PERFORMANCE EVALUATION OF LEADING COMMERCIAL BANKS USING CAMEL MODEL

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Abstract

The banking sector, being the barometer of the economy, is reflective of the macro-economic variables. While the Indian economy is yet to catch strength, the Indian banking system continues to deal with improvement in asset quality, execution of prudent risk management practices and capital adequacy.

Financial performance evaluation of the banking sector is an effective measure and indicator to check the soundness of the banking sector as well as that of the economy. In the present study CAMEL model is being used in order to evaluate the financial performance of the banks on the following parameters - Capital adequacy, Asset quality, Management efficiency, Earnings quality and Liquidity. CAMEL Model is basically a ratio based model. Performance evaluation will be done for four commercial banks that is, two from each public sector and private sector. On the basis of highest market capitalization rate Bank of Baroda and Punjab National Bank from public sector and HDFC Bank and ICICI Bank from private sector has been taken for the study. The present study may help us to know which commercial bank is ahead on the basis of CAMEL model. And suitable recommendations will be given to banks for the improvement of their financial performance.

Key words: CAMEL Model, Performance Evaluation ,Market Capitalisation.

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1. Introduction

Financial system plays significant role in the development of an economy. If a country's financial system is fragile then we can't expect that country's economy to be strong. So for healthy and vibrant economy, robust financial system is very much essential. And banking sector holds a very important position in financial system.

In this modern and competitive era banks are facing multidimensional challenges. Because of globalization, changing technology, cut throat competition and uncertain macroeconomic environment, it's becoming really difficult for banks to survive. All these challenges have formed considerable pressure on stability and viability of banks. So it is important to assess the performance of banks through performance measurement system. Varieties of tools and measurement techniques are available in order to evaluate the financial performance of banks. But among them the most popular one was CAMEL Model for assessing the performance of Indian commercial banks. The United States, Uniform Financial Institutions Rating System, defined "The Uniform Financial Institution Rating system, commonly referred to the acronym CAMEL rating, was adopted by the Federal Financial Institution Examination Council on November 13 1979, and then adopted by the National Credit Union Administration in October 1987. It has proven to be an effective internal supervisory tool for evaluating the soundness of a financial firm, on the basis of identifying those institutions requiring special attention or concern" cited in (Dang, 2011).

In the present study leading public and private sector commercial banks is taken on the basis of highest market capitalization rate. Banks which have maximum capitalization rate: ICICI Bank, Punjab National Bank, Bank of Baroda and HDFC Bank.

Objectives of the study:

This study intends achieving the following objectives:

a) To analyse the financial performance of top four leading commercial banks in India using CAMEL Model.

b) To rank the Banks taken for study based on their performance on various parameters of CAMEL Model.

c) To give relevant suggestions for improving the performance of the banks which are lagging behind in CAMEL parameters.

2. Literature Review

Following are the various studies which have evaluated the performance of banks using CAMEL Model and other techniques:

Singh and Kohli (2006) have analyzed 20 old private sector banks and 10 new private sector banks using SWOT analysis. The researcher has used CAMEL model to rank the performance of the banks for the year 2003 to 2005.HDFC bank has captured the second position. The researcher also mentioned that in this competitive era those banks can only survive which gives more emphasis on quality service to customer than concentrating on Profitability alone. Whether private sector banks are better or public sector dominates the market, this is an ever green question. But because of better resource allocation within firms private sector banks are considered to be better than public sector banks.

Manoj (2010), evaluated and the compared performance of Kerala based old PVTBs (KOPBs) and old PVTBs in India using camel approach. In terms of financial soundness old PVTBs have performed better than KOPBs. Out of the four KOPBs only federal bank have been able to meet the national average. Other three KOPBs are struggling for survival.

Kaur (2010) has evaluated the performance of PSBs, PVTBs and foreign sector banks that are operating in India from 2000 to 2007 using CAMEL Model. The top most performers in public sector were Andhra bank and SBP. And the worst performer was Dena bank. In the private sector top most performer was Jammu and Kashmir bank and the least performer was Sangli bank ltd. In case of foreign sector Antwerp bank was the best performer and the worst performer was Abu Dhabi Commercial Bank Ltd.

