
Performance Evaluation of Public Sector Banks based on Camel Methodology

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ABSTRACT

Financial service sector has been playing a very vital role in the development of our economy. Banks are the most vital players in this sector. The performance of banks will trigger the spark of developments in all sectors. There has to be a standard methodology to evaluate the performance of banks which is entirely different from manufacturing sector. Analysts have come out with a comprehensive methodology- CAMEL model for the same. The performance of five top banks have been evaluated based on CAMEL methodology and a comparison has been made.

KEYWORDS

CAMEL methodology, Capital Adequacy, NPA, Liquidity,

INTRODUCTION

The economic development of a country depends more on a number of inter related and independent factors including industrial growth and development, modernization of the primary sector viz agriculture, growth in international trade etc. The role and importance of financial service sector especially banking sector and the monetary mechanism cannot be undermined. On account of the pivotal role played by banks in any economy, more attention should be given for banks as an economic unit. Evaluation of financial performance of the banking sector is an effective measure and an indicator of soundness of economic activities. The regulators have come out with a detailed methodology named CAMEL (capital adequacy, asset quality, management quality, earnings and liquidity) to assess and evaluate the performance and financial soundness of the activities of the bank. All stake holders, governments, industries, depositors, investors, require an idea regarding performance of these major banks.

IMPORTANCE OF THE STUDY

Post liberalisation, there has been a paradigm shift in the approach and style of functioning of Indian banking sector. There has been a flurry of new entrants into the fray which has also made the competition sharp and acute. Rapid application of technology and introduction of new financial products has made the banking sector very much competitive. Gone are the days of old social models, now the banks focus more on profitability and performance. . Especially when the banking sector is passing through a very crucial phase

owing to demonetisation and mergers, performance of banks are very critically observed. In the above back drop, the present study is undertaken to examine the performance of the top five public sector banks of India covering the recent period.

OBJECTIVES OF THE STUDY

The main objectives of the study are:

1. To analyze the overall performance of public sector banks using CAMEL Model.
2. To compare the performances of the banks based on CAMEL parameters
3. To give recommendation and suggestions for improvement of performance

METHODOLOGY

The present study is a descriptive research study based on analytical research design.

DATA

The study is based on secondary data. Data pertaining to various aspects of rating are obtained from financial statements of the banks accessed from the websites of the banks. Other sources of secondary data like magazines, journals etc have also been made use of.

SCOPE AND PERIOD OF STUDY

The study covers five banks banks. The study focuses on major CAMEL parameters. The period of study is from 2013-14 to 2015-16. The banks selected for study are the top five public sector banks viz State Bank of India, Bank of Baroda, Punjab National Bank, IDBI and Canara Bank.

TOOLS FOR ANALYSIS

As CAMEL parameters are measured on the basis of various ratios, ratio analysis has been the major tool applied. Following ratios or sub parameters have been made use of for rating the banks under CAMEL methodology.

1. *Capital adequacy* has been measured by applying Capital Adequacy ratio, Debt Equity Ratio, Total Advances to Total Assets
2. *Asset Quality* has been measured by applying Net NPA to Net Advances, Total Investment to Total Assets., and Interest Earned to Total Assets
3. *Management Efficiency* has been measured by applying Profit per Employee, Business per Employee, and Advance to Deposit Ratio
4. *Earnings Quality* has been measured by applying Return on Average Assets, Return on Equity, Net Interest Margin Ratio
5. *Liquidity* has been measured by applying Liquid Assets to Total Assets, Cash Deposit Ratio, and Liquid Asset to Total Deposit

Besides the above mentioned CAMEL parameter, CAMEL ranking technique has been applied for comparison purposes.

LIMITATIONS OF THE STUDY

1. Only five banks have been taken for the study and the period covered is only three years.
2. The final parameter 'S' in the revised model viz. CAMELS which implies sensitivity has been ignored for want of standard sub parameters.
3. Inherent limitations of financial statements may also have affected the study.

