

# A Contemporary Study on Financial Performance of Selected PSBs in India using CAMEL Model Analysis

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**Abstract:** Indian Banking industry is greatly dominated by the state-run or Public Sector Banks(PSBs). But recent development of this sector is of great concern. This sector is terribly affected with the continuous increase in bad loans. As a matter of fact, the situation is very critical. According to the Times of India, “PSBs’ bad loan rise to 15% of Gross Advances in FY18: Government”. This calls for a thorough analysis of PSBs’ financial performances. In another post of the Times of India, it accounted for “10 PSU Banks with over 8% NPAs each account for 50% of bad loans”. The present study aims to analyse the financial performances these 10 PSBs using CAMEL Model. . In this analysis, Bank of Baroda secured the highest overall rank followed by Dena Bank and Bank of Maharashtra. Indian Overseas Bank obtained the lowest overall rank based in this analysis. A similar trend amongst the PSBs was found especially in the areas of Earnings, Investment Deposit Ratio and poor Asset Quality management

**Keywords** — Public Sector Banks, bad loans, NPAs, CAMEL Model.

## I. INTRODUCTION

Banking sector is often considered as the backbone of an economy. Despite of the fact that, the financial market in India experienced colossal developments in recent years, a large percentage of the population prefer to invest in banks than otherwise. They have immense faith in this industry and thus feel secured. In India, the banking industry is divided into 3 sectors- Public Banks, Private Banks and Foreign Banks. If the focus is on the Public Sector Banks(PSBs), the trust, confidence and reliance increases manifold. Unfortunately, the present-day situation of PSBs is quiet grievous. According to Livemint[18], 3 years, since RBI started to review the PSBs’ quality of assets, it was found that these banks incurred a loss of ₹28,490 crore in 2015-16, earned a meagre profit of ₹474 crore in 2016-17 and again incurred a loss of ₹85,371 crore in 2017-18. The condition is so serious that the present government had to announce a bank recapitalisation plan of ₹2.11 lakh crore to pull out these state-run banks from this plight[20]. NPAs of 21 PSBs saw their heap of bad loans grow by ₹1.19 lakh crore(or 15.4%) to ₹8.97 lakh crore in March’2018 quarter[20]. Moreover, the Reserve Bank of India[16] in its Financial Stability Report, June 2018[15] predicts that the Gross NPA ratio of PSBs might escalate from 15.6 % in March’2018 to 17.3 % by March’2019”. Compared to this it also estimates that the Gross NPA ratio of Private Banks might surge from 4.0 % to 5.3 % and that of Foreign Banks might swell from 3.8 % to 4.8%. This situation necessitates genuine evaluation of financial performance of this sector and taking actions to preserve the dignity of this sector.

Thus the present study takes an initiative to evaluate financial performance and position of 10 PSBs using CAMEL Model.

## II. LITERATURE REVIEW

Throughout the world several studies have been conducted to evaluate the banking performance using CAMEL Model Analysis. These studies have investigated the various aspects of CAMEL Model. Some studies focused on the financial performance on Public Sector Banks like [1], [2], [9] and [11] while some others performed this analysis on Private Sector Banks only like [8] and [14]. Some studies concentrated on both Public and Private Sector Banks like in [5]. A study which was performed on Public. Private Sector Banks and Foreign Banks was also found [3]. Two such studies were found to be performed on Cooperative banks- [4] and [10]. Reference [6] shows a work focused only on the performance of State Bank Group. Some studies like [7], [12] and [13] were found to be based on international context. Some of these literatures are discussed in the following paragraphs.

K.V.N. Prasad and G. Ravinder (2012) made a study on 20 Nationalised Banks in India for a period of 5 year using CAMEL Model. Their study was based on Public Sector Banks only. They found that on an average Andhra Bank was at the top most position followed by Bank of Baroda and Punjab & Sindh Bank. It was also observed that Central Bank of India was at the bottom most position.

V. Kumar and B. Malhotra (2017) used CAMEL Model to analyse the performance of 5 Private Sector Banks for a period of 10 years. Composite Rankings, Average, and

Covariance had been applied to reach conclusion through the comparative analysis of different parameters of CAMEL. Axis bank was found to secure first position under the CAMEL analysis followed by ICICI bank. Kotak Mahindra occupied the third position. The fourth position was occupied by HDFC bank and the last position was occupied by IndusInd bank amongst all the selected banks.

K. R. Trivedi (2013) performed a study based on secondary data drawn from the annual reports of Surat Peoples Co-operative Bank (SPCB). He considered to evaluate the performance of one bank only in details. For this purpose the data of 10 years were analysed by calculating 28 ratios related to CAMEL Model. Statistical tools like average, standard deviation and coefficient of variation were also calculated. It was found out that overall state of capital adequacy of SPCB was satisfactory. As far as loan portfolio is concern, the overall state of assets quality was also good. The management efficiency was also satisfactory. Comprehensive earning capacity of the bank was acceptable but the overall liquidity position was not satisfactory.

Dr. Srinivasan and Y. P. Saminathan (2016) extended their study to 25 Public Sector, 18 Private Sector, and 8 Foreign banks as sample. For the purpose of ranking, CAMEL MODEL approach was used. It was found that some public sector banks like Andhra Bank, Bank of Baroda, Allahabad Bank etc. some private sector banks like Tamilnad Merchantile Bank, Kotak Mahindra Bank etc. and some foreign banks such as Bank of Bahrain & Kuwait, HSBC Bank, The Royal Bank of Scotland etc. secured the top five positions during the study period.

I. G. S. Kumari (2017) focused her study to investigate the financial performance of foreign commercial banks in Sri Lanka using the CAMEL rating system. The study considered three foreign banks for the purpose of analysis. Data were collected for the time period of 2008-2014.

She found a comprehensive satisfactory level of capital adequacy and earning ability position. But an average performance was observed under other factors of CAMEL analysis.

