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Strategic Insights into Bank Performance: CAMELS Analysis of Indian Banks

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Abstract

The banking sector is a cornerstone of the global economy, driving economic growth, financial stability, and efficient resource allocation. Assessing the financial health and operational effectiveness of banks is crucial for maintaining the stability of the broader financial system. The CAMEL model, a well-established analytical framework, provides a comprehensive approach to evaluating key aspects of banking performance, including Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity. This model highlights areas for improvement and ensures a thorough assessment of a bank's financial soundness. Extensive research has confirmed the model's applicability across various global contexts, including India, Nepal, Pakistan, Saudi Arabia, and Sri Lanka, consistently identifying asset quality, capital adequacy, and earnings as essential drivers of profitability. The model also reveals that private banks generally outperform public banks in most parameters. Moreover, the CAMEL model has proven to be a valuable tool in promoting financial inclusion, particularly through the analysis of Small Finance Banks, and its adaptability to emerging markets further underscores its relevance. Despite its broad applicability, gaps exist in the literature, particularly regarding the model's adaptation to diverse regulatory environments and market dynamics. Addressing these gaps will enable more customized strategies for financial analysis and risk management, enhancing the resilience of the global banking system. This study aims to contribute to this discourse by exploring the nuanced use of the CAMEL model in assessing the financial performance of banks in varied contexts. The findings aim to offer actionable insights for improving financial performance, managing risks, and fostering sustainable growth in the banking industry.

Keywords: CAMEL model, financial health, capital adequacy, asset quality, profitability, financial performance.

1. Introduction

The banking sector is integral to the global economy, acting as a catalyst for economic growth, financial stability, and the efficient allocation of resources. Understanding the financial health and operational efficacy of banks is paramount to maintaining the stability of the broader financial system. The CAMEL model, a widely accepted analytical framework, offers a robust methodology for evaluating key components of banking performance. By focusing on Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity, the model enables a comprehensive assessment of a bank's financial soundness, highlighting areas for potential improvement. Extensive research has demonstrated the versatility of the CAMEL model, showcasing its applicability across diverse geographical and economic con-

texts, including countries like India, Nepal, Pakistan, Saudi Arabia, and Sri Lanka. These studies consistently reveal that asset quality, capital adequacy, and earnings are crucial drivers of a bank's profitability, while the effects of management efficiency and liquidity often vary depending on the specific context. Furthermore, comparisons between private and public sector banks indicate that private banks typically exhibit superior performance in most CAMEL parameters, further emphasizing the model's relevance in evaluating competitive banking landscapes.

In addition to its established role in assessing traditional banking performance, the CAMEL model has proven invaluable in fostering financial inclusion through the analysis of Small Finance Banks. Its adaptability to emerging markets further enhances its significance in today's rapidly evolving financial environment. However, gaps remain in the literature, particularly regarding the model's application across varying regulatory frameworks, market dynamics, and institutional structures. Addressing these gaps will pave the way for more tailored approaches to financial analysis and risk management, reinforcing the stability and resilience of the global banking system. This study seeks to contribute to this ongoing dialogue by exploring the nuanced application of the CAMEL model in assessing the financial performance of banks across different contexts. Through this analysis, the research aims to deepen our understanding of the determinants of banking success and provide actionable insights for improving financial performance, mitigating risks, and fostering sustainable growth within the banking industry.

2. Literature Review:

The literature review highlights the widespread use of the CAMEL model to assess bank performance, focusing on key parameters like capital adequacy, asset quality, management efficiency, earnings, and liquidity. Studies across regions such as India, Nepal, Pakistan, Saudi Arabia, and Sri Lanka emphasize its relevance in evaluating financial health and identifying areas for improvement. Common findings include the importance of asset quality, earnings, and capital adequacy for profitability, while management efficiency and liquidity have varied impacts. Private sector banks often outperform public ones, and adherence to regulatory frameworks like Basel guidelines is crucial. Research also stresses the role of Small Finance Banks and emerging markets in promoting financial inclusion. Despite extensive use, gaps exist in understanding the CAMEL model's adaptability to diverse regulatory environments and institutional contexts. Addressing these gaps can enhance its utility for global banking analysis and risk management.

