Volume - 5, Issue- 4, April 2017 IC Value : 56.46 e-ISSN : 2347 - 9671| p- ISSN : 2349 - 0187
EPRA International Journal of Economic and Business Review SJIF Impact Factor(2016) : 6.484
ISI Impact Factor (2013): 1.259 (UAE)

Research Paper

www.eprawisdom.com

A CAMEL MODEL ANALYSIS OF SELECT PUBLIC SECTOR BANKS IN INDIA

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ABSTRACT

Banking sector is one of the fastest growing sectors in India. Today's banking sector becoming more complex. Evaluating Indian banking sector is not an easy task. There are so many factors, which need to be taken care while differentiating good banks from bad ones. Performance evaluation of the banking sector is an effective measure and indicator to check the soundness of economic activities of an economy. The contribution of RBI and other policy maker, the banking industry has witnessed regulatory requirements like BASEL III norms. These regulatory changes have influenced prominent improvement in efficiency and performance of the Indian Scheduled Commercial Banks in the past few years. In the present study an attempt was made to evaluate the performance & financial soundness of select Public Sector Banks like BOB, BOI, Canara Bank, SBI, PNB and Union Bank using CAMEL approach from 2013 to 2016. It is observed that on an average SBI was at the top most position followed by bank of BOB and PNB. It is also observed that Canara Bank was at the bottom most position in selected CAMEL ratios.

KEY WORDS: *CAMEL, PSBs, BASEL.*

INTRODUCTION

In the 1980s, CAMEL rating system was first introduced by U.S. supervisory authorities as a system of rating for on-site examinations of banking institutions. Under this system, each banking institution subject to onsite examination is evaluated on the basis of five (now six) critical dimensions relating to its operations and performance, which are referred to as the component factors. These are Capital, Asset Quality, Management, Earnings and Liquidity used to reflect the financial performance, financial condition, operating soundness and regulatory compliance of the banking institution. A sixth component relating to Sensitivity to market risk has been added to the CAMEL rating to make the rating system more risk-focused. Each of the component factors is rated on a scale of 1 (best) to 5 (worst). A composite rating is assigned as an abridgement of the component ratings and is taken as the prime indicator of a bank's current financial condition. The composite rating ranges between 1 (best) and 5 (worst), and also involves a certain amount of subjectivity based on the examiners' overall assessment of the institution in view of the individual component assessments.

Banking is becoming an increasingly global industry, which knows no geographical boundaries. The Indian Banking Sector has witnessed phenomenal growth over the last five decades, especially after the nationalization of the Indian Banks in 1969. Looking at the last twenty five years, the banking sector has definitely come a long way.