**Table I: Selected Ratios under CAMEL Model**

Model	Five Factors of CAMEL Model	Selected Ratios
C	Capital Adequacy Ratios	<ul style="list-style-type: none"> <li>Capital Adequacy Ratio</li> <li>Capital adequacy ratio - Tier I</li> <li>Capital adequacy ratio - Tier II</li> </ul>
A	Assets Quality Ratios	<ul style="list-style-type: none"> <li>Gross NPA to Net Advances</li> <li>Ratio of net NPA To net advances</li> <li>Investments to assets</li> <li>Ratio of term loans to total advances</li> </ul>
M	Management Quality Ratios	<ul style="list-style-type: none"> <li>Return on equity</li> <li>Business per employee (in Rupees Million)</li> <li>Profit per employee (in Rupees Million)</li> </ul>
E	Earning Ratios	<ul style="list-style-type: none"> <li>Return on assets</li> <li>Operating profit to Total assets</li> <li>Interest Income to Total Income</li> </ul>
L	Liquidity Ratios	<ul style="list-style-type: none"> <li>Cash - Deposit Ratio</li> <li>Credit - Deposit Ratio</li> <li>Investment - Deposit Ratio</li> </ul>

### RESEARCH GAP

During the review of literature, most of the researchers were found to use CAMEL Model to analyse the financial performances of banks. But fewer recent studies with detailed analysis and future projection were found which emphasises on the performance appraisal of Public Sector Banks (PSBs) only. Thus the present study will concentrate on recent developments PSBs only.

### III. OBJECTIVES

The aims or objectives of the study are as follows:

- To analyse the capital adequacy position of some PSBs in India.
- To analyse the quality of assets in some PSBs in India.

- To analyse the efficiency of management of some PSBs in India.
- To analyse the earning capacity of some PSBs in India.
- To analyse the liquidity position of some PSBs in India.

### IV. RESEARCH METHODOLOGY

To study the financial performance and position of some PSBs in India, CAMEL Model Analysis was used. The following paragraphs discusses in details the methodology adopted to perform the research.

#### Research Design

The present study is a descriptive research which uses CAMEL Model to analyse the Capital Adequacy, Asset

Quality, Management Quality, Earning and Liquidity position and performance of some selected PSBs in India.

*Sample Design*

Ten PSBs which accounted for 50% of bad loans in the banking industry in India have been considered as sample banks for the present study. This list of banks has been accessed from an article in the website of Times of India[19] on 11th May, 2018 at 12.48pm.

*Data Collection*

For the purpose of this study, secondary sources of data were availed. These sources are statistics provided by the Reserve Bank of India[16] and by the Indian Bank’s Association[17]. The period of research for the present study was considered from 2011 to 2017.

*Data Analysis Techniques*

For analysing, some selected ratios under each of the five factors of CAMEL Model were calculated for all the banks from the year 2011 to 2017. These ratios are portrayed in Table 1. For this purpose, data were collected from websites of the Reserve Bank of India[16] and the Indian Bank’s Association[17]. Then simple descriptive statistics like mean and standard deviation were calculated on results of the selected ratios for the specified period of study. Then ranks were assigned to each of the bank on the basis of mean so calculated. The very next task was to find the composite ranks of all the banks under each of the five factors of CAMEL Model. One-way ANOVA test was

performed on the mean ratios under each category to find whether there is any significant difference in the performance among the sample banks. Trend analysis was also performed to analyse the data.

**V. ANALYSIS AND FINDINGS**

**A. DATA ANALYSIS AND INTERPRETATION**

**1. CAPITAL ADEQUACY RATIOS**

*Capital Adequacy Ratio*

Capital Adequacy Ratio helps to determine the capacity of a bank in meeting its losses. A minimum Capital Adequacy Ratio provides a cushion to absorb a bank’s reasonable amount of losses before becoming insolvent. Thus the higher the Capital Adequacy Ratio the better is the position of the bank.

*Capital adequacy ratio - Tier I and Tier II*

According to the Reserve Bank of India[16], Tier-I capital generally comprises of share capital and disclosed reserves and is considered as the highest quality capital of any bank because it is completely available to cover losses. On the other hand, Tier-II capital includes specific reserves and certain kinds of subordinated debt. Thus the loss absorbing capacity of Tier-II capital is lower compared to that of Tier-I capital. Thus both the type of capitals help to absorb any kind of losses arising out of business risks. So it can be said that the higher the minimum Capital adequacy ratio - Tier I and Tier II, the better is the bank’s position.

**Table 2: Capital Adequacy Ratios of Selected Banks (2011-17)**

BANKS	Capital Adequacy Ratio			Capital adequacy ratio - Tier I			Capital adequacy ratio - Tier II			Composite	
	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Average	Rank
INDIAN OVERSEAS BANK	11.54	1.80	6	7.86	0.39	9	3.68	1.59	3	6.00	6
UCO BANK	12.23	1.56	3	8.48	0.52	3	3.76	1.21	2	2.67	1.5
DENA BANK	11.49	0.87	7	8.38	0.94	4	3.11	0.63	8	6.33	7
BANK OF BARODA	13.26	1.00	1	10.12	0.54	1	3.14	0.80	6	2.67	1.5
UNITED BANK OF INDIA	11.29	1.25	9	8.15	0.88	7	3.14	0.76	7	7.67	9
BANK OF INDIA	11.43	0.86	8	8.35	0.59	5	3.08	0.44	9	7.33	8
CENTRAL BANK OF INDIA	11.09	0.84	10	7.78	0.75	10	3.32	1.22	5	8.33	10
IDBI BANK	12.45	1.36	2	8.11	0.42	8	4.34	1.39	1	3.67	3
PUNJAB NATIONAL BANK	12.06	0.57	4	9.00	0.49	2	3.07	0.46	10	5.33	5
BANK OF MAHARASTRA	11.93	0.92	5	8.30	0.66	6	3.62	1.26	4	5.00	4

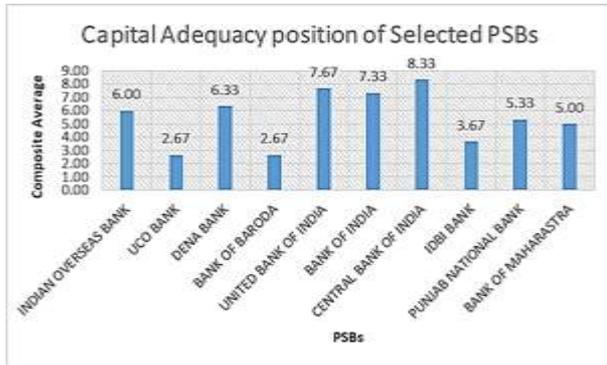
Source: Calculated from the secondary data available at the websites of www.rbi.org.in and www.iba.org.in.

