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CAMEL Rating Approach in Financial Performance Analysis of Nationalised Banks of India

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Abstract: The banking sector is a backbone of the Indian economy. The sector widely includes co-operative, commercial, nationalized, private and internationalized banks. The progression of an economy is significantly dependent upon deployment as well as optimum utilization of resources and most importantly operational efficiency of the various sectors, of which banking sector plays a very vital role. Nationalized banks have a huge role in the growth of developing countries like India and play a vital role in socio-economic development. These banks were nationalized in order to pay attention to priority sector, to achieve financial inclusion, to maintain a uniform banking policy, speedy transfer of funds and to increase the profitability. The present study has made an attempt to analyse the financial soundness of 6 nationalised banks which are nationalised in the year 1980 viz., Andhra Bank, Corporation Bank, Oriental Bank of commerce (OBC), Punjab and Sindh Bank, VIJAYA Bank, Punjab national Bank (New Bank of India merged with PNB in 1993) with the help of CAMEL rating approach for a period of 10 years starting from 2008 to 2018. After analysing the collected data it is found that the performance of ANDHRA bank is comparatively better in majority of parameters that are being selected.
Keywords: Bank, Efficiency, Camel Model, Capital Adequacy, Asset Quality, Management Efficiency, Liquidity, Earning Quality, bank performance.

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I. Introduction

Banking is one of the fastest growing sectors in India. Banking sector helps in boosting capital formation, innovation and monetization along with facilitation of monetary policy. A strong, sustainable and viable banking system plays an important role in the overall development of an economy. Banking sector has contributed in bringing a revolutionary change in reforming sector on the path of economic growth. Performance of the banking sector is an effective measure and indicator to check the performance of any economy to a large extent.

The banking sector reforms were started in India as a follow up measure of financial sector reforms and economic liberalization in the country. More competitiveness, productivity and efficiency and adherence to international accounting standards were the basic intentions behind the initiation of reforms in Indian banking industry. One of such measures of supervisory regulation is the CAMEL rating system. In 1980's, US supervisory authorities introduced CAMEL rating system as a system of rating the banks for on-site examinations of banking institutions. It proved to be a beneficial and efficient tool in response to the financial crunch in 2008 by the U.S. government. Camel approach is an effective tool to determine the relative financial strength of a bank and to suggest relevant measures to improve shortcomings of a bank. In India, on the recommendations of Padmanabham Working Group (1995) committee, RBI adopted this approach in 1996. 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.

II. Review of Literature

It has now been well recognized that financial soundness of a bank depends on the different aspects and not only on the profitability. A number of studies have been conducted to measure the operational and financial soundness of the banks. The evaluation of financial performance of banking sector has been assessed by various researchers, academicians and policy makers in different time periods. A simplistic review of some of the important studies is presented here which fulfils the need for the present study.

Kwan and Eisenbeis (1997) observed that Asset Quality is commonly used as a risk indicator for financial institutions, which also determines the reliability of capital ratios. Their study indicated that capitalization affects the operation of financial institution. More the capital, higher is the efficiency. Prasuna (2003) analyzed the performance of 65 Indian banks according to the CAMEL Model. The author concluded that better service quality, innovative products and better bargains were beneficial because of the prevailing tough competition.

Shiva 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. Chaudhry and Singh (2012) analyzed the impact of the financial reforms on the soundness of Indian Banking through its impact on the asset quality. The study identified the key players as risk management, NPA levels, effective cost management and financial inclusion.

Aspal and Malhotra (2013) measured the financial performance of Indian public sector banks asset by camel model and applying the tests like ANOVA, f test and arithmetic test for the data collected for the year 2007-2011. They concluded that the top two performing banks are bank of Baroda and Andhra bank because of high capital adequacy and asset quality and the worst performer is united bank of India because of management inefficiency, low capital adequacy and poor assets and earning quality.

Kaur (2015) analyzed the financial performance of five public sector banks and five private sector banks for the period 2009 to 2014 using CAMEL model. This study revealed that profit per employee, total advances to deposits and CAR is most impacting factor on performance of the banks.