The phase of development of the banking sector is a good reflection of the development of the economy. Evaluation of financial performance of the banking sector is an efficient measure and indicator to judge the soundness of economic activities of an economy. A sound financial health of banks is not only important to its depositors but is equally important for investors, manufacturers, employees and economy as a whole. Therefore, efforts have been made at regular interval, to analyze the financial performance of the banks and manage it effectively. In order to evaluate the financial performance of banking and financial sector the researchers, academicians and policy makers have investigated several studies in different perspectives and in different time periods. **Bodla** and **Verma (2006)** recommended that such types of rating would help the Reserve Bank of India to identify the banks whose performance needs special supervisory attention. The main attempt of CAMEL system is to find out problems which are faced by the banks themselves and catch up the comparative analysis of the performance of various banks. **Hirtle** and **Lopez (1999)** stressed that the bank's CAMEL rating is highly confidential, and only exposed to the bank's senior management for the purpose of projecting the business strategies, and to appropriate supervisory staff. CAMEL is an acronym for five components of bank safety and soundness: capital adequacy, asset quality, management quality, earning ability, liquidity. A study conducted by **Lace** and **Stephen (2001)** showed that there is definitely a relationship between bank efficiency scores and financial ratios used to proxy a bank's CAMEL rating. **Barr et al. (2002)** viewed that "CAMEL rating criteria has become a concise and indispensable tool for examiners and regulators". This rating criterion ensures a bank's healthy conditions by reviewing different aspects of a bank based on variety of information sources such as financial statement, funding sources, macroeconomic data, budget and cash flow. **Said** and **Saucier (2003)** used CAMEL rating methodology to evaluate the liquidity, solvency and efficiency of Japanese Banks, the study evaluated capital adequacy, assets and management quality, earnings ability and liquidity position. Similarly a study by **Sarker (2005)** in Bangladesh examined the CAMEL model for regulation and supervision of Islamic banks by the central bank. This study enabled the regulators and supervisors to get a Shariah benchmark to supervise and inspect Islamic banks and Islamic financial institutions from an Islamic perspective. In India **Prasuna (2004)** analyzed the performance of Indian banks by adopting the CAMEL Model. The study concluded that the competition was tough and consumers benefited from better services quality, innovative products and better bargains. Similarly **Kapil (2005)** investigated the relationship between the CAMEL ratings and the bank stock performance. The viability of the banks was analyzed on the basis of the offsite supervisory exam model—CAMEL model. In a similar way **Satish, Jutur** and **Surender (2005)** concluded that the Indian banking system looks sound and Information Technology will help the banking system grow in strength in future. On the other hand **Singh** and **Kohli (2006)** undertook SWOT analysis of 20 old and 10 new private sector banks. These banks have also been ranked on the basis of financial data for the years 2003-2005 and the performance was evaluated by using CAMEL model. Similarly **Gupta** and **Kaur (2008)** conducted the study with the main objective to assess the performance of Indian Private Sector Banks on the basis of Camel Model and gave rating to top five and bottom five banks. A study on regional rural banks **Reddy, Maheshwara** and **Prasad (2011)** discussed the financial performance of selected regional rural banks during post reorganization period. The study adopted CAMEL model to examine the overall performance of Andhra Pragathi Grameena Bank and Sapthagiri Grameena Bank. Similarly a study on State Bank Group by **Siva** and **Natarajan (2011)** empirically tested the applicability of CAMEL norms and its consequential impact on the performance of SBI Groups. The study concluded that annual CAMEL scanning helps the commercial bank to diagnose its financial health and alert the bank to take preventive steps for its sustainability.

OBJECTIVES OF THE STUDY

The main objectives of the present study are:

1. To evaluate the financial performance of select PSBs using CAMEL model.
2. To give suggestions for the financial improvement of PSBs in India.

RESEARCH METHODOLOGY

CAMEL is a ratio based model to evaluate the performance of financial institutions. The present study is a descriptive research based on analytical research design. Out of Indian Public Sector Banks only six foremost PSBs viz. Bank of Baroda, Bank of India, Canara Bank, Punjab National Bank, State Bank of India and Union Bank have been selected for the purpose of present study. The data of sample banks for a period of four years (2013-2016) have been collected from the published annual reports of the banks and website of Reserve Bank of India. Fifteen financial ratios have been selected to assess the performance of banks. Four year average has been calculated with the help of simple arithmetic mean. For analysis and interpretation of results, the statistical tools used are arithmetic mean, F-test, One Way ANOVA.

HYPOTHESIS

H_o: There is no significant difference in financial performance of selected PSBs as assessed by CAMEL model.

ANALYSIS AND DISCUSSION

Capital Adequacy

It is important for a bank to maintain depositors'confidence and preventing the bank from goingbankrupt. It reflects the overall financial condition of banks and also the ability of management to meet the need of additional capital. The following ratios measure capital adequacy:\

Capital to Risk Asset Ratio (CRAR)

The Capital to Risk Asset Ratio is also known as Capital Adequacy Ratio (CAR), is developed to ensure that banks can absorb a reasonable level of losses occurred due to operational losses and determine the capacity of the bank in meeting the losses. The higher the ratio, the more will be the protection of investors. The banks are required to maintain the capital adequacy ratio (CAR) as specified by RBI from time to time. As per the latest RBI Basel-III norms, the banks should have a CRAR of minimum 10.25% (9% minimum total capital plus 1.25% of CCB) as on 31st March 2017.