LITERATURE REVIEW

- 1. Sisodiya et al. (2007):** adopted CAMEL model to assess the performance of Indian banks. The authors analysed 67 banks for the year 2006-07. On the basis of composite ranking of all the selected banks, they selected 10 CAMEL topper banks under public sector, private sector and foreign banks category. They concluded that with the buoyancy in the overall economy led by robust corporate performance, the banking sector reported sterling performance.
- 2. Prof. Dr. Mohi-Ud-Din Sangmi and Dr. Tabassum Nazir (2010) :** in their paper titled, “Analyzing financial performance of commercial banks in India : Application of CAMEL Model” tried to evaluate the financial performance of two major banks operating in northern India, namely Punjab National Bank and Jammu and Kashmir Bank, for a period for 5 years (2001 to 2005). They concluded that the position of the banks under study is sound and satisfactory .
- 3. K.V.N. Prasada and G. Ravinder(2012):** In this study article titled “A Camel Model Analysis of Nationalized Banks in India”, has been conducted to examine the economic sustainability of a sample of thirty nine banks in India using CAMEL model during the period 2006-10. The study revealed that Canara Bank stood at top position in terms of capital adequacy, in front of asset quality, Andhra Bank & Bank of Baroda was at top most position, in context of management efficiency, Punjab & Sindh bank positioned at first, in terms of earnings quality Indian Bank sustained the top position Bank of Baroda rated top in case of liquidity position, overall performance table shows that, Andhra Bank is ranked first followed by Bank of Baroda, Punjab & Sindh Bank, Indian bank , Corporation Bank and in bottom five, Central Bank of India was on the last position

DATA ANALYSIS

Following is a discussion on the various parameters and the resultant ranks of the top five banks.

Capital Adequacy

Capital adequacy has come forth as one of the prominent indicators of the financial health of a banking system. The requirement for additional capital is indicated by capital adequacy. It also reflects whether the bank has enough capital to bear unexpected losses arising in the future and bank leverage

Capital adequacy Ratio

Capital Adequacy Ratio is the ratio of TIER-I and TIER-II Capital to the aggregate of risk weighted assets (RWA). It also measures the ability of a bank in absorbing losses arising from risk assets. The higher the value of this ratio, the better the financial health of a bank. As per the latest RBI norms, the banks in India should have a capital adequacy ratio of 9%.

Table: 1 Capital Adequacy Ratio

Name Of The Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	12.44	12	13.12	12.52	2
Bank of Baroda	12.28	12.6	13.17	12.68	1
Punjab National Bank	11.52	12.21	11.28	11.67	4
IDBI Bank	11.68	11.76	11.67	11.70	3
Canara Bank	10.63	10.56	11.08	10.75	5

Source: Annual Reports

Debt equity ratio

Debt Equity ratio is calculated as the proportion of total outside liabilities to net worth. This ratio thus indicates the bank's financial leverage. In the case of manufacturing sector the ideal ratio is 2:1. However, in the case of commercial banks, there is no standard norm for debt – equity ratio

Table 2 Debt Equity Ratio

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	13.33	13.87	13.54	13.58	4
Bank of Baroda	16.83	16.38	15.11	16.11	1
Punjab National Bank	13.91	13.99	15.99	14.63	3
IDBI Bank	12.51	13.22	12.09	12.61	5
Canara Bank	15.12	15.67	16.03	15.61	2

Source: Annual Report

Total Advances to Total Assets

Advances are directly responsible for the profit of banks. An aggressive bank will try to earn more profit by giving out more advances. This ratio indicates a bank's aggressiveness in lending which ultimately results in better profitability. So, there is a direct co-relation. Higher ratio of advance/ assets is preferred to a lower one.

Table 3 Total Advances to Total Assets

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.67	0.63	0.64	0.65	1
Bank of Baroda	0.60	0.59	0.57	0.59	4
Punjab National Bank	0.63	0.63	0.61	0.62	2
IDBI Bank	0.61	0.58	0.57	0.58	5
Canara Bank	0.61	0.60	0.58	0.60	3

Source: Annual Reports

Table 4 Composite Capital Adequacy

Name of the Bank	CAR	D/E RATIO	TOTAL ADV TO TOTAL ASSETS	COMPOSITE	
	RANK	RANK	RANK	AVERAGE	RANK
State Bank of India	2	4	1	2.33	2
Bank of Baroda	1	1	4	2	1
Punjab National Bank	4	3	2	3	3
IDBI Bank	3	5	5	4.33	5
Canara Bank	5	2	3	3.33	4

Source: Tables 1-

ASSET QUALITY

The quality of assets is an important parameter to examine the degree of financial strength. The foremost objective to measure the assets quality is to ascertain the composition of non-performing assets (NPAs)

Net NPA

This ratio is the most standard tool to measure the asset quality of a bank. Lower the percentage of this, the risk associated with the banks will be less and the quality of assets owned by the banks will also be good.

