Productivity Assessment of NSE Listed Public and Private Sector Banks In India by Using CAMEL Rating Approach

1. Mr D. Balakrishna, 2. Dr. Abdul noorbasha

Abstract: The liberalisation and growing integration of the Indian financial sector with the international markets and practices are continuously posing serious challenges to the Indian banking sector. The stringent supervisory norms and guidelines and which the banks are required to conduct business demand banks to gear up to the harsher realities. Enhanced levels of competitions, diversification business activities are the new vistas in which the banks function. Added to the intensive competition, all the banks are increasingly subjected to severe regulatory and prudential measures that are intended to ensure the higher levels of efficiency, better profitability of the business as well as safety to key stakeholders. Analysis of financial performance helps to gauge the effectiveness of the managerial practices, risk management and control, enhanced transference and accountability etc. This study aims to assess the influence of CAMEL indicators on banks' financial performance consists of two Public and two Private sector banks during the period 2015-2018. To study every major indicator use of various ratios have been made which helps to analyse the variable in better way. Being a public sector bank, Bank of Baroda has secured top position compared with private sector banks.

Key words: CAMEL, Financial performance, Profitability, Public and Private sector banks, Stakeholders.

1 INTRODUCTION

The Indian banking system is unique and perhaps has no parallels in the banking history of any country in the world. The period of seven decades witnessed many macro-economic developments, monetary and banking policies and external situation which influenced the evolution of Indian banking in different ways and in different periods. Commercial banks play a very important role in our economy; in fact, it is difficult to imagine how our economic system could function efficiently without many of their services. They are the heart of our financial structure, since they have the ability in cooperation with the RBI and add to the money supply of the nation to create additional purchasing power. Bank's lending, investing and related activities facilitate the economic processes of production, distribution and consumption. The transformation of the financial services landscape caused by technological innovations can blur the difference between a bank and technology companies, as technological giants are making rapid strides into areas such as payments, traditionally the domain of banks. This involves controlling of bank risk taking and ensuring compliance with prudential regulation set by the central bank such as liquidity requirements, capital adequacy rules, and risk management tools.

[1] Research scholar from Acharya Nagarjuna University, Department Commerce & management studies, Guntur, AP, INDIA, PH-9110323599, E-mail:dbkbk902@gmail.com.
[2] Professor from Acharya Nagarjuna University, Department of commerce & Management studies, Guntur, AP, INDIA, E-mail:abdulnoorbasha.nu@gmail.com

2 RELATED REVIEWS

Taqi and Mustafa (2018) analysed the growth and performance of Punjab National Bank and HDFC bank for the period 2006-07 to 2015-16. They made quantitative analysis and found that PNB is more financially sound that HDFC but in context of deposits and expenditure HDFC has better managing efficiency.

Singh (2017) examined the capital adequacy performance of private and public sector banks in India for a period of 2006-2015. The study found that all the banks had sound capital adequacy position except Central Bank of India.

Balaji and Kumar (2016) examined and compared the overall financial performance of selected public and private sector banks in India during the period 2011-12 to 2015-16 with help of mean and T-Test . They concluded that public sector banks must redefine their strategies by considering their strengths, weakness and operating market.

Nagarkar (2015) examined the performance of major five public, private and foreign sector banks with the help of principle component analysis technique. He found that commercial banks mostly depend on deposits for providing credit. So, Commercial banks need to check their credit appraisal process to reduce the non-performing assets and regain the faith of depositors as key to banks' success.

Mukund Sharma (2014) has given a statement in his article that the purpose of CAMEL system is to detect problems before they manifest themselves. He analysed that private sector banks were better than public sector banks in utilising the available resources such as flies and also banks whose investment ratios in Government securities were more to have less

gross non-performing assets and net non-performing assets using Friedman test and Mann-Whitney test.

Aspal and Malhotra (2013) conducted a study with the objective of evaluating the financial performance of Indian public sector banks, excluding State Bank Group, for the period of 2007-2011. The Bank of Baroda was ranked at the first position due to its better performance in the areas of liquidity and asset quality, whereas, United Bank of India was ranked at the bottom most position due to its management inefficiency, poor assets and earning quality.

3 RESEARCH METHODOLOGY

3.1 Research gap:

- This study is undertaken for the period of four years from 2014-18.
- The top public and private sector banks are chosen for the study based on Market Capitalisation.

