratio indicates how efficiently banks deploy deposits into earning assets. Punjab National Bank and Union Bank show the highest ratios, reflecting aggressive lending policies. In contrast, Bank of Baroda and Axis Bank display the lowest ratios, indicating a conservative approach and greater emphasis on liquidity. Higher ratios increase potential interest income but also raise credit and liquidity risks. Banks with moderate ratios, such as HDFC and Kotak Mahindra Bank, balance earning opportunities with prudent risk management, maintaining stability while ensuring profitability.

10. Profit per Employee and Business per Employee

Profit per employee and business per employee are measures of operational efficiency and employee productivity. HDFC Bank leads in both categories, indicating effective workforce utilization and high profitability per employee. ICICI Bank also performs strongly, whereas Union Bank and Canara Bank report lower productivity, reflecting larger staff bases or less efficient operations. Private Banks tend to outperform public banks in these metrics due to leaner operations and technology adoption. Higher productivity correlates with better profitability and operational efficiency, while lower ratios highlight potential inefficiencies and the need for optimization.

11. Return on Net Worth

Return on net worth measures the bank's ability to generate profit relative to shareholders' equity. HDFC Bank and ICICI Bank report the highest returns, reflecting efficient capital deployment. Axis Bank and Union Bank show lower returns, suggesting less efficient use of equity in generating profits. Public banks typically display moderate returns compared to private banks, which leverage technology and operational efficiency to generate higher shareholder value. Higher RONW indicates strong profitability and investor confidence, whereas lower returns may signal the need for improved performance or risk management.

12. Government Securities to Total Assets, Liquid Assets to Total Assets, Liquid Assets to Total Deposits

Government securities to total assets highlights the proportion of safe assets held by banks. Punjab National Bank holds the highest proportion, indicating a conservative investment approach, whereas HDFC and ICICI hold the lowest, prioritizing lending and business growth. Liquid assets to total assets and liquid assets to total deposits show the bank's ability to meet short-term obligations. ICICI and HDFC maintain high liquidity ratios, ensuring safety for depositors, while Canara Bank and Kotak Mahindra Bank have relatively lower liquidity, which could imply higher risk under stress scenarios. Public banks generally maintain higher proportions of government securities, while private banks maintain higher liquidity relative to deposits.

Conclusion

Based on the analysis of all the variables, public sector banks such as State Bank of India, Punjab National Bank, Bank of Baroda, Union Bank, and Canara Bank generally maintain higher capital adequacy ratios, larger government securities holdings, and higher investment ratios, reflecting a conservative and stable approach with lower leverage and moderate liquidity. However, they also exhibit higher net non-performing assets and larger fluctuations in NPA growth,

indicating challenges in credit management. Private banks, including HDFC, ICICI, Kotak Mahindra, Axis, and IndusInd Bank, tend to show lower capital adequacy but higher operational efficiency, profitability per employee, business per employee, and return on net worth, coupled with lower NPAs and moderate advances to deposits ratios, suggesting effective credit appraisal and lean operations. In terms of liquidity, private banks like ICICI and HDFC maintain higher liquid assets relative to total assets and deposits, whereas some public banks rely more on government securities for safety. Overall, public banks prioritize stability and regulatory compliance with conservative lending, while private banks balance risk and profitability through efficient operations, higher leverage, and controlled credit risk, creating a clear distinction in strategy, asset quality, and performance across the banking sector.

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