

A Study on the Health of Selected Public Sector Banks using the CAMELS Framework

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Abstract The purpose of this research paper is to understand the health of the selected public sector banks with the use of CAMELS Rating. This study examined the performance of the banks for each of the 6 parameters which are Capital Adequacy, Asset Quality, Management Quality, Earnings Liquidity and Sensitivity to market risk. This study highlights the evaluation of the various public sector banks and the selected 5 Public Sector banks to arrive at a result to determine which bank is better in performance. Different ratios are being calculated for each parameter and the outcome can be used to determine the direction of the Indian Banking Industry.

Keywords CAMELS Rating, Banking Performance, Public Sector Banks

I. INTRODUCTION

The banking sector in India has undergone serious stress during the last decade with public sector banks bearing the brunt of the stress. This is clearly evidenced by the deteriorating GNPA ratios (Gross Non-Performing Assets) of the sector as a whole and the plunging bottom lines of most banks in the sector. During the decade almost all the public sector banks have slipped into loss at some point of time, mainly due to the burden of provisions for non-performing assets. Position of the banking sector continues to be critical and the stress is taking a toll not just of public sector banks but private sector banks as well, as the Yes Bank crisis shows.

This is the context in which this study has been conducted. The CAMELS model is well known and has been used by scholars across the world to assess the performance of banks. This study sets out to examine the financial health of a sample of these banks as per the CAMELS model. As the model is based on six major parameters it is useful to know the status of banks with respect to each of these parameters as it could suggest the strategy to be adopted for the future. The next section looks at the relevance of each of the parameters used by the model.

CAMELS

The CAMEL model was developed in the U.S in 1970 by three supervisors of the Federal Reserve Bank. The purpose was to develop a "Uniform Financial Rating System" that could be used to rate each of the banks in the US banking system. The model has come to be adopted internationally because of its ability to conduct an overall assessment of the financial health of the bank based on all the major parameters. Using a uniform rating system makes sense from a regulatory perspective as the relative performance of the banks can be made and action taken where required.

The model has evolved with time. Originally it had five components Capital Adequacy, Asset Quality, Management Capability, Earnings and Liquidity. In 1996 where an additional parameter 'sensitivity to market Risk' 'S' was added making it 'CAMELS'. In India the Padmanabhan Committee recommended that the model be used to rate Indian banks. Each parameter is rated on a scale of 1 to 5 where 1 is the best and 5 is worst in each parameter. On the basis of the scores obtained for each parameter the composite rating is arrived at.

A) *Capital Adequacy*: Capital is a regulatory requirement and hence critical for the functioning of the bank. Capital Adequacy measures the ability of the banks to absorb loss. The size of the loan portfolio of a bank is also dependent on the amount of capital that it has. The measure of capital adequacy is the CRAR (Capital to Risk Weighted Assets Ratio).

B) *Asset Quality*: The earnings of the bank are directly dependent on the quality of its assets. Assets that become non performing represent not just a loss of interest income but a burden on the profit and loss account by way of the extra provisions that are required for such assets. Poor asset quality will result in the long run in loss and erosion of the capital of the bank. This is evident from the current scenario in India. The measure of Asset Quality is the Gross Non-Performing Assets Ratio which is the ratio of the non-performing assets to the total loans portfolio and the Net Non-Performing Assets Ratio which measures the ratio of net non-performing assets (i.e. the gross non-performing assets net of provisions) to the total loans portfolio.

C) *Management Quality*: Like any other corporate the performance of the bank is a result of the decisions taken by its top management. This is a parameter which impacts all the other parameters in this model. However

Business per Employee is considered as a sound way of measuring management quality as the ability to generate business, which in the case of banks comprises deposits and advances, is the basis for the performance of the bank.

D) *Earnings*: The profits and profitability of the bank are another important parameter. The profit is important from an investor perspective and is a reflection of the asset quality and the business mix of the bank. Strong earnings are also the best source of capital for the bank. The appropriate measures for this are Net Interest Margin, Return on Assets and Return on Equity.