3.2 Objectives of the study:

- To highpoint the theoretical contextual of CAMEL rating model.
- To know the relevance of CAMEL rating model in exploration of operational and financial performance of selected public sector and private sector banks in India.

3.3 Scope of the study:

- The scope of this study is to analyse the performance of selected banks in India.
- The performance of the banks are analysed and examined by using CAMEL model ratios.

3.4 Limitations of the study:

- This study is limited to only two select public and private sector banks each in India.
- This study is made only by considering financial statements of the banks which could have undergone through window dressing.
- This study is undertaken only for four years.

3.5 Statistical tools used:

1. Ratio Analysis (CAMEL), 2. Arithmetic mean, 3. Rank

4 CAMELS MODEL

Banking performance evaluates the overall performance of banks by implementing a regulatory banking supervision framework. One of such measures of supervisory information is the CAMEL rating system which was put into effect firstly in the U.S. in 1979 and now is in use by three U.S. supervisory agencies-the Federal Reserve System, Office of the Comptroller of the Currency (OCC), and Federal Deposit Insurance Corporation (FDIC). It has been proved to be a useful and efficient tool in response to the financial crisis in 2008 by the U.S. government.

Two Supervisory Rating Models, based on CAMELS (capital adequacy, asset quality, management quality, earnings, liquidity and sensitivity to market risk or systems & control) and CACS (capital, asset quality, compliance and systems & control) models for rating of the Indian Commercial Banks and Foreign Banks operating in India respectively. CAMEL approach is a significant tool which describes the relative financial strength of a bank and to suggest necessary measures to improve weaknesses of a bank. In India, RBI adopted this approach in 1996 followed on the recommendations of Padmanabham Working Group (1995) committee. The reason being, the CAMEL model is adopted because it is the simplest model and it makes easy to compare the financial performance of a wide range of banks. "CAMEL is basically a ratio-based model for evaluating the performance of banks by various ratios. CAMEL is an acronym for five components of bank safety and soundness.

(C)APITAL ADEQUACY

(A)SSETS QUALITY

(M)ANAGEMENT CAPABILITY

(E)ARNINGS EFFICIENCY

(L)IQUIDITY

(S) SENSITIVITY TO MARKET RISK

5 ANALYSIS AND RESULTS

1. Capital adequacy:

Capital adequacy is an ultimate indicator of overall financial health of the banking system. The basic objective is to protect depositors and minimize the cascading effects of financial sector crises which are unforeseen and erupt unexpectedly by consolidating the soundness and stability of the banking system. In banking two type of capital are measured: Tier one capital, which can absorb losses without a bank being required to cease trading, and Tier two capitals, which can absorb losses in the event of a winding up and so provides a lesser degree of protection to depositors.

i. Capital Adequacy Ratio (CAR):

It reflects the ability of a bank to deal with probable loan defaults and prevents the bank from bankruptcy. It in general determine the capacity of banks in meeting out their liabilities and other risk like credit risk, operational risk etc. The banks should have a CAR of 10%. As per the latest RBI norms, CAR is set 9% for Existing Bank, 10% for Private Sector, as against 8% prescribed in Basel documents.

Capital Adequacy Ratio = (Tire-I + Tire-II) / Risk weighted assets

Tier I capital includes equity capital and disclosed reserves. Tier II capital includes items such as undisclosed reserves, general loss reserves, subordinated term debt.

ii. Advance to Assets (ADV/AST):

This is the ratio of the Total Advances to Total Assets which also include receivable and reflect bank's positions and risk-taking ability in lending funds. In this ratio the value of Total Assets excludes the revaluations of all the assts. It is generally adopted that increase in advance means growth in investments which lead to profitability.

Advance to Assets Ratio = Total advances / Total assets

iii. Debt-Equity Ratio (D/E):

The Debt to Equity Ratio is tool which measures the strength of banks' ability to borrow over long periods of time. Generally, any bank that has a debt to equity ratio of over 40% to 50% should be looked at more carefully to make sure there are no liquidity problems. This is calculated as the proportion of total outside liability to net worth. 'Outside Liabilities' includes total borrowings, deposits, and other liabilities. 'Net Worth' includes equity capital and reserves & surplus. A higher ratio indicates less protection for the creditors and depositors in the banking system.

Debt to Equity Ratio = Total outside liability / Net worth 1.

