International Journal of Financial Management
10 (2 & 3) 2020, 24-37
http://publishingindia.com/ijfm/

An Analysis of Public Sector Banks' Performance using CAMEL Rating Model

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Abstract

Banks form the fundamental component of the financial system of any economy. Soundness of the banking sector is, therefore, essential for a healthy and vibrant economy. Nowadays, the financial system of the Indian economy is completely interlinked with the banking sector. If something goes wrong with the banking industry, the entire financial system will collapse. So, it is necessary to evaluate and measure the strength of the banking industry so that our economy improves efficiently. In this study, an attempt has been made to measure the financial position and performance of public sector banks, ranking them accordingly. For this purpose 21 Indian public sector banks have been taken into consideration, over a period of ten years, i.e. 2008-2009 to 2018-2019. The study is based on secondary data which has been collected through capitaline database and annual financial statements of the respective banks. The CAMEL model has been used to measure the performance of the banks. Findings from the analysis indicates that Indian public sector banks are making an effort toward maintaining adequate capital, and in years to come, all banks should strive toward achieving more than the required level. Public sector banks need to brainstorm innovative ideas, which can help them deploy funds after proper analysis of the risk exposure.

Keywords: Public Sector Banks, Financial Performance, Capital Adequacy, CAMEL Model

JEL Classification: B26, G21, O16

Introduction

The Indian Banking Industry is regulated by the Reserve Bank of India (RBI). The RBI Act was passed in 1934, and was established in 1935. It is the only single institution which can regulate the issue of bank notes, keeping a reserve with a view to securing monetary stability in India. The RBI also works as the supervisory authority for banks. The banking sector plays a crucial role in the development of an economy. It not only helps in mobilizing the savings from surplus economic units, but also promotes industrial development. Nowadays, the financial system of the Indian economy is completely interlinked with the banking Sector. If something goes wrong with the banking industry, it will lead to the collapse of the entire financial system. So, it is necessary to evaluate and measure the strength of the banking industry so that our economy improves efficiently. Currently, most citizens of India are connected to the banking sector. After the major step of financial inclusion, which was carried out by the Government of India in 2016, the scheme connected the rural as well as unbanked areas to the banking sector. To maintain the faith of the people in the banking sector and to protect the economic health of the country, it is necessary to measure the overall performance of the banking industry. Banks provide a wide range of products and services to business organizations and help them in improving their operational efficiency. Therefore, it is necessary to evaluate the performance of each and every bank to determine their contribution to business development. Bank performance analysis involves the gathering of formal and informal data to help customers and sponsors define and achieve their goals. Banks are also expected to provide evidence of their credit operations and financial flow, as these influence the growth and economic development of the country.

CAMEL Model

The present study analyses the performance of the Indian public sector banks under the CAMEL Model framework. The CAMEL Model of rating was first developed in the 1970s by the three federal banking supervisors of the

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U.S. (the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency). In India, the RBI adopted the CAMEL rating model for the Annual Financial Inspection (AFI), to measure the solvency, liquidity, and operational health of banks. All Indian commercial banks are rated as per the supervisory rating model approved by the BFS (Board for Financial Supervision), which is based on the CAMEL concept. The CAMEL rating model was modified in 1996 and a sixth component, sensitivity to market risk, was added. Each component of the CAMEL model is rated on a scale of 1 to 5, 1 standing for the best and 5 for the worst.

The following factors are examined under CAMEL.

- C–Capital Adequacy
- A–Asset Quality
- M–Management Efficiency
- E–Earning Ability
- L–Liquidity

Review of Literature

Misra (2006) measured the financial performance and impact of various internal and external factors on profitability of Regional Rural Banks (RRB) in India. The variables in this study includes Net Income to Total Assets as the dependent variable used as a proxy for the financial performance, and independent variables like Ratio of Loan to Total Assets, Investment to Total Assets, Cash in Hand to Total Assets, Operating Expenses to Total Expenditure, and Net Income to Assets of Sponsor Banks. The sample for the study consists of 150 profit-making and 46 loss-making RRBs operating in India. Penal data regression was applied to check the relationship.

Nimalathasan (2008) measured the financial performance of the banking sector in Bangladesh by using the CAMEL rating model. A sample of 48 banks was taken over the period between 1996 and 2006. It was found that out of the 48 banks, three banks were at the top and 31 others showed a satisfactory result in the CAMEL overall ratio. Seven banks ranked third due to higher NPAs.

Sagmi and Nazir (2010) conducted a comparative study on Punjab National Bank and Jammu & Kashmir Bank to measure their financial position between 2001 and 2005. The CAMEL Model was used for measuring the performance, and mean and standard deviation were some of the statistical tools used during the study. The study revealed that in terms of the capital adequacy parameter, both banks were performing well. In terms of asset quality, PNB held the top ranking and JKB held the lower rank. In terms of management efficiency, PNB was performing well and was able to manage the funds in a proper manner. However, the performance of JKB was poor. In terms of the earning parameter, PNB stood at the top and JKB secured the lower ranking. And finally, in terms of the liquidity parameter, JKB scored the top ranking, while PNB occupied the lower ranking.

Kaur (2010) analyzed the performance of the Indian banking sector. For measuring the performance, a sample of 28 public banks, 26 private banks, and 28 foreign banks during the period 1999-2007 was considered. The study revealed that among the public sector banks, Andhra Bank and State Bank of Patiala secured the top ranking. In private sector banks, Jammu & Kashmir Bank occupied the top position, followed by HDFC Bank. Among the foreign banks, Antwerp Bank scored the top ranking, followed by JP Morgan Chase Bank.