Table-1 CAPITAL TO RISK ASSET RATIO (CRAR)

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	13.30	11.02	12.40	12.72	12.92	11.45
2014	12.28	9.97	10.63	11.52	12.44	10.80
2015	12.61	10.73	10.56	12.21	12.00	10.22
2016	13.18	12.01	11.08	11.28	13.12	10.56
Mean	**12.84**	**10.93**	**11.17**	**11.93**	**12.62**	**10.76**
Rank	**1**	**5**	**4**	**3**	**2**	**6**

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

Table-1 depicts that Bank of Baroda is ranked first with the highest CRAR of 12.84% followed by State Bank of India. Union Bank scored the lowest position with lowest CRAR of 10.76%

Debt-Equality Ratio (D/E)

This ratio indicates the degree of leverage of a bank. It indicates how much of the bank business is financed through debt and how much through equity. It is the proportion of total outside liability to net worth. Higher ratio indicates less protection for the creditors and depositors in the banking system.

Table-2 DEBT-EQUALITY RATIO (D/E)

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	16.12	18.41	15.87	13.82	14.95	17.82
2014	17.32	18.15	15.61	14.33	14.16	18.15
2015	16.95	18.67	16.20	14.44	14.95	18.31
2016	15.70	18.67	16.50	16.42	14.66	16.68
Mean	**16.52**	**18.47**	**16.04**	**14.75**	**14.68**	**17.74**
Rank	**4**	**6**	**3**	**2**	**1**	**5**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

In the above Table SBI is on the top position with least average of 14.68 followed by PNB 14.75. Bank of India scored the lowest position.

Advance to Assets Ratio (Adv/Ast)

This is the ratio indicates a bank's aggressiveness in lending which ultimately results in better profitability. Higher ratio of advances/ deposits including receivables (assets) is preferred to a lower one.

Table-3 ADVANCE TO ASSETS RATIO

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	59.98	63.93	58.73	64.47	66.76	66.67
2014	60.20	64.68	61.20	63.45	67.48	64.76
2015	59.87	64.98	60.22	63.07	63.47	66.99
2016	57.16	58.89	58.72	61.78	64.79	66.06
Mean	**59.30**	**63.12**	**59.72**	**63.19**	**65.63**	**66.12**
Rank	**6**	**4**	**5**	**3**	**2**	**1**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

In above table Union Bank is on the top with highest average of 66.12% followed by SBI (65.63) and PNB (63.19). Bank of Baroda scored the lowest position with least average of 59.30%.

Table-4 COMPOSITE CAPITAL ADEQUACY

	CRAR		Debt-Equity		Adv. / Assts.		Group Rank	
Bank	**%**	**Rank**	**Times**	**Rank**	**%**	**Rank**	**Mean**	**Rank**
BOB	12.84	1	16.52	4	59.30	6	3.67	3
BOI	10.93	5	18.47	6	63.12	4	5.00	6
Canara Bank	11.17	4	16.04	3	59.72	5	4.00	4.50
PNB	11.93	3	14.75	2	63.19	3	2.67	2
SBI	12.62	2	14.68	1	65.63	2	1.67	1
Union Bank	10.76	6	17.74	5	66.12	1	4.00	4.50

Source: Secondary data available in reports of the RBI compiled by MS-Excel

On the basis of group averages of three ratios of capital adequacy expressed in table-4**,** SBI at the top position with group average of 1.67 followed by PNB (2.67) and BOB (3.67). Bank of India scored the lowest position due to its poor performance in Debt-Equity and CRAR.

Assets Quality

The quality of assets is an important parameter to measure the strength of a bank. The prime motto behind measuring the assets quality is to ascertain the component of non-performing assets as a percentage of the total assets. This indicates what types of advances the bank has made to generate interest income. The ratios necessary to assess the assets quality are:

Net NPAs to Net Advances Ratio (NNPAs/NA)

It is the most standard measure of assets quality measuring the net non-performing assets as a percentage to net advances. Net non-performing assets are gross non-performing assets minus net of provisions on Non-performing assets and interest in suspense account.

Table-5 NET NPAS TO NET ADVANCES

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	1.28	2.06	2.18	2.35	2.10	1.61
2014	1.52	2.00	1.98	2.85	2.57	2.33
2015	1.89	3.36	2.65	4.06	2.12	2.71
2016	5.06	7.79	6.42	8.61	3.81	5.25
Mean	**2.44**	**3.80**	**3.31**	**4.47**	**2.65**	**2.97**
Rank	**1**	**5**	**4**	**6**	**2**	**3**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

Table-5 shows that BOB is on top position with least average of 2.44% followed by SBI (2.65%) and Union Bank (2.97%) on second and third position respectively. PNB scored the lowest position with highest average of 4.47%

Total Investments to Total Assets Ratio (TI/TA)

It indicates the extent of deployment of assets in investment as against advances. This ratio is used asa tool to measure the percentage of total assets locked up in investments which, by conventional definition does not form part of the core income of a bank. A higher ratio indicates the conservative policy of a bank to provide safeguard to the investments against NPAs.