Srinivasan and Saminathan (2016) apply CAMEL model to rank the public sector, private sector and foreign banks on the basis of financial performance from 2012 to 2014. They also find out that significant difference lies between the mean values of Camel ratios of public sector, private sector and foreign banks during the period of study.

Purohit and Bothra (2018) compare the performance of SBI and ICICI Bank using CAMEL parameters. They conclude that ICICI bank needs to improve its position with regard to capital adequacy and asset quality while SBI need to improve its position with regard to management efficiency, earning quality and liquidity.

III. Objectives of the Study

1) To highlight the theoretical background of CAMEL rating model.
2) To examine the overall relative financial soundness of 6 selected nationalised banks in India.
3) To know the relevance of CAMEL rating model in analysing financial performance of selected banks.
4) To understand the importance of rating banks in the competitive environment
5) To find out how capital adequacy, Asset quality, Management soundness, Earnings and profitability, Liquidity and Market sensitivity affects the performance of banks.

IV. Scope of the Study

a) The present study is an honest attempt tries to use basic CAMEL rating approach.
b) This study covers 10 years of Data pertaining to 6 nationalised banks selected based on convenient sampling method.

V. Limitations of the Study

i) Present study is purely based on secondary data.
ii) The study has not used extended approach of CAMEL model i.e “CAMELSC“(S-Systems, C-Compliance to norms) due non availability of data.
iii) The study has considered only few parameters in assessing the components of CAMEL model but there are many parameters that one can also use along with these parameters.

VI. Research Methodology

Research is considered as journey from unknown to the known. Methodology is the way to solve the research problem systematically. This study follows the following methodology.

1. Research design

Descriptive research is a study designed to depict the participants in an accurate way. As the name implies, descriptive research methods are used when the researcher wants to describe specific behavior as it occurs in the environment. In this study we are intend to describe the qualitative and quantitative performance of the selected nationalised banks.

2. Hypothesis of the study

H_0: There is no significant difference in the performance of selected nationalised banks assessed by the CAMEL rating approach.

H_1: There is a significant difference in performance of selected nationalised banks assessed by the CAMEL rating approach.

3. Data collection

i) Period of the study: The study has covered the average performance of selected nationalised banks for 10 years from 2008 to 2018.

ii) Selected banks for the study: The study has considered 6 nationalised banks which were nationalised in the year 1980. Namely 1) Andhra bank. 2) Corporation bank. 3) Vijaya bank. 4) Punjab and Sindh bank. 5) Punjab national bank. 6) Oriental bank of commerce.

iii) Type of data and its source: The present study is based on Secondary data. The relevant data has been collected from the various sources such as annual reports of selected banks as well as official website of RBI. In addition to the records of the bank, data were also collected from banking bulletin, websites, newspapers, magazines and various journals.

iv) Sampling technique used: Convenience Sampling Technique is adopted for selecting the sample.

4. Statistical tools used

Due to the unavailability of the data for factor S, i.e. sensitivity to market risk, the data has been analyzed using the rest of the 5 factors using ratios. The ratios under respective five heads are calculated and then ranked. The ranks so calculated are then used for computing the group rank. The statistical tools used along with their purpose are 1) Arithmetic mean (AM). 2) F-test and One way ANOVA.

VII. Analysis and interpretation of components of CAMEL rating model

CAMEL rating model is based on some parameters those are as follows.

1. Capital adequacy

"It is the capital expected to maintain in order to absorb the potential losses and to protect its stakeholders by giving at most scope for growth". It is required to maintain depositor's confidence and preventing the bank from going bankrupt. Capital base of financial institutions facilitates depositors in forming their risk perception about the organization. Reserve Bank of India prescribes banks to maintain a minimum Capital to risk-weighted Assets Ratio (CRAR) of 9 % with regard to credit risk, market risk and operational risk on an ongoing basis, as against 8 % prescribed in Basel documents. Some of the ratios considered to assess the capital adequacy of the banks and their their desirable nature in this study are as follows.