Mishra and Aspal (2011) evaluated the performance of State Bank of India and its associate bank by using the CAMEL Model. The data during the period 2009 to 2011 of all six public sector banks were taken from the annual report of the banks. The statistical tools used during the study were Mean, F-test and One-Way ANOVA. The study found that in the capital adequacy parameter, SBBJ and SBP were ranked the highest, and SBI the lowest. In terms of the asset quality parameter, SBBJ held the top rank and SBI the lower. In terms of the management efficiency parameter, SBT secured the top ranking and SBBJ occupied the lowest rank. In terms of the earning parameter, SBM scored the top rank and SBP the lowest rank. In terms of the liquidity parameter, SBI got the top rank and SBM got the lowest rank.

Reddy and Parsad (2011) measured the performance of Regional Rural Banks by using the CAMEL Model. The sample of two Grameen banks was taken for the study: the first was Andhra Pragathi Grameena Bank and the second was Sapthagiri Grameena Bank. The data for the period 2006-2010 was taken from the annual report published by the banks. The study found that Sapthagiri Grameena Bank was good under the asset quality parameter. In terms of management efficiency, Andhra Pragathi Bank performed better and Sapthagiri performed

poorly. In terms of earning parameter, Andhra Pragathi Bank performed better and Sapthagiri performed badly. In terms of the liquidity parameter, both banks performed the same. In overall performance, APGB scored the top rank.

Kumar et al. (2012) analyzed the performance of public and private sector banks. A sample of 12 banks was considered for the study. Data was taken for the period 2000-2011 from the annual report published by the banks. The statistical tool average was used during the study. The study revealed that in terms of the capital adequacy parameter, Axis Bank secured the top ranking and BOB, Canara, and ICICI banks scored the lowest ranking. In terms of the asset quality parameter, IDBI Bank secured the top position and HDFC Bank secured the lowest. In terms of management efficiency, Oriental Bank of Commerce was at the top and ICICI held the lowest rank. In terms of the earning parameter, SBI occupied the top position and HDFC the lowest. In terms of the liquidity parameter, SBI secured the lowest rank and KMB Bank scored the top position.

Prasad and Ravinder (2012) analyzed the performance of public sector banks in India by using the CAMEL model. A sample of 20 nationalized banks were considered. Data for the period 2005-2010 was collected. The study found that in terms of capital adequacy ratio, Canara Bank was at the top. In terms of the asset quality parameter, Andhra Bank and Bank of Baroda were at the top. In terms of management efficiency, Punjab & Sind Bank was at the top. In terms of the earning parameter, Indian Bank was ranked at the top. In terms of the liquidity parameter, Bank of Baroda was positioned at the top. The study found that in terms of overall performance, Bank of Baroda performed well. Central Bank of India occupied the lowest rank.

Reddy (2012) evaluated the relative performance of commercial banks in India by using the CAMEL approach. A sample of 26 public sector banks, 19 private sector banks, and 16 foreign banks was taken for the study. The period covered for the study is from 1999 to 2009. The study revealed that the Mashreq Bank, China Trust Commercial Bank, and Bank of Ceylon secured top ranking due to higher Capital Adequacy and Liquidity. The American Express Bank, Development Credit Bank, and Catholic Syrian Bank got the least ranking due to low asset quality, low capital adequacy, and low earning quality.

Gupta (2014) analyzed the performance of public sector banks by using the CAMEL approach. A sample size of 26 public sector banks was taken during the study. The data for the period 2009-2013 was taken from the annual reports published by the banks and statistics published by the RBI. The statistical tools used during the study were One-way ANOWA, F-test, and Mean. The study revealed that in terms of capital adequacy, Canara Bank secured the top position and UBI the lowest position. In terms of asset quality parameter, BOB scored the top rank and Allahabad Bank was at a lower position. In terms of management efficiency, Andhra Bank was at the top and IOB was at the last. In terms of earning quality, Andhra Bank and Indian Bank were at the top, and IDBI Bank was the last. In terms of liquidity parameter, BOB scored the top rank and State Bank of Mysore got a lower rank.

Bansal and Mohanty (2014) analyzed the financial performance of commercial banks in India. A sample of five banks on the largest market capitalization was taken for the study. The financial data for the period 2007 to 2011 was considered. The study concluded that ICICI secured the top position in capital adequacy and SBI the lowest position; in terms of asset quality, HDFC was at the top and SBI at the bottom; in terms of management efficiency, Axis Bank was at the top and SBI secured the lowest ranking.

Tripathi et al. (2014) measured the financial performance of Axis Bank and Kotak Mahindra Bank using the CAMEL model. The study covered a period of ten years from 2004-2013. The study found that in terms of earning per share, Axis Bank was at the top and its ratio of return on assets is minimum. The study concluded that there was no significant difference between the financial performances of Axis Bank and Kotak Mahindra Bank, but the performance of Kotak Mahindra Bank was slight poorer than that of Axis Bank.

Biswal and Gopalakrishna (2014) conducted a study based on secondary data taken from 2008 to 2013. In this study, the authors segregated the banks into two parts based on credit deposit ratio, i.e. high credit deposit ratio and low credit deposit ratio. The study found that the credit deposit ratio impacted the profitability of the banks.

Shukla (2015) analyzed the financial strength of private and public sector banks. A sample of three public sector and three private banks was taken for the study, during the time period 2010-2013. The study concluded that HDFC

Bank and BOB were at the top in terms of capital adequacy. HDFC Bank was at the top in terms of assets quality. In terms of management efficiency, HDFC and ICICI banks were at the top. In terms of overall performance, HDFC stood at the top.