Table-6 TOTAL INVESTMENTS TO TOTAL ASSETS RATIO

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	22.19	20.90	29.38	27.12	22.40	25.90
2014	17.61	19.92	25.78	26.12	22.24	26.49
2015	16.34	19.36	25.92	24.84	23.52	22.13
2016	17.15	19.49	25.73	23.65	21.12	22.04
Mean	**18.52**	**19.92**	**26.70**	**25.43**	**22.32**	**24.14**
Rank	**1**	**2**	**6**	**5**	**3**	**4**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

In above table-6 BOB is on the top position with least average of 18.52% followed by BOI (19.92%) and SBI (22.32%). Canara Bank scored the lowest position with highest ratio of 26.70%.

Secured Advances to Total Advances Ratio

In order to minimize credit risk, banks sanction secured advances. Generally an advance is sanctioned in lieu of a security of asset, the realizable value of which always equal to or greater than the amount of such advance. A higher proportion of secured advances reveal the sound asset quality and low credit default risk.

Table-7 SECURED ADVANCES TO TOTAL ADVANCES

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	87.28	85.92	82.59	92.09	82.64	85.77
2014	86.29	82.11	83.72	93.46	83.55	88.90
2015	87.47	85.01	82.81	84.65	80.07	87.37
2016	88.22	84.09	86.05	92.95	78.43	86.77
Mean	**87.31**	**84.28**	**83.79**	**90.79**	**81.17**	**87.20**
Rank	**2**	**4**	**5**	**1**	**6**	**3**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

From above table-7 it is clear that PNB is on the top with highest average of 90.79% followed by BOB. State bank of India stood at the lowest position with least ratio of 81.17%.

Table-8 COMPOSITE ASSET QUALITY

	NNPA / NET ADV		SEC. ASS. / TA		TINV / TA		Group Rank	
Bank	**%**	**Rank**	**%**	**Rank**	**%**	**Rank**	**Mean**	**Rank**
BOB	2.44	1	87.31	2	18.52	1	1.33	1.00
BOI	3.80	5	84.28	4	19.92	2	3.67	2.50
Canara Bank	3.31	4	83.79	5	26.70	6	5.00	6.00
PNB	4.47	6	90.79	1	25.43	5	4.00	4.00
SBI	2.65	2	81.17	6	22.32	3	3.67	2.50
Union Bank	2.97	3	87.20	3	24.14	4	4.33	5.00

Source: Secondary data available in reports of the RBI compiled by MS-Excel

An analysis of above table-8 reveals that BOB is at the first position with group average of 1.33. BOI and SBI both have same group average 3.67 followed BOB. Canara Bank is at the bottom position with group average 5.00 due to its poor performance.

Management Efficiency:

Management efficiency is another important element of the CAMEL Model. The ratio in this segment involves subjective analysis to measure the efficiency and effectiveness of management. The management of bank takes crucial decisions depending on its risk perception. The ratios used to evaluate management efficiency are described as:

Total Advances to Total Deposits Ratio (TA/TD)

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 earning advances. Total deposits include demand deposits, savings deposits, term deposits and deposits of other banks, total advances include the receivables.

Table-9 TOTAL ADVANCES TO TOTAL DEPOSITS

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	69.25	75.78	68.05	78.86	86.94	78.90
2014	69.79	77.73	71.56	77.38	86.76	76.96
2015	69.32	75.58	69.65	75.90	82.45	80.68
2016	66.85	70.02	67.68	74.55	84.57	78.01
Mean	**68.80**	**74.78**	**69.23**	**76.67**	**85.18**	**78.64**
Rank	**6**	**4**	**5**	**3**	**1**	**2**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

In above table-9 SBI is on the top position with highest average of 85.18% followed by Union Bank (78.64%) and PNB (76.67%) on second and third position respectively. Bank of Baroda scored the lowest position respectively.

