

An Analysis of Indian Public Sector Banks Using Camel Approach

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Abstract: *The progression of an economy is significantly dependent upon deployment as well as optimum utilization of resources and most importantly operational efficiency of the various sectors, of which banking sector plays a very vital role. Banking sector helps in stimulation of capital formation, innovation and monetization in addition to facilitation of monetary policy. It is imperative to carefully evaluate and analyse the performance of banks to ensure a healthy financial system and an efficient economy. The present study attempts to evaluate the performance of public sector banks in India using CAMEL approach for a five year period from 2009-13.*

I. Introduction To Camel Framework

In the 1980s, CAMEL rating system was first introduced by U.S. supervisory authorities as a system of rating for on-site examinations of banking institutions. Under this system, each banking institution subject to on-site examination is evaluated on the basis of five (now six) critical dimensions relating to its operations and performance, which are referred to as the component factors. These are Capital, Asset Quality, Management, Earnings and Liquidity used to reflect the financial performance, financial condition, operating soundness and regulatory compliance of the banking institution. A sixth component relating to Sensitivity to market risk has been added to the CAMEL rating to make the rating system more risk-focused. Each of the component factors is rated on a scale of 1 (best) to 5 (worst). A composite rating is assigned as an abridgement of the component ratings and is taken as the prime indicator of a bank's current financial condition. The composite rating ranges between 1 (best) and 5 (worst), and also involves a certain amount of subjectivity based on the examiners' overall assessment of the institution in view of the individual component assessments.

II. Literature Review

The financial performance of banks, both public and private, has been analysed by academicians, scholars and administrators using CAMEL model in the last decade. A summary of some of the studies is given below:

Kwan and Eisenbeis (1997) observed that Asset Quality is commonly used as a risk indicator for financial institutions, which also determines the reliability of capital ratios. Their study indicated that capitalization affects the operation of financial capitalization affects the operation of financial institution. More the capital, higher is the efficiency.

Said and Saucier (2003) evaluated the liquidity, solvency and efficiency of Japanese Banks using CAMEL rating methodology. The study assessed the capital adequacy, assets and management quality, earnings ability and liquidity position.

For the year 2003-04, Prasuna (2003) analyzed the performance of 65 Indian banks according to the CAMEL Model. The author concluded that better service quality, innovative products and better bargains were beneficial because of the prevailing tough competition.

Sarker (2005) scrutinized the CAMEL model for regulation and supervision of Islamic banks by the central bank in Bangladesh. The study enabled the regulators and supervisors to get a Shariah benchmark to supervise and inspect Islamic banks and financial institutions from an Islamic perspective.

Gupta and Kaur (2008) assessed the performance of 20 old and 10 new Indian Private Sector Banks on the basis of Camel Model for the period of five years i.e., from 2003-07.

Siva and Natarajan (2011) empirically tested the applicability of CAMEL norms and its consequential impact on the performance of SBI Groups. The study concluded that annual CAMEL scanning helps the commercial bank to diagnose its financial health and alert the bank to take preventive steps for its sustainability.

Chaudhry and Singh (2012) analyzed the impact of the financial reforms on the soundness of Indian Banking through its impact on the asset quality. The study identified the key players as risk management, NPA levels, effective cost management and financial inclusion.

III. Research Methodology

Research Design

CAMEL is a ratio-based model used to evaluate the performance of banks with the help of different criteria, viz. Capital Adequacy, Asset Quality, Management Quality, Earnings and Liquidity. The present study is a descriptive research study based on analytical research design.

Objectives of the Study

The main objective of the study is to analyze the financial position and performance of the Public Sector banks in India using CAMEL model.

Hypothesis of the Study

The present study tested the following null hypothesis:

H_0 = There is no significant difference in performance of Public Sector Banks in India as assessed by CAMEL model

H_1 = There is a significant difference in performance of Public Sector Banks in India as assessed by CAMEL model

Data Collection & Analysis

Sampling

All the 26 Public Sector Banks in India have been analysed for the purpose of the study.

Data Collection

Secondary Sources of data collection have been used, viz. journals, IBA bulletin, statistics published by Reserve Bank of India and annual reports published by the banks.