Srinivasan and Saminathan (2016) assessed the financial strength of public, private, and foreign banks in India. A sample size of 51 banks was taken during the study; the 51 banks consisted of 25 public sector bank, 18 private sector banks, and eight foreign banks. The data for the study was collected for the period 2012-2014. The study revealed that in public sector banks, Andhra Bank, BOB, Allahabad Bank, PNB, IDBI, State Bank of Bikaner & Jaipur, and UCO Bank were at the top. In private sector banks, Tamil Nadu Mercantile Bank, Kotak Mahindra Bank, HDFC Bank, Axis Bank, Karur Vysya Bank, ICICI Bank, Citi Union Bank, and IndusInd Bank were the top five. In foreign banks, The Royal Bank of Scotland, Deutsche Bank, CTBS Bank, and DBS Bank secured the top position.

Kumar and Malhotra (2017) examined the performance of top five private banks in India by using the CAMEL model. A sample was taken on the basis of market capitalization value of the period 2007-2008 and the duration was 2007-2017. The results showed that in terms of overall performance, Axis Bank got the top ranking and IndusInd Bank got the least ranking. The study also found that Axis Bank was good in terms of earning quality and capital adequacy, while InduInd Bank occupied the last position in terms of asset quality.

Majumder and Rahman (2017) measured the financial performance of fifteen selected banks in Bangladesh by using the CAMEL model. The data for the period 2009-2013 was taken for the study. Statistical tools like Average, Composite Ranking, and ANOVA test were used during the study. The results found that in terms of capital adequacy, IBBL Bank was at the top, while IFICBL was at the lowest. In terms of asset quality, AIBL held the top rank and RBL the lowest rank. In terms of management efficiency, EBL Bank held the top ranking and RBL the lowest rank. In terms of the earning parameter, EBL Bank secured the top ranking and TBL Bank was the lowest in ranking. Finally, in terms of the liquidity parameter, DBBL was at the top, and NCCBL and BAL were in the lowest position.

Lall and Agarwal (2017) evaluated the performance of public sector banks by using the CAMEL model. A sample of six public sector banks was taken for the study. The data covered the period 2013 to 2016. The study concluded that SBI was at the top position with high capital adequacy, better asset quality, and good earning capacity. Canara Bank secured the last position due to weak asset quality and management efficiency.

Muralidhara and Lingam (2017) measured the financial performance of Nationalized Banks and assigned ranks based on parameters of capital adequacy, asset management, management ability, earning capacity, and liquidity. A sample of five public sector banks was taken during the time period 2007 to 2016. The study found that Bank of Baroda stood at the top, with the first rank in four parameters of the CAMEL model. On the other hand, Central Bank of India occupied the last position due to inadequate capital and higher NPAs.

Rajeev and Subramoniam (2017) have collected data from 120 professionals involved in granting loans and recovery to know about the impact of NPAs on the financial stability and profits of the public sector banks in India. The study concludes that NPAs affect the financial position of the banking and non-banking financial companies, thus affecting employment in the country.

Bothra and Purohit (2018) conducted a comparative study on State Bank of India and ICICI Bank between 2012-2013 and 2017-18 to analyze their performance. The study found that SBI was better than ICICI in terms of capital adequacy and asset quality, but in terms of management efficiency, ICICI was ahead of SBI.

Gupta and Biswas (2018) conducted a study to check the liquidity of banks listed on BSE as on 23 June 2016. The data was collected for the period 1999-2000 to 2015-2016. The study shows that the banks face problems when advances are more than deposits.

Kaur (2019) used secondary data to analyze the performance of banks. The author used data for the period 2012-2017. Z-score values were used to check the credibility of banks. The study showed that distressed stocks outperform non-distressed stocks during market upturns.

Verlekar and Kamat (2019) conducted a study on 44 Indian banks and data was collected from 2005 to 2017. In this study, Altman Z-score, Springate and Grover and Zmweskis models were applied to assess credit risk of public and private banks. As per the study, Dena Bank and Catholic Syrian Bank, public and private banks, respectively, achieved the first rank, depicting the highly secured financial position of these banks.

Statement of Problem

Public sector banks are the lifeline of any economy. If the performance of the financial system is not good, then the economy at large will suffer. The growth of the economy largely depends on PSBs' ability to extend credit and maintain adequate liquidity. The major challenge faced by the banks is the deterioration of assets quality. The government infuses a large amount of taxpayer money to recapitalize the banks so that they can fulfill adequate capital norms. But to which extent is it justifiable? The government introduced an operational policy for banks, named EASE (Enhanced Access & Service Excellence), to improve the efficiency of employees. It will lead to management efficiency and expand the size of the customer base in the banking sector. Due to the inability and inefficiency of PSBs to penetrate various sectors faster, over the years they have been steadily losing market share to both private banks and NBFCs. PSBs cover 70% of the banking system to maintain the public trust in the banking sector, and it is essential to evaluate the performance of public sector banks.

Objectives

- To measure capital adequacy, asset quality, management efficiency, earning capacity, and liquidity position of public sector banks in India.
- To analyze capital adequacy, asset quality, management efficiency, earning capacity, and liquidity position of public sector banks in India.

Sample Size

This study consists of 21 Indian public sector banks.

Source of Data

The financial data is being collected from secondary databases such as Capitaline, the Reserve Bank of India (RBI) website, and annual reports published by the respective banks.

Time Period of Study

The study covered all public sector banks in India, listed on the BSE, over a ten-years period from 2008-2009 to 2018-2019.