Business per Employee (BPE)

Business per employee shows the productivity of human force of bank. It is used as a tool to measure the efficiency of employees of a bank in generating business for the bank. It is calculated by dividing the total business by total number of employees. Higher the ratio, the better it is for the bank.

Table-10 BUSINESS PER EMPLOYEE (Rs. in million)

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	168.90	158.20	142.02	116.51	94.39	121.50
2014	186.50	196.30	143.84	128.30	106.38	137.60
2015	188.90	206.90	143.50	131.90	123.40	144.60
2016	168.00	179.60	144.46	135.90	141.10	155.10
Mean	**178.07**	**185.25**	**143.46**	**128.15**	**116.32**	**139.70**
Rank	**2**	**1**	**3**	**5**	**6**	**4**

Above table-10 highlights that BOI is on the top position with the highest average of 185.25. State Bank of India stands at the lowest position with the lowest ratio of 116.32.

Profit per Employee (PPE)

It is calculated by dividing the profit after tax earned by the bank with the total number of employees. The higher the ratio, higher is the efficiency of the management and vice versa. This shows the surplus earned per employee.

Table- 11 PROFIT PER EMPLOYEE (Rs. in millions)

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	1.00	0.64	0.70	0.81	0.65	0.70
2014	1.00	0.63	0.50	0.50	0.49	0.50
2015	0.70	0.37	0.50	0.50	0.60	0.50
2016	-1.00	-1.22	-0.50	-0.60	0.47	0.40
Mean	**0.42**	**0.10**	**0.30**	**0.302**	**0.55**	**0.52**
Rank	**3**	**6**	**5**	**4**	**1**	**2**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

In the above table-11 SBI is on the top position with highest average of 0.55 followed by Union Bank (0.52) and BOB (0.42) respectively. Bank of India scored the lowest position with least ratio of 0.10.

Table-12 COMPOSITE MANAGEMENT EFFICIENCY

	TA / TD		BPE		PPE		Group Rank	
Bank	%	Rank	Rs. (in millions)	Rank	Rs. (in millions)	Rank	Mean	Rank
BOB	68.80	6	178.07	2	0.420	3	3.67	3.50
BOI	74.78	4	185.25	1	0.100	6	3.67	3.50
Canara Bank	69.23	5	143.46	3	0.300	5	4.33	6.00
PNB	85.18	3	128.15	5	0.302	4	4.00	5.00
SBI	76.67	1	116.32	6	0.550	1	2.67	1.50
Union Bank	78.64	2	139.70	4	0.520	2	2.67	1.50

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

On the basis of group averages of three ratios in table-12, SBI and Union Bank stood at top with group rank of 1.50. Canara bank scored the lowest position with least group average of 4.33 due to its poor performance.

Earning Quality

The quality of earnings is a very important criterion that determines the ability of a bank to earn consistently. It basically determines the profitability of bank and explains its sustainability and growth in earnings in future. The following ratios explain the quality of income generation.

Operating Profit to Total Assets Ratio (OP/TA)

This ratio indicates how much a bank can perform its operations net of the operating expenses for every rupee spent on total assets. This is arrived at by dividing the operating profits by total assets. The higher the ratio, the better it is. This ratio determines the Total operating profit generated from total assets employed. The better utilization of assets will result in higher operating profits. Banks, which use their assets efficiently, will tend to have a better average than the industry average.

Table- 13 OPERATING PROFIT TO TOTAL ASSETS

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	1.81	1.78	1.50	2.33	2.14	1.94
2014	1.54	1.64	1.50	2.21	1.91	1.57
2015	1.44	1.26	1.34	2.07	2.10	1.58
2016	1.27	0.98	1.30	1.92	2.01	1.44
Mean	**1.51**	**1.42**	**1.41**	**2.13**	**2.04**	**1.63**
Rank	**4**	**5**	**6**	**1**	**2**	**3**

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

In the table-13, PNB is on the top position with highest average of 2.13%followed by SBI (2.04%) and Union Bank (1.63%) on second and third place respectively. Canara Bank scored the lowest position with least average of 1.41%.

Return on Assets Ratio

This ratio reflects the return on assets employed or the efficiency in utilization of assets. It is calculated by dividing the net profits with total assets of the bank. Higher the ratio reflects better earning potential of a bank in the future.