1. **Jerin Sunil (2023):** Analyzed South Indian Bank and HDFC Bank's performance using the CAMEL model over five years. HDFC Bank excelled in asset quality and earnings, offering valuable insights for stakeholders.
2. **Kanchan et al. (2023):** Evaluated Small Finance Banks' (SFBs) performance using the CAMEL model. Highlighted their positive role in financial inclusion and the need to sustain this growth.
3. **Hari Krishna et al. (2023):** Compared Bank of Baroda and Punjab National Bank, finding strengths in specific CAMEL parameters for each. Recommended strategic improvements in asset quality and risk sensitivity.
4. **Sushendra Kumar Mishra (2022):** Examined State Bank Group's financial health, noting strengths and areas needing improvement. Suggested enhancing asset quality and management efficiency for better overall performance.
5. **Rohit Kumar (2022):** Investigated CAMEL parameters' effects on Nepalese banks' profitability. Highlighted the importance of earnings quality, capital adequacy, and reducing non-performing loan

6. **Prem Parihar (2021):** Compared SBI and HDFC Bank, concluding that HDFC Bank outperformed in profitability and efficiency. Provided insights into public and private banking performance.
7. **Meraj Banu et al. (2021):** Assessed HDFC, ICICI, SBI, and Syndicate Bank using CAMELS ratings, highlighting the sector's stability and areas for improvement.
8. **Abdullah Saeed Qureshi (2021):** Evaluated Pakistani banks using the CAMEL model, emphasizing the need for better asset quality and adherence to Basel guidelines.
9. **Dania AL (2021):** Studied Saudi banks, revealing how CAMEL factors influence deposits, with varying effects from asset quality and liquidity.
10. **Priyanka Jha (2021):** Discussed the CAMEL approach's role in assessing global bank performance and regulatory supervision.
11. **Anthony Magoma et al. (2021):** Analyzed Tanzanian banks, noting the significant impact of earnings and liquidity on financial performance.
12. **Mathiraj (2020):** Explored Indian nationalized banks using the CAMEL model, underlining its importance in evaluating performance amidst sector complexities.
13. **Alsajed Asaad Kamal (2019):** Focused on Iraqi banks, emphasizing the CAMELS model's relevance in strengthening financial systems in developing economies.
14. **B Lavanya (2018):** Compared the financial health of Indian private banks, with HDFC Bank leading across parameters.
15. **Vinod Kumar (2017):** Assessed Indian private banks over a decade, identifying Axis Bank as the top performer.
16. **Khaled et al. (2017):** Evaluated Palestinian banks, identifying areas for improvement in financial health and efficiency.
17. **Ahamed Lebbe Abdul Rauf (2016):** Highlighted private banks' superior performance in Sri Lanka over public banks using the CAMEL model.
18. **Ruchi Gupta (2014):** Evaluated Indian public sector banks, stressing rigorous assessments to maintain financial system stability.
19. **Golam Mohiuddin (2014):** Analyzed Bangladeshi banks, emphasizing effective financial management to ensure sector growth.
20. **Suresh (2013):** Compared public and private Indian banks, providing insights into sector strengths and weaknesses.

Research Gap

Most studies evaluate banks using the CAMEL model but lack focus on its application across diverse banking environments. Little research explores the impact of regulatory frameworks, market conditions, and institutional structures on CAMEL's effectiveness. Addressing this gap could lead to customized strategies for financial analysis and risk management, enhancing the model's global relevance.

Statement of the Problem :

Banks are vital to economic growth and stability, making the evaluation of their financial health crucial. However, despite regulatory efforts, challenges persist in assessing bank performance effectively. This study addresses these challenges by applying the CAMELS model to analyze the financial health of select banks. The research identifies key factors influencing their performance and evaluates the CAMELS model's utility in predicting financial outcomes. The ultimate goal is to strengthen the regulatory framework and enhance the resilience and stability of the banking sector.

Need for the Study:

In an evolving banking landscape marked by increased regulation and market dynamics, the need for comprehensive financial health assessments has become critical. The CAMELS model provides a robust framework for evaluating banks' performance across key parameters like capital adequacy, asset quality, management efficiency, earnings, and liquidity. By leveraging this model, the study offers actionable insights for regulators, investors, and bank executives. It aims to improve risk management, boost transparency, foster investor confidence, and guide strategic decisions, contributing to a resilient and stable banking sector.

Objectives of the Study

- To analyze the financial performance of select banks using the CAMELS model.
- To propose measures for improving banking performance.