Data Analysis Technique

The CAMEL Model is used for analysis. The model consists of the following ratios.

Capital Adequacy

Capital Adequacy Ratio % (CAR)

Capital Adequacy Ratio is one of the most important ratios. It safeguards banks against insolvency and surplus leveraged, and keeps them out of difficulty. It is the ratio which determines banks' ability to meet market risk, operational risk, financial risk, and so on.

$$CAR = \{(\text{Tier I Capital} + \text{Tier II Capital})/\text{Risk Weighted Assets}\} * 100$$

Tier I %

Tier I capital includes share capital, statutory reserve, balance of profit related to the previous financial year and disclosed reserve (deduct goodwill, if any). It is also known as the core capital because it is fully available to cover all the losses. As per BASEL III, banks have to maintain 6% of RWA (Risk Weighted Assets), but for public sector banks, the RBI has emphasized the need to maintain a minimum of 9%. This percentage is calculated as follows:

$$(\text{Tier I Capital}/\text{Risk Weighted Assets}) * 100$$

Tier II %

Tier II capital includes provision or loan-loss reserve held for the future, which is freely available to be utilized, and debt instruments issued by banks. It also includes preference share capital and any stock premium related to instruments that are issued under Tier II capital. As per RBI, banks need to maintain minimum 2% Tier II capital against Risk Weighted Assets.

Asset Quality

This ratio states the degree of financial risk and strength in bank assets, typically in loans. The weakening value of assets becomes a major problem for the banking sector, which directly affects the earning capacity of banks. Banks

have to maintain adequate capital against stressed assets; an increase in the amount of stressed assets requires more capital. To measure the assets quality of banks, two ratio were used.

Gross NPA to Total Advances

This ratio is used to measure whether the size of NPAs of banks is increasing year on year or quarter on quarter. Higher the ratio means the bank is adding a fresh stock of bad loans. It means that either the banks are not following adequate parameters in granting the loan or the borrower is unable to repay the installments.

Gross NPA to Total Advances = Gross NPA/Total Advances

Net NPA to Net Advances

Gross NPA – (Balance in Interest Suspense account + DICGC/ECGC claims received and held pending adjustment + Part payment received and kept in suspense account + Total provisions held)

Management Efficiency

This ratio measures the managerial efficiency of the banks. This parameter is subjective in nature and reflects how efficiently the management is running operational activities in the bank. The followings ratios are calculated to measure the management efficiency.

Profit per Employee

This ratio reflects the bank's profit in relation to the number of employees. This specifies the average profit earned by an employee. This measure helps to motivate employees to earn more profit and improve their efficiency at the work place. This ratio is calculated as follows:

(Profit after Tax/Number of Employees)

Business per Employee

This ratio reflects the average contribution made by an employee in the Total Income of the bank. It measures how efficiently a particular bank manages its employees. A bank should have the highest business per employee ratio, as it reflects higher productivity. This ratio is measured as follows:

(Total Income/Number of Employees)

Earning Quality

This ratio is used to measure the capacity of banks to generate income from its core operation. This parameter reflects the growth prospects of banks, their ability to absorb loss, and future dividend. High profitability reflects the ability to take risks. For the study, the following ratios have been used to measure the earning quality of banks.

Return on Assets

This ratio shows the earning generated by banks on total assets. This ratio reflects how efficiently banks utilize their assets. It measures the ability of banks in converting money its invested into net income. The ratio is calculated as follows:

(Net Profit after Tax/Total Assets) * 100

Return on Equity

The return generated by the banks helps in maximizing the profit of the shareholders and their wealth. Increase in ROE helps banks to create more reserve. If the banks are able to generate deposits at a lower rate and lend advances at a higher rate, they can generate more returns for their shareholders. The formula for calculating the ratio is as follows:

(Profit after Tax/Shareholder Equity) * 100

Net Interest Margin to Total Funds

Net Interest Margin to Total Assets reflects the difference between the interest earned on advances and interest expanded to Total Assets. A higher spread between the interest earned and interest expanded means better earning on total assets. Here total funds indicates the average of total assets. The average of total assets is calculated by adding the opening balance of total assets and closing balance of total assets, and then dividing the result by two.

(Net Interest Margin/Average Total Funds) * 100

Interest Expanded to Interest Earned

This ratio reflects how much interest is expanded against interest earned. Lower ratio shows the ability of banks to

generate funds at a lower rate and lend it at a higher rate. Interest expanded includes interest paid on deposit, and interest paid on loan from RBI. Interest earned includes interest on advances and dividend income. This ratio is calculated as follow:

(Interest Expanded/Interest Earned) * 100

Credit to Deposit Ratio

This ratio measures how much of the mobilized deposit is loaned out by the banks. Banks need to maintain a certain amount of liquidity to handle withdrawals and conduct business. This ratio is calculated by using the following formula:

(Total Advances/Total Deposit) * 100

CASA to Total Deposit

CASA stands for Current Account and Savings Account. For current accounts, banks usually do not give any interest, and the rate of interest on savings accounts is also very low; it lies between 3-4 %. So, CASA is the cheapest source of funds for banks. This ratio is calculated by using the following formula:

(Total CASA/Total Deposit) * 100

Government Sec. to Total Investment

Government securities are highly liquid in nature and contain lower risk. Banks can convert these securities into cash anytime, whenever they feel the need. Higher investment in government securities reflects better investment quality with a high liquidity. This ratio is calculated by using the following formula:

(Government Securities/Total Investment) * 100

Data Analysis

Capital Adequacy

Capital adequacy is a prominent indicator of the health of the banking sector. As per BASEL III, banks have to maintain 9% CAR (Capital Adequacy Ratio). However, as per RBI norms, Indian Public Sector Banks have needed to maintain minimum 12%. It is very important for PSBs to maintain at least 12% or above. It protects the interest of the shareholders, preventing the banks from becoming bankrupt.