Table-14 RETURN ON ASSETS

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	0.90	0.65	0.77	1.00	0.97	0.79
2014	0.75	0.51	0.54	0.64	0.65	0.52
2015	0.49	0.27	0.55	0.53	0.68	0.49
2016	-0.78	-0.94	-0.52	-0.61	0.46	0.35
Mean	**0.34**	**0.12**	**0.33**	**0.39**	**0.69**	**0.53**
Rank	**4**	**6**	**5**	**3**	**1**	**2**

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

In above table-14 SBI is on the top position with highest average of 0.69% followed by Union Bank (0.53) and PNB (0.39).

Non-Interest Income to Total Income Ratio

This measure the income from operations other than lending's as a percentage of the total income. The non-interest income to total income reflects the capability of the bank in generating income from its non lending business.

Table- 15 NON INTEREST INCOME TO TOTAL INCOME

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	9.35	10.55	8.47	9.16	11.82	9.22
2014	10.28	10.17	9.04	9.57	11.98	8.77
2015	9.29	8.81	9.42	11.28	12.90	9.89
2016	10.19	8.04	9.97	12.66	14.67	10.13
Mean	**9.78**	**9.39**	**9.22**	**10.67**	**12.84**	**9.50**
Rank	**3**	**5**	**6**	**2**	**1**	**4**

The above table-15 reveals that SBI is on the top position with highest average of 12.84% Canara Bank stands at lowest position with least ratio of 9.22%.

Table-16 COMPOSITE EARNING EFFICIENCY

	OP / TA		ROA		NON INTS INC / TI		Group Rank	
Bank	**%**	**Rank**	**%**	**Rank**	**%**	**Rank**	**Mean**	**Rank**
BOB	1.51	4	0.34	4	9.78	3	3.67	4
BOI	1.42	5	0.12	6	9.39	5	5.33	5
Canara Bank	1.41	6	0.33	5	9.22	6	5.67	6
PNB	2.13	1	0.39	3	10.67	2	2.00	2
SBI	2.04	2	0.69	1	12.84	1	1.33	1
Union Bank	1.63	3	0.35	2	9.50	4	3.00	3

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

On the basis of group averages of three ratios quality of earning as expressed in table-16, SBI was at the top position with the group average of 1.33, followed by PNB. Canara Bank scores the lowest position with group average of 5.67 due to its poor performance in Non-Interest Income to Total Income and Operating Profit to Total Assets ratio.

Liquidity

Risk of liquidity is curse to the image of bank. Bank has to take a proper care to hedge the liquidity risk; at the same time ensuring good percentage of funds are invested in high return generating securities, so that it is in a position to generate profit with provision liquidity to the depositors. The following ratios are used to measure the liquidity under the CAMEL Model. They are:

Liquid Assets to Total Assets (LA/TA)

It measures the overall liquidity position of the bank. The liquid asset includes cash in hand, balance with institutions and money at call and short notice. The total assets include the revaluation of all the assets.

Table-17 LIQUID ASSETS TO TOTAL ASSETS

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	15.61	12.11	8.42	5.66	7.33	5.19
2014	19.84	10.71	9.11	8.21	7.39	6.52
2015	20.75	11.75	8.89	9.27	7.56	5.86
2016	19.94	16.25	10.26	11.03	7.41	7.23
Mean	**19.03**	**12.70**	**9.17**	**8.54**	**7.42**	**6.20**
Rank	**1**	**2**	**3**	**4**	**5**	**6**

Source: Secondary data available in reports of the RBI compiled by MS-Excel

Table-17 shows that BOB is on the top position with highest average of 19.03% followed by BOI (12.70%) and Canara Bank (9.17%) on second and third position respectively. Union Bank scored the last position with least average of 6.20%.

Liquid Assets to Demand Deposits (LA/DD)

This ratio measures the ability of bank to meet the demand from depositors in a particular year. To offer higher liquidity for them, bank has to invest these funds in highly liquid form.