E) *Liquidity*: Liquidity is critical for a bank as its ability to pay its depositors and to make fresh advances is directly related to its liquidity. Banks typically have asset-liability mismatches as they deal in liquid liabilities but illiquid assets. Managing these asset-liability mismatches and the interest rate risk that they create is a measure of success of a bank's management. The measure of this parameter is the ratio of Liquid Assets to the Demand Deposits of the bank. Liquid assets include the government securities that the banks hold to meet their SLR requirements. These have a ready secondary market and in case of liquidity issues banks are free to encash these securities in the money market.

F) *Sensitivity to Market Risk* : This parameter captures the sensitivity of the bank to changes in interest rates, foreign exchange rates and bond yields. The measure for this parameter is the movement of the Net Interest Margin over the period of analysis.

II. LITERATURE REVIEW

This chapter focuses on the previous studies that have been made on this topic which takes into consideration the importance and functioning of the CAMELS framework in various banks. Previous work that has used the CAMELS framework to rate different banks in India and abroad are considered.

Gowda's study of 59 banks operating in India over the period 2006 – 2011 was conducted using the CAMELS framework. The study found that the performance of banks on capital adequacy, management soundness, earnings ability and liquidity varied significantly. However in the case of asset quality there was no significant difference between the banks. (Gowda, Anand, & Kumar, 2013)

Some studies using the CAMELS approach have found that performance of private banks is better than public sector banks. Sonaje and Nerlekar evaluated the financial performance of 11 commercial banks in India during the period 2013 – 2017 using the CAMEL approach and found that Kotak Mahindra Bank and HDFC bank were the top performers while State Bank of India and Punjab National bank were rated the lowest. The CAMELS approach is successful in bringing out a comprehensive picture of the financial health of banks irrespective of their size. Kiran's comparative study of private sector and public sector banks also reaches the same conclusion, viz., private sector banks achieve better CAMELS ratings than public sector banks. The study found that public sector banks showed better ratings on the 'liquidity' parameter but showed poor ratings under other parameters (Kiran, 2018). However, a more recent study using CAMELS has found that there was no significant difference in the performance of private and public sector banks in India. (Khatri, 2019)

Rafiq used the CAMELS framework to look at a selection of banks in Bangladesh during 2008-2014. Of these some were Islamic banks while others were conventional banks. The study found that the Islamic Banks had a better capital adequacy ratio than conventional banks. However, the profitability of Islamic Banks measured on the basis of the ROA and ROE was lower than conventional banks. (Rafiq, 2016).

Research has been conducted in Ghana using the CAMELS framework. One study using a sample of 12 universal banks in Ghana, with an equal number of local and foreign banks was conducted over the period 2006-2010. It was found that foreign banks performed better in parameters like capital adequacy, asset quality and management efficiency as compared with the local banks in the country. Foreign banks were also better capitalised with higher proportions of Tier 1 capital. (Gabriel, 2012)

Another study of 20 deposit banks in Turkey analysed the financial health of these banks using 21 ratios to assess the different parameters of the CAMELS model. It was found that three components of CAMELS which include Asset Quality, Management Quality, Sensitivity to Market Risk have direct effect on the credit ratings of the banks. Other parameters like Capital Adequacy and Earnings appeared to be less significant. (Yuksel, Dincer, & Hacıoglu, 2015).

Studies of Malaysian banks were conducted following their troubles during the Asian financial crisis using the CAMELS model. Weaknesses under all the parameters were found. (Muhmad & Hashim, 2015).