Table 1: Ranking of PSBs under Capital Adequacy Parameter

CAMEL Ratings (2009-2018): Capital Adequacy								
Banks	*Tier I %*		*Tier II %*		*CAR %*		*Group Rank*	
	Average	*Rank*	*Average*	*Rank*	*Average*	*Rank*	*Average*	*Rank*
State Bank of India	9.58	3	3.38	18	12.97	3	6	4
IDBI	7.75	20	4.29	1	12.05	13	8.5	12
Bank of Baroda	9.89	2	3.44	14	13.33	1	4.25	1
Punjab National Bank	8.67	7	3.46	11	12.13	10	7	10
Canara Bank	9.21	4	3.53	10	12.74	4	4.5	2
Bank of India	8.56	10	3.33	19	11.89	15	11	17
Indian Bank	11.25	1	1.92	21	13.17	2	6	4
Central Bank of India	7.52	21	3.68	7	11.20	21	12.25	19
Union Bank of India	8.27	14	3.42	15	11.69	18	11.75	18
Indian Overseas Bank	7.88	19	3.92	4	11.80	17	10	16
UCO Bank	8.18	16	3.99	2	12.17	9	6.75	8
Corporation Bank	8.38	12	3.85	5	12.23	7	6	4
Allahabad Bank	8.07	17	3.44	12	11.51	20	12.25	19
Oriental Bank of Commerce	9.21	5	2.87	20	12.08	11	9	14
Vijaya Bank	9.10	6	3.41	16	12.51	5	6.75	8
Syndicate Bank	8.62	8	3.44	13	12.06	12	8.25	11
Andhra Bank	8.56	11	3.73	6	12.28	6	5.75	3
Bank of Maharashtra	7.97	18	3.97	3	11.93	14	8.75	13
United Bank of India	8.27	13	3.53	9	11.80	16	9.5	15
Dena Bank	8.24	15	3.39	17	11.63	19	12.75	21
Punjab & Sind Bank	8.58	9	3.63	8	12.20	8	6.25	7

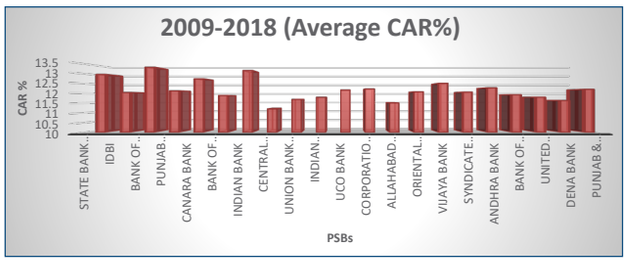

Fig. 1: Average CAR% during the Period 2009-2018

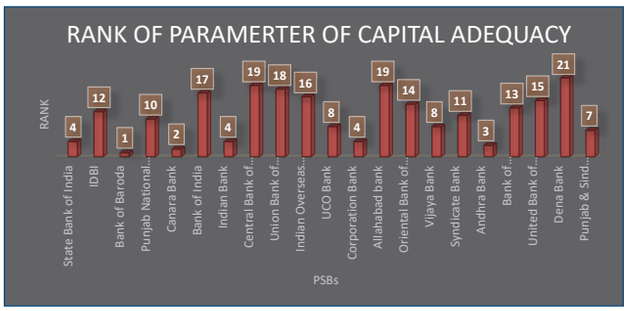

Fig. 2: Ranking of Banks under Capital Adequacy Parameter

In Tier I, capital percentage of Indian Bank is ranked number one, followed by Bank of Baroda with an average percentage of 11.25%, State Bank of India (9.83%), Canara Bank, and OBC Bank. Central Bank of India, IDBI, and Indian Overseas Bank are at the lowest position with an average percentage of 7.254%, due to its poor performance in Tier I capital. In Tier II capital parameter, IDBI bank secured the top rank with an average percentage of 4.291%, followed by UCO Bank. However, Indian Bank occupied the last position with an average percentage of 1.919%, followed by OBC. CAR is a very important parameter to measure the strength of a business in terms of meeting unforeseen losses. Bank of Baroda (BOB) is able to maintain an average score of 13.33% and secured the top rank, followed by Indian Bank with an average score of 13.169%. Central Bank of India occupied the lowest rank with an average CAR percentage of 11.203%, followed by Allahabad Bank with an average percentage of 11.512%.

Asset Quality

The main rationale behind measuring the Asset Quality of banks is to ascertain the component of NPAs (Non-Performing Assets).

