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EVALUATING FINANCIAL STABILITY: A CAMEL MODEL STUDY OF INDIA'S PUBLIC AND PRIVATE SECTOR BANKS

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ABSTRACT

The banking sector plays a crucial role in the economic development of any country by mobilizing public deposits and directing them into productive investments. This study focuses on comparing the financial performance of five public sector banks (SBI, Bank of Baroda, Punjab National Bank, Union Bank, Canara Bank) and five private sector banks (HDFC, ICICI, Axis Bank, Kotak Mahindra, IDBI) for the fiscal years 2019-20 and 2023-24 using CAMEL Analysis. The study employs financial ratios and trend analysis to evaluate the differences in performance, strategies, and governance between public and private sector banks, offering insights into sectoral strengths and areas for improvement.

KEYWORDS: *CAMEL model, financial performance, capital adequacy, asset quality, Management Efficiency, Earnings, and Liquidity.*

INTRODUCTION

The banking sector plays a pivotal role in the economic development of any country. As financial intermediaries, banks mobilize public deposits and channel them into productive investments, thus fostering capital formation and economic growth. With increasing globalization, liberalization, and technological advancements, the Indian banking sector has undergone significant transformation over the past two decades. In this competitive environment, it becomes imperative to evaluate the financial health and performance of banks to ensure stability, efficiency, and long-term sustainability. To measure the financial performance and soundness of banks, the **CAMEL analysis** has emerged as a comprehensive and widely accepted supervisory tool. CAMEL is an acronym that stands for **Capital Adequacy, Asset Quality, Management Efficiency, Earnings, and Liquidity**. It is used by regulatory authorities and financial analysts worldwide to assess the overall health of banks. Each of these parameters gives critical insights into different aspects of bank performance, such as the bank's ability to withstand risks, quality of lending, operational efficiency, profitability, and liquidity management.

The rationale behind selecting both public and private sector banks lies in understanding the difference in performance, strategy, and governance. Public sector banks in India are generally characterized by large branch networks, government ownership, and a more traditional approach to banking. On the other hand, private sector banks are known for better technological adoption, customer-centric services, and relatively agile decision-making. By comparing the performance of these two categories, the study attempts to highlight sectoral strengths and areas of improvement.

REVIEW OF LITERATURE

Visalakshi and Kasilingam (2016): The study used the CAMEL model to compare ten Indian banks, finding HDFC Bank to be the top performer and Indian Overseas Bank the weakest due to poor asset quality. It emphasizes the need for weaker banks to improve risk management and asset quality for financial stability.

Hanmanth and Waghmare (2018): Analyzing Canara Bank through the CAMEL model, the study found satisfactory capital and liquidity but declining asset quality and profitability due to rising NPAs. It recommends strengthening asset quality and management soundness to enhance stability.

Sukanya (2019): The study found Kotak Mahindra Bank leading in performance across all CAMEL parameters, while public sector banks like Punjab National Bank lagged behind. It highlights the superior performance of private banks and calls for reforms in public bank management.

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Shelly and Singhal (2020): Public sector banks maintained capital adequacy but faced asset quality challenges due to growing NPAs, with Indian Bank ranking highest. The study urges improvements in asset quality and risk management practices.

Ray and Raha (2023): HDFC Bank consistently outperformed SBI in most CAMEL parameters, except for SBI's stronger debt-equity ratio. The study suggests public banks should adopt private sector best practices to boost overall performance.

Chowdhary and Das (2023): HDFC Bank outperformed SBI in capital adequacy, asset quality, and profitability, although NPAs impacted both differently. The authors recommend SBI focus on improving risk management and asset utilization.

RESEARCH METHODOLOGY

This study adopts a descriptive research design to examine the financial performance of public and private sector banks in India through the CAMEL model. A sample of five public sector banks (SBI, Bank of Baroda, Punjab National Bank, Union Bank, Canara Bank) and five private sector banks (HDFC, ICICI, Axis Bank, Kotak Mahindra, IDBI) has been selected for analysis for the fiscal years 2019-20 and 2023-24.

OBJECTIVE

1) To Assess the bank's capital adequacy and financial stability.
2) To Evaluate the quality of the bank's assets and loan portfolio.
3) To Analyze the effectiveness of bank management and decision-making.
4) To Measure the bank's profitability and earnings performance.
5) To Examine the bank's liquidity position and ability to meet obligations.

