

EVALUATION OF FINANCIAL PERFORMANCE OF INDIAN PRIVATE SECTOR BANKS USING CAMEL APPROACH

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ABSTRACT

The CAMEL framework is a widely used tool for assessing the financial performance and strength of banks. It evaluates banks across five key dimensions, i.e., 'Capital Adequacy', 'Asset Quality', 'Management Efficiency', 'Earnings Quality' and 'Liquidity'. These parameters provide a holistic view of a bank's operational efficiency, risk management, and financial stability. The CAMEL approach is particularly significant for regulators, investors, and stakeholders in identifying areas of strength and potential risks in banking institutions. By benchmarking performance across these parameters, the framework aids in ensuring sound financial practices and maintaining confidence in the banking system. This study applies the CAMEL framework to assess the performance of three prominent private sector banks in India, namely, 'HDFC Bank', 'Kotak Mahindra Bank', and 'IndusInd Bank' over a ten-year period (2014–2023). Using secondary data from annual reports and financial statements, the study examines key ratios and metrics under each CAMEL parameter to compare the banks' performance.

Keywords: Capital adequacy, asset quality, management efficiency, earning quality and liquidity.

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INTRODUCTION

The banking sector plays a pivotal role in ensuring economic stability and fostering growth by channelling funds efficiently between savers and borrowers. Evaluating the performance of banks is essential for regulators, investors, and stakeholders to gauge their stability and resilience in dynamic economic conditions (Allen & Gale, 2000; Barth, Caprio, & Levine, 2001). One of the most widely used frameworks for evaluating the performance of banks is the CAMEL model, which analyses five critical dimensions: 'Capital Adequacy', 'Asset Quality', 'Management Efficiency', 'EarningsQuality' and 'Liquidity' (Agyei, 2016). Capital Adequacy assesses a bank's ability to absorb potential losses through its capital base, reflecting its financial soundness and risk-bearing capacity. Asset Quality focuses on the health of the loan portfolio and its impact on profitability, as non-performing assets can erode bank earnings over time. Management Efficiency is a qualitative measure of the competency of the bank's leadership in managing resources effectively and ensuring operational excellence. Earnings performance highlights a bank's

profitability, sustainability, and capacity to invest in future growth, while Liquidity evaluates the bank's ability to meet its short-term obligations without compromising long-term stability (Altman, 1968; Diamond & Dybvig, 1983; Ho & Saunders, 1981). In recent years, the application of the CAMEL model has gained renewed importance amid global economic uncertainties and heightened regulatory oversight. It is particularly relevant for comparing banks across diverse ownership structures, geographic regions, and time frames (Baral, 2005). The present study is an attempt to assess the financial performance of banks using the ratios of the CAMEL model to identify critical insights into their operational strengths and weaknesses. The findings aim to provide an understanding of the banking sector's resilience and guide policymakers and stakeholders in decision-making.

REVIEW OF LITERATURE

Suresh and Pradhan (2023) observed that private-sector banks surpass public-sector banks in several key areas. While public sector banks have shown commendable progress, they fall short of meeting the benchmarks established by their private sector counterparts. Kiran (2018) highlights a performance disparity among Indian banks based on the CAMEL model. The study identifies 'IndusInd Bank', 'HDFC Bank', 'ICICI Bank', 'Axis Bank' and 'SBI' as the top-performing banks. In contrast, the bottom six positions are held exclusively by public sector banks, including BOB, BOI, PNB, UBI, Canara Bank, and IDBI. Private sector banks generally excel in parameters like 'capital adequacy', 'asset quality', 'management efficiency' and 'earning quality', while public sector banks outperform private ones in liquidity management. Nishat (2021) concluded that despite showing weaker performance in terms of capital adequacy, asset quality, and liquidity ratios, SBI outperforms Axis Bank due to its superior management and efficiency. The study suggests that the overall financial performance of public sector banks, like SBI, is better than that of private sector banks when considering the management and efficiency aspects. While private banks excel in certain financial parameters, public sector banks have managed to stay competitive through effective management practices. Kumar and Malhotra (2017) evaluated the financial soundness and performance of select private banks in India from 2007 to 2017 using the CAMEL model. Their analysis, which included the assessment of capital adequacy, asset quality, management efficiency, earning ability, and liquidity, found that Axis Bank ranked first among the five banks analysed, followed by ICICI Bank, Kotak Mahindra, HDFC Bank, and IndusInd Bank. The study concluded that Axis Bank was the safest among the banks in the study, owing to its strong performance across the key CAMEL parameters. Mathuva (2009) examined the relationship between the Cost-Income Ratio (CIR), Capital Adequacy Ratio (CAR), and profitability for banks from 1998 to 2007. The study found that capital adequacy had a differential impact on the profitability of banks, suggesting that a higher CAR did not always guarantee better profitability but played a significant role in financial stability. Mishra et al. (2012) analysed the performance of 12 public and private sector banks over the period from 2000 to 2011 using the CAMEL approach. The findings indicated that private-sector banks were performing better than public-sector banks. Union Bank and