Table 2: Ranking of PSBs under Asset Quality Parameters

CAMEL Ratings (2009-2018): Asset Quality						
Banks	*Gross NPA to Total Advances %*		*Net NPAs to Net Advances %*		*Group Rank*	
	Average	*Rank*	*Average*	*Rank*	*Average*	*Rank*
State Bank of India	5.36	7	2.7	5	6	6
IDBI	8.89	18	4.82	19	18.5	18
Bank of Baroda	4.97	6	2.15	1	3.5	3
Punjab National Bank	7.13	15	3.99	14	14.5	14
Canara Bank	4.75	5	3.17	9	7	7
Bank of India	6.73	13	3.45	10	11.5	11
Indian Bank	3.85	2	2.17	2	2	1
Central Bank of India	8.61	17	4.46	17	17	17
Union Bank of India	5.99	9	3.09	8	8.5	8
Indian Overseas Bank	10.31	21	5.89	21	21	21
UCO Bank	9.18	19	4.71	18	18.5	18
Corporation Bank	5.55	8	3.51	11	9.5	10
Allahabad Bank	6.38	11	3.82	12	11.5	11
Oriental Bank of Commerce	6.46	12	3.93	13	12.5	13
Vijaya Bank	3.74	1	2.37	3	2	1
Syndicate Bank	4.49	3	2.39	4	3.5	3
Andhra Bank	6.05	10	3.08	7	8.5	8
Bank of Maharashtra	7.05	14	4.07	15	14.5	14
United Bank of India	9.40	20	5.83	20	20	20
Dena Bank	7.14	16	4.11	16	16	16
Punjab & Sind Bank	4.53	4	3.06	6	5	5

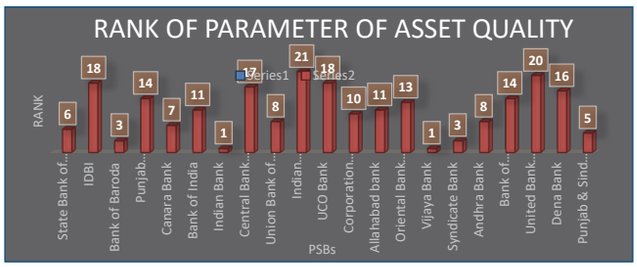

Fig. 3: Ranking of Banks under Asset Quality Parameter

Gross NPA to Total Advances percentage reflects the size of bad assets without adjusting the amount of provision from gross NPA against total advances. Higher the percentage shows that large parts of total assets are non-performing. Lower average percentage shows high, and better asset quality. Vijaya Bank secured the top rank with an average percentage of 3.73%, followed by Indian Bank with an average score of 3.85%. Indian Overseas Bank occupied the lowest rank with an average score of 10.33%, followed by United Bank of India and UCO Bank. Net NPAs reflects the actual burden on the banks. Here, lower average percentage shows high, better asset quality. Bank of Baroda has lowest percentage, thus earning the top rank with an average percentage of 2.15%, followed by Indian Bank and Vijaya Bank. Indian Overseas Bank has the highest average percentage of 5.898%, occupying the last position with the lowest ranking, followed by United Bank of India and IDBI.

Management Efficiency

Table 3: Ranking of PSBs under Management Efficiency Parameters

CAMEL Ratings (2009-2018): Management Efficiency						
Banks	*Profit Per Employee in Cr*		*Business Per Employee in Cr*		*Group Rank*	
	Average	*Rank*	*Average*	*Rank*	*Average*	*Rank*
State Bank of India	0.047	4	10.64	18	7.33	13
IDBI	-0.031	20	23.97	1	7	11
Bank of Baroda	0.053	2	15.23	5	2.33	1
Punjab National Bank	0.026	11	11.63	16	9	16
Canara Bank	0.037	6	12.99	8	4.67	4
Bank of India	0.012	16	15.67	3	6.33	9
Indian Bank	0.068	1	12.49	12	4.33	3
Central Bank of India	-0.011	18	9.85	20	12.67	20
Union Bank of India	0.036	7	12.67	10	5.67	6
Indian Overseas Bank	-0.023	19	11.34	17	12	18
UCO Bank	-1.837	21	11.76	15	12	18
Corporation Bank	0.034	8	16.87	2	3.33	2
Allahabad Bank	0.02	14	12.56	11	8.33	15
Oriental Bank of Commerce	0.012	15	15.52	4	6.33	9
Vijaya Bank	0.042	5	12.45	13	6	8
Syndicate Bank	0.022	13	11.92	14	9	16
Andhra Bank	0.031	9	13.62	6	5	5
Bank of Maharashtra	0.023	12	12.89	9	7	11
United Bank of India	0.051	3	10.29	19	7.33	13
Dena Bank	0.008	17	9.49	21	12.67	20
Punjab & Sind Bank	0.029	10	13.58	7	5.67	6

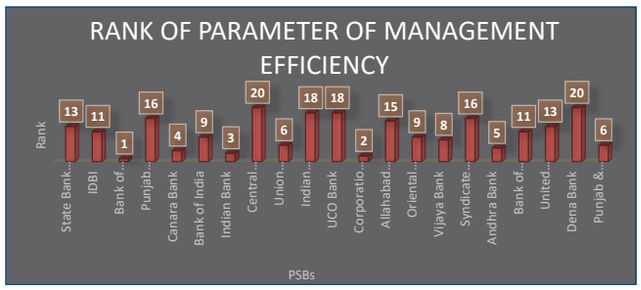

Fig. 4: Ranking of Banks under Management Efficiency Parameter

Table 3 represents the average contribution per employee to the profit/loss and in generating revenue. In terms of profit per employee, Indian Bank secured the top position with an average contribution per employee of 0.068 crores, followed by Bank of Baroda with an average contribution of 0.053 crores. UCO Bank stood last with an average loss per employee of 1.837 crores, followed by IDBI Bank with an average loss of 0.031 crores. In terms of Business per Employee, IDBI secured the top position with an average business per employee contribution of 23.966 crores, followed by Corporation Bank (16.872 cr) and Bank of India (15.667 cr). Dena Bank stood last, with the lowest ranking and average score of 9.489 crores, followed by Central Bank of India (9.846 cr), United Bank of India, and State Bank of India.