Chaudhary and Sharma (2011) have compared the performance of PSBs and PVTBs and they found out the trend in NPA and have given suggestions to reduce NPA. Public sector should reduce their NPA, because it is in increasing trend. Otherwise it will be very difficult for them to compete with private banks.

Kumar, Harsha, Anand and Dhruva (2012) have evaluated the performance of twelve Indian commercial banks by applying camel approach. In terms of soundness PVTBs are in a better position than PSBs. The private sector banks are growing at a faster pace.

Adesina(2012) In his study the author has evaluated and compared the performance of fifteen Nigerian bank post-2005 consolidation using CAMEL. Strengths and weaknesses of these Nigerian banks have been found out with the CAMEL ratings.

Karri, Meghani and Mishra (2015) in their study they have evaluated the performance of two PSBs that are BOB and PNB with the help of CAMEL Model. BOB have performed better than PNB but with the help of t-test the result was that even though BOB performed better than PNB but no significant difference was found between their performances.

Research Gap:

The review of literature provides a clear understanding about CAMEL Model and its application in evaluating the performance of banking sector. Across the world several researchers have evaluated and compared the performance of banks taking different ownership.

The present study also uses the CAMEL Model as suggested by several researchers as the most relevant tool for performance evaluation. Performance evaluation of banks is crucial and it is a continuous process. Hence the research for the above said financial year is the need of the hour. Researcher has a most relevant tool for performance evaluation. But the researcher of this present study has taken the financial year 2010-11 to 2014-15 for the study and has delimited to only four commercial banks base on the highest capitalization. Performance evaluation of the banks helps the interested parties like investors, depositors and creditors of the financial institutions to know whether banks are sound enough or not. As any financial weakness of the bank will adversely affect the interested parties. And also for management, performance evaluation is very useful as it acts like an alarm and alerts the management to take necessary steps.

3. Methodology:

Sources of Data and Sampling: Data is being collected from the secondary sources. Annual reports of the banks are being collected for the period of past five years that is from 2010-11 till 2014-15 from the official website of the respective banks and other data is being collected from websites like money control, equity master etc. Out of the 26 public sector and 20 private sector commercial banks in India, two from each sector banks are being selected based on highest market capitalization rate. Following are banks selected for the study:

Public Sector	Private Sector
Punjab National Bank	ICICI Bank
Bank of Baroda	HDFC Bank

Data Analysis Technique: The data is being analysed using the five factors of ratios, i.e. capital adequacy, asset quality, management efficiency, earnings quality and liquidity. Due to non-availability of sufficient data regarding the sixth factor of CAMELS, that is sensitivity to market risk. Data is not being analysed taking sensitivity to market risk into consideration.

Formulas used in the study:

CAMEL is a ratio based model and a very popular method to evaluate the performance of banks. CAMEL stands for capital adequacy, asset quality, management efficiency, earnings quality and liquidity, four ratios under each parameter is being calculated. Following are the ratios calculated:

Table 3.1 List of Formulas

Category	Ratios	Formula	Implication
Capital Adequacy	Capital adequacy ratio	(Tier I Capital+Tier II Capital) ÷ Risk Weighted ÷ Risk Weighted Asset	Higher the better(minimum 12% as per)BASEL III
	Debt-equity ratio	Total borrowings ÷ Shareholder's Net worth	Lower the better
	Advances to asset ratio	Total advances ÷ Total Assets	Higher the better

	Government securities to total asset ratio	Investment in government securities (only in India) ÷ Total assets	Higher the better
Asset Quality	Net NPAs to net advances ratio	Net Non-performing asset ÷ net advances	Lower the better
	Total investment to total advances ratio	Total investment ÷ total assets	Lower the better
	Net NPAs to total assets ratio	Net Non-performing assets ÷ total assets	Lower the better
	Percentage change in net NPAs ratio	(Previous year NPAs – current year NPAs) ÷ Previous year NPAs	Higher and positive is preferable
Management Efficiency	Total advances to total deposits ratio	Total advances ÷ total deposits	Higher the better
	Profit per employee	Profit after taxes ÷ total number of employees	Higher the better
	Business per employee	Total business (total deposits total advances) ÷ total number of employees	Higher the better
	Return on equity	Profit after taxes ÷ total number of equity shares	Higher the better
Earnings Quality	Operating profit to total assets ratio	Operating profit ÷ total assets	Higher the better
	Net profit to total assets ratio	Net profit ÷ total assets	Higher the better
	Interest income to total income ratio	Interest income ÷ total income	Higher the better
	Net interest margin (NIM) to total assets ratio	NIM (interest income – interest expense) ÷ total assets	Higher the better