CAMEL ANALYSIS

CAMEL Analysis is a widely used framework for evaluating the financial performance and health of banks. The acronym CAMEL stands for the following five key components:

Capital Adequacy	1. Capital Adequacy Ratio (CAR)= (Tier 1 + Tier 2 Capital) / Risk-Weighted Assets × 100 2. Debt Equity Ratio= Total Debt / Shareholders' Equity 3. Total Advances to Total Asset Ratio = Total Advances / Total Asset
Asset Quality	1. Gross NPA Ratio= (Gross Non-Performing Assets / Total Loans) × 100 2. Net NPA Ratio= (Net Non-Performing Assets / Net Advances) × 100
Management Efficiency	1. Asset Turnover Ratio= Net Sales / Average Total Assets
Earnings and Profitability	1. Net Profit Ratio= (Net Profit / Total Revenue) × 100 2. Earnings per Share= (Net Income − Preferred Dividends)/End-of-Period Common Shares Outstanding 3. Return on Net Worth (ROE)= Net Income /Shareholders' Equity 4. Return on Assets=Net Income/Total Assets
Liquidity	1. Current Ratio=Total current assets/ Total current liabilities 2. Liquidity Asset to Total Asset Ratio=Liquidity Asset / Total Assets

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Capital Adequacy Ratio (CAR)

PUBLIC BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
SBI	13.23	13.74	13.83	14.68	14.28	13.95	0.55	5
BOB	13.30	14.99	15.84	16.24	16.31	15.34	1.25	1
PNB	14.15	14.32	14.50	15.50	15.97	14.89	0.80	3
Union Bank	12.81	12.56	14.52	16.04	16.97	14.58	1.94	4
Canara Bank	13.65	13.18	14.90	16.68	16.28	14.94	1.55	2
PRIVATE BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
HDFC	16.11	19.12	19.16	19.26	18.80	18.49	1.34	2
ICICI	16.11	19.12	19.16	18.34	16.33	17.81	1.49	5
AXIS	17.53	19.12	18.54	17.64	16.63	17.89	0.96	4
KOTAK MAHINDRA	17.90	22.30	22.70	21.80	20.50	21.04	1.94	1
IDBI	13.31	15.59	19.06	20.44	22.26	18.13	3.64	3

The Capital Adequacy Ratio (CAR) indicates a bank's financial strength and ability to absorb risks. Among public sector banks, Bank of Baroda showed the highest mean CAR (15.34) with relatively low variability, ranking it first, while SBI had the lowest mean (13.95) and ranked fifth. In contrast, private banks generally performed better, with Kotak Mahindra Bank leading (mean 21.04), reflecting strong capital buffers. However, IDBI, despite a high mean (18.13), showed the highest variability (SD 3.64), indicating inconsistency. Overall, private banks demonstrated stronger and more consistent capital adequacy compared to their public counterparts.

Gross NPA Ratio

PUBLIC BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
SBI	6.46	4.99	3.97	2.84	2.24	4.10	1.69	5
BOB	9.40	9.14	6.61	3.79	2.92	6.37	2.98	3
PNB	14.21	14.12	11.78	9.31	7.21	11.33	3.06	1
Union Bank	14.15	14.58	11.23	7.53	4.76	10.45	4.25	2
Canara Bank	4.76	8.93	7.51	5.35	4.23	6.16	1.99	4
PRIVATE BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
HDFC	1.26	1.32	1.17	1.17	1.24	1.23	0.06	5
ICICI	6.42	6.64	6.95	3.34	4.37	5.54	1.60	2
AXIS	4.86	5.20	2.82	3.23	1.47	3.52	1.53	3
KOTAK MAHINDRA	2.29	1.33	2.55	1.80	2.39	2.07	0.50	4
IDBI	22.84	22.37	19.14	12.51	15.82	18.54	4.40	1

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The Gross NPA (Non-Performing Assets) Ratio reflects the asset quality and credit risk of banks. Among public sector banks, PNB had the highest average NPA (11.33) and ranked lowest, indicating significant asset quality issues, while SBI showed the best performance with the lowest mean NPA (4.10). In the private sector, HDFC Bank led with an exceptionally low and stable NPA (mean 1.23, SD 0.06), reflecting strong credit management. In contrast, IDBI had the highest mean NPA (18.54) and the most volatility, indicating poor asset quality and risk control. Overall, private banks demonstrated better asset quality and consistency compared to public banks.