Data Analysis Techniques

Statistical tools:

Due to the unavailability of the data for factor S, i.e. sensitivity to market risk, the data has been analyzed using the rest of the 5 factors using ratios. The ratios under respective five heads are calculated and then ranked. The ranks so calculated are then used for computing the group rank. The statistical tools used along with their purpose are enumerated below:

1. Kolmogorov-Smirnov test for checking normality in distribution
2. Arithmetic mean for calculating values for the purpose of evaluation
3. F-test and one way ANOVA for analysis and interpretation

Also, the banks have been highlighted as follows:

	⇒ top five banks in a particular category
	⇒ Bottom Five banks in a particular category

ANALYSIS OF COMPONENTS OF CAMEL FRAMEWORK

I. CAPITAL ADEQUACY

Capital base of financial institutions facilitates depositors in forming their risk perception about the organization. Also, it is a significant structure for financial managers to maintain adequate levels of capitalization. Capital adequacy is very useful for a bank to conserve & protect stakeholders' confidence and prevent the bank from bankruptcy. Reserve Bank of India prescribes banks to maintain a minimum Capital to risk-weighted Assets Ratio (CRAR) of 9 % with regard to credit risk, market risk and operational risk on an ongoing basis, as against 8 % prescribed in Basel documents.

For the study, the following ratios have been used to measure capital adequacy:

a) Capital adequacy ratio	b) Debt equity ratio	c) Coverage ratio
d) Advances to assets	e) Government Securities to Total Investments (%)	

The following is the analysis of the various ratios used to measure capital adequacy.

Banks	Capital Adequacy ratio		Debt-Equity Ratio		Coverage ratio		Advances to assets		GovtSec. to Total Inv. (%)		Group Rank	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	12.71	18	0.81	6	0.049	11	61.01	21	79.14	23	13.167	18
Andhra Bank	13.29	8	1.17	16	0.050	7	65.25	5	91.24	3	6.500	2.5
Bank of Baroda	14.18	1	0.92	9	0.054	4	62.85	10	82.81	15	6.500	2.5

Bank of India	12.22	24	1.40	21	0.046	14	62.80	11	84.94	11	13.500	19
Bank of Maharashtra	12.64	21	1.23	18	0.042	18	60.44	23	83.19	14	15.667	24
Canara Bank	13.81	2	0.79	5	0.050	9	62.13	14	86.86	7	6.167	1
Central Bank of India	12.18	25	0.90	8	0.039	24	61.15	20	86.54	8	14.167	21
Corporation Bank	13.68	3	1.57	22	0.048	13	59.15	25	73.00	26	14.833	22.5
Dena Bank	12.16	26	0.81	7	0.041	21	61.46	18	81.62	17	14.833	22.5
IDBI Bank	12.85	15	3.05	26	0.050	8	60.84	22	78.67	24	15.833	25
Indian Bank	13.36	5	0.23	1	0.073	1	62.61	12	79.83	21	6.667	4
Indian Overseas Bank	13.54	4	1.69	25	0.044	16	62.86	9	86.27	9	10.500	11.5
OBC	12.90	14	0.51	2	0.056	2	61.67	17	80.74	19	9.000	8
P & S Bank	13.31	7	1.04	12	0.048	12	61.30	19	85.43	10	10.000	10
Punjab National Bank	13.19	10	1.19	17	0.054	5	63.63	8	83.72	13	8.833	7
State Bank of Bikaner & Jaipur	13.08	13	1.08	14	0.041	22	65.92	2	94.51	1	8.667	6
State Bank of Hyderabad	13.32	6	1.04	11	0.044	17	61.72	16	87.47	6	9.333	9
State Bank of India	13.28	9	1.62	24	0.049	10	61.96	15	80.24	20	13.000	17
State Bank of Mysore	12.78	17	1.04	13	0.054	3	65.30	4	88.52	4	6.833	5
State Bank of Patiala	12.54	22	1.29	19	0.042	19	63.74	7	92.36	2	11.500	13
State Bank of Travancore	13.11	11	1.59	23	0.040	23	65.30	3	84.06	12	12.000	15
Syndicate Bank	12.65	20	1.40	20	0.038	25	66.43	1	87.80	5	11.833	14
UCO bank	13.08	12	1.14	15	0.031	26	62.18	13	82.49	16	13.667	20
Union Bank of India	12.41	19	1.04	10	0.052	6	63.93	6	79.63	22	10.500	11.5
United Bank of India	12.70	23	0.60	3	0.041	20	58.67	26	76.20	25	16.167	26
Vijaya Bank	12.78	16	0.78	4	0.045	15	59.74	24	81.16	18	12.833	16