Kumari's study of 3 foreign banks in Sri Lanka for the period 2008- 2014 using the CAMELS rating system found that foreign banks tended to be well capitalised and profitable and fared well under the these parameters. However their performance under the other parameters such as asset quality, management soundness and liquidity were average (Kumari, 2017). Similarly Dash and Das in their study of 58 banks in India found that private and foreign banks showed better performance mainly due to good ratings under management soundness and earnings.(Dash & Das, 2013). More recently another study on 5 large private sector banks in India found that HDFC was the best performing bank in the sample, whereas ICICI Bank fared the worst under most of the CAMELS parameters. (Singh & Pawan, 2016)

Objectives of the study

- To analyse the health of public sector banks using the CAMELS framework.
- To identify the major financial weaknesses in the working of public sector banks

Methodology

This study uses the CAMELS model to evaluate the financial health of public sector banks. As explained above each of the parameters of CAMELS is measured using appropriate ratios. Thus Capital is measured with the CRAR (the Capital to Risk Weighted Assets Ratio); Asset Quality is established through the GNPA ratio (ratio of Gross Non Performing Assets to Total Loans and Advances); Management Quality is assessed through the Business per Employee ratio; Earnings are measured using the Net Interest Margin, ROA and ROE; Liquidity is measured using the ratio of Liquid Assets to Demand Deposits and Sensitivity is measured through the movement of Net Interest Margin.

To determine the position of the bank under each parameter with respect to the other banks the average of the public sector banks and all banks for each parameter is first calculated and then each bank's ratio is compared with this average. This helps to establish the relative position of each bank in the system as a whole. On the basis of this the bank is given a score for each parameter. If the score of the bank is better than the system as a whole (i.e. public and private sector banks together) it is rated as 'Strong' and given a score of 1. If the score lies between the system average and the average for only public sector banks then the bank is rated as 'satisfactory' and given a score of 2. If the score is less than the average of public sector banks then the bank is rated as 'less than satisfactory' and given a score of 3.

The sample banks are Union Bank of India, Bank of Baroda, Bank of India, Bank of Maharashtra and Central Bank of India, which are neither the best of the public sector banks nor the worst. They represent the average public sector bank. The study covers the period 2014-15 to 2018-19.

Sources of Data: The data has been collected from various sources like official websites, financial statements of the banks, annual reports, quarterly reports, investors quarterly presentations, and prowess.com. Information has also been gathered from Moneycontrol and yahoo for some parameters.

Scope and Limitations of the study

The study is based on the performance on the CAMELS parameters only. No attempt has been made to relate performance under individual parameters to the bank's risk management strategy or to the steps it has been taking to address the problems that it is facing under the different parameters.

The study is also based entirely on secondary data without any additional data through primary sources such as interviews of key bank personnel.

Finally, the researcher has been handicapped by time and resource constraints.

V. DATA ANALYSIS AND INTERPRETATION

The data of all 18 public sector banks over the period 2015-2019 has been used in order to make this analysis. The data of private banks for the same period has also been considered to arrive at the average figures for each of the parameters for the public and private banks as a whole. Out of these 18 public sector banks 5 banks have been selected at random for the analysis. These banks are Union Bank of India, Bank of India, Bank of Maharashtra, Bank of Baroda and Central Bank of India. Classifications have been done on the basis of the percentages of different ratios which contribute to the CAMELS rating. The score under each parameter of each bank has been

compared with the averages for public sector banks as a whole and for public and private sector banks taken together to arrive at the relative ranking of each bank. Based on their relative position banks have been ranked as 'strong', 'satisfactory' and 'less than satisfactory'. If the score of the bank is above the average for all public and private sector banks then it is ranked as 'strong'. If the score lies between the average for public and private sector banks taken together and the average of only public sector banks then it falls under the category of 'satisfactory'. If the value is less than the average of public sector banks then it falls under the category of 'less than satisfactory'. The 18 public sector banks are being compared with the 5 selected public sector banks which are Union Bank of India, Bank of India, Bank of Maharashtra, Bank of Baroda and Central Bank of India.