Table - 1
Parameters of Capital Adequacy

Name of the parameter	Desirable quality
Capital adequacy ratio (CAR)	Higher ratio is advisable
Total Advances to total assets ratio (ADV/TA)	Higher ratio is profitable
Debt to equity ratio (D/E ratio)	Lower ratio is advisable

Table - 2
Capital Adequacy (In %)

Ratios	Banks	2014-15	2015-16	2016-17	2017-18	Mean	Rank
Capital Adequacy Ratio (CAR)	SBI	12.00	13.12	13.11	12.60	12.71	4
	BOB	12.60	13.17	13.17	12.13	12.77	3
	HDFC	16.79	15.53	14.55	14.88	15.44	2
	ICICI	17.02	16.64	17.39	18.42	17.37	1
Advances to Assets Ratio (AAR)	SBI	63.47	64.79	58.06	56.00	60.58	2
	BOB	59.87	57.16	55.16	59.36	57.89	4
	HDFC	61.89	65.54	61.88	64.20	63.38	1
	ICICI	59.93	60.39	60.15	58.28	59.69	3
Debt-Equity Ratio (D/E) (Times)	SBI	15.95	15.66	14.37	15.76	15.44	3
	BOB	16.95	15.70	16.24	15.59	16.12	4
	HDFC	8.52	8.75	8.65	9.00	8.73	2
	ICICI	8.03	8.03	7.72	8.36	8.04	1

Source: RBI, Money control.com and SBI, BOB, HDFC, ICICI official websites

Review of the above tables reveals that selected banks has maintained 9% of CAR during the study period though ICICI has highest ranking .When compared to public and private banks; private banks have higher CAR of 15.44 and 17.37% respectively. In case of advances to total assets ratio, HDFC stands in the first position with an average of 63.38% followed by State Bank of India (60.58%). As far as Debt Equity ratio is concerned, private sector banks debt was more secure with an average of 8.73 and 8.04 times of equity respectively.

Table - 3

Composite Capital Adequacy Ratio

Bank	CAR		AAR		D/E Ratio		Group Rank	
	%	Rank	%	Rank	Times	Rank	Mean	Rank
SBI	12.71	4	60.58	2	15.44	3	29.58	4
BOB	12.77	3	57.89	4	16.12	4	28.93	2
HDFC	15.44	2	63.38	1	8.73	2	29.18	3
ICICI	17.37	1	59.69	3	8.04	1	28.37	1

Above table.3 depicts the group ranking of capital adequacy ratio, private sector bank of ICICI ranked first position and state Bank of India was in the lowest position.

2. Assets quality:

The quality of assets is an important parameter to measure the strength and financial health of the bank assets. The poor quality of assets can force the bank to fail. Assets quality indicates the type of the debtors the bank is having. So, it should be undertaken to find out as to why Non-performing assets are getting created and Non-performing assets classification of 90 days, 180 days and so on has to be strictly followed. If a bank has lent high amounts of credit to such sectors it is bound to have the problem of bad loans.

i. Total Investment to Total Assets (TITA)

Total investments to total assets indicate the extent of deployment of assets in investment as against advances. This ratio is calculated by dividing total investments by total assets of the bank. A higher ratio indicates that the bank has conservatively kept a high cushion of investment to guard against NPAs. However, this also affects its profitability adversely.

TITA = Total Investments / Total Assets

ii. Net NPA to Total Assets (NNTA):

This ratio indicates the efficiency of the bank in assessing credit risk and, to an extent, recovering the debts. The ratio is calculated by dividing the Net NPAs by Total Assets. Total assets considered are net of revolution reserves. Lower the ratio better is the performance of the Bank.

NNPA = Net NPAs / Total Assets

Table - 4
Parameters of Asset Quality

Name of the parameter	Desirable quality
1. Total Investment to Total Assets (TITA)	Higher ratio is adversely affects the profitability of banks
2. Net NPA to Total Assets (NNTA)	Lower ratio is advisable

Table - 5

Asset Quality (In %)