ANALYSIS AND INTERPRETATION

On the basis of group averages of five sub-parameters of capital adequacy, Canara Bank was at the top position with group average of 6.167, followed by Andhra Bank (6.50) and Bank of Baroda (6.50). United Bank of India stood at the last position due to its poor performance in CAR, Advances to assets and also due to less investment in Govt. Securities.

II. ASSET QUALITY

Asset quality determines the healthiness of financial institutions against loss of value in the assets as asset impairment risks the solvency of the financial institutions. The weakening value of assets has a spill over effect, as losses are eventually written-off against capital, which eventually expose the earning capacity of the institution. With this framework, the asset quality is assessed with respect to the level and severity of non-performing assets, adequacy of provisions, distribution of assets etc.

For the study, the following ratios have been used to measure asset quality:

a) Net NPA to Net Advance (%)	b) Net NPA to Total Assets (%)
c) Total Investments to Total Assets	d) Standard Advances to Total Advances

The following is the analysis of the various ratios used to measure asset quality.

Banks	Net NPA to Net Advance (%)		Net NPA to Total Assets (%)		Total Inv. to Total Assets		Std Advances to Total Advances		Group Rank	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	1.27	16	0.786	16	29.75	24	1.01266	11	16.750	23.5
Andhra Bank	0.82	3	0.548	3	23.91	6	1.00818	24	9.000	2.5
Bank of Baroda	0.56	1	0.352	1	21.15	1	1.00564	26	7.250	1.0

Bank of India	1.24	14	0.778	15	23.13	4	1.01237	13	11.500	6.0
Bank of Maharashtra	1.02	8	0.612	8	29.20	21	1.01023	19	14.000	15.0
Canara Bank	1.49	20	0.850	18	26.83	14	1.01378	8	15.000	18.0
Central Bank of India	1.71	22	1.072	22	27.14	15	1.01715	5	16.000	21.0
Corporation Bank	0.62	2	0.376	2	29.80	25	1.00622	25	13.500	13.0
Dena Bank	1.18	13	0.724	11	27.22	18	1.01184	14	14.000	15.0
IDBI Bank	1.24	15	0.754	14	29.33	22	1.01239	12	15.750	19.0
Indian Bank	0.90	4	0.578	5	27.22	17	1.00905	23	12.250	9.5
Indian Overseas Bank	1.78	23	1.122	24	26.42	13	1.01783	4	16.000	21.0
OBC	1.39	19	0.868	19	28.11	19	1.01388	7	16.000	21.0
Punjab and Sind Bank	0.92	6	0.576	4	28.96	20	1.00916	21	12.750	11.0
Punjab National Bank	1.08	9	0.692	9	26.19	11	1.01080	18	11.750	7.0
State Bank of Bikaner & Jaipur	1.28	17	0.882	20	23.34	5	1.01326	10	13.000	12.0
State Bank of Hyderabad	0.99	7	0.598	6	26.16	10	1.00941	20	10.750	4.5
State Bank of India	1.81	24	1.122	25	25.14	7	1.01807	3	14.750	17.0
State Bank of Mysore	1.50	21	0.990	21	25.52	8	1.01503	6	14.000	15.0
State Bank of Patiala	1.16	12	0.746	13	22.80	3	1.01164	15	10.750	4.5
State Bank of Travancore	1.09	10	0.714	10	26.37	12	1.01095	17	12.250	9.5
Syndicate Bank	0.91	5	0.602	7	22.63	2	1.00905	22	9.000	2.5
UCO bank	1.86	26	1.170	26	27.19	16	1.01865	1	17.250	25.0
Union Bank of India	1.13	11	0.736	12	25.81	9	1.01131	16	12.000	8.0
United Bank of India	1.86	25	1.094	23	29.92	26	1.01861	2	19.000	26.0
Vijaya Bank	1.35	18	0.812	17	29.34	23	1.01355	9	16.750	23.5

ANALYSIS AND INTERPRETATION

On the basis of group averages of sub-parameters of assets quality, Bank of Baroda had the highest group average of 7.25, followed by Syndicate Bank (9) and Andhra Bank (9).Allahabad Bank (23.5) was positioned last in terms of assets quality.