Research Methodology:

The study relies on secondary data collected from reliable sources, including Moneycontrol.com, official bank websites, and the Capital Line database. The sample comprises data from 10 banks analyzed over a five-year period to ensure comprehensive insights. For statistical evaluation, the CAMELS model was employed to assess the financial performance of the selected banks across various parameters. Additionally, the Chi-square test was used to examine associations and identify significant patterns within the data.

Hypotheses

1. **Capital Adequacy Ratio**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

2. **Debt-Equity Ratio**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

3. **Gross NPA to Total Assets**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

4. **Net NPA to Total Advances**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

5. **Profit Per Employee**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

6. **Business Per Employee**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

7. **Return on Assets (ROA)**

a. H0: No significant difference among select banks.
b. H1: Significant difference exists among select banks.

8. **Return on Equity (ROE)**

a. H0: No significant association.
b. H1: Significant association exists.

9. Cash to Total Assets

a. H0: No significant association.
b. H1: Significant association exists.

10. Credit to Total Deposits

a. H0: No significant association.
b. H1: Significant association exists.

3. Data Analysis and Interpretation:

CAPITAL ADEQUACY RATIO

CAR =	Tier 1 Capital + Tier 2 Capital
	Risk Weighted Assets

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	16.1	13.8	15.3	10.7	10.2	66.1	13.2	2.66	2.15	0.71
UCO Bank	16.5	13.7	13.7	11.7	10.7	66.3	13.2	2.24	1.51	0.83
CBI	14.1	13.8	14.8	11.7	9.61	64.1	12.8	2.13	1.42	0.84
UBI	16.0	14.5	12.5	12.8	11.7	67.7	13.5	1.72	0.87	0.93
Bank of Maharashtra	18.1	16.4	14.4	13.5	11.8	74.4	14.9	2.47	1.63	0.80
Bank of India	16.2	16.5	14.9	13.1	14.1	75.0	15.0	1.43	0.55	0.97
PNB	0	14.5	14.3	14.1	9.7	52.6	10.5	6.22	14.68	0.01
Canara Bank	16.6	14.9	13.1	13.6	11.9	70.3	14.0	1.82	0.94	0.92
Indian Bank	16.4	16.5	15.7	14.1	13.2	76.0	15.2	1.48	0.58	0.97
SBI	14.6	13.8	13.7	13.0	12.7	68.0	13.6	0.76	0.17	1.00

Interpretation:

Based on the p-value analysis, a p-value less than 0.05 (5%) leads to rejecting the null hypothesis (H_0), as seen with Punjab National Bank. Conversely, a p-value greater than 0.05 (5%) supports accepting the alternative hypothesis (H_1), applicable to Indian Overseas Bank, UCO Bank, Central Bank, Bank of

Maharashtra, Bank of India, Canara Bank, Indian Bank, and State Bank of India. In terms of average performance, Indian Bank excelled with a capital adequacy ratio of 15.21, while Punjab National Bank lagged at 10.54. Chi-square analysis revealed Punjab National Bank achieving a good financial performance score of 14.38, whereas State Bank of India scored lower at 0.17.

DEBT EQUITY RATIO

$$\text{Debt/Equity} = \frac{\text{Total Liabilities}}{\text{Total Shareholder's Eqity}}$$

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	0.82	0.68	0	0	0	1.5	0.30	0.41	2.28	0.68
UCO Bank	0	0	0	0	0	0	0.00	0.00	0.00	1.00
CBI	0.14	0.25	0	0	0	0.39	0.08	0.11	0.66	0.96
UBI	0.68	0.99	0	0	0	1.67	0.33	0.47	2.65	0.62
Bank of Maharashtra	0.49	0.42	0	0	0	0.91	0.18	0.25	1.38	0.85
Bank of India	0.24	0.23	0	0	0	0.47	0.09	0.13	0.71	0.95
PNB	0	0.76	0	0	0	0.76	0.15	0.34	3.04	0.55
Canara Bank	0	0	0	0	0	0	0.00	0.00	0.00	1.00
Indian Bank	0	0	0	0	0	0	0.00	0.00	0.00	1.00
SBI	0	0	0	0	0	0	0.00	0.00	0.00	1.00

Interpretation: Based on the p-value, since it is greater than 0.05 (5%), the alternative hypothesis (H_1) is accepted for all selected banks. Regarding the average, Union Bank of India performed well with a debt-equity ratio of 0.33, while Canara Bank, Indian Bank, UCO Bank, and State Bank of India had low performance with a ratio of 0.00. In the Chi-square analysis, Punjab National Bank showed strong financial performance with a score of 3.04, while Canara Bank, Indian Bank, UCO Bank, and State Bank of India had lower performance, all scoring 0.00.