Table-18 LIQUID ASSETS TO DEMAND DEPOSITS

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	71.17	56.01	40.33	17.69	21.29	19.86
2014	89.34	56.08	43.40	26.15	22.15	26.28
2015	91.03	61.28	42.84	30.43	23.74	24.15
2016	88.48	74.70	45.92	35.81	22.71	26.40
Mean	**85.00**	**62.01**	**43.12**	**27.52**	**22.47**	**24.17**
Rank	**1**	**2**	**3**	**4**	**6**	**5**

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

In above Table-18 BOB is on the top position with highest average of 85.0% followed by BOI (62.01%) and Canara Bank (43.12%) respectively. SBI scored the lowest position with least ratio of 22.47%.

Cash - Deposits Ratio

Cash to deposits ratio reveals the availability of average cash balance against total deposits in a bank. It is the proportion of money a bank should have available against the total amount of money deposited by its customers. Cash to deposits ratio= (Cash in hand + Balance with RBI / Total Deposits).

Table-19 CASH TO DEPOSITS RATIO

Year / Bank	BOB	BOI	Canara Bank	PNB	SBI	Union Bank
2013	2.84	5.75	4.33	4.57	5.47	4.08
2014	3.27	4.00	5.27	4.93	6.09	6.19
2015	3.64	5.11	4.64	4.83	7.35	4.75
2016	3.78	6.62	4.31	4.79	7.49	4.55
Mean	**3.38**	**5.37**	**4.64**	**4.78**	**6.60**	**4.89**
Rank	**6**	**2**	**5**	**4**	**1**	**3**

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

Table-19 shows that SBI is on the top position with highest average of 6.60% followed by BOI (5.37%) and Union Bank (4.89%). Bank of Baroda stands at the lowest position with least average of 3.38%.

Table-20 COMPOSITE LIQUIDITY

	LA / TA		CASH-DEPOSIT		LA / DD		Group Rank	
Bank	%	Rank	Times	Rank	%	Rank	Mean	Rank
BOB	19.03	1	3.38	6	85.00	1	2.67	2
BOI	12.70	2	5.37	2	62.01	2	2.00	1
Canara Bank	9.17	3	4.64	5	43.12	3	3.67	3
PNB	8.54	4	4.78	4	27.52	4	4.00	4.50
SBI	7.42	5	6.60	1	22.47	6	4.00	4.50
Union Bank	6.20	6	4.89	3	24.17	5	4.67	6

Source: Secondary data available in reports of the RBI compiled by MS-Excel.

Composite liquidity in table-20 depicts that BOI is on the top with group average of 2.00., followed by BOB with average of (2.67) and Canara Bank (3.67) respectively. Union Bank scores the last position with group average of 4.67 due to its poor performance in Liquid Asset to Total Asset, Liquid Asset to Demand Deposits ratios.

OVERALL RANKING

In order to assess the overall performance of selected Public Sector Banks, composite rating and results are calculated and presented in above Table-21 for the study period 2013-2016. It is found that under the capital adequacy parameter SBI at the top position, while BOI at lowest position. Under the asset quality parameter, BOB held the top rank while Canara Bank lowest rank. Under management efficiency parameter, it is observed that top rank is taken by SBI and Union Bank, while lowest rank is taken by Canara Bank. In terms of earning quality parameter, SBI got the top rank, while Canara bank at the lowest position. Under the liquidity parameter BOI stood at the top rank, whereas Union bank at the bottom position.

The study found that State Bank of India (SBI) is at the first position with overall composite ranking average of 2.668 followed by Bank of Baroda (BOB) with overall composite ranking average of 3.002. Canara Bank holds the bottom rank with overall composite ranking average of 4.534.

Table- 21 OVERALL RANKING

	C	A	M	E	L	Mean	Rank
BOB	3.67	1.33	3.67	3.67	2.67	3.002	2
BOI	5.00	3.67	3.67	5.33	2.00	3.934	5
Canara Bank	4.00	5.00	4.33	5.67	3.67	4.534	6
PNB	2.67	4.00	4.00	2.00	4.00	3.334	3
SBI	1.67	3.67	2.67	1.33	4.00	2.668	1
Union Bank	4.00	4.33	2.67	3.00	4.67	3.734	4

ANOVA Results

One-way ANOVA test applied for determining whether there is any significant difference between the means of CAMEL ratios on the data shown in Table-21. The results of one-way ANOVA test are presented in following Table-22.