Capital Adequacy:

As stated above CRAR has been used to measure capital adequacy. Banks with a where if the CRAR of greater than 12% are classified as 'strong' and are allotted 10 points. Banks with a CRAR between 10.5%-12.13% are classified as 'Satisfactory' and the point allotted is 8. Banks with a CRAR of less than 10.5% come under the category of 'Less than Satisfactory' and the point allotted is 0.

Table I

CAPITAL RISK ADEQUACY RATIO

Banks	CRAR (2019) (%)	Points
Syndicate Bank	14.23	10
Bank Of India	14.19	10
Andhra Bank	13.68	10
Bank Of Baroda	13.42	10
Indian Bank	13.21	10
United Bank Of India	13.00	10
Oriental Bank Of Commerce	12.73	10
State Bank Of India	12.72	10
Allahabad Bank	12.51	10
Corporation Bank	12.30	10
Canara Bank	11.90	8
Bank Of Maharashtra	11.86	8
Union Bank Of India	11.78	8
Punjab & Sind Bank	10.93	8
Uco Bank	10.70	8
Indian Overseas Bank	10.21	0
Punjab National Bank	9.73	0
Central Bank Of India	9.31	0
Average for public sector banks	12.13	
Average for system (public and private sector banks)	13.59	

From the above table it is observed that out of 18 public sector banks, 10 banks come under the category of 'Strong', 5 banks come under the category of 'Satisfactory' and 3 banks come under the category of 'Less than Satisfactory'.

Table II

AVERAGE CRAR

Years	2019	2018	2017	2016	2015	Average	Points
Bank Of Baroda	13	12	13	13	13	12.8	10
Bank Of India	13	13	12	12	11	12.2	10
Bank Of Maharashtra	12	11	11	11	12	11.4	8
Union Bank Of India	12	12	12	11	9	11.2	8

Central Bank Of India	10	9	11	10	11	10.2	0
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The above table has the scores of the selected sample of public sector banks. Bank of Baroda and Bank of India get 10 points as their CRAR falls in the 'strong category'. Bank of Maharashtra and Union Bank of India get 8 points and fall into the 'satisfactory category' while Central Bank of India with 0 points falls in the 'less than Satisfactory category'.

Asset Quality

To measure the asset quality Gross NPA ratio is used. As in the case of CRAR, the average CRAR for the public sector banks and the system are also taken into account. If the ratio is less than 10% the bank is categorised as 'strong' and the point allotted to this category is 10. Where the ratio falls between 10% and 14% the bank is categorised as 'satisfactory' and the point allotted is 8 and where the ratio is greater than 14% the bank is considered as 'less than satisfactory' and the point allotted is 0.

Table III
GROSS NPA

Company Name	Gross NPA(2019) (%)	Points
Indian Bank	7.11	10
State Bank Of India	7.53	10
Bank Of Baroda	9.61	10
Canara Bank	9.63	10
Syndicate Bank	11.37	8
Punjab & Sind Bank	12	8
Oriental Bank Of Commerce	12.66	8
Union Bank Of India	14.98	0
Corporation Bank	15.35	0
Bank Of India	15.43	0
Punjab National Bank	15.5	0
Andhra Bank	16.21	0
Bank Of Maharashtra	16.4	0
United Bank Of India	16.48	0
Allahabad Bank	17.55	0
Central Bank Of India	19.29	0
Indian Overseas Bank	21.97	0
Uco Bank	25	0
AVERAGE	14.67	
Average for system (public and private banks)	10.23	

From the above table it is found out that 4 banks come under the category of 'strong' with 10 points, 3 banks come under the 'satisfactory' category with 8 points and 11 banks falls under the category of 'less than satisfactory' with 0 points.