SBI displayed lower economic soundness, with weaker performance on key CAMEL parameters, particularly in asset quality and management efficiency, leading to slower growth compared to their private counterparts. Mishra (2012) evaluated the performance and financial soundness of the State Bank Group using the CAMEL approach. The study found that in terms of the Capital Adequacy parameter, SBBJ (State Bank of Bikaner & Jaipur) and SBP (State Bank of Patiala) ranked highest, while SBI (State Bank of India) ranked lowest. For Asset Quality, SBBJ secured the top position, whereas SBI was again at the bottom. In the Management Efficiency parameter, SBT (State Bank of Travancore) ranked the highest, with SBBJ at the lowest. Regarding Earnings Quality, SBM (State Bank of Mysore) ranked at the top, and SBP at the bottom. Finally, in the Liquidity parameter, SBI performed the best, with SBM ranked lowest. The study suggests that SBI needs to improve the quality of assets and capital adequacy, SBBJ should focus on enhancing management efficiency, and SBP needs to strengthen its earning quality.

OBJECTIVES OF THE STUDY

1. To evaluate the performance of selected private sector banks over a ten-year period (2014–2023) using the CAMEL model.
2. To conduct a comparative analysis of the performance of selected banks during the specified ten-year period.

HYPOTHESES OF THE STUDY

1. There is no significant difference in the performance of select banks.

RESEARCH METHODOLOGY

The literature review underscores the extensive use of the CAMEL model as a robust tool for assessing bank performance. This supervisory framework evaluates the soundness of banks and financial institutions by focusing on five critical dimensions: 'Capital Adequacy', 'Asset Quality', 'Management Efficiency', 'Earnings Quality' and 'Liquidity'. Only one ratio is considered for each of the five ratios of CAMEL model. The variables used in the study are presented below:

Table 1: Ratios Used for Analysing Performance Using CAMEL Model

Parameter	Ratio	Significance	Assessment
Capital Adequacy	Capital Adequacy Ratio	The Capital Adequacy Ratio reflects a bank's adherence to regulatory standards, reflects financial stability, and acts as a crucial measure of effective risk management.	Higher the ratio better the financial health of the company.

Asset Quality	Net NPA to Net Advances	This ratio reflects the asset quality of banks by indicating the proportion of Net Non-Performing Assets (Net NPA) to Net Advances.	Lower the ratio better the asset quality.
Management Efficiency	Profit Per Employee	Profit per employee is a key metric that evaluates a company's efficiency and productivity by calculating the average profit generated by each employee.	Higher ratio is desirable.
Earning Quality	Net Interest Income to Total Asset	The ratio of net interest income to total assets is a financial measure that assesses a bank's efficiency and profitability in generating interest income from its total asset base.	Higher ratio is desirable.
Liquidity	Cash Deposit Ratio	The Cash Deposit Ratio (CDR) measures the proportion of a bank's deposits that are utilized for lending purposes.	Higher the ratio better the liquidity.

Source: Compiled by authors

In this study, financial performance is analyzed using secondary data collected from the annual reports of selected banks over a ten-year period (2013–14 to 2022–23). Financial data is being collected from the Reserve Bank of India (RBI) website. Ratios relevant to each CAMEL parameter, as supported by prior research, have been calculated to measure the banks' financial stability. Additionally, the data has been analyzed using mean and SD, along with one-way ANOVA to draw meaningful conclusions from the findings.