III.MANAGEMENT EFFICIENCY

Management efficiency, another indispensable component of the CAMEL framework, means adherence to set norms, knack to plan and be proactive in the dynamic environment, leadership, innovativeness and administrative competence of the bank.

The following ratios have been used to measure management efficiency:

a) Business Per Employee	b) Profit Per Employee
c) Credit Deposit Ratio	d) Return On Net Worth (%)

The following is the analysis of the various ratios used to measure management efficiency.

Banks	Business Per Employee		Profit Per Employee		Credit Deposit Ratio		Return On Net Worth (%)		Group Rank	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Andhra Bank	11.80	6	7.78	4	76.43	9	18.88	4	5.750	1
Bank of Baroda	12.56	4	9.41	2	73.25	14	17.99	6	6.500	2
Corporation Bank	15.05	2	9.73	1	70.68	19	18.30	5	6.750	3
Punjab National Bank	9.56	17	7.56	5	76.44	8	19.17	3	8.250	4.5
State Bank of Hyderabad	10.12	11	6.73	9	75.35	11	19.36	2	8.250	4.5

Canara Bank	11.51	7	7.45	6	71.45	16	16.73	9	9.500	6
Bank of India	12.14	5	6.18	10	74.79	12	14.64	15	10.500	7
Indian Bank	9.45	18	8.14	3	72.33	15	16.73	10	11.500	8
Union Bank of India	9.75	15	6.95	8	74.61	13	15.43	12	12.000	9
State Bank of Patiala	9.90	13	4.96	15	76.51	7	15.00	14	12.250	10
IDBI Bank	20.80	1	10.12	25	86.74	1	9.98	24	12.750	12
Oriental Bank of Commerce	13.95	3	7.17	7	70.63	21	11.90	20	12.750	12
State Bank of Bikaner & Jaipur	7.58	25	5.03	14	77.01	5	17.77	7	12.750	12
Dena Bank	10.67	9	6.09	11	69.42	24	17.57	8	13.000	14
Syndicate Bank	9.41	19	4.84	17	76.85	6	16.22	11	13.250	15
State Bank of Travancore	7.62	24	6.31	26	77.95	4	19.58	1	13.750	16
Allahabad Bank	10.41	10	5.96	12	69.96	23	15.19	13	14.500	17
Punjab and Sind Bank	10.96	8	5.41	13	70.94	17	11.27	21	14.750	18
State Bank of India	7.27	26	4.96	16	80.56	2	14.11	16	15.000	19
State Bank of Mysore	7.81	23	4.18	19	78.15	3	12.66	18	15.750	20
UCO bank	10.11	12	3.77	20	70.65	20	13.00	17	17.250	21
Indian Overseas Bank	9.74	16	3.56	21	76.26	10	10.49	23	17.500	22
Vijaya Bank	9.78	14	4.63	18	68.04	25	11.08	22	19.750	23
Bank of Maharashtra	8.89	20	3.41	22	70.54	22	11.92	19	20.750	24
Central Bank of India	7.88	22	2.66	24	70.74	18	9.02	25	22.250	25
United Bank of India	8.43	21	2.68	23	66.98	26	8.54	26	24.000	26

On the basis of group averages of 4 sub-parameters of Management Quality, Andhra Bank was at the top position with group average of 5.75, followed by Bank of Baroda (6.5), Corporation Bank (6.75), Punjab National Bank (8.25). Indian Overseas Bank (17.5), Vijaya Bank (19.75), Bank of Maharashtra (20.75) and Central Bank of India (22.25) were at the last position due to its poor performance in ROE, CD ratio and PPE.

IV. EARNING QUALITY

The quality of earnings represents the sustainability and growth of future earnings, value of a bank's lucrativeness and its competency to maintain quality and earn consistently. Earnings and profitability are examined as against interest rate policies and adequacy of provisioning. The single best indicator used to gauge earning is the Return on Assets (ROA), which is net income after taxes to total asset ratio.