In Table 2, the Average Capital Adequacy Ratio and Average Capital Adequacy Ratio -Tier I, for the specified period of study, is highest for Bank of Baroda. Thus it holds first position in both the ratios. Central Bank of India secured the lowest position in both the ratios. Both these ratios depict similar picture. In case of Capital Adequacy Ratio - Tier II IDBI Bank secured the highest position with mean value of 4.34 % and lowest position was held by Punjab National Bank with 3.07%. The combined average

of the ranks achieved in these ratios are also depicted in Table 2. UCO bank and Bank of Baroda are found to share the first position. This is also graphically portrayed in Chart 1. The variability in the Capital Adequacy Ratio -Tier II was found to be more than the other two ratios. But across the banks, no prominent variability was found. In order to determine whether there is any significant difference between the means of Capital Adequacy Ratios, one-way ANOVA test was conducted. At 5% level of significance,

the calculated value of F ( $F_{cal}$ ) was found to be 0.0310 which is lesser than critical value of F distribution ( $F_{crit}$ ) (2.3928) with 9 and 20 degrees of freedom. Thus null hypothesis was accepted. In other words, no significant difference was observed among the banks. Although Capital Adequacy Ratio -Tier I reveals a positive trend, Capital Adequacy Ratio and Capital Adequacy Ratio -Tier II show negative trends(Chart 6).

Chart 1: Capital Adequacy position of PSBs



## 2. ASSETS QUALITY RATIOS

### Gross NPA to Net Advances

The summation of all loan assets that are classified as NPAs as on Balance Sheet date is known as Gross NPAs as per Reserve Bank of India guidelines. Gross NPAs are those advances which are considered as irrecoverable and which reflect the quality of the loans made by banks. These comprise all the sub-standard, doubtful, and loss assets. Gross NPA to Net Advances portrays how much of the banks Net Advances can be considered as irrecoverable. Thus the lesser the Gross NPA to Net Advances the better the asset quality of any bank.

Table 3: Assets Quality Ratios of Selected Banks (2011-17)

BANKS	Gross NPA to Net Advances			Ratio of net NPA to net advances			Investments to assets			Ratio of term loans to total advances			Composite	
	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Average	Rank
INDIAN OVERSEAS BANK	9.59	8.79	10	5.69	5.21	10	26.30	1.65	6	49.54	4.64	7	8.25	10
UCO BANK	8.45	6.49	8	4.53	3.18	8	28.36	3.44	2	57.82	4.92	5	5.75	6.5
DENA BANK	6.07	5.86	2	3.83	3.56	3	27.82	2.20	4	50.99	1.74	6	3.75	1
BANK OF BARODA	4.84	4.20	1	2.19	1.92	1	18.75	1.87	10	43.35	1.84	8	5	4
UNITED BANK OF INDIA	8.77	5.47	9	5.50	3.52	9	32.86	3.78	1	68.70	1.60	2	5.25	5
BANK OF INDIA	6.35	5.36	4	3.50	2.74	2	21.01	1.85	9	41.90	2.91	10	6.25	8
CENTRAL BANK OF INDIA	8.09	6.01	7	4.51	3.20	7	27.72	1.54	5	61.01	5.61	4	5.75	6.5
IDBI BANK	7.67	7.68	6	4.23	4.40	6	27.95	2.48	3	71.79	2.68	1	4	2
PUNJAB NATIONAL BANK	6.86	4.72	5	4.01	3.05	5	25.65	1.20	8	42.41	6.24	9	6.75	9
BANK OF MAHARASTRA	6.24	5.93	3	3.86	4.06	4	25.91	2.85	7	61.73	4.73	3	4.25	3

Source: Calculated from the secondary data available at the websites of www.rbi.org.in and www.iba.org.in.

### Ratio of net NPA to net advances

Net NPAs are those type of NPAs in which the bank has deducted the provision regarding NPAs from its Gross NPAs. Net NPA shows the actual burden of banks. Thus the Ratio of net NPA to Net Advances shows how much of the banks net advances can be considered as Net NPAs. Thus the lesser the Ratio of net NPA to net advances the better the asset quality of any bank.

### Investments to assets

Investments to assets ratio indicates the extent to which the assets are deployed in investments by a bank as against its advances. The higher the ratio means deployment of more assets in investment and lesser towards its advances. Thus the risk of NPAs as against the advances are less. So quality of the assets are better. In other words, the higher

the Investments to assets ratio the better the asset quality of any bank.

### Ratio of term loans to total advances

A term loan is a type of monetary loan which is repaid on the basis of regular payments over a specified period of time. Thus, there is less amount of uncertainty involved because regular returns are available. So, the higher the Ratio of term loans to total advances the better is the quality of advances made by any bank.

Table 3 shows that, in case of Gross NPA to Net Advances and Ratio of Net NPA to Net Advances, Bank of Baroda secured the first position while Indian Overseas Bank got the lowest position. Gross NPA to Net Advances ratio experienced more variations in case of the Indian Overseas Bank during the period of study than any other bank. United Bank of India secured first position in Investment to

Asset ratio with 32.86 % value of mean and Bank of Baroda obtained the lowest position with mean value of 18.75 %. In case of the Ratio of Term Loans to Total Advances IDBI Bank secured first position and Bank of India got the lowest position. On the basis of the combined average of the ranks secured under the above ratios. Dena Bank topped all other banks. This is depicted graphically in Chart 2. The variability from average quality of assets across all the banks for each asset quality ratio is more or less same. The one-way ANOVA test, which was conducted on the means of Asset Quality Ratios, reveals  $F_{cal} = 0.1077$ .  $F_{cal}$  was found to be lesser than  $F_{crit}(2.2107)$  with 9 and 30 degrees of freedom at 5% level of significance. Thus null hypothesis was accepted. That is to say, there is no significant difference among the banks on the basis of asset quality.