Ratios	Banks	2014-15	2015-16	2016-17	2017-18	Mean	Rank
Total Investment to Total Assets Ratio (TI/TA)	SBI	23.52	25.48	28.31	30.71	27.01	1
	BOB	17.11	17.94	18.65	22.66	19.09	4
	HDFC	28.19	23.12	24.82	22.76	24.72	2
	ICICI	28.88	22.26	20.93	23.09	23.79	3
Net NPA to Total Assets Ratio (NNPA/TA) (Times)	SBI	1.35	2.47	2.15	2.47	2.11	2
	BOB	1.13	2.83	2.60	3.26	2.46	3
	HDFC	0.15	0.18	0.21	0.25	0.20	1
	ICICI	2.00	3.00	5.00	5.00	3.75	4

Source: RBI, Money control.com and SBI, BOB, HDFC, ICICI official websites

Table.5 indicates that total investments to total assets ratio in investments is a standard measure to know the percent of total assets locked up it was shows higher for State Bank of India i.e., 27.015% followed by HDFC,ICICI and BOB. The study shows that HDFC bank Net NPA'S mean was (0.20) times and highest ratio for ICICI bank. Banks with lowest net NPA'S indicate that they have good Asset Quality as well as securitization of the portfolio of loans and vice-versa.

Table - 6

Composite Asset Quality Ratio

Bank	TI/TA		NNPA/TA		Group Rank	
	%	Rank	Times	Rank	Mean	Rank
SBI	27.01	1	2.11	2	14.56	4
BOB	19.09	4	2.46	3	10.78	1
HDFC	24.72	2	0.20	1	12.46	2
ICICI	23.79	3	3.75	4	13.77	3

Ranking of banks based on two parameters shows the performance of bank of Baroda is better than all other banks.

3. Management efficiency:

The management efficiency is calculated as the ability of bank's top management to take right decisions. It is used to evaluate better management quality and discount poorly managed ones and also helps a bank in achieving sustainable growth. It sets vision and goals for the organization and sees that it achieves them. The ratios in this element involve subjective analysis to measure the efficiency and effectiveness of management.

i. Return on Net worth (RONW)

Return on net worth determines the management quality as how the assets are used and also measure of the profitability of the organization. This ratio would help the shareholders determine is the management being able to generate additional value for them.

RONW = Net Income / Shareholder's Equity

ii. Total Advances to Total Deposits (TATD)

This ratio measures the efficiency and ability of the bank's management in converting the deposits available with the bank (excluding other funds like equity capital, etc.) into high earnings advances. Total Deposits include demand deposits, saving deposits, term deposits and deposits of other banks. Total Advances also include the receivables.

TATD = Total Advances / Total Deposits

iii. Business per Employee (BPE)

This ratio measures the efficiency of all the employees of a bank in generating business for the bank. It is calculated by dividing the total business by the total number of employees. Business means the sum of total advances and total deposits in a particular year.

BPE = Total Business / Total Number of Employees

iv. Profit per Employee (PPE):

This ratio measures the efficiency of the employee at the branch level as how efficiently a bank is utilizing its employees. Ideally it also gives valuable inputs to assess the real strength of a bank's branch network. In general bank wants the highest business per employee, as it denotes higher productivity. It is arrived by dividing the net profit of the bank by total number of branches.

PPE = Total Profit Earned by the Bank / Total Number of Employees

Table - 7

Parameters of Management Efficiency

Name of the parameter	Desirable quality
Return on Net Worth (RONW)	Higher ratio is Preferable
Total Advances to Total Deposits (TATD)	Higher ratio is advisable
Business per Employee (BPE)	Higher ratio is advisable
Profit per Employee (PPE)	Higher ratio is more profitable

Table - 8

Management Efficiency (In %)

Ratios	Banks	2014-15	2015-16	2016-17	2017-18	Mean	Rank
Return on Net worth Ratio (RONW)	SBI	10.20	6.89	6.69	-3.37	5.10	3
	BOB	8.53	-13.42	3.43	-5.60	-1.77	4
	HDFC	16.47	16.91	16.26	16.45	16.52	1
	ICICI	13.89	11.19	10.11	6.63	10.46	2
Total Advances to Total Deposits Ratio (TA/TD)	SBI	82.44	84.57	76.83	71.49	78.83	3
	BOB	69.31	66.85	63.70	72.28	68.04	4
	HDFC	81.07	85.02	86.16	83.46	83.93	2
	ICICI	107.09	102.28	94.73	91.34	98.86	1
Business Per Employee (BPE in Crores)	SBI	13.49	15.38	17.25	17.58	15.93	1
	BOB	21.17	-0.10	0.03	0.04	5.29	4
	HDFC	10.70	11.55	14.21	16.40	13.22	2
	ICICI	11.29	11.87	11.52	12.97	11.91	3
Profit Per	SBI	0.06	0.04	0.05	-0.02	0.03	4