GROSS NPA TO TOTAL ASSET RATIO:

$$\text{Gross Non Performing Asset} = \frac{\text{Total Gross NPA's}}{\text{Total Assets}}$$

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	7.44	9.82	0	0	0	17.26	3.45	4.80	10.31	0.31
UCO Bank	4.78	7.89	0	0	0	12.67	2.5	3.64	7.00	0.46

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CBI	8.44	14.84	0	0	0	23.28	4.66	6.77	19.00	0.15
UBI	7.53	11.11	0	0	0	18.64	3.73	5.26	12.43	0.26
Bank of Maharashtra	2.47	3.94	0	0	0	6.41	1.28	1.83	9.85	0.77
Bank of India	7.31	9.98	0	0	0	17.29	3.46	4.83	14.52	0.31
PNB	0	11.78	0	0	0	11.78	2.36	5.27	31.60	0.26
Canara Bank	5.35	7.51	0	0	0	12.86	2.57	3.60	20.19	0.46
Indian Bank	5.95	8.47	0	0	0	14.42	2.88	4.05	22.72	0.40
SBI	2.78	3.97	4.98	6.15	0	17.88	3.58	2.35	6.20	0.67

Interpretation:

Based on the p-value, which is greater than 0.05 (5%), the alternative hypothesis (H_1) is accepted for all selected banks. Regarding the average, the Central Bank of India showed good performance with a Gross NPA to Total Assets ratio of 4.66, while the Bank of Maharashtra had a lower performance with a ratio of 1.28. In the Chi-square analysis, Punjab National Bank demonstrated strong financial performance with a score of 31.60, while the State Bank of India showed weaker performance with a score of 6.20.

NET NPA TO TOTAL ADVANCES RATIO

Net NPA to Total Advance	=	Total Gross NPAs - Provision for the Unpaid Debts / Gross Advances

BANKS	**2023-24**	**2022-23**	**2021-22**	**2020-21**	**2019-20**	**TOTAL**	**AVG**	**STDDVN**	**CHI - SQUARE**	**P VALVE**
IOB	0.75	0.73	0.70	0.65	0.56	3.39	0.68	0.08	0.03	1.00
UCO Bank	0.62	0.59	0.53	0.66	0.64	3.04	0.61	0.05	0.01	1.00
CBI	0.74	0.73	0.65	0.61	0.62	3.35	0.67	0.06	0.02	1.00
UBI	0.78	0.69	0.69	0.65	0.58	3.39	0.68	0.07	0.03	1.00

Bank of Maharashtra	0.89	0.75	0.67	0.66	0.70	3.67	0.73	0.10	0.04	1.00
Bank of India	0.79	0.78	0.78	0.73	0.65	3.73	0.75	0.06	0.01	1.00
PNB	0.70	0.62	0.62	0.62	0.61	3.17	0.63	0.03	0.01	1.00
Canara Bank	0.31	0.34	0.41	0.50	0.41	1.96	0.39	0.07	0.05	1.00
Indian Bank	0.14	0.25	0.32	0.53	0.46	1.70	0.34	0.16	0.29	0.99
SBI	0.76	0.75	0.71	0.65	0.62	3.49	0.70	0.06	0.02	1.00

Interpretation: Since the p-value is greater than 0.05 (5%), the alternative hypothesis (H_1) is accepted for all selected banks. Based on the averages, the Bank of India performed well with a Net NPA to Total Advances ratio of 0.75, while the Indian Bank showed lower performance with a ratio of 0.34. In the Chi-square analysis, Indian Bank demonstrated good financial performance with a score of 0.29, while UCO Bank, Bank of India, and Punjab National Bank had weaker performance with scores of 0.01.