Parameters of Capital Adequacy

Name of the parameter	Desirable quality
1)Capital adequacy ratio (CAR)	Higher ratio is advisable
2)Debt to equity ratio (D\E RATIO)	Lower ratio is advisable
3)Total advances to total assets ratio	Higher ratio is profitable
4)G-securities to total investment ratio	Higher ratio is advisable

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Table 1. Capital Adequacy indicators of the banks from the year 2008-18

Name of banks	(CAR)		D/E Ratio		Total Advances To Total Assets		G-Securities to Total investment		Grand total	
	Avg %	Rank	Avg %	Rank	Avg %	Rank	Avg %	Rank	Average	Rank
1. Andhra Bank	**11**	**3**	**1.17**	**4**	**65.25**	**1**	**91.24**	**1**	**2.25**	**1**
2. Corporation	9.23	5	1.57	6	59.15	6	73	6	5.75	6
3. OBC	10.5	4	.51	1	61.67	3	80.74	4	3	3
4. P and S Bank	**11.25**	**2**	**1.04**	**3**	**31.30**	**4**	**85.43**	**2**	**2.75**	**2**
5. PNB	9.20	6	1.19	5	63.63	2	83.72	3	4	5
6. Vijaya Bank	13.90	1	.78	2	59.74	5	81.16	5	3.25	4

Source: Statistical Tables Relating to Banks in India RBI and respective banks official website.

Table 1 clearly reveals information about the capital adequacy of different banks based on some parameters. The ANDHRA bank obtained a good rank as compare to all other banks in all parameters hence it is topped and obtained overall first rank by having average score of 2.25. Similarly corporation bank is not performing well means it has some problem with liquidity management it has average score of 5.75. And P&S BANK and oriental bank of commerce (OBC) are relatively good compare to PNB and OBC.

2. Asset quality

This indicates what types of advances the bank has made to generate interest income. The weakening value of assets has a spillover effect, as losses are eventually written-off against capital, which eventually expose the earning capacity of the institution. Asset quality assesses the soundness of financial institutions against loss of value in the assets. With this framework, the asset quality is assessed with respect to the following parameters.

Parameters of Asset Quality

Name of the Parameter	Desirable Quality
1) Net NPA to net advances ratio	Lower ratio is recommended
2) Standard advances to total advances ratio	Higher ratio reduces default risk
3) Total investment to total assets ratio	Higher ratio adversely affects the profitability of banks
4) Net NPA to total assets ratio	Lower ratio is advisable

Table 2. Asset Quality Indicators of the Banks from For Year 2008 To 2018

Name of banks	Net NPA to Net advances ratio		Standard advances to total advances		Total investment to total assets ratio		Net NPA to total assets		Grand total	
	Avg %	Rank	Avg (%)	Rank	Avg %	Rank	Avg %	Rank	Average	Rank
1)Andhra Bank	**8.48**	**3**	**1.00818**	**5**	**23.91**	**1**	**.548**	**2**	**2.75**	**1**
2)Corporat	11.74	6	1.00622	6	29.80	6	.376	1	4.75	6

ion										
3) OBC	10.48	4	1.01388	2	28.11	3	.868	6	3.75	5
4) P & S Bank	6.93	2	1.00916	4	28.96	4	.576	3	3.50	3.5
5) PNB	**11.24**	**5**	**1.01650**	**1**	**26.19**	**2**	**.692**	**4**	**3**	**2**
6) Vijaya Bank	4.32	1	1.01355	3	29.34	5	.812	5	3.5	3.5

Source: Statistical Tables Relating to Banks in India RBI and respective banks official website.

Table 2 clearly indicates the performance all selected banks on asset quality by considering several parameters. Of the 6 banks ANDHRA bank performing well in all selected parameters except Standard advances to total advances ratio and topped the list by securing average score of 2.75. And similarly corporation bank is lagging behind the all selected banks hence it clearly indicates hidden problem in asset quality management and it has average score of 4.75. Similarly P&S bank and Vijaya bank obtained same score.