Employee (PPF in Crores)	BOB	0.07	0.10	0.03	0.04	0.06	3
	HDFC	0.13	0.14	0.17	0.19	0.16	1
	ICICI	0.17	0.13	0.12	0.08	0.13	2

Source: RBI, Money control.com and SBI, BOB, HDFC, ICICI official websites

Table.8 clearly shows the relative performance of four selected banks with respect to management efficiency based on several parameters. HDFC has the highest RONW with 16.52%, thus it has been noted that HDFC bank has used the assets optimally and benefited with high profitability among the selected banks with good RONW, HDFC has developed extra advantage over others and promoted confidence among shareholders and customers. The ratios of total advances to total deposits shows ICICI is properly managed its deposits for smooth survival; banks have to make balance growth in TA/TD. One side growth will lead to risk as have to pay return on deposits and also making advance and investment with minimum risk of NPA.

The productivity ratio shows that SBI with 15.93% has the best BPE and they are able to generate more business through proper use of their employees, whereas BOB is ranking behind of all selected banks by scoring the average score of 5.29 which implies that there is worst productivity and efficiency of human resource in the banks

In case of PPE ratio, HDFC bank bagged the top position with the average of 0.16 followed by ICICI and other public sector banks.so SBI and BOB should concentrate and take necessary measures to improve the management efficiency.

Table - 9

Composite Management Efficiency Ratio

Bank	RONW		TA/TD		BPE		PPE		Group Rank	
	%	Rank	%	Rank	Crores (₹)	Rank	Crores (₹)	Rank	Mean	Rank
SBI	5.10	3	78.83	3	15.93	1	0.03	4	24.97	2
BOB	-1.77	4	68.04	4	5.29	4	0.06	3	17.91	1
HDFC	16.52	1	83.93	2	13.22	2	0.16	1	28.46	3
ICICI	10.46	2	98.86	1	11.91	3	0.13	2	30.34	4

Based on the four sub parameters of efficiency, the composite management efficiency ratio of BOB hold the top position and ICICI stood at the bottom of the table.

4. Earning efficiency:

The earning quality determines the ability of a bank to earn consistently, going into the future. This parameter explains the sustainability and growth in earnings in future and how a bank earns its profits. Banks can increase their growth and productivity by increasing earning capacity.

i. Net Profit Margin (NPM)

It is the percentage change in net profit over the previous year in which profit after tax play significant role in determining the efficiency of banks in using their assets and also how have they generated the revenues and could be compared with that of the previous years and with that of competitors to determine the trend in the net profit margins of the bank and its performance in the industry.

NPM = (Net profit (Earnings after interest & Tax) / Total Income)*100

ii. Net Interest Margin (NIM)

NIM is defined as the difference between interest earned and interest expanded as a proportion of average total assets. It includes dividend income and interest expanded includes interest paid on deposits, loan from RBI, and other short-term and long-term loans. The bank NIM normally depends on efficient utilization of banks assets which are consists of all forms of personal and commercial loans, mortgages and securities. It justifies the efficiency of banks and its ability to respond the changes in economic conditions.

NIM = (Interest earned – Interest Expended) / Assets *100

iii. Non-Interest Income to Total Funds Ratio (NII/TF)

Non-interest income is bank and creditor income derived primarily from fees including deposit and transaction fees, insufficient funds (NSF) fees, annual fees, monthly account service charges, inactivity fees, check and deposit slip fees, and so on. Institutions charge fees that generate non-interest income as a way of increasing revenue and ensuring liquidity in the event of increased default rates.

NII/TF =Non Interest income / Total funds

iv. Interest Income to Total Income Ratio (II/TI)

Interest income is considered as prime source of revenue for banks. The interest income to total income reflects the capability of the banks in generating income from its lending business.