PROFIT PER EMPLOYEE RATIO

Profit Per Employee	=	Total Profits / Total Number of Employee

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	0.21	0.13	0.08	0.06	0.00	0.48	0.10	0.08	0.25	0.99
UCO Bank	8.00	4.29	0.01	-0.11	-0.19	12.00	2.40	3.66	27.22	0.00
CBI	0.05	0.03	-0.03	-0.03	-0.16	-0.14	-0.03	0.08	0.00	1.00
UBI	0.11	0.07	0.04	-0.08	-0.08	0.06	0.01	0.09	2.55	0.64
Bank of Maharashtra	0.20	0.09	0.04	0.03	-0.37	-0.01	0.00	0.22	2.03	0.73
Bank of India	0.08	0.06	0.04	-0.06	-0.11	0.01	0.00	0.08	13.64	0.01
PNB	0.03	0.04	0.02	0.53	-0.15	0.47	0.09	0.26	15.40	0.00

Canara Bank	0.12	0.07	0.03	-0.04	0.01	0.19	0.04	0.06	1.05	0.90
Indian Bank	0.13	0.10	0.07	0.04	0.02	0.36	0.07	0.04	3.85	0.43
SBI	0.21	0.13	0.08	0.06	0.00	0.48	0.10	0.08	11.25	0.02

Interpretation:

Based on the analysis, banks with a p-value less than 0.05, including UCO Bank, Bank of India, Punjab National Bank, and State Bank of India, reject the Null Hypothesis, indicating significant differences. Banks with a p-value greater than 0.05, such as Indian Bank, Canara Bank, Bank of Maharashtra, Union Bank of India, Central Bank of India, and Indian Overseas Bank, accept the Alternative Hypothesis, showing no significant differences.

BUSINESS PER EMPLOYEE RATIO

Business Per Employee	=	Total Revenue / Current Number of Employee

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	29.78	25.74	23.73	21.05	18.77	119.07	23.81	4.25	3.03	0.55
UCO Bank	18.90	16.33	14.70	13.70	13.69	77.32	15.46	2.20	2.566	0.63
CBI	18.45	17.15	15.60	14.06	12.78	78.04	15.61	2.28	4.25	0.37
UBI	23.14	20.48	19.23	20.06	18.79	101.70	20.34	1.70	6.25	0.18
Bank of Maharashtra	31.45	26.49	21.45	19.52	18.13	117.04	23.41	5.50	8.35	0.08
Bank of India	22.47	20.71	19.94	19.40	18.39	100.91	20.18	1.53	8.68	0.07
PNB	21.64	19.41	18.85	18.14	16.80	94.84	18.97	1.78	10.73	0.03
Canara Bank	22.45	19.91	18.14	17.63	17.01	95.14	19.03	2.20	9.66	0.05
Indian Bank	26.61	22.52	20.77	24.62	21.74	116.26	23.25	2.35	2.85	0.58
SBI	29.78	25.74	23.73	21.05	18.77	119.07	23.81	4.25	3.03	0.55

Interpretation: Based on the P-value analysis, Punjab National Bank and Canara Bank are found to reject the null hypothesis, while the alternative hypothesis is accepted for the other banks, including Indian Bank, Bank of Maharashtra, UCO Bank, Union Bank of India, Central Bank of India, State Bank of India, Indian Overseas Bank, and Bank of India. In terms of average performance, Indian Overseas Bank and State Bank of India have a strong business per employee ratio of 23.81, while UCO Bank lags with a ratio of 15.46. Additionally, according to the Chi-square analysis, Punjab National Bank exhibits good financial performance with a score of 10.73, whereas Indian Overseas Bank and State Bank of India show weaker performance, scoring 3.03.

RETURN ON ASSETS

Return on Assets	=	Net Income / Total Assets

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	0.76	0.59	0.31	-2.95	-1.35	-2.64	-0.53	1.59	3.89	0.42
UCO Bank	0.62	0.34	0.06	-0.96	-1.84	-1.78	-0.36	1.02	2.45	0.65
CBI	0.44	0.30	-0.26	-0.35	-1.70	-1.57	-0.31	0.85	2.98	0.56
UBI	0.69	0.47	0.27	-0.53	-0.59	0.31	0.06	0.59	4.21	0.38
Bank of Maharashtra	1.10	0.55	0.30	0.23	-3.01	-0.83	-0.17	1.63	3.54	0.47
Bank of India	0.49	0.43	0.28	-0.43	-0.84	-0.07	-0.01	0.59	5.68	0.22
PNB	0.18	0.26	0.15	0.04	-1.25	-0.62	-0.12	0.63	7.58	0.11
Canara Bank	0.81	0.48	0.23	-0.32	0.06	1.26	0.25	0.43	1.58	0.81
Indian Bank	0.77	0.63	0.50	0.26	0.12	2.28	0.46	0.27	3.02	0.55
SBI	0.96	0.67	0.48	0.38	0.02	2.51	0.50	0.35	2.24	0.69

Interpretation: Based on the P-value, the alternative hypothesis (H1) is accepted for all the selected banks, as their P-values are greater than 0.05. In terms of average performance, State Bank of India has a good Return on Assets ratio of 0.50, while Indian Overseas Bank has a low ratio of -0.53. According to the Chi-square analysis, Canara Bank shows strong financial performance with a score of 0.81, while Punjab National Bank has a lower score of 0.11, indicating weaker performance.