Liquidity	Liquid assets to total assets ratio	Liquid assets ÷ total assets	Higher the better
	Liquid assets to demand deposits ratio	Liquid assets ÷ demand deposits	Higher the better
	Liquid assets to total deposits ratio	Liquid assets ÷ total deposits	Higher the better
	Approved securities to total assets ratio	Approved securities(investment in government securities + other approved securities) ÷ total assets	Higher the better

4. Analysis and Discussion

4.1 Capital Adequacy

This component of CAMEL Model reflects whether the bank is having enough capital or not for the risk it has undertaken. Capital acts as shock absorber. Higher the ratio better it is for the investor, as it serves as cushion for investors interests. If the bank is not maintaining the commensurate amount of capital based upon the risk it has undertaken then its viability is in question.

Composite Capital Adequacy

In terms of composite capital adequacy HDFC Bank is leading and second position goes to ICICI Bank and third rank was shared by Punjab National Bank and Bank of Baroda

Table 4.1Composite Capital Adequacy

Composite Capital Adequacy										
	CAR		Debt-equity		Advances/Asset		Government securities/ total investments		Group Rank	
Bank	%	Rank	Times	Rank	%	Rank	%	Rank	Average	Rank

ICICI	18.5	1	7.088	1	50.018	4	41.252	4	2.5	2
PNB	13.1	4	13.98	3	63.942	1	48.7	3	2.75	3
BOB	13.48	3	15.46	4	61.178	3	88.792	1	2.75	3
HDFC	16.48	2	8.88	2	63.438	2	76.925	2	2	1

Source: Calculated

Both the private sector banks have secured first and second position in terms of overall capital adequacy ratio. This implies that private sector banks are ahead of public sector banks in terms of composite capital adequacy. HDFC Bank and ICICI Bank are better than Punjab National Bank and Bank of Baroda. But there is no significant difference between the capital adequacy of public sector (Bank of Baroda and Punjab National Bank) and private banks (HDFC Bank and ICICI Bank).

4.2 Asset Quality

Asset quality is a very important parameter of CAMEL Model which helps to measure the degree of financial strength. In this parameter we measure the net non-performing assets as a percentage of advances, net-performing assets as a percentage of total assets and percentage change in net non-performing assets. This also helps to find out that in order to generate interest income what kind of advances bank is making.

Composite Asset Quality

In terms of composite asset quality HDFC Bank is leading. As in both the ratio namely net NPAs to net Advances ratio and in net NPAs to total assets ratio HDFC Bank got the first rank. This means HDFC Bank is having NPAs are less in comparison with other three banks.

Table 4.2 Composite Asset Quality

Composite Asset Quality					
Bank	Net NPA to Net Advances	Total Investment to Total Asset	Net NPA to Total Assets Ratio	Percentage Change in Net NPA	Group Rank

		Ratio								
	%	Rank	%	Rank	%	Rank	%	Rank	Average	Rank
ICICI	1.044	2	37.862	4	0.46	2	-20.2	1	2.25	2
PNB	2.32	4	25.914	2	1.148	4	-47.2	4	3.5	4
BOB	1.74	3	19.494	1	1.05	3	-40.4	3	2.5	3
HDFC	0.224	1	26.204	3	0.264	1	-25.2	2	1.75	1

Source: Calculated

So we, can conclude that HDFC Bank asset quality is better than ICICI Bank, Bank of Baroda and Punjab National Bank. Second rank was scored by ICICI Bank, third rank by Bank of Baroda. And the bank which scored the lowest rank is Punjab National Bank.

4.3 Management Efficiency

This component of CAMEL Model reflects the management's efficiency in identifying, measuring and controlling the risks that any financial institution faces. It also ensures that bank is adhering with the applicable rules and regulations for its efficient, sound and safe operation.

Composite Management Efficiency

On the basis of composite management efficiency parameter of management efficiency of CAMEL Model ICICI Bank and Bank of Baroda shared the first rank followed by HDFC Bank. Third rank was got by Punjab National Bank.