Table - 10

Parameters of Earning Efficiency

Name of the parameter	Desirable quality
Net Profit Margin Ratio (NPM)	Higher ratio is advisable
Net Interest Margin Ratio (NIM)	Higher ratio is profitable
Non-Interest Income to Total Funds Ratio (NII/TF)	Higher ratio is preferable
Interest Income to Total Income Ratio (II/TI)	Higher ratio is advisable

Table - 11

Earning Quality Ratio (In %)

Ratios	Banks	2014-15	2015-16	2016-17	2017-18	Mean	Rank
Net Profit Margin Ratio (NPM)	SBI	8.59	6.06	5.97	-2.96	4.42	3
	BOB	7.91	-12.24	3.27	-5.57	-1.66	4
	HDFC	21.07	20.41	20.99	21.79	21.07	1
	ICICI	22.76	18.44	18.09	12.33	17.91	2
Net Interest Margin Ratio (NIM)	SBI	2.68	2.42	2.28	2.16	2.39	3
	BOB	1.84	1.89	1.94	2.15	1.96	4
	HDFC	3.79	3.89	3.83	3.76	3.82	1
	ICICI	2.94	2.94	2.81	2.61	2.83	2
Non-Interest Income to Total Funds	SBI	1.18	1.26	1.41	1.46	1.33	2
	BOB	0.64	0.72	0.99	0.94	0.82	4
	HDFC	1.66	1.65	1.56	1.58	1.61	3

Ratio (NII/TF)	ICICI	1.96	2.25	2.62	2.12	2.24	1
Interest Income to Total Income Ratio (II/TI)	SBI	64.20	60.29	56.64	53.32	58.61	3
	BOB	65.00	60.73	56.22	57.78	59.93	2
	HDFC	64.70	63.16	63.79	65.64	64.32	1
	ICICI	58.15	57.22	53.76	56.45	56.40	4

Source: RBI, Money control.com and SBI, BOB, HDFC, ICICI official websites

The above table shows the earning efficiency of the banks based on some selected parameters. In terms of NPM, HDFC bank leads with 21.07% and private bank with high NPM is ICICI. The study found that NIM of HDFC bank is the highest i.e., 3.82% as the bank depends on CASA and the quality of its assets is also found good. Followed by ICICI and SBI. BOB have the lowest NIM among the selected banks i.e., 1.96% though it has improved year to year. Positive NIM reflects that the banks management have taken care of the capital structure and largely employed cheaper form of debt to avoid risk and to maintained profitability and liquidity. The ratio of NII/TF, the highest rank scored by ICICI with 2.24% that leads to increased revenue and ensuring liquidity in the event of increased default rates and least with BOB with 0.82%. In the above table II/TI ratio, HDFC has the highest ratio with 64.32% among all other selected banks. ICICI lagging behind of all other banks with an average score of 56.40. It indicates the inefficiency of ICICI in its earnings.

Table - 12

Composite Earning Quality Ratio

Bank	NPM		NIM		NII/TF		II/TI		Group Rank	
	%	Rank	%	Rank	%	Rank	%	Rank	Mean	Rank
SBI	4.42	3	2.39	3	1.33	2	58.61	3	16.69	2
BOB	-1.66	4	1.96	4	0.82	4	59.93	2	15.26	1
HDFC	21.07	1	3.82	1	1.61	3	64.32	1	22.71	4
ICICI	17.91	2	2.83	2	2.24	1	56.40	4	19.85	3

Earning quality of bank group mean ratios indicates that BOB is ranked at top in this category with group average of 15.26% and followed by SBI.

5. Liquidity:

Liquidity is an important aspect of any organization dealing in money which measures the capacity of banks to meet its financial obligations. Among assets, cash and investments are the most liquid of bank assets. If liquidity is too much low, then banks are not in a position to meet its current financial liabilities. On another hand, if liquidity is too much high, then banks are not utilizing their cash properly. Thus, a proper balance is necessary for liquidity so that banks can generate high profit while at the same time provide liquidity to the depositors.

i. Liquid Assets to Total Assets (LSTA):

The proportion of liquid assets to total assets indicates the overall liquidity position of the bank. Liquid assets include cash in hand, balance with the RBI, balance with other banks (both in India an abroad) and money at call and short notice. Total assets include the revaluations of all the assets.

LSTA = Liquid Assets / Total Assets

ii. Total Investment to Total Deposits Ratio (TI/TD)

Investment Deposit Ratio is a commonly used statistics for assessing a bank's liquidity by dividing the bank's total investment by its total deposits. This number, also known as the ITD ratio. The higher it is, the better it is for the liquidity position of the bank. It means that banks might have enough liquidity to cover any unforeseen fund requirements. If the ratio is too low, banks may not be earning as much as they could be.