3. Management efficiency

It is the capability of top management or BOD to identify measure and control the risks of banking institutions activities and to ensure the safe and efficient operation in compliance with applicable law. Sound management is one of the most important factors behind Performance of any bank. Management efficiency, another indispensable component of the CAMEL framework, means adherence to set norms, knack to plan and be proactive in the dynamic environment, leadership, innovativeness and administrative competence of the bank. The parameter is used to evaluate management quality are;

Parameters of Management efficiency

Name of the Parameter	Desirable Quality
1)Secured advances to total advances ratio	Higher the ratio better the performance
2)Interest expenses to total assets ratio	Lower ratio is beneficial to banks
3)Profit per employee	Higher ratio is more profitable
4)Business per employee	Higher ratio is advisable

Table 3. Management efficiency indicators of the banks from the year 2008-18

Name of banks	Secured advances to total advances		Interest expenses to total assets		Profit per employee		Business per employee		Grand total	
	Avg %	Rank	Avg %	Rank	Rs. In M/N	Rank	Rs.In M/N	Rank	Avg	Rank
1)Andhra Bank	**93.09**	**2**	**6.09**	**2**	**-1.70**	**3**	**187**	**1**	**2**	**1**
2)Corporation	88.49	5	6.35	5	-2.20	5	166.3	4	4.75	6
3) OBC	93.82	1	6.37	6	-2.67	6	161.81	5	4.5	5
4) P & S Bank	**91.93**	**3**	**6.31**	**3**	**-.80**	**2**	**181.80**	**2**	**2.75**	**2**
5) PNB	85.27	6	5.38	1	-1.701	4	147.40	6	4.25	4
6) Vijaya Bank	86.59	4	6.34	4	.50	1	181	3	3	3

Source: Statistical Tables Relating to Banks in India RBI. And respective banks official website.

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Table 3 clearly shows the relative performance of 6 selected banks with respect to management efficiency based on several parameters. ANDHRA bank topped the list of 6 banks by securing average score of 2 and it indicates the efficiency in the management decisions. Similarly CORPORATION bank is lagging behind of all selected banks by securing the average score of 4.75 which implies that there are some problems with management decisions in the corporation bank. And P&S BANK and VIJAYA bank are relatively good performer compare to PNB and oriental bank of commerce (OBC).

4. Earnings quality

This parameter lays importance on how a bank earns its profits. This also explains the sustainability and growth in earnings in the future. The continued viability of a bank depends on its ability to earn an appropriate return on its assets which enables the institution to fund expansion, remain competitive, and replenish and/or increase capital. The parameters used to assess the earnings quality are as below.

Parameters of earnings quality

Name of the Parameter	Desirable Quality
1)Return on equity (ROE)	Higher ratio implies better the performance
2) Return on assets (ROA)	Higher the ratio better the performance
3)Return on investment (ROI)	Higher ratio is more profitable
4)Net interest income to total assets ratio	Higher ratio is advisable

Table 4. Earnings quality indicators of the banks from the year 2008-18

Name of banks	ROA		ROI		ROE		Net interest income to TA		Grand Total	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg	Rank
1)Andhra Bank	-1.46	3	7.21	5.5	-30.76	4	2.72	1	3.375	3
2)Corporation	-1.67	5	7.68	2	-34.42	5	2.06	4	4	4
3) OBC	-2.31	6	7.46	3	-45.33	6	1.85	6	5.25	6
4) P & S Bank	**-.69**	**2**	**8.04**	**1**	**-12.07**	**2**	**2.12**	**3**	**2**	**1.5**
5) PNB	-1.60	4	7.21	5.5	-29.54	3	2.01	5	4.375	5
6) Vijaya Bank	**.44**	**1**	**7.35**	**4**	**7.74**	**1**	**2.59**	**2**	**2**	**1.5**

Source: Statistical Tables Relating to Banks in India RBI. And respective banks official website.