Chart 2: Asset quality position of PSBs



The trend lines in Chart 7 show Gross NPA to Net Advances and Net NPA to Net Advances have positive trends. Thus, there is a high probability of increase in bad loans in the immediate future. Again Term Loans to Total

Advances ratio shows a negative trend which depicts uncertainty of regular returns. But Investment to Asset ratio shows a very elastic positive trend. This means rate of investment will grow at a slower pace.

### 3. MANAGEMENT QUALITY RATIOS

#### Return on equity

Return on equity implies the percentage of net income earned against shareholders' equity. It assesses the ability of the management to make effective utilisation of shareholders' investments in order to generate profits. Thus the higher the Return on equity the better is the quality of management of any bank.

#### Business per employee

This ratio helps to measure the productivity of all the employees of any bank in order to generate business for the bank. The ratio is calculated by dividing the total business by the total number of employees where, the term "Business" means the sum of total advances and total deposits during a particular year[5]. Thus the higher the Business per employee the better is the management quality of any bank.

#### Profit per employee

This ratio portrays the surplus earned by a bank against its each and every employee. It is calculated by dividing the profit after tax earned by a bank by its total number of employees[2]. In other words, it actually measures the efficiency of the employees in generating profits of a bank. Thus the higher the Profit per employee the better is the management quality of any bank.

Table 4: Management Quality Ratios of Selected Banks (2011-17)

BANKS	Return on equity			Business per employee (in Rupees Million)			Profit per employee (in Rupees Million)			Composite	
	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Average	Rank
INDIAN OVERSEAS BANK	-1.92	13.91	10	123.27	11.87	8	-0.14	0.63	10	9.33	9.5
UCO BANK	3.14	15.21	6	126.99	12.67	6	0.07	0.71	7	6.33	8
DENA BANK	6.12	13.83	3	135.97	13.95	5	0.27	0.53	4	4.00	3.5
BANK OF BARODA	10.21	12.43	1	165.24	23.33	3	0.94	1.05	1	1.67	1
UNITED BANK OF INDIA	1.70	11.79	7	109.64	15.21	9	0.87	0.53	2	6.00	7
BANK OF INDIA	4.74	12.76	4	171.34	30.92	2	0.19	0.71	5	3.67	2
CENTRAL BANK OF INDIA	-0.16	9.96	9	104.34	14.61	10	-0.05	0.39	9	9.33	9.5
IDBI BANK	1.23	13.25	8	246.33	10.97	1	0.00	1.71	8	5.67	6
PUNJAB NATIONAL BANK	9.87	11.15	2	124.18	14.15	7	0.44	0.52	3	4.00	3.5
BANK OF MAHARASHTRA	4.13	10.12	5	138.36	39.14	4	0.10	0.53	6	5.00	5

Source: Calculated from the secondary data available at the websites of www.rbi.org.in and www.iba.org.in.

In Table 4, it is found that, in case of Return on Equity and Profit per Employee, Bank of Baroda secured first position with 10.21 % and ₹0.94 million mean value respectively. On the other hand, Indian Overseas Bank portrayed striking negative means of - 1.92% (Return on Equity) and ₹-0.14 million (Profit per Employee) and obtained the lowest position. The mean of Return on Equity for the period of

study ranges from 10.21% to - 1.92%. Thus there was quite a variation in the mean value of Return on Equity across all the banks. Variability can also be observed within each and every bank during the period of study for this ratio. Variability in case of Profit per Employee is more or less same for all the banks. IDBI bank and Central Bank of India secured the topmost and lowest position in the ratio of

Business per Employee respectively. Range of variation is also quite widely dispersed in this ratio. The highest variation during the period of study was found in case of Bank of India (30.92) followed by Bank of Baroda (23.33). The composite average of ranks secured by the banks in the above ratios are graphically represented in Chart 3. Here the first position was obtained by Bank of Baroda. The overall management quality ratios shows that even if the business of the bank have increased during the period of study, the management of some banks have failed to return, at least, minimum level of profit to its shareholders. The one-way ANOVA test reveals that there is no significant difference among the banks based on their management quality. Here  $F_{cal}$  was found to be 0.0812 which is lesser than  $F_{crit}$  of 2.3928 with 9 and 20 degrees of freedom at 5% level of significance. Thus, null hypothesis was accepted.

Chart 3: Management Quality position of PSBs



Again the trend lines based on the period of study in Chart 8 reveals that even if the Business per Employee is expected to increase positively, Profit per Employee is feared to reduce. Moreover these banks are predicted to experience an increasing amount of loss in near future. While the Return on Equity is again found to have negative trend. This could be quite unsatisfactory for the equity shareholders.

#### 4. EARNING RATIOS

##### Return on assets

Return on assets indicates the percentage of profit earned by any bank against its total assets. Thus the higher the Return on assets the better is the earning ability of any bank's assets to earn higher profits.

##### Operating profit to Total assets

This ratio shows the contribution of total assets in securing operational profit of a bank. Thus the higher the Operating profit to total assets the better is the earning ability of any bank.

##### Interest Income to Total Income

It indicates the percentage of total income that comes from the lending operations of any bank. Here the word 'Interest income' encompasses interest or discount on advances or

Table 5: Earning Ability Ratios of Selected Banks (2011-17)

BANKS	Return on assets			Operating profit to Total assets			Interest income to Total Income			Composite	
	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Average	Rank
INDIAN OVERSEAS BANK	-0.09	0.74	10	1.38	0.23	8	90.32	2.22	5	7.67	10
UCO BANK	0.12	0.79	7	1.67	0.29	2	92.20	2.06	2	3.67	1.5
DENA BANK	0.28	0.83	4	1.32	0.40	9	91.96	1.76	3	5.33	5.5
BANK OF BARODA	0.59	0.72	2	1.60	0.26	4	89.34	1.55	7	4.33	3
UNITED BANK OF INDIA	0.13	0.58	6	1.62	0.29	3	87.93	3.68	10	6.33	7
BANK OF INDIA	0.52	0.40	3	1.45	0.26	7	89.49	2.11	6	5.33	5.5
CENTRAL BANK OF INDIA	-0.02	0.56	9	1.10	0.14	10	92.44	1.31	1	6.67	8
IDBI BANK	0.07	0.91	8	1.54	0.17	5	89.16	1.47	8	7.00	9
PUNJAB NATIONAL BANK	0.61	0.67	1	2.11	0.24	1	88.67	2.24	9	3.67	1.5
BANK OF MAHARASHTRA	0.23	0.52	5	1.47	0.26	6	91.69	1.42	4	5.00	4