RESULTS AND DISCUSSION

Table 2 demonstrates that all the banks included in the study have successfully maintained the minimum Capital Adequacy Ratio (CAR) of 8%, as mandated by BASEL II guidelines. Among the three private sector banks analysed Kotak Mahindra Bank reported the highest average CAR of 18.9420% over the ten-year period, earning it the top rank in terms of capital adequacy. HDFC Bank follows with an average CAR of 17.0340%, securing the second rank, while IndusInd Bank, with an average CAR of 15.4620%, ranks third.

Table 2: Capital Adequacy Ratio

Bank	Mean	Rank	S. D.	F value	p-value
HDFC Bank	17.0340	2	1.76564	7.188	.003
Kotak Mahindra Bank	18.9420	1	2.39721		
IndusInd Bank	15.4620	3	1.95213		

Source: Statistical Tables Pertaining to Banks in India, published by the RBI

To assess whether the differences in CAR among the three banks are statistically significant, one-way ANOVA test has been conducted. The analysis yielded a p-value of 0.003, which is below the threshold of 0.05, indicating a significant variation in CAR across the banks. This highlights that the capital adequacy levels differ substantially among the selected banks during the study period.

Table 3: Net NPA/Net Advances

Bank	Mean	Rank	S. D.	F value	p-value
HDFC Bank	.3270	1	.05813	23.999	.000
Kotak Mahindra Bank	.9820	3	.22250		
IndusInd Bank	.5940	2	.28760		

Source: Statistical Tables Pertaining to Banks in India, published by the RBI

Table 3 indicates the Net NPA/Net Advances ratios of three private sector banks included in the study. Among these, HDFC Bank exhibits the lowest average ratio of 0.3270. Kotak Mahindra Bank, on the other hand, has the highest average ratio at 0.9820, indicating relatively higher non-performing assets compared to its advances. IndusInd Bank lies in between, with a mean ratio of 0.5940.

One-way ANOVA has been employed to determine whether there are significant differences in the Net NPA/Net Advances ratios among the three banks. The analysis shows an F-value of 23.999 and a p-value of 0.000, which is below the 0.05 significance level. This confirms that there is a statistically significant difference in the Net NPA ratios of the banks during the study period.

Table 4: Profit per employee (Rupees in Lakh)

Bank	Mean	Rank	S. D.	F value	p-value
HDFC Bank	20.2000	1	6.61312	10.525	.000

Kotak Mahindra Bank	11.9000	3	2.33095		
IndusInd Bank	12.4110	2	3.53641		

Source: Statistical Tables Pertaining to Banks in India, published by the RBI

Table 4 provides insights into the Profit Per Employee (measured in rupees lakh) for selected banks. Among the banks, HDFC Bank demonstrates the highest average 'profit per employee' at 20.2000. IndusInd Bank follows with a mean profit per employee of 12.4110, while Kotak Mahindra Bank reports the lowest average of 11.9000. Based on the findings, 'HDFC Bank' has been ranked first in terms of 'profit per employee', which is followed by 'IndusInd Bank' and 'Kotak Mahindra Bank'.

One-way ANOVA has been conducted to evaluate whether the differences in profit per employee among the three banks are statistically significant. The analysis yielded an F-value of 10.525 and a p-value of 0.000, which is below the significance level of 0.05. This confirms that there is a significant difference in profit per employee across the banks during the study period.

Table 5: Net Interest Income/ Total Asset

Bank	Mean	Rank	S. D.	F value	p-value
HDFC Bank	4.0512	2	.14668	8.843	.001
Kotak Mahindra Bank	4.2154	1	.27941		
IndusInd Bank	3.7829	3	.24937		

Source: Statistical Tables Pertaining to Banks in India, published by the RBI

Table 5 provides an analysis of the Net Interest Income to Total Asset ratio for three banks. Kotak Mahindra Bank exhibits the highest mean ratio at 4.2154, indicating its superior performance in efficiently generating interest income relative to its total assets. HDFC Bank follows with a mean ratio of 4.0512, while IndusInd Bank reports the lowest average ratio of 3.7829. This ranking places Kotak Mahindra Bank first in the case of Net Interest Income to Total Asset ratio, followed by HDFC Bank and IndusInd Bank.