For the study, the following ratios have been used to measure earnings quality:

a) Return On Assets	b) NIM to Total Assets (%)
c) Operating Profit to Total Assets	d) Interest Income to Total Income

The following is the analysis of the various ratios used to measure earnings quality.

Banks	Return On Assets		NIM to Total Assets (%)		Operating Profit to Total Assets		Interest Income to Total Income		Group Rank	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Andhra Bank	1.204	3	2.781	3	2.05	3	90.01	12	5.250	1.5
Indian Bank	1.430	1	3.232	1	2.47	1	89.07	18	5.250	1.5
Punjab National Bank	1.272	2	3.070	2	2.36	2	88.27	22	7.000	3
State Bank of Hyderabad	1.040	7	2.665	6	2.02	4	89.84	14	7.750	4
State Bank of Mysore	0.866	15	2.733	4	1.92	7	89.75	15	10.250	5
State Bank of	0.972	11	2.645	7	1.89	8	88.96	20	11.500	6.5

Bikaner & Jaipur										
State Bank of Travancore	0.998	9	2.402	11	1.67	16	90.45	10	11.500	6.5
Allahabad Bank	0.966	12	2.534	8	1.96	6	88.93	21	11.750	8
Syndicate Bank	0.814	19	2.460	9	1.58	19	92.19	1	12.000	9
State Bank of India	0.884	13	2.712	5	2.00	5	85.21	26	12.250	10
Bank of Baroda	1.154	4	2.340	13	1.84	10	87.82	24	12.750	11.5
Union Bank of India	1.030	8	2.325	15	1.88	9	89.06	19	12.750	11.5
Oriental Bank of Commerce	0.840	17	2.319	16	1.78	13	91.11	6	13.000	13
Dena Bank	0.992	10	2.301	18	1.59	18	90.35	11	14.250	14
Canara Bank	1.100	6	2.194	21	1.71	15	89.37	16	14.500	15
Punjab and Sind Bank	0.860	16	2.319	17	1.40	23	91.96	3	14.750	16.5
State Bank of Patiala	0.822	18	2.272	20	1.71	14	90.76	7	14.750	16.5
Bank of Maharashtra	0.636	22	2.452	10	1.42	22	90.59	8	15.500	18
Corporation Bank	1.126	5	2.035	23	1.82	11	87.74	25	16.000	19
Indian Overseas Bank	0.634	23	2.373	12	1.65	17	89.85	13	16.250	20
Bank of India	0.876	14	2.280	19	1.81	12	87.93	23	17.000	21
United Bank of India	0.506	25	2.338	14	1.50	20	90.45	9	17.000	22
UCO bank	0.628	24	2.138	22	1.44	21	92.11	2	17.250	23
Vijaya Bank	0.664	21	2.029	24	1.30	25	91.17	5	18.750	24
Central Bank of India	0.502	26	2.022	25	1.15	26	91.32	4	20.250	25
IDBI Bank	0.676	20	1.371	26	1.34	24	89.25	17	21.750	26

On the basis of group averages of 4 sub-parameters of Earnings Quality, Andhra Bank and Indian bank was at the top followed by Punjab National Bank and State bank of Hyderabad. IDBI bank was at the last position due to poor performance in NIM to total assets and operating profits to total assets followed by Central Bank of India, Vijaya, UCO and United bank of India.

V. LIQUIDITY

In case of an adequate liquidity position, the institution can obtain sufficient funds, either by increasing liabilities or by converting its assets to cash quickly at a reasonable cost.

The following ratios have been used to measure liquidity:

a) Liquid Assets to total Assets (%)	b) Government securities to Total Assets (%)
c) Liquid Assets to Total Deposits (%)	d) Liquid Assets to Demand Deposits (%)

The following is the analysis of the various ratios used to measure liquidity.