TI/TD = Total Investments / Total Deposits

iii. Cash Deposit Ratio (CDR)

Cash Deposit ratio (CDR) is the ratio of how much a bank lends out of the deposits it has mobilised. It indicates how much of a bank's core funds are being used for lending, the main banking activity. This ensures that the bank has the ability to pay out its account holders if they demand funding. It can also be defined as Total of Cash in hand and Balances with RBI divided by Total deposits.

CDR = Total cash in hand and Balances with RBI / Total Deposits

Table - 13

Parameters of Earning Efficiency

Name of the parameter	Desirable quality
Liquid Assets to Total Assets Ratio (LA/TA)	Higher ratio is advisable
Total Investment to Total Deposits Ratio (TI/TD)	Higher ratio is advisable
Cash Deposit Ratio (CDR)	Higher ratio is advisable

Table - 14

Liquidity Ratio (In %)

Ratios	Banks	2014-15	2015-16	2016-17	2017-18	Mean	Rank
Liquid Assets to Total Assets Ratio (LA/TA)	SBI	7.55	7.41	6.35	5.56	6.72	4
	BOB	20.75	19.94	21.65	12.90	18.81	1
	HDFC	6.15	5.49	5.67	11.55	7.22	3
	ICICI	6.55	8.31	9.81	9.57	8.56	2
Total Investment to Total Deposits Ratio (TI/TD)	SBI	30.55	33.26	37.46	39.20	35.12	2
	BOB	19.81	20.98	21.54	27.60	22.48	4
	HDFC	36.92	30.00	33.32	30.71	32.74	3
	ICICI	51.60	38.06	32.96	36.18	39.70	1
Cash Deposit Ratio (C-D)	SBI	6.76	7.42	6.82	5.86	6.72	2
	BOB	3.47	3.71	3.78	3.81	3.69	4
	HDFC	6.46	5.77	5.71	9.95	6.97	1
	ICICI	6.85	6.74	6.45	6.17	6.55	3

Source: RBI, Money control.com and SBI, BOB, HDFC, ICICI official websites

Liquidity is the last ratio and but crucial element in CAMEL model. When compared to other banks in LA/TA ratio, BOB is having better liquidity (18.81) as they have enough liquidity to pay deposits. Whereas SBI is relatively ill liquid because it secured least score of 6.72. The ratio of total investment to total deposits ratio is concerned, it was highest with 39.70% secured by ICICI. It is important to have more liquid funds to maintain goodwill and creditworthiness of the bank. Cash and cash qualities are readily available funds to meet the expenditures. The study of liquidity is based on the ratio of cash to total deposits, the HDFC is able to maintain on an average of 6.97% and least ranked by BOB.

Table - 15

Composite Liquidity Ratio

Bank	LA/TA		TI/TD		C-D		Group Rank	
	%	Rank	%	Rank	%	Rank	Mean	Rank
SBI	6.72	4	35.12	2	6.72	2	16.19	3
BOB	18.81	1	22.48	4	3.69	4	14.99	1
HDFC	7.22	3	32.74	3	6.97	1	15.64	2
ICICI	8.56	2	39.7	1	6.55	3	18.27	4

Composite liquidity ratio of BOB is performing well in terms of high liquidity compared to other listed public and private sector banks.

Overall Ranking:

As stated in the initial part of this paper over-all ranking is allotted to represent the CAMEL serious. It is the summation and aggregation of mean values of all variables of banks group wise. Rank '1' is allotted to the lowest mean value, further higher and higher value represents poor performance scores, 2, 3, 4 and so on. Lowest rank shows higher performance of banks.