Asset Turnover Ratio

PUBLIC BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
SBI	7.50	6.80	6.14	6.49	3.04	5.99	1.73	5
BOB	7.34	7.53	6.90	8.00	7.64	7.48	0.40	2
PNB	7.27	5.55	7.59	6.70	7.70	6.96	0.88	3
Union Bank	4.39	7.29	5.62	7.48	8.38	6.63	1.60	4
Canara Bank	7.67	7.90	7.17	8.38	8.53	7.93	0.55	1
PRIVATE BANKS								
BANKS	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	MEAN	SD	RANK
HDFC	5.20	9.02	7.06	8.03	4.36	6.73	1.94	4
ICICI	8.42	8.06	7.48	8.69	8.87	8.30	0.55	2
AXIS	4.45	9.02	4.11	4.35	2.30	4.85	2.49	5
KOTAK MAHINDRA	10.71	6.50	6.23	10.24	10.24	8.78	2.22	1
IDBI	12.70	6.80	7.10	6.51	8.30	8.28	2.56	3

The Asset Turnover Ratio measures how efficiently banks use their assets to generate revenue. Among public sector banks, Canara Bank had the highest efficiency with a mean ratio of 7.93 and low variability, ranking first, while SBI lagged with the lowest mean (5.99) and highest inconsistency. In the private sector, Kotak Mahindra Bank topped with a high mean of 8.78, indicating strong asset utilization, despite some variability. Axis Bank showed the weakest performance (mean 4.85, SD 2.49), highlighting inconsistency in asset use. Overall, private banks, especially Kotak and ICICI, displayed superior efficiency, though some showed significant fluctuations.

Net Profit Ratio

PUBLIC BANKS								
BANKS	**2019-2020**	**2020-2021**	**2021-2022**	**2022-2023**	**2023-2024**	**MEAN**	**SD**	**RANK**
SBI	4.89	6.65	11.56	14.03	32.50	13.93	11.01	1
BOB	3.56	0.96	8.76	14.66	16.21	8.83	6.67	3
PNB	0.56	2.29	3.62	2.58	6.90	3.19	2.35	5
Union Bank	6.06	3.76	2.45	8.84	11.78	6.58	3.79	4
Canara Bank	14.03	2.97	6.61	10.28	12.42	9.26	4.48	2
PRIVATE BANKS								
BANKS	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	MEAN	SD	RANK
HDFC	33.05	22.54	23.51	23.11	38.55	28.15	7.26	1
ICICI	3.69	8.09	23.94	22.56	19.95	15.65	9.15	4
AXIS	3.99	3.99	26.94	37.37	18.86	18.23	14.56	3
KOTAK MAHINDRA	22.27	21.57	26.79	26.65	26.65	24.79	2.63	2
IDBI	23.62	6.68	2.40	14.87	18.76	13.27	8.68	5

The Net Profit Ratio reflects a bank's profitability relative to its revenue. Among public sector banks, SBI had the highest mean (13.93) and ranked first, with a sharp increase in recent years boosting its overall performance. PNB had the lowest average (3.19), indicating

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weaker profit margins. In the private sector, HDFC Bank outperformed all with a strong and consistent mean of 28.15, followed closely by Kotak Mahindra at 24.79. ICICI and Axis Bank showed high profits but also higher variability, suggesting fluctuations in profitability. Overall, private banks demonstrated significantly better profitability than public banks.