RETURN ON EQUITY

Return on Equity	=	Net Income / Average Total Equity

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	17.39	17.89	0.00	0.00	0.00	35.28	7.06	9.66	10.31	0.04
UCO Bank	14.87	5.02	0.00	0.00	0.00	19.89	3.98	6.47	6.56	0.16
CBI	6.42	4.49	0.00	0.00	0.00	10.91	2.18	3.06	3.24	0.52
UBI	13.26	10.11	0.00	0.00	0.00	23.37	4.67	6.50	12.43	0.01
Bank of Maharashtra	20.38	11.45	0.00	0.00	0.00	31.83	6.37	9.27	5.45	0.24
Bank of India	10.31	10.55	0.00	0.00	0.00	20.86	4.17	5.71	7.02	0.13
PNB	0.00	5.96	0.00	0.00	0.00	5.96	1.19	2.67	6.98	0.14
Canara Bank	19.49	12.82	0.00	0.00	0.00	32.31	6.46	9.16	2.52	0.64
Indian Bank	14.73	12.13	0.00	0.00	0.00	26.86	5.37	7.41	3.01	0.56
SBI	19.43	13.92	9.94	7.74	0.00	51.03	10.21	7.23	4.08	0.40

Interpretation:
When the P-value is less than 0.05, the null hypothesis is rejected, which applies to Indian Overseas Bank and Union Bank of India. For P-values greater than 0.05, the alternative hypothesis is accepted, which applies to UCO Bank, Central Bank of India, Bank of Maharashtra, Bank of India, Punjab National Bank, Canara Bank, Indian Bank, and State Bank of India. In terms of average performance, State Bank of India has a strong Return on Equity ratio of 10.21, while Punjab National Bank has a low ratio of 1.19.

CASH TO TOTAL ASSETS

Cash to Total Assets	=	(Cash + Cash Equivalents) / Current Liabilities

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	7.63	6.95	5.07	7.15	6.96	33.76	6.75	0.98	3.21	0.52
UCO Bank	4.35	4.59	4.06	3.99	4.46	21.45	4.29	0.26	2.54	0.64
CBI	9.31	10.43	9.66	8.27	9.53	47.20	9.44	0.78	6.32	0.18
UBI	4.47	4.29	4.21	4.70	5.05	22.72	4.54	0.34	2.22	0.70
Bank of Maharashtra	8.76	8.67	7.17	6.29	8.49	39.38	7.88	1.10	1.63	0.80
Bank of India	6.52	8.06	7.62	5.44	5.82	33.46	6.69	1.13	6.21	0.18
PNB	6.72	5.75	4.54	5.10	4.61	26.72	5.34	0.91	4.25	0.37
Canara Bank	4.71	4.52	4.01	4.29	4.63	22.16	4.43	0.28	3.25	0.52
Indian Bank	7.51	7.61	4.17	3.47	4.93	27.69	5.54	1.92	1.02	0.91
SBI	6.61	6.82	5.44	5.54	5.79	30.20	6.04	0.63	2.05	0.73

Interpretation:
Since the P-value is greater than 0.05, the alternative hypothesis (H1) is accepted for all selected banks. Regarding the average performance, Bank of Maharashtra has a good Cash to Total Assets ratio of 7.88, while UCO Bank performs lower with a ratio of 4.29. According to the Chi-square results, Central Bank of India shows strong financial performance with a value of 6.32, while Indian Bank has a lower performance with a value of 1.02.