Table IV
AVERAGE GROSS NPA

Years	2019	2018	2017	2016	2015	Average	Points
Union Bank Of India	15	16	11	9	5	11.2	8
Bank Of Baroda	10	12	10	10	4	9.2	10
Bank Of India	16	17	13	13	5	12.8	8
Bank Of Maharashtra	16	19	17	9	6	13.4	8
Central Bank Of India	19	21	18	12	6	15.2	0

The table shows the average value of Gross NPA of the 5 selected public sector banks. Bank of Baroda is categorised as Strong and given 10 points as the average value is less than 10%. Union Bank of India, Bank of India and Bank of Maharashtra are categorised as Satisfactory as their average GNPA is between 10% and 14% and given 8 points. Central Bank of India with a Gross NPA of more than 15.2% is categorised as 'Less than Satisfactory' and gets 0 points.

However it needs to be noted that whereas points have been given based on the average for the public sector banks and the system as a whole, these points represent the relative performance of the banks. Seen in absolute terms a GNPA ratio of 9.2%, which is the best in this set, is by no means satisfactory. It shows poor asset quality and requires a serious course correction by the bank.

Management Quality

Management Capability can be measured using Business per Employee ratio. As in the tables shown above the average Business per Employee of public sector banks and for the system have been taken for the purpose of rating the banks. Those banks with Business per Employee of '> 455.91' falls under the category of 'Strong' and are given 5 points. Banks with a value of 171.2 to 455.91 are categorised as 'Satisfactory' and get 4 points. Banks with a value of '< 171.2' are categorised as 'Less than Satisfactory' and get 0 points.

Table V

BUSINESS PER EMPLOYEE

Banks	Business Per Employee (2019) in lakhs	Points
Indian Bank	217.4	4
Andhra Bank	195.8	4
Bank Of Baroda	188.8	4
Punjab & Sind Bank	188.7	4
Union Bank Of India	187.9	4
State Bank Of India	187.7	4
Oriental Bank Of Commerce	186.02	4
Bank Of India	183.9	4
Bank Of Maharashtra	181.3	4
Corporation Bank	172	4
Canara Bank	170.7	0
Punjab National Bank	168	0
Allahabad Bank	162.8	0
Syndicate Bank	142.7	0
Indian Overseas Bank	142.1	0
United Bank Of India	141.2	0
Uco Bank	136.9	0
Central Bank Of India	127.8	0
AVERAGE	171.20	
Average for system	455.91	

From the above table it is observed that 10 banks fall in the category of Satisfactory with 4 points and 8 banks fall in the category of Less than Satisfactory and get 0 points. None of the public sector bank fall in the Strong category as Business per Employee is low.

Table VI

AVERAGE BUSINESS PER EMPLOYEE

Years	2019	2018	2017	2016	2015	Average	Points
Bank Of India	18.39	18.29	19.4	17.96	20.69	189.460	4
Bank Of Baroda	18.88	17.66	17.49	16.8	18.89	179.440	4

Bank Of Maharashtra	18.13	18.07	18.54	18.18	15.74	177.320	4
Union Bank Of India	18.79	17.83	16.43	15.51	14.46	166.040	0
Central Bank Of India	12.78	12.71	11.77	11.84	11.37	120.940	0

From the table given above it is observed that Bank of India, Bank of Baroda and Bank of Maharashtra have 4 points as they fall in the Satisfactory category. Union Bank of India and Central Bank of India fall in the Less than Satisfactory category and get 0 points for the parameter.

Earnings

The earnings have been measured using the Return on Assets ratio. The average of all public sector banks have been taken and used for the rating of the banks under this parameter. Only 2 categories have been made for the analysis of Return on Assets. The categories are 0 to greater than 1 which is considered as 'Satisfactory' with the point allotted being 4 and < 0 which fall under 'Less than Satisfactory' and the point for this classification is 0.