One-way ANOVA has been carried out to assess whether the variances in the Net Interest Income to Total Asset ratio among the banks are statistically significant. The analysis produced an F-value of 8.843 and a p-value of 0.001, which is below the significance threshold of 0.05. This confirms the presence of a significant difference in the Net Interest Income to Total Asset ratio across the three banks during the study period.

Table 6: Cash Deposit Ratio

Bank	Mean	Rank	S. D.	F value	p-value
HDFC Bank	7.0869	2	2.36315	1.820	.181
Kotak Mahindra Bank	5.4551	3	2.20333		
IndusInd Bank	8.3054	1	4.82401		

Source: Statistical Tables Pertaining to Banks in India, published by the RBI

Table 6 examines the Cash Deposit Ratio across three selected banks. 'IndusInd Bank' reports the highest average 'Cash Deposit Ratio' at 8.3054, suggesting its relatively strong liquidity position compared to its peers. 'HDFC Bank' follows with a mean ratio of 7.0869, while 'Kotak Mahindra Bank' records the lowest ratio of 5.4551. This ranking places 'IndusInd Bank' at the top, followed by 'HDFC Bank' and 'Kotak Mahindra Bank'.

One-way ANOVA has been performed to determine if the differences in the Cash Deposit Ratio among the banks are statistically significant. The analysis yielded an F-value of 1.820 and a p-value of 0.181, which exceeds the significance threshold of 0.05. Therefore, the differences in the Cash Deposit Ratio among the three banks are not statistically significant during the study period.

Table 7: Ranking of Banks Based on Select Ratios of Camel Approach

Bank	Rank in Capital Adequacy	Rank in Asset Quality	Rank in Management Efficiency	Rank in Earning Quality	Rank in Liquidity	Average of Ranks of Camel Parameters	Final Rank
HDFC Bank	2	1	1	2	2	1.6	1
Kotak Mahindra Bank	1	3	3	1	3	2.2	2
IndusInd Bank	3	2	2	3	1	2.2	2

Table 7 presents the performance rankings of banks based on individual CAMEL parameters and their average composite rank. 'Kotak Mahindra Bank' excelled in the capital adequacy ratio, ranking first, followed by 'HDFC Bank' and 'IndusInd Bank'. In asset quality, 'HDFC Bank' secured the top position, with 'IndusInd Bank' and 'Kotak Mahindra Bank' ranking second and third, respectively. For management efficiency,

'HDFC Bank' again ranked first, followed by 'IndusInd Bank' and 'Kotak Mahindra Bank'. In terms of earning quality, 'Kotak Mahindra Bank' outperformed, achieving the first rank, with 'HDFC Bank' and 'IndusInd Bank' taking second and third places, respectively. 'IndusInd Bank' led in liquidity, followed by 'HDFC Bank' and 'Kotak Mahindra Bank'. In the overall composite ranking of all CAMEL parameters, 'HDFC Bank' emerged as the best-performing bank. 'Kotak Mahindra Bank' and 'IndusInd Bank' tied for second place, both achieving an average rank of 2.2.

CONCLUSION

The CAMEL model is a widely recognized framework for assessing banks' financial performance, stability, and operational efficiency. By examining five critical dimensions Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity it provides a comprehensive evaluation of a bank's overall health and sustainability. The importance of this model lies in its ability to guide regulatory bodies, stakeholders, and investors in making informed decisions while ensuring that banks adhere to sound financial practices.

In this study, the performance of three leading private sector banks 'HDFC Bank', 'Kotak Mahindra Bank' and 'IndusInd Bank' was analysed using the CAMEL model. Each parameter of the CAMEL framework was evaluated individually, and the banks were ranked accordingly. The findings reveal that 'Kotak Mahindra Bank' performed best in terms of capital adequacy and earning quality, while 'HDFC Bank' led in asset quality and management efficiency. 'IndusInd Bank' stood out in terms of liquidity.

When considering the composite ranking across all CAMEL parameters, 'HDFC Bank' emerged as the top-performing bank, showcasing its balanced and consistent performance across multiple dimensions. 'Kotak Mahindra Bank' and 'IndusInd Bank' shared the second position with an average ranking of 2.2. This study highlights the utility of the CAMEL model in identifying the strengths and weaknesses of individual banks and provides insights for policymakers and management to enhance performance.

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