Table 5 Net NPA

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	2.57	2.12	3.81	2.83	2
Bank of Baroda	1.52	1.89	5.06	2.82	1
Punjab National Bank	2.85	4.06	8.61	5.17	5
IDBI Bank	2.48	2.88	6.78	4.04	4
Canara Bank	1.98	2.65	6.42	3.68	3

Source- Annual Reports

Total Investment to Total Assets

This ratio indicates the extent of deployment of assets in investment as against advances. This ratio is used as a tool to measure the percentage of total assets locked up in investments. A higher ratio shows the conservative policy of a bank to provide safeguard to the investments against NPAs

Table 6 Total Investments to Total Assets

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.24	0.24	0.23	0.24	4
Bank of Baroda	0.18	0.16	0.18	0.17	5
Punjab National Bank	0.23	0.24	0.25	0.24	3
IDBI Bank	0.31	0.27	0.26	0.28	1
Canara Bank	0.27	0.27	0.27	0.27	2

Source: Annual Reports

Interest Earned to Total Assets

Interest earned is the major income of banks and is generated by its assets like loans, advances, overdrafts, cash credits and discounts from bills. If the assets are strong enough without much risk, then interest has to be generated from the assets in an adequate manner. The higher the ratio, the better it is.

Table 4.7 Interest Earned to Total Assets

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.05	0.05	0.05	0.05	5
Bank of Baroda	0.05	0.05	0.06	0.05	4
Punjab National Bank	0.06	0.07	0.08	0.07	3
IDBI Bank	0.08	0.07	0.07	0.07	2
Canara Bank	0.07	0.07	0.07	0.07	1

Source: Annual Reports

Table 8 Composite Asset Quality

Name of the Bank	Net NPA	Invest To Total Asset	Interest Earned To Total Assets	COMPOSITE	
	RANK	RANK	RANK	AVERAGE	RANK
State Bank of India	2	4	5	3.7	4
Bank of Baroda	1	5	4	3.3	3
Punjab National Bank	5	3	3	3.7	4
IDBI Bank	4	1	2	2.3	2
Canara Bank	3	2	1	2.0	1

Source: Tables 5- 7

Management Efficiency

Management efficiency is another essential component of the CAMEL model that guarantees the growth and survival of a bank. Management efficiency means adherence with set norms, ability to plan and respond to changing environment, leadership and administrative capability of the bank.

Profit per Employee

This is a ratio to check efficiency of bank in maximizing profits per employee. The higher the ratio, the better will be the performance of the bank. It also gives valuable inputs to assess the real strength of a bank's branch network.

Table 9 Profit per Employee

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	485	602	470	519	2
Bank of Baroda	987	688	-1000	225	3
Punjab National Bank	549	500	600	549.66	1
IDBI Bank	682	500	-2100	-306	5
Canara Bank	500	500	-500	166.66	4

Source: Annual Reports

Business per Employee

This tool measures the productivity and efficiency of all the employees of a bank in generating business for the bank. The below table shows the business done per employee of the ten banks selected for the study

Table 10 Business per Employee

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	1063.75	1234	1411	1236.2	5
Bank of Baroda	1865	1889	1680	1811.3	2
Punjab National Bank	1283	1319	1359	1320.3	4
IDBI Bank	2465.3	2621	2518	2534.7	1
Canara Bank	1442	1435	1445	1440.6	3

Source: Annual Reports

Advance to Deposit Ratio

The formula for the loan to deposit ratio is exactly as its name implies, loans divided by deposits. The loan to deposit ratio is used to calculate a lending institution's ability to cover withdrawals made by its customers

Table 11 Advance to Deposit Ratio

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.86	0.82	0.84	0.84	1
Bank of Baroda	0.69	0.69	0.66	0.68	5
Punjab National Bank	0.77	0.75	0.74	0.75	3
IDBI Bank	0.83	0.80	0.81	0.81	2
Canara Bank	0.71	0.69	0.67	0.69	4

Source: Annual Reports

Table 12 Composite Management Efficiency

Name of the Bank	Profit Per Employee	Business Per Employee	Advances To Deposit	COMPOSITE	
	RANK	RANK	RANK	AVERAGE	RANK
State Bank of India	2	5	1	2.67	1
Bank of Baroda	3	2	5	3.33	4
Punjab National Bank	1	4	3	2.67	1
IDBI Bank	5	1	2	2.67	1
Canara Bank	4	3	4	3.67	5

Source: Tables 9- 11

Earning Quality

The quality of earnings is a very important criterion which represents the quality of a bank's profitability and its capability to maintain quality and earn consistently. It primarily determines the profitability of bank and explains its sustainability and growth of future earnings.