CREDIT TO TOTAL DEPOSITS

Credit to Total Deposits	=	Total Advances / Total Deposits

BANKS	2023-24	2022-23	2021-22	2020-21	2019-20	TOTAL	AVG	STDDVN	CHI - SQUARE	P VALVE
IOB	61.61	54.12	53.15	47.5	47.67	264.05	52.81	5.79	1.8	0.77
UCO Bank	58.86	54.45	53.25	51.26	54.45	272.27	54.45	2.79	1.74	0.78
CBI	53.05	48.47	47.99	48.72	51.19	249.42	49.88	2.16	0.98	0.91
UBI	66.26	64.12	66.11	70.86	71.2	338.55	67.71	3.15	2.56	0.63
Bank of Maharashtra	69.3	62.08	58.41	58.32	60.25	308.36	61.67	4.53	2.12	0.71
Bank of India	70.01	62.8	62.23	66.08	65.64	326.76	65.35	3.11	3.45	0.49
PNB	64.27	62.31	63.39	67.47	67.75	325.19	65.04	2.45	4.25	0.37
Canara Bank	67.75	64.04	65.49	70.27	72.08	339.63	67.93	3.31	3.78	0.44
Indian Bank	69.03	66.44	70.23	75.49	75.02	356.21	71.24	3.91	2.45	0.65
SBI	70.85	67.86	69.75	74.04	73.94	356.44	71.29	2.69	3.01	0.56

Interpretation:

Based on the P-value, since it is greater than 0.05, the alternative hypothesis (H1) is accepted for all selected banks. In terms of the average performance, State Bank of India has a strong Credit to Total Deposits ratio of 71.29, while Central Bank of India has a lower ratio of 49.88. According to the Chi-square analysis, Punjab National Bank shows good financial performance with a value of 4.25, while Central Bank of India has a lower value of 0.98.

Findings

- There is a noticeable discrepancy between Punjab National Bank's (PNB) strong financial performance, as indicated by a high chi-square value, and its relatively lower capital adequacy ratio when compared to Indian Bank's more favorable ratio.
- Union Bank of India stands out with a strong performance, reflected by its impressive debt-equity ratio average of 0.33.
- Central Bank of India demonstrates solid performance, with a gross NPA to total assets ratio averaging 4.66, whereas Bank of Maharashtra lags behind with a lower ratio of 1.28.
- Bank of India exhibits good performance, with a net NPA to total advances ratio averaging 0.75, in contrast to Indian Bank, which shows a weaker performance at 0.34.
- State Bank of India shines with a robust performance, as shown by its credit to total deposits ratio averaging 71.29.

- Central Bank of India also shows strong financial performance in its cash to total assets ratio, reflected by a chi-square value of 6.32.
- State Bank of India continues to perform well with a Return on Equity (ROE) ratio average of 10.21, while Punjab National Bank has a comparatively lower ratio of 1.19.
- UCO Bank shows remarkable performance with a profit per employee ratio of 2.40, while Central Bank of India displays underperformance with a negative ratio of -0.03.
- State Bank of India exhibits a solid Return on Assets ratio of 0.50, whereas Indian Overseas Bank struggles with a lower ratio of -0.53.

Suggestions

- It is recommended to conduct an in-depth analysis to uncover the reasons behind Punjab National Bank's impressive financial performance, despite its lower capital adequacy ratio when compared to Indian Bank.
- Further investigation into Central Bank of India's success in managing non-performing assets (NPAs) is recommended, particularly in contrast to Bank of Maharashtra, with a view to adopt best practices to improve the latter's NPA ratio.
- Given State Bank of India's strong performance in credit and deposit management, it can serve as a benchmark for other banks aiming to achieve similar performance levels.
- Punjab National Bank should explore strategies to enhance its Return on Equity, aligning with State Bank of India's strong performance in this area.
- UCO Bank's success in generating profit per employee is commendable, and Central Bank of India could benefit from strategies aimed at improving employee productivity and profitability.
- Bank of India's efficient management of net NPAs should be noted, and Indian Bank should take steps to improve its asset quality and reduce its higher NPA ratio.
- Central Bank of India's effective liquidity management, as demonstrated by its strong performance in cash relative to total assets, should be acknowledged and potentially replicated by other banks.

Conclusion:

The application of the CAMEL Model to assess the financial performance of banks has provided valuable insights into their overall stability and health. Through this analysis, various aspects of performance such as capital adequacy, asset quality, management efficiency, earnings capacity, and liquidity were evaluated. The findings indicate that while some banks excel in certain areas, others face challenges requiring strategic interventions. Using insights from the CAMEL Model, banks can identify areas of weakness and develop targeted strategies to improve their financial standing, manage risks, and foster long-term growth. Continuous monitoring and regular reassessments using comprehensive models like CAMEL will be essential for banks to adapt to changing market conditions, remain competitive, and ensure financial resilience in a dynamic environment.

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