Source: Calculated from the secondary data available at the websites of www.rbi.org.in and www.fbo.org.in.

bills, income on investments, interest on balances with the RBI and other interbank funds and others. Again the word 'Total income' comprises of interest income and other income like commission, net profit (loss) on sale of investment, land and other assets, revaluation of investment and miscellaneous income[1]. Thus the higher the Interest Income to Total Income the better is the earning ability of any bank. Like the ratio of Return on Equity, Indian Overseas Bank also obtained lowest position in the ratio of Return on Assets with negative mean value of -0.09%. The highest position was secured by Punjab National Bank. This

is visible in Table 5. In the ratio of Operating Profit to Total Assets, Punjab National Bank secured the first position and Central Bank of India the last position. In case of Interest Income to Total Income, Central Bank of India secured the first position with the mean value of 92.44 % and United Bank of India obtained the last position with the mean value of 87.93 %. This ratio shows that maximum portion of the total income of these sample banks are generated from their lending operations. The composite mean of ranks secured by the banks in the above ratios is graphically reproduced Chart 4.

Chart 4: Earning Ability position of PSBs



Here UCO bank and Punjab National Bank shared the first position. The variability in the mean values across all the banks were more or less same for the above ratios. One-way ANOVA test on the means of Earning Ability Ratios reveals that there is no significant difference in earning ability among the banks. This is because,  $F_{cal} (0.0002)$  was found to be lesser than  $F_{crit} (2.3928)$  with 9 and 20 degrees of freedom at 5% level of significance. Thus, null hypothesis was accepted. All the ratios under this category were found to have negative trend (Chart 9). Thus, earning ability position of these PSBs is very uncertain.

### 5. LIQUIDITY RATIOS

#### Cash - Deposit Ratio

It specifies how much cash any bank holds in order to meet the demand against deposits in a particular year. In other words it indicates the liquidity of the bank available towards its depositors. Thus the higher the Cash - Deposit Ratio the better is the liquidity position of any bank.

#### Credit - Deposit Ratio

It indicates the percentage of deposits mobilised by a bank in order to lend out. A higher ratio signifies more reliance on deposits for lending. In other words, the lower the Credit - Deposit Ratio the better is the liquidity position of any bank.

#### Investment - Deposit Ratio

It indicates the percentage of total deposits that can be utilised by any bank for investment purpose. A higher ratio reveals more reliance of the bank on deposits for investment. Thus, the lesser the Investment - Deposit Ratio the better is the liquidity position of any bank.

In Table 6, Cash-Deposit Ratio is the highest for Central Bank of India followed by Dena Bank and Bank of Maharashtra. This means that the depositors in Central Bank of India are highly secured. Again very high Cash-Deposit Ratio may indicate idle cash in the Total Assets of the bank. The lowest position in Cash-Deposit Ratio is held by Bank of Baroda which means the depositors are at risk. Variability in this ratio is the highest for Central Bank of India. In Credit-Deposit Ratio the highest position was obtained by United Bank of India having the lowest average of 62.69%, followed by UCO bank and Dena Bank. The lowest position was held by IDBI Bank having the highest mean of 82.23% during the period of study. The variability in this ratio is the highest for Central Bank of India during the period of study. The highest rank in Investment Deposit Ratio was achieved by Bank of Baroda having the lowest mean of 21.78% followed by Bank

Table 6: Liquidity Ratios of Selected Banks (2011-17)

BANKS	Cash - Deposit Ratio			Credit - Deposit Ratio			Investment - Deposit Ratio			Composite	
	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Average	Rank
INDIAN OVERSEAS BANK	5.64	0.71	5	74.33	5.01	7	32.45	1.81	6	6.00	7
UCO BANK	4.52	1.29	9	68.74	6.52	2	32.92	4.32	8	6.33	8
DENA BANK	6.62	1.54	2	69.05	3.02	3	31.54	2.88	5	3.33	1
BANK OF BARODA	4.21	1.34	10	69.78	4.00	5	21.78	2.16	1	5.33	5.5
UNITED BANK OF INDIA	5.51	1.13	6	62.69	6.83	1	37.11	3.80	9	5.33	5.5
BANK OF INDIA	5.51	1.14	7	73.78	4.04	6	24.87	2.29	2	5.00	4
CENTRAL BANK OF INDIA	8.80	7.34	1	69.40	10.25	4	32.59	2.27	7	4.00	2
IDBI BANK	6.18	2.21	4	82.23	5.57	10	38.87	3.74	10	8.00	10
PUNJAB NATIONAL BANK	5.09	1.15	8	75.56	3.82	9	30.89	1.62	4	7.00	9
BANK OF MAHARASHTRA	6.41	2.04	3	75.19	4.68	8	30.50	3.48	3	4.67	3

Source: Calculated from the secondary data available at the website of www.rbi.org.in and www.iba.org.in.

of India and Bank of Maharashtra. IDBI Bank obtained the lowest position in this ratio. The variability in this ratio is more or less same for all the banks during the period of study.

The combined mean of the ranks achieved by the banks in the above ratios are graphically portrayed in Chart 5. Here Dena Bank landed with the first position.

Chart 5: Liquidity position of PSBs



One-way ANOVA test discloses that there is no significant difference among the banks based on their liquidity position. The null hypothesis was accepted as  $F_{cal}$  (0.0192) was lesser than  $F_{crit}$  (2.3928) with 9 and 20 degrees of freedom at 5% level of significance. The trend

**B. FINDINGS**

lines in Chart 10 show Cash-Deposit Ratio and Credit-Deposit Ratio have very elastic negative trends, while Investment Deposit Ratio has an almost perfectly elastic positive trend.