Banks	Liquid Assets to total Assets (%)		Government securities to Total Assets (%)		Liquid Assets to Total Deposits (%)		Liquid Assets to Demand Deposits (%)		Group Rank	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank	Average	Rank
Allahabad Bank	6.85	18.00	23.53	4	7.85	20.00	117.06	14	14.000	15
Andhra Bank	7.75	11.00	21.79	18	9.07	9.00	121.17	12	12.500	11
Bank of Baroda	13.63	1.00	17.49	26	15.88	1.00	209.22	1	7.250	1
Bank of India	10.20	2.00	19.64	25	12.14	2.00	203.88	2	7.750	3.5
Bank of	6.12	24.00	24.33	2	7.09	24.00	68.93	26	19.000	25

Maharashtra										
Canara Bank	7.78	10.00	23.30	6	8.95	10.00	149.49	5	7.750	3.5
Central Bank of India	6.95	16.00	23.49	5	7.99	19.00	102.44	17	14.250	16
Corporation Bank	8.18	7.00	21.74	19	8.59	15.00	78.63	24	16.250	18
Dena Bank	8.33	4.00	22.20	14	9.41	6.00	112.86	15	9.750	6
IDBI Bank	6.14	23.00	23.07	7	8.76	13.00	73.89	25	17.000	20.5
Indian Bank	6.68	20.00	21.71	20	7.71	22.00	123.20	11	18.250	23
Indian Overseas Bank	6.85	17.00	22.77	10	8.31	17.00	108.89	16	15.000	17
Oriental Bank of Commerce	8.24	6.00	22.56	12	9.46	5.00	130.04	7	7.500	2
Punjab and Sind Bank	6.47	22.00	24.75	1	7.50	23.00	128.38	9	13.750	14
Punjab National Bank	6.80	19.00	21.92	17	8.15	18.00	96.30	18	18.000	22
State Bank of Bikaner & Jaipur	7.55	14.00	22.05	16	8.90	11.00	124.11	10	12.750	12
State Bank of Hyderabad	7.72	12.00	22.84	8	9.34	7.00	94.21	20	11.750	9.5
State Bank of India	8.26	5.00	20.19	23	10.76	3.00	86.04	23	13.500	13
State Bank of Mysore	5.19	26.00	22.59	11	6.21	26.00	96.04	19	20.500	26
State Bank of Patiala	6.51	21.00	21.08	21	7.79	21.00	151.51	4	16.750	19
State Bank of Travancore	5.48	25.00	22.19	15	6.55	25.00	153.49	3	17.000	20.5
Syndicate Bank	8.42	3.00	19.87	24	9.73	4.00	118.19	13	11.000	8
UCO bank	7.78	9.00	22.32	13	8.82	12.00	132.48	6	10.000	7
Union Bank of India	7.36	15.00	20.55	22	8.57	16.00	91.68	21	18.500	24
United Bank of India	8.00	8.00	22.78	9	9.13	8.00	90.06	22	11.750	9.5
Vijaya Bank	7.58	13.00	23.79	3	8.63	14.00	129.70	8	9.500	5

On the basis of group averages of 4 sub-parameters of Liquidity, Bank of Baroda was at the top followed by Oriental bank of commerce, Bank of India and Canara bank. State bank of Mysore bank was at the last position followed by Bank of Maharashtra and Union bank of India.

COMPOSITE RANKING (OVERALL PERFORMANCE)

TABLE 6: Composite Rating

BANK	C	A	M	E	L	AVERAGE	RANK
Allahabad Bank	13.17	16.75	14.5	11.75	14	14.03	19
Andhra Bank	6.50	9	5.75	5.25	12.5	7.80	1
Bank of Baroda	6.50	7.25	6.5	12.75	7.25	8.05	2
Bank of India	13.50	11.5	10.5	17	7.75	12.05	10
Bank of Maharashtra	15.67	14	20.75	15.5	19	16.98	24
Canara Bank	6.17	15	9.5	14.5	7.75	10.58	4
Central Bank of India	14.17	16	22.25	20.25	14.25	17.38	25
Corporation Bank	14.83	13.5	6.75	16	16.25	13.467	16.5
Dena Bank	14.83	14	13	14.25	9.75	13.17	12
IDBI Bank	15.83	15.75	12.75	21.75	17	16.62	23
Indian Bank	6.67	12.25	11.5	5.25	18.25	10.78	6
Indian Overseas Bank	10.50	16	17.5	16.25	15	15.05	20
Oriental Bank of	9.00	16	12.75	13	7.5	11.65	8