Table 4.3 Composite Management Efficiency

Composite Management Efficiency										
	Total Advances to Total Deposits		Profit Per Employee(in Lakhs)		Business Per Employee (in lakhs)		Return on Equity		Group Rank	
Bank	%	Rank	in Lakhs	Rank	in Lakhs	Rank	%	Rank	Average	Rank
ICICI	105.72	1	14.52	1	1035.06	3	13.28	4	2.25	1
PNB	79.272	3	6.78	4	1170.08	2	13.64	3	3	3
BOB	71.346	4	10.73	2	1834.15	1	15.12	2	2.25	1
HDFC	87.41	2	10.38	3	796.31	4	17.68	1	2.5	2

Source: Calculated

4.4 Earning Quality

Earning quality is a very important parameter in CAMEL Model it helps us to know the quality of profit generated by bank and its ability to earn profit consistently.

Composite Earning Quality

According to composite asset quality HDFC Bank is leading. It signifies that in earning quality parameter of CAMEL Model HDFC Bank is ahead of all the other three banks that are ICICI Bank, Bank of Baroda and Punjab National Bank. Punjab National Bank scored second rank in composite earning quality parameter of CAMEL Model.

Table 4.4 Composite Earning Quality

Composite Earning Quality										
	Operating Profit to Total Assets Ratio		Net Profit to Total Assets Ratio		Interest Income to Total Income Ratio		NIM to Total Assets Ratio		Group Rank	
Bank	%	Rank	%	Rank	%	Rank	%	Rank	Average	Rank
ICICI	2.34	3	1.41	2	57.88	4	2.87	3	3	3
PNB	2.52	2	0.88	4	89.64	1	2.95	2	2.25	2
BOB	2.1	4	0.92	3	88.3	2	2.21	4	3.25	4
HDFC	3.93	1	1.97	1	85.16	3	3.64	1	1.5	1

Source: Calculated

4.5 Liquidity

Liquidity has a direct impact on the image of a bank. If the banks are not having sufficient liquid funds in hand and because of which it is not able to meet customer's demand then bank's goodwill will be really at stake. So it is very important for a bank to have sufficient cash in hand or liquid funds that can be easily convertible in to cash.

Composite Liquidity

On the basis of composite liquidity Bank of Baroda is leading followed by Punjab National Bank. ICICI Bank and HDFC Bank got third and fourth bank respectively. Both the public sector banks are leading in this liquidity parameter of CAMEL Model.

Table 4.5 Composite Liquidity

Composite Liquidity										
	Liquid Asset to Total Assets		Liquid Asset to Demand Deposits		Liquid Assets to Total Deposits		Approved Securities to Total Assets		Group Rank	
Bank	%	Rank	%	Rank	%	Rank	%	Rank	Average	Rank
ICICI	6.75	3	107.8	3	14.25	2	15.58	4	3	3
PNB	7.43	2	124.26	2	9.18	3	21.05	1	2	2
BOB	17.22	1	245.28	1	19.94	1	16.06	3	1.5	1
HDFC	6.32	4	53.66	4	8.7	4	20.45	2	3.5	4

Source : Calculated

Composite Rating by CAMEL Model

On the basis over CAMEL Model HDFC Bank is leading. HDFC Bank outperformed other banks in capital adequacy, asset quality and earning quality parameters. This implies that HDFC Bank is viable and sound as compared to the other three banks under the study.

Bank	C	A	M	E	L	Average	Rank
ICICI	2.5	2.25	2.25	3	3	2.6	3
PNB	2.75	3.5	3	2.25	2	2.7	4
BOB	2.75	2.5	2.25	3.25	1.5	2.45	2
HDFC	2	1.75	2.5	1.5	3.5	2.25	1

Source : Calculated

Second and third rank was secured by Bank of Baroda and ICICI Bank respectively. And the bank which scored the lowest rank in the composite CAMEL Model ranking was Punjab

National Bank. It should try to improve its capital adequacy, asset quality and management efficiency. Among all the four banks Punjab National Bank is not sound.

5. Findings of the Study:

Capital Adequacy: Following are the findings under capital adequacy parameter:

- Capital adequacy ratio of ICICI Bank is well above the BASEL III regulatory norm and also it is ahead of all the other three banks.
- In terms of debt-equity ratio ICICI Bank is leading.
- In overall capital adequacy parameter HDFC Bank is leading.
- Composite capital adequacy represents financial condition of the banks.PNB and BOB both shared the third rank in the overall capital adequacy parameter.