Table VII

RETURN ON ASSETS

Banks	ROA (2019) (%)	Points
Indian Overseas Bank	1.35	4
Indian Bank	0.12	4
Bank Of Baroda	0.06	4
Canara Bank	0.06	4
State Bank Of India	0.02	4
Oriental Bank Of Commerce	0.02	4
Punjab & Sind Bank	-0.47	0
Union Bank Of India	-0.59	0
Bank Of India	-0.84	0
Syndicate Bank	-0.87	0
Andhra Bank	-1.09	0
Punjab National Bank	-1.25	0
United Bank Of India	-1.6	0
Central Bank Of India	-1.7	0
Uco Bank	-1.84	0
Bank Of Maharashtra	-3.01	0
Corporation Bank	-3.14	0
Allahabad Bank	-3.48	0

The above table shows that out of 18 public sector banks only 6 banks fall under the category 'Satisfactory'. Clearly the public sector banks require to reconsider their strategies if profitability is to improve.

Table VIII

AVERAGE RETURN ON ASSETS

Years	2019	2018	2017	2016	2015	Average	Rank
Bank Of Baroda	0.05	-0.33	0.19	-0.8	0.47	-0.084	0
Union Bank Of India	-0.59	-1.07	0.12	0.33	0.46	-0.15	0
Bank Of India	-0.88	-0.99	-0.24	-0.99	0.27	-0.566	0
Bank Of Maharashtra	-2.9	-0.73	-0.86	0.06	0.3	-0.826	0
Central Bank Of India	-1.7	-1.61	-0.8	-0.48	0.21	-0.876	0

None of the selected public sector banks show a positive Return on Assets and as such all five banks are given 0 points.

Liquidity

The liquidity of the banks can be calculated using the Liquid Assets to Demand Deposits Ratio. Like other ratios the average of all the public sector and private sector banks are taken in this parameter and used for rating the banks. Banks with a value of more than 9% fall under the category 'Strong' and get 10 points. If the value is between 9% to 8.37% the bank is categorised as 'Satisfactory' and get 8 points. Finally, if the value is less than 8.37% it is considered as 'Less than Satisfactory' and given 0 points.

Table IX

LIQUID ASSETS OVER DEMAND DEPOSITS

Banks	Demand Deposit	Liquid Assets	LA/DD (%)	Points
Canara Bank	232739.3	29919.02	12.86	10
Syndicate Bank	107226.5	13612.83	12.70	10
Central Bank Of India	164165.5	20779.09	12.66	10
Bank Of India	275223.4	29236.56	10.62	10
Punjab & Sind Bank	49759.6	4941.08	9.93	10
Andhra Bank	102305.8	10126.77	9.90	10
Indian Bank	132557.3	11701.86	8.83	8
State Bank Of India	2058752.5	176932.42	8.59	8
Allahabad Bank	119864.6	9672.32	8.07	0
Oriental Bank Of Commerce	142610.9	11193.88	7.85	0
Union Bank Of India	265133.9	20796.46	7.84	0
Punjab National Bank	443750.8	32129.13	7.24	0
Indian Overseas Bank	145751.2	10292.53	7.06	0
Bank Of Maharashtra	131627.7	7919.99	6.02	0
Corporation Bank	161997.6	9661.07	5.96	0
Bank Of Baroda	469007.2	26661.73	5.68	0
United Bank Of India	111763.8	6168.88	5.52	0
Uco Bank	266142.9	8823.01	3.32	0
AVERAGE			8.37	
Average for system			9.00	

The table above shows that 6 banks fall under the category 'Strong' with 10 points as they have value which is more than 9. 2 banks get 8 points as they fall under the 'Satisfactory' category and all the other banks have a value of '< 8.37%' and get 0 points as the ratio is 'Less than Satisfactory'.

Table X

PRESENT LIQUID ASSETS OVER DEMAND DEPOSITS

Banks	2019	Points
Central Bank Of India	12.66	10
Bank Of India	10.62	10
Union Bank Of India	8.00	0
Bank Of Maharashtra	6.02	0
Bank Of Baroda	5.68	0

As can be observed from the table above only two banks show good ratios, viz., Central Bank of India and Bank of India both of which get 10 points.