Table 4 indicates the earning quality of selected banks based on some selected parameter. As per the study it reveals that VIJAYA bank and P&S bank are relatively equal performers having the average score of 1.5 each. Similarly oriental bank of commerce (OBC) lagging behind of all other banks with a average score of 5.25. It indicates the inefficiency of OBC in its earnings. Similarly ANDHRA bank is well performing compare to OBC.

5. Liquidity

Banks are in a business where liquidity is of prime importance. Liquidity is the banks capacity to meet its short term obligations as well as loan commitments. Liquidity is most important parameter especially in banking sector as banks are considered as liquidity creator in the market.

Therefore, if the liquidity management of a bank is not proper, it can adversely affect the performance of the banks. In case of an adequate liquidity position, the institution can obtain sufficient funds, either by increasing liabilities or by converting its assets to cash quickly at a reasonable cost. However following ratios are considered in the present study.

Parameters of liquidity

Name of the parameter	Desirable quality
1)Liquid assets to total deposit ratio	Higher the ratio better the performance
2)G-securities to total assets ratio	Higher ratio is advisable
3)Total investment to total deposit ratio	Higher ratio implies better the performance
4)Cash to deposit ratio	Higher ratio is more profitable

Table 5. Liquidity indicators of the banks from the year 2008 to 2018

Name of banks	Cash to deposit ratio		G-securities to total assets		Liquid assets to total deposits ratio		Total investment to total deposits		Grand Total	
	%	Rank	%	Rank	%	Rank	%	Rank	Avg	Rank
1)Andhra Bank	4.76	4	21.79	5	2.32	4	31.13	4	4.25	4.5
2)Corporation	6.08	2	21.74	6	2.0	5	38.38	1	3.5	3
3) OBC	**5.91**	**3**	**22.56**	**3**	**2.57**	**2**	**33.71**	**2**	**2.5**	**2**
4) P & S Bank	**6.15**	**1**	**24.75**	**1**	**3.96**	**1**	**32.42**	**3**	**1.5**	**1**
5) PNB	4.48	5	21.92	4	1.5	6	31.19	5	5	6
6) Vijaya Bank	2.74	6	23.79	2	2.48	3	25.12	6	4.25	4.5

Source: Statistical Tables Relating to Banks in India RBI and respective banks official website.

Table 5 clearly indicates the liquidity positions of 6 banks. Of the 6 banks P&S bank is considered to be relatively highly liquid bank because it earns lowest average score i.e 1.5. Similarly Punjab national bank is relatively illiquid because it secured highest average score. It indicates that PNB has some problems with liquidity management. Similarly ANDHRA bank and VIJAYA bank has same average score i.e 4.25 but they are also lagging behind in efficient liquidity management.

Table 6. Indicates the overall performance of all banks from the year 2008-18

Name of The Banks	Ranks obtained in different parameters										Grand Total	
	Capital Adequacy		Asset quality		Management efficiency		Earnings quality		Liquidity		Average	Final Ranks
	Rank	Weight	Ranks	Weight	Ranks	Weights	Ranks	Weight	Ranks	Weight		
1)Andhra Bank	**1**	**.20**	**1**	**.25**	**1**	**.20**	**3**	**.25**	**4.5**	**.10**	**1.85**	**1**
2)Corporation	6	.20	6	.25	6	.20	4	.25	3	.10	5.2	6
3) OBC	3	.20	5	.25	5	.20	6	.25	2	.10	4.55	5
4) P&S Bank	**2**	**.20**	**3.5**	**.25**	**2**	**.20**	**1.5**	**.25**	**1**	**.10**	**2.15**	**2**

5) PNB	5	.20	2	.25	4	.20	5	.25	6	.10	4.15	4
6) Vijaya Bank	4	.20	3.5	.25	3	.20	1.5	.25	4.5	.10	3.1	3

Source: Statistical Tables Relating to Banks in India RBI and respective banks official website.