Table-22 ANOVA Results

Source of Variation	Sum of Squares (SS)	Degree of Freedom	Mean Square (MS)	F-Value	P-value
Between Groups	11.3649	5	2.272979	2.107958	0.099335
Within Groups	25.87884	24	1.078285		
Total	37.24374	29			

The results of ANOVA test highlighted the calculated values of F-ratio is less than the tabulated value (for 5,24 d.f. at 5% level of significance is 2.62). It means there is no statistically significant difference between the mean values of CAMEL ratios, hence null hypothesis accepted. It also signifies that there is no significant difference in performance of selected public sector banks (PSBs) assessed by CAMEL model.

CONCLUSION

The study reveals that SBI stands at first rank having the excellent performance followed by Bank of Baroda, whereas Canara Bank has secured last rank in terms of performance. Canara Bank has to improve its asset quality, management and earning efficiency. In terms of capital adequacy, management and earning efficiency SBI held the top rank. In term of asset quality parameter BOB held the top position. Under the liquidity parameter BOI stood on the top position and Union Bank on the lowest position. The present study depicted that though ranking of ratios is different, but there is no statistically significant difference between the CAMEL ratios.

REFERENCES

1. *Angadi and Devraj 1983, 'Profitability and Productivity of Banks in India', Economic and Political Weekly, Vol. 18 (Nov), pp. 26.*
2. *Barr, Richard S. et al. 2002, 'Evaluating the Productive Efficiency and Performance of U.S. Commercial Banks', Engineering Management, Vol. 28, No.8, pp. 19.*
3. *Beck, Thorsten and Rose Levine 2004, 'Stock Market, Banks and Growth: Penal Evidence', Journal of Banking and Finance, Vol. 28, pp. 423-42.*
4. *Bodla, B.S. and Verma, R. 2006, 'Evaluating Performance of Banks through CAMEL Model: A Case Study of SBI and ICICI', The ICFAI Journal of Bank Management, Vol.5, No.3, pp.49-63.*
5. *Gerschenkron, Alexander 1962, 'Economic Backwardness in Historical Perspective: A Book of Essay', Cambridge, Mass.: The Belknap Press of Harvard University Press. Gupta, R. 2008, 'A CAMEL Model Analysis of Private Sector Banks in India', Journal of Gyan Management, Vol. 2, No. 1, pp. 3-8.*
6. *Kapil, S. & Kapil, K. N 2005, 'CAMEL's Ratings and its Correlation to Pricing Stocks— An Analysis of Indian Banks', University Journal of Bank Management, Vol. 4, No. 1, pp. 64-78.*
7. *Levine, Ross and Sara Zervos 1998, 'Stock Market, Bank and Growth', The American Economic Review, Vol. 88, No. 3, pp. 537-58.*
8. *McKinnon, Ronald I 1973, 'Money and Capital in Economic development', Washington, D. C.: Brookings Institution*
9. *Padmanabhan Working Group 1995, 'On-site Supervision of Banks', RBI. Prasuna, D G 2004, 'Performance Snapshot 2003-04', Chartered Financial Analyst, Vol. X, No. 11, pp. 6-13.*
10. *Sarker, A. 2005, 'CAMEL Rating System in the Context of Islamic Banking: A Proposed*
11. *'S' for Shariah Framework', Journal of Islamic Economics and Finance, Vol. 1, No. 1, pp. 78-84.*
12. *Satish, D; Jutur, Sharath and Surender, V 2005, 'Indian Banking Performance and Development 2004-05', Chartered Financial Analyst, Vol. 11, No. 10, pp. 6-15. Singh, D. and Kohli, G. 2006, 'Evaluation of Private Sector Banks in India: A SWOT Analysis', Journal of Management Research, Vol. 6, No. 2, pp. 84-101.*
13. *Shaw, E. 1973, 'Financial Deepening in Economic Development', New York: Oxford University Press.*
14. *Stiglitz, Joseph E. 1994, 'The Role of the State in Financial Markets', Proceedings of the World Bank Annual Conference on Development Economics 1993, (Supplement to the World Bank Economic Review and World Bank Research Observer), Washington D.C.*
15. *Reserve Bank of India, 'Trend and Progress of Banking in India 2013, 2014, 2015,2016'.*