Return on Average Assets

Return on average assets (ROAA) is an indicator used to assess the profitability of a firm's assets, and it is most often used by banks and other financial institutions as a means to gauge financial performance. This ratio is the relation between net profit and total assets. The higher the ratio, the better it is.

Table 13 Return on Average Assets

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.65	0.68	0.46	0.59	1
Bank of Baroda	0.75	0.49	-0.78	0.15	4
Punjab National Bank	0.64	0.53	-0.61	0.18	3
IDBI Bank	0.41	0.29	-1.09	-0.13	5
Canara Bank	0.54	0.55	-0.52	0.19	2

Source: Annual Reports

Return on Equity

Return on equity (ROE) is the amount of net income returned as a percentage of shareholders equity. This ratio measures the percentage of profitability of the banks. In calculation of this ratio, Profit after tax is expressed as a percentage of equity.

Table 14 Return on Equity

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	10.49	11.17	7.74	9.8	2
Bank of Baroda	13	9.21	-17.64	1.52	4
Punjab National Bank	9.69	8.12	17.08	11.63	1
IDBI Bank	5.57	3.88	-16.57	-2.37	5
Canara Bank	10.59	11.06	-10.69	3.65	3

Source: Annual Reports

Net Interest Margin

Net interest margin (NIM) is a measure of the difference between the interest income generated by banks or other financial institutions and the amount of interest paid out to their lenders relative to the amount of their (interest-earning) assets.

Table 15 Net Interest Margin Ratio

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	3.17	3.16	2.96	3.09	1
Bank of Baroda	2.36	2.31	2.05	2.24	3
Punjab National Bank	3.44	3.15	2.6	3.06	2
IDBI Bank	2.17	1.9	1.88	1.98	5
Canara Bank	2.27	2.25	2.19	2.23	4

Source: Annual Reports

Table 16 Composite Earning Quality

Name of the Bank	Return On Average Assets	Return On Equity	Net Interest Margin	COMPOSITE	
	RANK	RANK	RANK	AVERAGE	RANK
State Bank of India	1	2	1	1.33	1
Bank of Baroda	4	4	3	3.67	4
Punjab National Bank	3	1	2	2.00	2
IDBI Bank	5	5	5	5.00	5
Canara Bank	2	3	4	3.00	3

Source: Tables 13-15

Liquidity

Risk of liquidity can have an effect on the image of bank. Liquidity is a crucial aspect which reflects bank's ability to meet its financial obligations. An adequate liquidity position means a situation, where organization can obtain sufficient liquid funds, either by increasing liabilities or by converting its assets quickly into cash.

Liquid Assets to Total Assets

This ratio shows the proportion of Liquid assets to Total Assets.

Table 17 Liquid Assets to Total Assets

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.069	0.069	0.068	0.069	4
Bank of Baroda	0.198	0.207	0.199	0.201	1
Punjab National Bank	0.081	0.092	0.110	0.094	2
IDBI Bank	0.051	0.041	0.029	0.040	5
Canara Bank	0.089	0.088	0.077	0.085	3

Source: Annual Reports

Cash Deposit Ratio

Cash Deposit ratio (CDR) is the ratio of how much a bank lends out of the deposits it has mobilised. It indicates how much of a bank's core funds are being used for lending, the main banking activity. The higher the ratio, the better is the liquidity.

Table 18 Cash Deposit Ratio

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.081	0.091	0.092	0.088	1
Bank of Baroda	0.034	0.036	0.037	0.036	5
Punjab National Bank	0.049	0.048	0.047	0.048	3
IDBI Bank	0.053	0.050	0.052	0.052	2
Canara Bank	0.052	0.046	0.043	0.047	4

Source: Annual Reports

Liquid Asset to Total Deposit

The ratio of the value of liquid assets (easily converted to cash) to short-term funding plus total deposits.