Table - 16

Overall performance of Selected Public and Private Sector Banks

Banks	C	A	M	E	L	Mean	Rank
SBI	29.58	14.56	24.97	16.69	16.19	20.40	2
BOB	28.93	10.78	17.91	15.26	14.99	17.57	1
HDFC	29.18	12.46	28.46	22.71	15.64	21.69	3
ICICI	28.37	13.77	30.34	19.85	18.27	22.12	4

6 Conclusion

Banking system of a country influences its economy significantly. Due to radical changes in the banking sector in the recent years, the central banks all around the world have improved their supervision quality and techniques. In evaluating the function of the banks, many of the developed countries are now following uniform financial rating system (CAMEL RATING) along with other existing procedures and techniques. By considering all of the parameters of CAMEL, it is seen that BOB is at the top position as assessed by the CAMEL model compared to other banks under the study. BOB has strong performance in all parameters except in capital adequacy ratio. ICICI bank at the lowest position in asset quality, management efficiency, earning quality and Liquidity ratio when compared to other banks. Whereas it's performance is better in case of capital adequacy. Therefore, ICICI bank should improve its position in particular weak areas. Nonetheless, further investigations are needed in order to identify approaches for each bank to increase efficiency by moving towards the efficient frontier.

References:

Text Book:

[1] O.P Agarwal, (2014), "Banking and Insurance" revised 3rd edition, Mumbai, Himalaya Publishing House, Pg. 36, 123, 152.

Articles:

[2] Ashwin P, Princika B (2018) "A camel model analysis of selected public and private sector banks in India" International Journal of Management and Applied Science, ISSN: 2394-7926, Volume-4, Issue-3.

[3] Kumarsomaling B. Balikai and Kirankumar R. Bannigol (2019) "CAMEL Rating Approach in Financial Performance Analysis of Nationalised Banks of India" International Journal of Recent Innovations in Academic Research, ISSN: 2635-3040, Volume-3, Issue-5.

[4] Elizabeth M. Samuel (2018) "Comparative Performance Evaluation of Selected Commercial Banks in India using CAMELS Rating Model" International Journal of Global Sustainability, ISSN 1937-7924, Vol. 2, No. 1.

[5] M. Susmitha V. Mouneswari (2017) "Financial Performance Analysis of Syndicate Bank Using Camel Model" National Conference on Marketing and Sustainable Development, ISBN 978-1-943295-10-4, Pg. 677-687.

[6] Dr. Anitha. M. N (2019) "Performance Analysis of SBI Using CAMEL Approach" International Journal of Multidisciplinary, ISSN: 2455-3085 (Online), Volume-04, Issue-01, Pg. 7 to 10.

[7] Santosh. K, Dr. Roopali .S (2014) "Performance analysis of top Indian Banks through CAMEL approach" International journal of advanced research in Management and social sciences, ISSN: 2278-6236, Vol.3, No.7.

[8] Muhammed Nawfal. S, Badusha. M (2018) "Comparison of operational efficiency of listed banks from kerala – A study based on CAMEL model" Journal of internet banking and commerce, ISSN: 1204-5357.

[9] Dr. Krishna. B, V. Ramakrishna rao. C (2017) "A study on financial performance of Andhra bank through CAMEL approach" IJRDO-Journal of Business Management, ISSN: 2455-6661, Vol-3, Issue-10, and Pg. 38-49.

[10] Dr. S.M. Tariq zafar, Dr. Adeel Maqbool, S. Imran N.A, (2012) "A study of ten Indian commercial bank's financial performance using CAMEL methodology" IMS Manthan, Vol. 7, No.1, Pg. 15-26.

[11] Kavita S.V, Dr. V.P. Katti, (2018) "A Comparative study of employee producitivity analysis of public and private sector banks in India" Asia pacific journal of Research, ISSN (online): 2347-4793, Vol:1, Issue: LXXXVI, Pg. 62-67.

[12] Vinod .S, Bhawna. M (2017) "A CAMEL model analysis of private banks in India" EPRA International Journal of Economic and Business Review, ISSN:2349- 0187, Vol. - 5, Issue- 7, Pg. 87-93.

[13] M.Sukanya (2019) "Financial Performance of Select Public and Private Sector Banks in India by using Camel Model" International Journal of Innovative Technology and Exploring Engineering, ISSN: 2278-3075, Vol:8, Issue- 6S4, Pg. 807-809.

Reports:

[14] RBI-Bulletin- Monetary Policy Statement for 2019-20 December-2019, Vol. LXXIII, No.12.

[15] RBI - Report on trend and progress of banking in India 2018-19, Pg. 6-19.

Web sites:

[16] https://www.rbi.org.in

[17] https://www.ibef.org/industry/banking-india.aspx

[18] https://www.moneycontrol.com

[19] https://www.onlinesbi.com

[20] https://www.hdfcbank.com

[21] https://www.bankofbaroda.in

[22] https://www.icicibank.com