Earning Quality

Table 4: Ranking of PSBs under Earning Quality Parameters

CAMEL Ratings (2009-2018): Earning Quality										
Banks	*RoA %*		*RoE %*		*NIM to Total Fund %*		*Interest Expand to Interest Earned*		*Group Rank*	
	Average	*Rank*	*Average*	*Rank*	*Average*	*Rank*	*Average*	*Rank*	*Average*	*Rank*
State Bank of India	0.69	2	11.05	7	2.74	4	64.00	2	3.75	2
IDBI	0.41	11	7.39	18	1.56	21	80.08	21	17.75	19
Bank of Baroda	0.61	3	10.92	10	2.24	11	66.54	4	7	6
Punjab National Bank	0.55	6	9.33	14	2.88	2	63.99	1	5.75	4
Canara Bank	-0.75	21	0.00	21	2.03	18	70.51	11	17.75	19
Bank of India	0.50	8	10.61	11	2.16	15	70.03	8	10.5	8
Indian Bank	0.99	1	15.00	1	2.93	1	65.62	3	1.5	1
Central Bank of India	0.39	13	7.78	17	2.18	14	73.43	16	15	16
Union Bank of India	0.56	5	13.41	2	2.42	7	70.16	9	5.75	4
Indian Overseas Bank	0.10	19	7.16	19	2.29	10	72.43	12	15	16
UCO Bank	0.04	20	10.10	12	2.09	16	73.38	15	15.75	18
Corporation Bank	0.46	10	11.53	5	1.98	20	75.22	20	13.75	14
Allahabad Bank	0.33	15	10.95	9	2.55	5	69.16	6	8.75	7
Oriental Bank of Commerce	0.23	16	7.84	16	2.30	9	72.97	14	13.75	14
Vijaya Bank	0.52	7	11.09	6	2.08	17	74.93	19	12.25	13
Syndicate Bank	0.39	12	9.07	15	2.35	8	70.41	10	11.25	11
Andhra Bank	0.56	4	12.24	3	2.76	3	68.42	5	3.75	2
Bank of Maharashtra	0.23	17	9.34	13	2.52	6	69.50	7	10.75	9
United Bank of India	0.13	18	1.10	20	2.00	19	74.44	18	18.75	21
Dena Bank	0.38	14	11.98	4	2.21	13	72.65	13	11	10
Punjab & Sind Bank	0.46	9	11.02	8	2.23	12	74.23	17	11.5	12

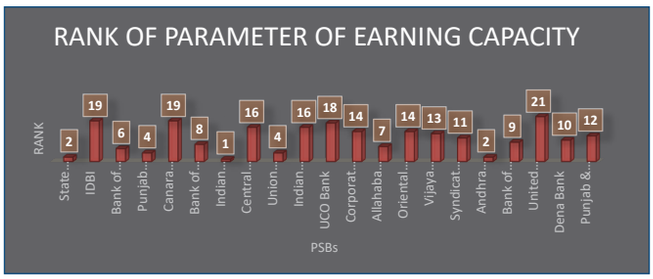

Fig. 5: Ranking of Banks under Earning Capacity Parameter

Table 4 represents the average percentage during the last ten years of various parameters of Earning Capacity. On the basis of average Return on Assets, Indian Bank is at the top with an average return percentage of 0.99%, followed by State Bank of India (0.69%) and Bank of Baroda (0.61%). On the basis of Return on Equity, Indian Bank is at the top with an average earning percentage of 15%, followed by Union Bank of India (13.41%) and Andhra Bank (12.24%). On the basis of net NIM to Total Funds, Indian Bank is at the top with an average percentage of 2.3%, followed by Punjab National Bank (2.88%) and Andhra Bank (2.76%). On the basis of Interest Expanded to Interest Earned, Punjab National Bank secured the top position with an average percentage of 63.99%, followed by State Bank of India (64%) and Indian Bank (65.62%).

Liquidity Parameter

Table 5: Ranking of PSBs under Liquidity Parameters

CAMEL Ratings (2009-2018): Liquidity								
Banks	*Credit Deposit Ratio %*		*CASA % to Total Deposit*		*Govt Sec to Total Investment*		*Group Average*	
	Average	*Rank*	*Average*	*Rank*	*Average*	*Rank*	*Average*	*Rank*
State Bank of India	80.71	2	55.01	1	79.50	20	7.66	4
IDBI	83.78	1	24.17	19	80.29	17	12.33	14
Bank of Baroda	70.67	13	28.66	11	84.52	7	10.33	10
Punjab National Bank	74.72	6	38.76	4	81.55	15	8.33	6
Canara Bank	70.65	14	27.23	15	87.60	3	10.66	12
Bank of India	73.56	7	26.94	16	86.75	4	9	8
Indian Bank	72.43	9	31.41	8	83.58	8	8.33	6
Central Bank of India	67.51	20	35.33	6	83.01	11	12.33	14
Union Bank of India	75.59	4	31.08	9	79.69	18	10.33	10
Indian Overseas Bank	73.31	8	29.79	10	86.62	5	7.66	4
UCO Bank	68.13	19	28.04	14	82.89	12	15	17
Corporation Bank	69.69	16	24.79	18	79.60	19	17.66	21
Allahabad Bank	72.06	11	35.61	5	81.76	13	9.66	9
Oriental Bank of Commerce	70.74	12	25.78	17	80.65	16	15	17
Vijaya Bank	68.63	17	23.23	21	83.21	10	16	19
Syndicate Bank	77.16	3	28.31	12	88.30	2	5.67	1
Andhra Bank	75.49	5	28.06	13	91.41	1	6.33	2
Bank of Maharashtra	72.15	10	39.74	3	84.96	6	6.33	2
United Bank of India	61.94	21	41.38	2	76.62	21	14.66	16
Dena Bank	68.43	18	33.35	7	83.31	9	11.33	13
Punjab & Sind Bank	70.31	15	23.93	20	81.58	14	16.33	20