Sensitivity To Market Risk

Sensitivity to Market Risk is measured by examining the extent to which the movements in the Net Interest Margin are correlated to the changes in interest rates. The repo rate has been used as the proxy rate for capturing the changes in interest rate. To determine the correlation the change in NIM from year to year has first been calculated and this movement has been correlated with the changes in the repo rate over the same periods. The correlation values vary between 1 and 0, with 1 showing a high correlation and 0 showing no correlation. The table below show the NIM of each public sector bank over the five year period and the repo rate over the same period. This is followed by the table showing the correlation value of each bank based on the movement of NIM and repo rate over the 5 year period.

Table XI

NET INTEREST MARGIN

Banks	NIM (2015)	NIM (2016)	NIM (2017)	NIM (2018)	NIM (2019)
Allahabad Bank	3.1	2.65	2.54	2.2	2.58
Andhra Bank	3	3.18	3.07	3.31	3.31
Bank Of Baroda	2.31	2.05	2.19	2.43	2.72
Bank Of India	2.11	2.11	2.2	1.92	2.56
Bank Of Maharashtra	2.82	2.59	2.16	2.32	2.53
Canara Bank	2.25	2.19	2.23	2.42	2.63
Central Bank Of India	2.79	2.78	2.51	2.47	2.54
Corporation Bank	2.07	2.06	2.12	2.32	3.05
Indian Bank	2.5	2.33	2.59	2.9	2.96
Indian Overseas Bank	1.88	1.94	2.03	2.19	2.08
Oriental Bank Of Commerce	2.61	2.66	2.42	2.73	2.18
Punjab & Sind Bank	1.8	2.22	2.23	1.96	2.09
Punjab National Bank	3.15	2.6	2.38	2.16	2.41
State Bank Of India	3.16	2.96	2.84	2.16	2.4
Syndicate Bank	2.38	2.28	2.37	2.44	2.42
Uco Bank	2.35	2.16	1.56	1.32	1.84
Union Bank Of India	2.21	2.05	1.96	1.9	2.06
United Bank Of India	2.21	2.01	1.6	1.66	2.1
Average NIM	2.48	2.38	2.28	2.27	2.47
Repo Rate	6.75	6.50	6.00	6.25	5.15

The above table shows the extracted data of the different public sector banks and their NIM during 5 years.

Table XII

CHANGE IN NET INTEREST MARGIN

Banks	2015-16 Change in NIM	2016-17 Change in NIM	2017-18 Change in NIM	2018-19 Change in NIM	Correlation
Allahabad Bank	-0.45	-0.11	-0.34	0.38	-0.88
Andhra Bank	0.18	-0.11	0.24	0	0.71
Bank Of Baroda	-0.26	0.14	0.24	0.29	-0.24
Bank Of India	0	0.09	-0.28	0.64	-0.98
Bank Of Maharashtra	-0.23	-0.43	0.16	0.21	-0.07
Canara Bank	-0.06	0.04	0.19	0.21	-0.17
Central Bank Of India	-0.01	-0.27	-0.04	0.07	-0.20
Corporation Bank	-0.01	0.06	0.2	0.73	-0.69
Indian Bank	-0.17	0.26	0.31	0.06	0.29
Indian Overseas Bank	0.06	0.09	0.16	-0.11	0.94
Oriental Bank Of Commerce	0.05	-0.24	0.31	-0.55	0.99
Punjab & Sind Bank	0.42	0.01	-0.27	0.13	-0.42
Punjab National Bank	-0.55	-0.22	-0.22	0.25	-0.68

State Bank Of India	-0.2	-0.12	-0.068	0.24	-0.71
Syndicate Bank	-0.1	0.09	0.07	-0.02	0.24
Uco Bank	-0.19	-0.6	-0.24	0.52	-0.62
Union Bank Of India	-0.16	-0.09	-0.06	0.16	-0.71
United Bank Of India	-0.2	-0.41	0.06	0.44	-0.42
Average NIM	-0.10	-0.10	0.00	0.20	-0.62
Repo Rate	-0.25	-0.5	0.25	-1.1	1.00

This table shows the change in NIM and the resultant correlation. It is being calculated as the difference between the current year and the base year. Average has been taken for the change calculated. The change in NIM during different years and the repo rate has been used for finding the correlation.