Table 19 Liquid Asset to Total Deposit

Name of the Bank	2013-14	2014-15	2015-16	Averages	Rank
State Bank of India	0.081	0.119	0.117	0.106	3
Bank of Baroda	0.034	0.240	0.233	0.169	1
Punjab National Bank	0.163	0.111	0.133	0.135	2
IDBI Bank	0.053	0.056	0.061	0.057	5
Canara Bank	0.052	0.102	0.118	0.091	4

Source: Annual Reports

Table 20 Composite Liquidity

Name of the Bank	Liquid Assets To Total Assets	Cash Deposit	Liquid Assets To Total Deposit	COMPOSITE	
	RANK	RANK	RANK	AVERAGE	RANK
State Bank of India	4	1	3	2.67	3
Bank of Baroda	1	5	1	2.33	1
Punjab National Bank	2	3	2	2.33	1
IDBI Bank	5	2	5	4.00	5
Canara Bank	3	4	4	3.67	4

Source: Table 17-19

The above table shows that ICICI bank has more liquidity in the market followed by Bank of Baroda. IDBI bank has the least liquidity in the market.

Table 21 Overall Camel Ranking of Five Banks

Name of the Bank	C	A	M	E	L	Averages	Rank
State Bank of India	2	4	1	1	3	2.2	1
Bank of Baroda	1	3	4	4	1	2.6	3
Punjab National Bank	3	4	1	2	1	2.2	1
IDBI Bank	5	2	1	5	5	3.6	5
Canara Bank	4	1	5	3	4	3.4	4

Source: Previous Tables

MAJOR FINDINGS

The analysis of the data using major ratios of CAMEL model, covering a period from 2013-14 to 2015-16 results in the following findings:

1. All the banks have maintained capital adequacy ratio of more than the prescribed norm of 9 during the period of study and Bank of Baroda has the highest ratio among them . In debt equity ratio, the bank of Baroda is at the top position with 16.11%. State Bank of India has the highest total advances to total assets ratio ratio with 65.25% and IDBI Bank has the lowest ratio with 58.76%. From the composite view of capital adequacy of all the five banks, it is revealed that Bank of Baroda is at the top position and IDBI bank is at the last position through the rank test analysis.
2. In the case of Net NPA ratio, Bank of Baroda is at the top position and Punjab National Bank at the last position. In total investment to total assets ratio, IDBI Bank secures top position with 0.28 and Bank of Baroda has the last position with an average of 0.17. In interest earned to total assets ratio, Canara Bank is at the top position with an average of 0.078 and State Bank of India is at the last position with 0.05. Considering the composite view of Asset Quality of banks , Canara Bank is at the top position and State Bank of India and Punjab National Bank are at the last position
3. In profit per employee ratio which measures the management efficiency of the banks, Punjab National Bank is at the top position and IDBI bank is at the last position whereas in the case of business per employee,

IDBI bank is at the top and State Bank of India is at the last. Regarding advance to deposit ratio, State Bank of India is at the top and Bank of Baroda is at the last position. From the composite view of management efficiency, State Bank of India, Punjab National Bank and IDBI Bank are at the top and Canara bank is at the last position.

4. In the ratio return on average assets, State Bank of India is at the top and IDBI Bank is at the last position. Return on Equity Punjab National Bank is at the top and IDBI Bank is at the last position and In Net Margin State Bank of India is at the top and IDBI Bank is at the last position. In composite view of Earning Quality State Bank of India is the top and IDBI Bank is at the last position. Some banks have negative return during the period under consideration.

5. In liquid Asset to total assets, the Bank of Baroda is at the top and IDBI bank is at the last position. In the Cash Deposit Ratio, State Bank of India is at the top position and Bank of Baroda is at the last position. In the case of liquid assets to total deposit ratio. Bank of Baroda is at the top position and IDBI Bank is at the last position. From the composite view of liquidity of banks, Bank of Baroda and Punjab National Bank are at the top position and IDBI Bank is at the last position.

6. From the overall rank test of the selected public sector banks on the basis of CAMEL parameters SBI and Punjab national Bank secure the top position and IDBI bank is at the last position. It is found that these public banks have comparatively good rating in Capital Adequacy and Liquidity, but lag very much behind in the case of other three parameters viz Asset quality, Management efficiency and Earning Quality.

CONCLUSION

The present study has been conducted to examine the economic sustainability of the biggest public sector banks in India using CAMEL model during the period 2013-14 to 2015-16. Through the analysis of CAMEL parameters the State Bank of India is at the top position among Public Sector banks and IDBI is at the bottom position.

SUGGESTIONS

1. Public sector banks may take stringent policies to overcome the increasing NPA's in the upcoming years.
2. The asset quality of public sector banks has to be improved upon.
3. Though the business per employee of public sector banks is higher, their profit per employee is lower. The chance of high operating expenses may also be looked into.

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