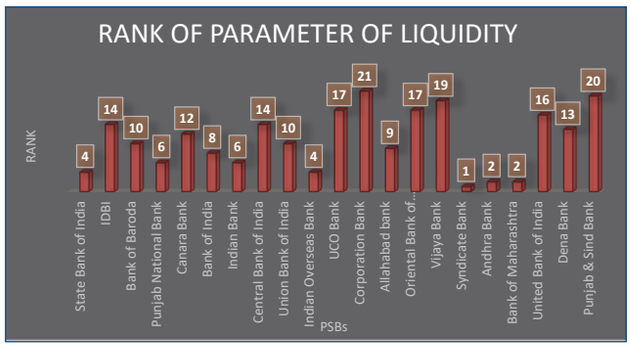

Fig. 6: Ranking of Banks under Liquidity Parameter

Table 5 shows the average percentage of the last ten years of Credit to Total Deposit ratio. Here, higher the percentage, the better the performance. IDBI secured the top rank with an average percentage of 83.784%, followed by State Bank of India (80.718%) and Syndicate Bank (77.157%). In terms of CASA to Total Deposit percentage, State Bank of India is at the top with an average percentage of 55.083%, followed by United Bank of India (41.38%) and Bank of Maharashtra (39.74%). In term of Government Security to Total Investment, Andhra Bank is at the top with an average percentage of 91.41%, followed by Syndicate Bank (88.30%) and Canara Bank (87.60%).

Overall Performance of PSBS under CAMEL

To assess the overall performance of public sector banks in India, composite ranking has been calculated from the group ranking of the public sector banks for the period 2009 to 2018, and the result is presented in Table 6. The bank which has the lowest average occupies is at the top.

Table 6: Composite Ranking

Composite Ranking (2009-2018)							
Banks	*C*	*A*	*M*	*E*	*L*	*Average*	*Rank*
State Bank of India	4	6	13	2	4	5.8	4
IDBI	12	18	11	19	14	14.8	16
Bank of Baroda	1	3	1	6	10	4.2	3
Punjab National Bank	10	14	16	4	6	10	10
Canara Bank	2	7	4	19	12	8.8	6
Bank of India	17	11	9	8	8	10.6	13
Indian Bank	4	1	3	1	6	3	1
Central Bank of India	19	17	20	16	14	17.2	21
Union Bank of India	18	8	6	4	10	9.2	7
Indian Overseas Bank	16	21	18	16	4	15	17
UCO Bank	8	18	18	18	17	15.8	18
Corporation Bank	4	10	2	14	21	10.2	12
Allahabad Bank	19	11	15	7	9	12.2	14
Oriental Bank of Commerce	14	13	9	14	17	13.4	15
Vijaya Bank	8	1	8	13	19	9.8	8
Syndicate Bank	11	3	16	11	1	8.4	5
Andhra Bank	3	8	5	2	2	4	2
Bank of Maharashtra	13	14	11	9	2	9.8	8
United Bank of India	15	20	13	21	16	17	20
Dena Bank	21	16	20	10	13	16	19
Punjab & Sind Bank	7	5	6	12	20	10	10

Here, Indian Bank is at the top, with an average rank of 3. This shows that of all 21 public sector banks, the performance of Indian Bank is the best. Central Bank of India, on the other hand, secured the lowest rank with an average score of 17.2.

Conclusion

Firstly, the financial position of public sector banks in the context of capital adequacy parameter of the CAMEL model was explored. The study found that 13 banks out of the sample were able to achieve the CAR% above the level set by the RBI for public sector banks, which is 12%. The remaining banks were able to achieve an average CAR of around 11%. Bank of Baroda has managed an average CAR% of 13.33 and achieved top ranking in capital adequacy parameter. This implies that most of the public sector banks are making efforts toward maintaining adequate capital, and in years to come, all banks should maintain more than the required level. The Indian government infused a huge amount of money to recapitalize the public sector banks, which will help banks stabilize. Secondly, public sector banks are not sound as far as their asset quality is concerned. The study revealed that the Gross NPA to Total Advances ratio of sample banks was 6.50% and the ratio of nine out of 21 banks is above the average level, with six close to the average. This reflects that the quality of assets of public sector banks has deteriorated to a large extent. Indian Overseas Bank was at the last position with Gross NPA of 11% of Total Assets, followed by United Bank of India, Dena Bank, and so on. The average Net NPA to Net Advances ratio of public sector banks is 3.66%. Ten out of 21 banks were above the average level. Public sector banks need to come up with innovative ideas so that they can deploy their funds after a proper analysis of the risk exposure. The burden of NPA is pulling down the growth of public sector banks. The NPA grew at the rate of 22 per cent per annum between 2013 and 2017. Public sector banks contribute to almost three-fourth of the total NPA. Thirdly, the average contribution per employee in the total business of banks is 13 crores. However, on the other hand, the average loss per employee is Rs. 6,40,000. This is only due to operational inefficiency and an inability to penetrate various sectors faster. Public sector banks, over the years, are steadily losing their market to private and foreign banks, and NBFCs. Banks which are facing loss per employee need to emphasize on their management efficiency.

Limitation

The study is limited to public sector banks. It can create avenues for future research on private and foreign sector banks, or comparative analysis of various sectors. In this study, only limited ratios were calculated; more ratios could also be included.

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