Table XIII
CORRELATION

Banks	Correlation	Points
Bank Of India	-0.98	1
Allahabad Bank	-0.88	1
Union Bank Of India	-0.71	1
Corporation Bank	-0.69	1
Punjab National Bank	-0.68	1
Uco Bank	-0.62	1
Punjab & Sind Bank	-0.42	2
United Bank Of India	-0.42	2
Bank Of Baroda	-0.24	3
Central Bank Of India	-0.20	3
Canara Bank	-0.17	3
Bank Of Maharashtra	-0.07	3
State Bank Of India	0.24	3
Syndicate Bank	0.24	3
Indian Bank	0.29	2
Andhra Bank	0.71	1
Indian Overseas Bank	0.94	1
Oriental Bank Of Commerce	0.99	1
Repo Rate	1.00	

The resultant correlation has been classified into different categories to give points according to their movement in different years with respect to the change in the repo rate and the market risk. The correlation values have been classified into three categories which are 'least sensitive', 'moderately sensitive' and 'most sensitive'. The points for the categorisation are 3 for the 'least sensitive', 2 for 'moderately sensitive' and 1 for 'most sensitive'. The classification include ranges which are -0.25 to + 0.25 which is considered as 'least sensitive', > +/-0.25 to > +/-0.25 is considered as 'moderately sensitive', and all other values outside these ranges are considered as 'most sensitive'.

In the above classification of banks six banks fall under the category of 'Least Sensitive' and get 3 points, 3 banks fall under the category of 'Moderately Sensitive' and 9 banks fall under the category of 'Most Sensitive'.

Table XIV
CORRELATION OF SELECTED BANKS

Banks	Correlation	Points
Union Bank Of India	-0.71	1
Bank Of India	-0.98	1
Bank Of Baroda	-0.24	3
Central Bank Of India	-0.20	3
Bank Of Maharashtra	-0.07	3

Union Bank of India and Bank of India shows the least sensitivity to market risk based on their correlation values. They have been categorised as 'Strong' and given 3 points.

Table XV

COMBINED AVERAGE

CAMELS Rating	C	A	M	E	L	S	Average	Rank
	Points	Points	Points	Points	Points	Points		
Bank Of India	10	10	4	0	10	1	5.83	1
Bank Of Baroda	10	8	4	0	0	3	4.16	2
Bank Of Maharashtra	8	8	4	0	0	3	3.83	3
Union Bank Of India	8	8	0	0	0	1	2.83	4
Central Bank Of India	0	0	0	0	10	3	2.33	5

The above table represents the points earned by each bank for the different parameters of CAMELS Rating. The points obtained under each of the parameters have been averaged to obtain the final score and the rank of each of the banks.

In this set Bank of India gets the highest rank, followed by Bank of Baroda with second rank, Bank of Maharashtra, with the third rank, Union Bank of India with the fourth rank and Central Bank of India with the lowest rank.

VI.

CONCLUSION

Effective financial performance is needed for banks in the country. The health of the Banking Industry in India is in danger as the public banks are not performing well. The performance of all public sector banks is weak in terms of asset quality and earnings. The satisfactory Capital Adequacy ratios are due to the recapitalisation of these banks by the government of India. Recapitalisation serves its purpose only if the bank is able to use the capital prudently and earn profit. With profit it will have an internal source of capital and will become self-sustaining. However, given the very high Gross Non Performing Asset ratios of the banks there is little hope of the banks showing good performance in the near future.

VII.

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