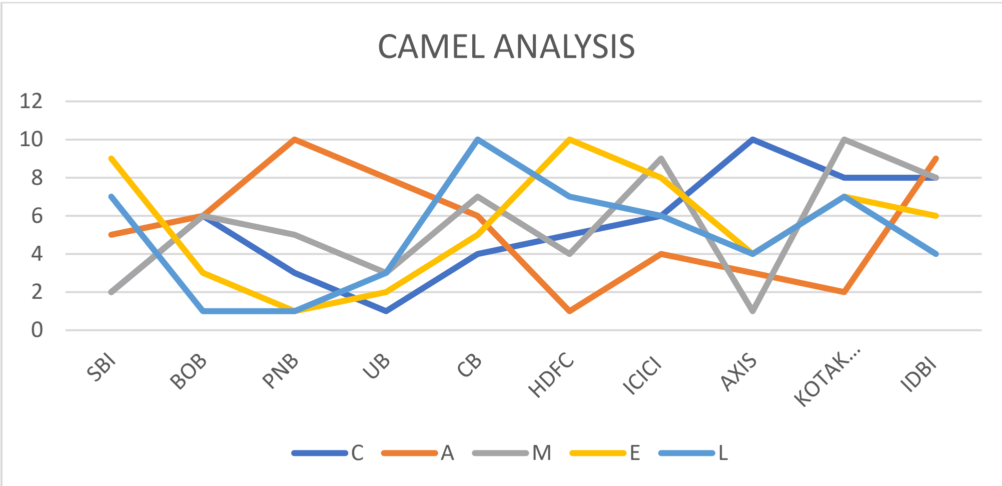
Current Ratio

PUBLIC BANKS								
BANKS	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	MEAN	SD	RANK
SBI	1.54	3.82	1.21	0.54	4.21	2.26	1.64	3
BOB	4.12	0.92	1.10	1.49	1.25	1.78	1.33	5
PNB	5.38	0.35	1.00	1.41	1.41	1.91	1.99	4
Union Bank	4.01	0.93	4.17	4.51	2.18	3.16	1.54	2
Canara Bank	4.13	4.01	4.16	8.48	1.07	4.37	2.65	1
PRIVATE BANKS								
HDFC	1.45	1.48	0.37	0.41	0.14	0.77	0.64	4
ICICI	9.26	1.48	1.20	2.80	1.33	3.21	3.44	1
AXIS	0.54	0.85	0.45	0.43	0.82	0.62	0.20	5
KOTAK MAHINDRA	5.98	4.00	0.23	4.00	0.26	2.89	2.55	3
IDBI	4.35	2.30	2.30	1.23	4.63	2.96	1.47	2

The Current Ratio measures a bank's ability to meet short-term liabilities with its short-term assets. Among public sector banks, Canara Bank led with the highest mean (4.37), reflecting strong short-term liquidity, while Bank of Baroda ranked lowest with a mean of 1.78 and high inconsistency. In the private sector, ICICI Bank had the highest average (3.21) and ranked first, though with noticeable variability. Axis Bank showed the weakest liquidity (mean 0.62), suggesting potential short-term solvency concerns. Overall, both sectors showed mixed performance, with individual banks like Canara and ICICI excelling in liquidity management.

CAMEL ANALYSIS

PUBLIC BANKS								
BANKS	C	A	M	E	L	MEAN	SD	RANK
SBI	2	5	9	6	7	5.8	2.59	2
BOB	6	6	5	4	1	4.4	2.07	4
PNB	3	10	6	1	1	4.2	3.83	5
Union Bank	1	8	8	3	3	4.6	3.21	3
Canara Bank	4	6	4	8	10	6.4	2.61	1
PRIVATE BANKS								
HDFC	5	1	7	10	7	6.0	3.32	2
ICICI	6	4	2	8	6	5.2	2.28	3
AXIS	10	3	10	6	4	6.6	3.29	1
KOTAK MAHINDRA	8	2	1	5	7	4.6	3.05	4
IDBI	8	9	3	9	4	6.6	2.88	1



The CAMEL analysis evaluates banks across five key dimensions: Capital Adequacy (C), Asset Quality (A), Management Efficiency (M), Earnings (E), and Liquidity (L). Among public sector banks, Canara Bank ranked highest with a mean score of 6.4, indicating strong performance overall, especially in earnings and liquidity. SBI followed with a balanced profile and strong capital adequacy. PNB ranked lowest, reflecting weaknesses in earnings and liquidity. In the private sector, both Axis Bank and IDBI topped with a mean score of 6.6, though IDBI had slightly less variability, indicating more consistent performance. Overall, private banks outperformed public banks in the CAMEL framework, reflecting better financial health and management efficiency.

FINDING

The CAMEL analysis evaluates banks across five critical parameters: Capital adequacy (C), Asset quality (A), Management efficiency (M), Earnings (E), and Liquidity (L). Among public sector banks, Canara Bank (CB) achieved the highest overall performance with a mean score of 6.4 and ranked 1st, driven by strong earnings and liquidity. Conversely, Punjab National Bank (PNB) ranked lowest due to weak performance in earnings and liquidity, reflected in its high standard deviation (3.83). In the private sector, Axis Bank and IDBI both shared the top position with a mean score of 6.6, although IDBI showed slightly better consistency. Kotak Mahindra and ICICI also performed well but showed moderate variability.

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