Table 6 clearly depicts the overall performance of all the banks as per CAMEL rating approach. As per CAMEL rating approach ANDHRA bank topped the list because it performs well in all the respect of Capital Adequacy, Asset quality, Management efficiency, Earnings quality and liquidity. Hence it earns a grand average score of 1.9. Similarly CORPORATION bank ranked 6th and it has average score of 5.2. In every aspect it has improve its efficiency in order to survive in the future. P&S bank and VIJAYA banks are also well performers in all the aspects just after ANDHRA bank and secure 2nd and 3rd rank respectively. OBC and PNB are also need to improve their performance in all the aspects if they want to stay in the market.

Table 7. Analysis of Variance (ANOVA)

Sources	df	Sum of Squares	Mean Squares	F-Ratio
Treatments	5	1.577	0.315	2.6731
Error	24	2.833	0.118	
Total	**29**			

Table 7 shows the statistical tool application i.e ONE-WAY ANOVA to test the null hypothesis. As calculated F-ratio is more than the table F-value for v_1=5 and $v_{2=}$ 24 i.e **2.62** (2.67>2.62) at 5% level of significance. Hence null hypothesis needs to be rejected and alternative hypothesis needs to be accepted. Hence it can be concluded that there are significant differences among the performance of selected nationalised banks.

VIII. Findings of the Study

The following are the major findings of the study:

- The analysis of data show reveal that out of all the selected banks, ANDHRA bank is considered to be the best performer in Capital Adequacy, Asset quality and Management efficiency.
- As for as poor performance is concerned the CORPORATION bank is relatively poor performing bank.
- It is found frond from the calculations that PUNJAB AND SINDH bank is also well performing bank just after ANDHRA bank.
- P&S bank is found to be relatively highly liquid bank and PNB is found to be illiquid bank.
- It is found from the calculations that Earnings of Oriental Bank of Commerce is found to be relatively very less.
- Profit per employee and ROE are positive in VIJAYA bank i.e Rs .50 m/n and 7.74% respectively. But in all banks it is found to be negative.
- In case of management efficiency ANDHRA bank is topped because Business per employee is Rs. 187 m/n but in case of PNB it is only Rs. 147.40 m/n.
- Though the CORPORATION bank is found to be poor performer yet net NPA to total assets is very minimal in this bank compare to other banks.
- CAR in all the banks is more than 9% that is minimum requirement by RBI. And CAR in VIJAYA bank is comparatively greater than others. i.e 13.90%.

- ANDHRA bank is well capitalised because G-Securities to Total investment ratio is about 91.24%.

IX. Suggestions of the Study

- ✓ Though ANDHRA bank is well capitalised yet as for as Debt equity ratio is concerned it has high D/E ratio so it needs to minimise the debt proportion in total capital.
- ✓ CORPORATION bank needs to restructure its overall functions otherwise it will face some consequences in the future.
- ✓ P&S bank is also well performing but it needs to restructure its assets quality in order to give stiff competition to all other banks.
- ✓ Oriental Bank of Commerce (OBC) is also needs to be restructure its investments and has improve the assets quality by taking the strategic decisions in turn that will improve the earning quality.
- ✓ VIJAYA bank is also no doubt well performing but its problem is with the liquidity management so it is advisable to increase liquidity in an optimum proportion.
- ✓ PNB is also facing the problem of liquidity capital adequacy so now it has to focus on increasing liquidity and capital adequacy.
- ✓ Though ANDHRA bank is well performing yet it seems to have some problems with liquidity management so it is advisable to ANDHRA bank that it is advised to increase the liquidity by investing in G-securities and highly liquid securities.

X. 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.

Though the CAMEL Rating approach is used all over the world it is not complete panacea to measuring financial performance of banks as it involves some qualitative judgements by the onsite examiners it is always subjective in nature. And there are some evidences where CAMEL rating approach fails to give accurate results also. Apart from CAMEL Rating approach we do have some strategies tools to measure financial performance of banks like balanced scorecard, SMART Pyramid etc.

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