Commerce							
Punjab and Sind Bank	10.00	12.75	14.75	14.75	13.75	13.20	13.5
Punjab National Bank	8.83	11.75	8.25	7	18	10.77	5
State Bank of Bikaner & Jaipur	8.67	13	12.75	11.5	12.75	11.73	9
State Bank of Hyderabad	9.33	10.75	8.25	7.75	11.75	9.57	3
State Bank of India	13.00	14.75	15	12.25	13.5	13.70	18
State Bank of Mysore	6.83	14	15.75	10.25	20.5	13.467	16.5
State Bank of Patiala	11.50	10.75	12.25	14.75	16.75	13.20	13.5
State Bank of Travancore	12.00	12.25	13.75	11.5	17	13.30	15
Syndicate Bank	11.83	9	13.25	12	11	11.42	7
UCO bank	13.67	17.25	17.25	17.25	10	15.08	21
Union Bank of India	10.50	12	12	12.75	18.5	13.15	11
United Bank of India	16.17	19	24	17	11.75	17.58	26
Vijaya Bank	12.83	16.75	19.75	18.75	9.5	15.52	22

In order to assess the overall performance of Public Sector Banks in India, the composite rating has been calculated from the group ranking of the public sector banks in India for the period of 2009-2013 and results are presented in the above table. On the basis of CAMEL model analysis, Andhra Bank stood at first position followed by Bank of Baroda and State Bank of Hyderabad while United Bank of India secured the least position.

TESTS OF NORMALITY

Tests of Normality

For testing the normality of data, the proposed hypothesis is that the population distribution is normal. For this Kolmogorov-Smirnov test has been applied and results are depicted in the following table.

TABLE 7: K-S Test

BANK NAME	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Allahabad Bank	.200	5	.200
Andhra Bank	.268	5	.200
Bank of Baroda	.418	5	.054
Bank of India	.163	5	.200
Bank of Maharashtra	.281	5	.200
Canara Bank	.237	5	.200
Central Bank of India	.247	5	.200
Corporation Bank	.303	5	.149
Dena Bank	.267	5	.200
IDBI Bank	.253	5	.200
Indian Bank	.188	5	.200
Indian Overseas Bank	.293	5	.187
Oriental Bank of Commerce	.227	5	.200
Punjab and Sind Bank	.216	5	.200
Punjab National Bank	.270	5	.200
State Bank of Bikaner & Jaipur	.313	5	.124
State Bank of Hyderabad	.184	5	.200
State Bank of India	.216	5	.200
State Bank of Mysore	.141	5	.200
State Bank of Patiala	.249	5	.200
State Bank of Travancore	.281	5	.200
Syndicate Bank	.204	5	.200
UCO bank	.348	5	.053
Union Bank of India	.351	5	.056
United Bank of India	.176	5	.200
Vijaya Bank	.213	5	.200

The results highlighted that all the calculated P- values are greater than the chosen alpha level of 0.05 for all banks, which means data is normally distributed.

ONE WAY ANOVA

TABLE 7: One Way Anovatest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	860.573	25	34.423	3.268	.000
Within Groups	1095.624	104	10.535		
Total	1956.197	129			

For determining whether there is any significant difference between the means of CAMEL ratios, one-way ANOVA test has been applied on the data. The results of ANOVA test highlighted the calculated significance values of F test is less than 0.05. It means there is a statistically significant difference between the mean values of CAMEL ratios and thus, the null hypothesis is rejected. It connotes that there is a significant difference in performance of all the public sector banks as assessed by CAMEL model.

IV. Conclusion

Due to radical changes in the banking sector in the recent years, the central banks all around the world have improved their supervision quality and techniques. In evaluating the function of the banks, many of the developed countries are now following uniform financial rating system (CAMEL RATING) along with other existing procedures and techniques. Various studies have been conducted in India as well on various banks using CAMEL framework. Different banks are ranked according to the ratings obtained by them on the five parameters. The results show that there is a statistically significant difference between the CAMEL ratios of all the Public Sector Banks in India, thus, signifying that the overall performance of Public Sector Banks is different. Also, it can be concluded that the banks with least ranking need to improve their performance to come up to the desired standards.

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