**Table 7: Overall Rankings based on CAMEL Model (2011-17)**

BANKS	Capital Adequacy Ratios	Assets Quality Ratios	Management Quality Ratios	Earning Ratios	Liquidity Ratios	AVERAGE	RANK
INDIAN OVERSEAS BANK	6	10	9.5	10	7	8.5	10
UCO BANK	1.5	6.5	8	1.5	8	5.1	4
DENA BANK	7	1	3.5	5.5	1	3.6	2
BANK OF BARODA	1.5	4	1	3	5.5	3	1
UNITED BANK OF INDIA	9	5	7	7	5.5	6.7	8
BANK OF INDIA	8	8	2	5.5	4	5.5	5
CENTRAL BANK OF INDIA	10	6.5	9.5	8	2	7.2	9
IDBI BANK	3	2	6	9	10	6	7
PUNJAB NATIONAL BANK	5	9	3.5	1.5	9	5.6	6
BANK OF MAHARASTRA	4	3	5	4	3	3.8	3

Source: Computed from information provided in Table nos.2, 3, 4, 5 and 6.

From the Table 7 and overall CAMEL Model analysis of the selected sample PSBs, following findings can be summarised:

- **Capital Adequacy Position**

UCO Bank and Bank of Baroda secured the best Capital Adequacy position among the sample PSBs in India. There is no significant difference among the PSBs based on Capital Adequacy position. Capital Adequacy Ratio -Tier I is predicted to have a positive trend while that of Capital Adequacy Ratio and Capital Adequacy Ratio -Tier II, a negative trend.

- **Asset Quality Position**

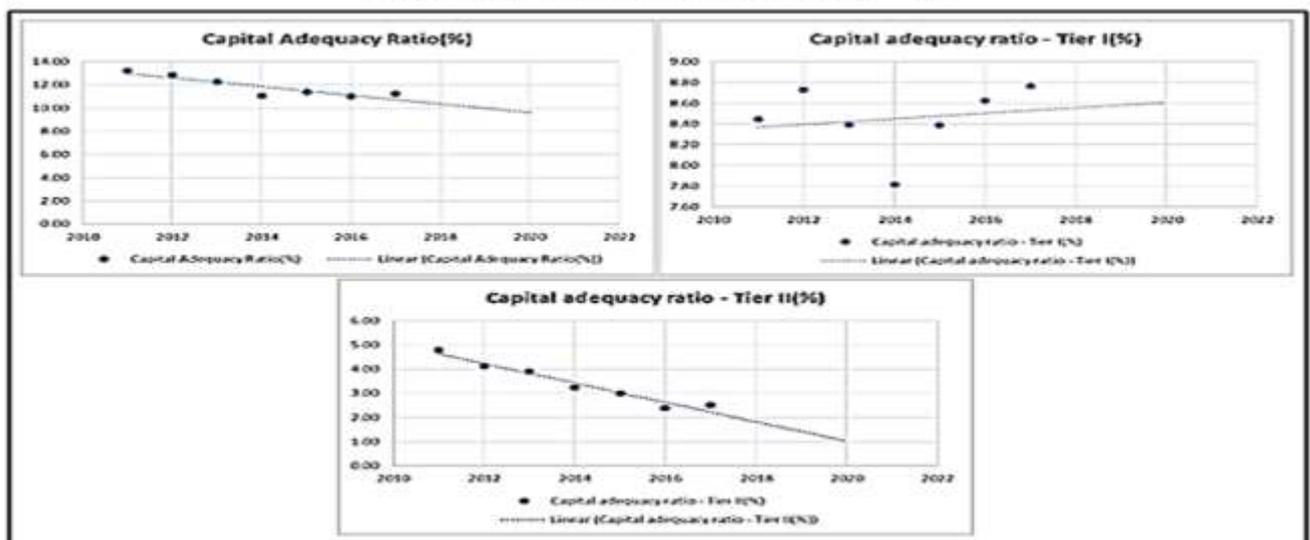
Dena Bank secured the best Asset Quality Position. There is no significant difference among the PSBs based on Asset Quality Position. Gross NPA to Net Advances, Net NPA to Net Advances and Investment to Asset ratio predicted to have positive trends. On the other hand, Term Loans to Total Advances ratio showed a negative trend.

- **Management Quality**

Management Quality of Bank of Baroda is the best among the sample PSBs in India. There is no significant difference among the PSBs based on Quality of Management. Business per Employee is expected to increase positively, while Profit per Employee and Return on Equity expected to have negative trend in near future.

- **Earning Ability Position**

**Chart 6: Trend lines of CAPITAL ADEQUACY RATIOS**



UCO Bank and Punjab National Bank are the best earners. There is no significant difference among the PSBs based on Earning Ability Position. All the ratios under this category were found to have negative trends.

- **Liquidity Position**

Dena Bank is the most liquid bank amongst the sample PSBs. There is no significant difference among the PSBs based on their Liquidity Position. Cash-Deposit

Ratio and Credit-Deposit Ratio are expected to have negative trends, while Investment Deposit Ratio is predicted to have a very elastic positive trend.

• Overall Findings:

- Bank of Baroda secured the highest overall rank based on CAMEL Model analysis followed by Dena Bank and Bank of Maharashtra.
- Indian Overseas Bank obtained the lowest overall rank based on CAMEL Model analysis.

- Performance of the PSBs based on CAMEL Model analysis were found to be similar.
- The financial health of these banks are not so good in immediate future.

The Charts based on trend lines are shown in the following paragraphs.

Chart 7: Trend lines of ASSETS QUALITY RATIOS

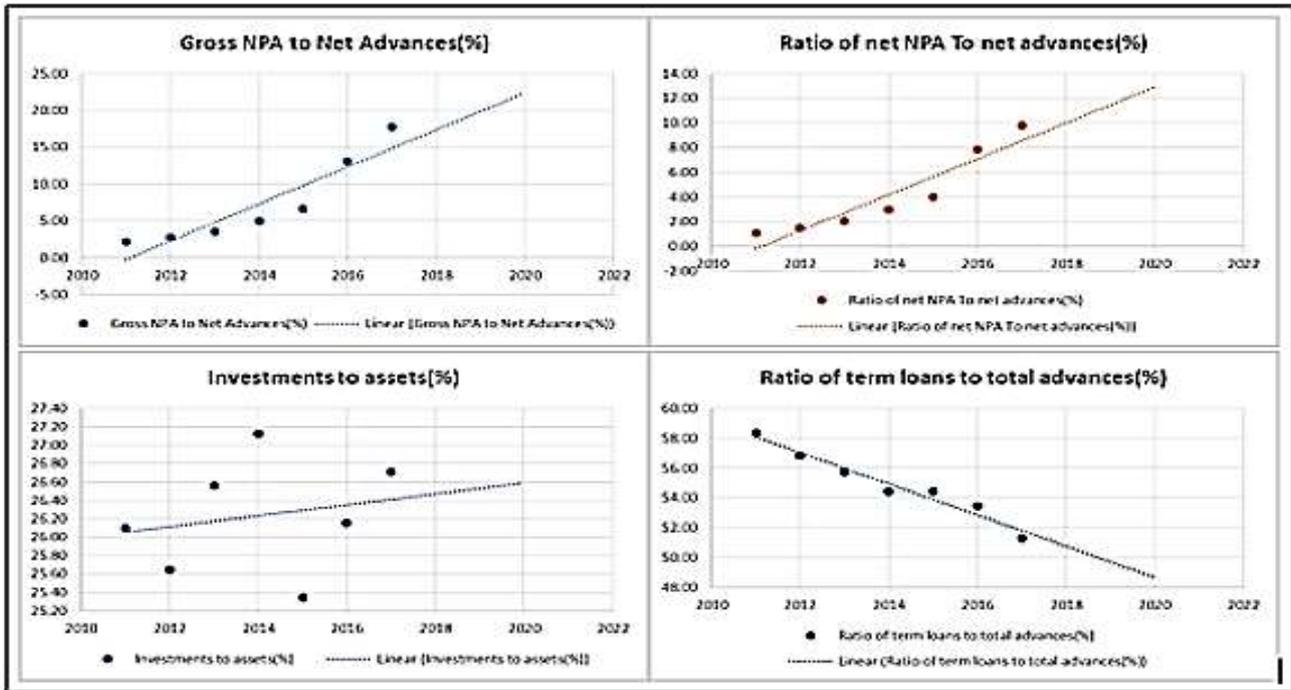


Chart 8: Trend lines of MANAGEMENT QUALITY RATIOS

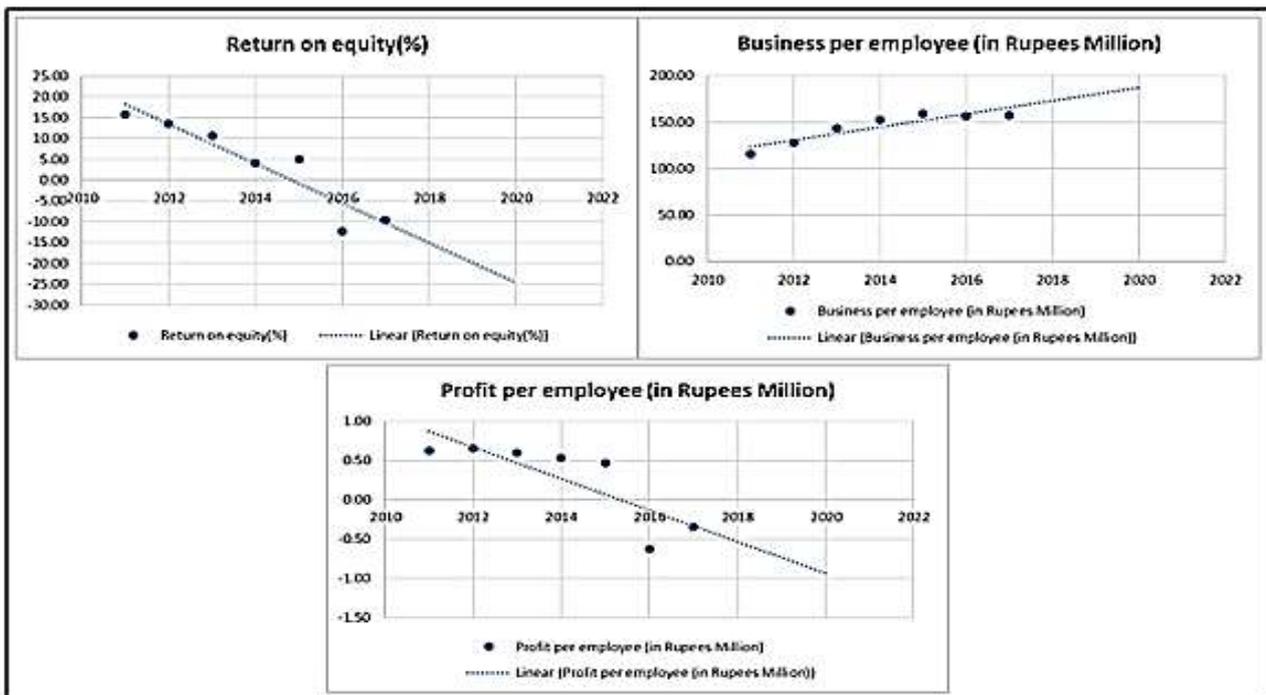


Chart 9: Trend lines of EARNING RATIOS

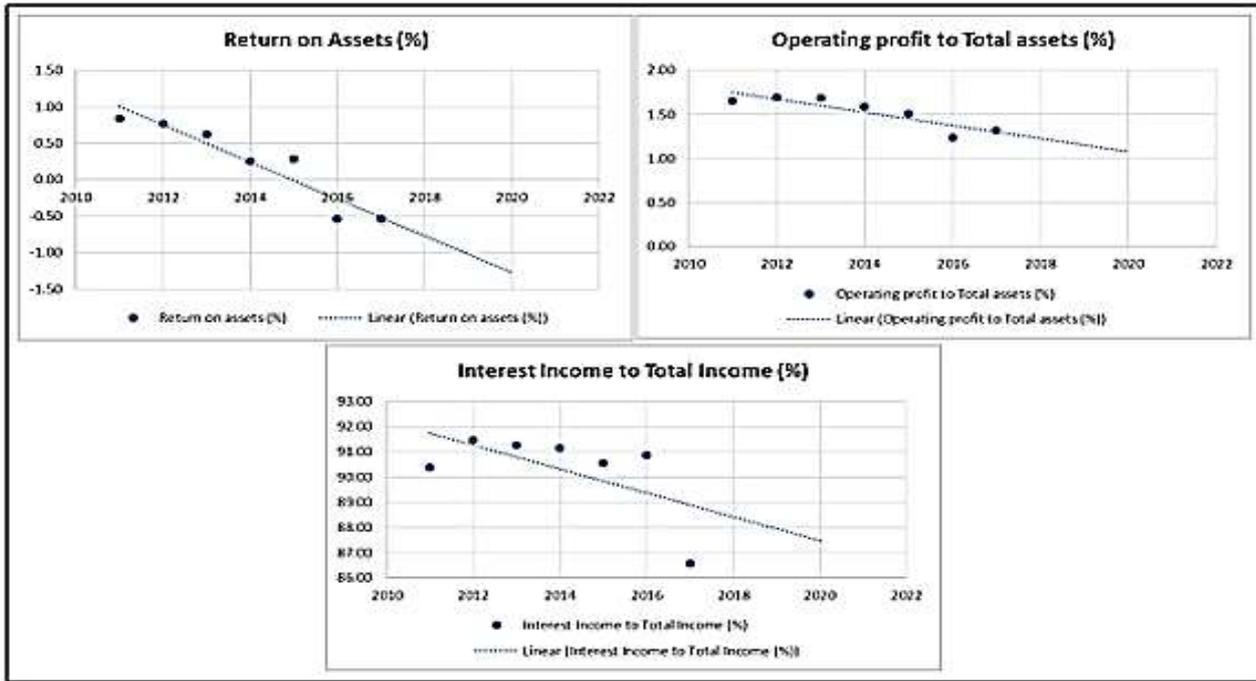
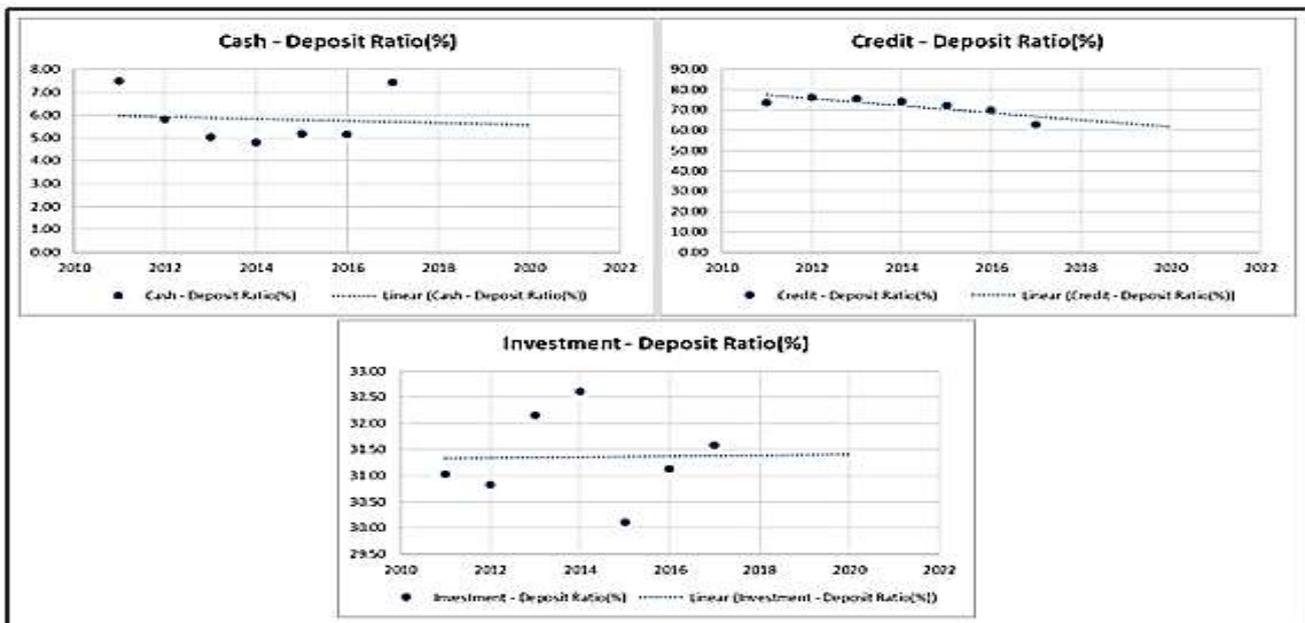


Chart 10: Trend lines of LIQUIDITY RATIOS



## VI. CONCLUSION

CAMEL Model Analysis is one of the most effective tool in order to analyse performance in five different crucial areas of banking operation. In the present study, ten public sector banks have been analysed, which collectively accounted for 50% of bad loans of the entire banking industry in India. The financial performance and position of the PSBs under all the categories were very similar. The Capital Adequacy position and Liquidity position are found to be deteriorating, which displays that, the deposits of the depositors are at stake. The Earning ability of the banks are

also very uncertain. If immediate significant steps are not taken, loss incurring PSBs would continue to suffer and ultimately perish. Management should be efficient to analyse the credit position of their loan borrowers in order to avoid any future bad loans. Asset Quality position clearly indicates the vain attempt of management of these banks to shield against escalating bad loans. Still, on the basis of CAMEL Model analysis in the present study, Bank of Baroda was found to secure the highest overall rank followed by Dena Bank and Bank of Maharashtra. Bank of Baroda shown strong performance in case of Capital Adequacy, Asset Quality, Management efficiency and

Earnings Ability while it lagged behind in case of Liquidity Position. On the other hand, Indian Overseas Bank obtained the lowest overall rank based on this analysis because it performed poorly in all the aspects which are analysed under CAMEL Model.

This study was performed to evaluate the degree of efficiency of the sample PSBs. The result on an average is quite disappointing. This calls for immediate measures to be taken to avoid any further deterioration and to improve their efficiency in financial performances.

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