Asset Quality: Following are the findings under asset quality parameter:

- Net-NPAs to net advances ratio of PNB is highest this indicates that it is having poor quality of assets as NPA is high.
- For all the banks NPAs are increasing which adversely affects the profitability of the banks. On an average PNB is having highest increase in the level of NPAs as compared to the other three banks.
- HDFC Bank tops in composite asset quality parameter of CAMEL. It indicates that HDFC Bank is financially very strong.

Management Efficiency: Following are the findings under management efficiency parameter:

- BOB is leading in business per employee ratio. This indicates that its employees more efficient as compared to the other banks in generating business of the bank.
- ICICI Bank is leading in profit per employee ratio. It indicates that its employees are more efficient as compared to other banks in generating profit.
- HDFC bank is leading in return on equity ratio. It indicates that it is giving more return to its shareholders as compared to other banks.
- ICICI Bank and BOB shared first rank in composite management efficiency parameter. This indicates that ICICI Bank's and BOB's management is really efficient and capable in identifying, measuring and controlling risk that any financial institution faces.

Earnings Quality: Following are the findings under earnings parameter:

- HDFC Bank tops in operating profit to total assets ratio and net profit to total assets. This indicates that HDFC Bank's assets are invested in an efficient manner as it able to generate higher operating profit compared to other banks.
- HDFC Bank tops in operating profit to total assets ratio and net profit to total assets. This indicates that HDFC Bank's assets are invested in an efficient manner as it able to generate higher operating profit compared to other banks.
- PNB tops in interest income to total income ratio. This indicates that PNB is able to generate more primary source of revenue that is interest income out of the total revenue generated.
- HDFC Bank is leading in composite quality of earnings parameter. This indicates that HDFC Bank is having great growth potential in profitability.

Liquidity: Following are the findings under liquidity parameter:

- BOB is leading in liquid assets to demand deposits ratio. This indicates that BOB stands in a better compare to the other three banks in meeting demand of its demand depositors.
- BOB tops in liquidity position parameter of CAMEL Model. This indicates BOB is able to maintain high liquidity as compared to the other banks. As if a bank maintains low liquidity it adversely affects the image of the banks.
- Liquid assets to total assets ratio represents the percentage of liquid out of the total liquid asset. In this ratio BOB got first rank, out of the total liquid assets BOB is maintaining 17.22% as liquid assets.
- PNB scored first rank in approved securities to total assets ratio by having highest ratio of 21.05%.

Composite CAMEL: in terms of overall CAMEL model HDFC Bank scored the first rank. It indicates that compare to the other three banks that are BOB, ICICI bank and PNB ICICI Bank is sound and financially viable. And PNB scored the last rank which indicates that compare to the other three banks PNB is not that sound and financially viable.

6. Suggestions and Conclusion:

Suggestions:

a) PNB and BOB should try to enhance its capital adequacy ratio. As PNB's and BOB's capital adequacy ratio of 13.1% and 13.48 respectively which are just above the BASEL III norm of 12%. So in order to gain confidence of depositors and also higher capital adequacy ratio represents that banks are more stable and is having sufficient capital which will help banks to undertake risk.

b) PNB should try to enhance it assets quality as it reflects the financial strength of the bank. Poor the quality of assets weakens the financial position of the bank.

c) Both the public sector banks namely Bank of Baroda and Punjab National Bank should try to follow up the advances frequently. So that they can they can identify before the loan becomes non-performing assets. Increasing non-performing assets adversely affects the profitability of the banks.

d) Management is efficient if it is able to take important decisions based upon the risk bearing ability of the bank. PNB should try enhancing efficiency of management as it is lagging behind.

e) BOB should try to enhance earnings quality as it is lagging. Quality of earnings ensures stable or consistent earnings.

Conclusion:

In this study the performance of leading public and private banks commercial banks have been evaluated using CAMEL Model. It is a very good method as it provides simple understanding of complex data. But ranking is having many criticisms also as one can interpret any way one like.

Leading Commercial banks from each sector is being taken based on the highest market capitalization rate. As the performance of banks has direct impact on the economy so it is very important to evaluate the performance of banks and find out whether banks are sound and viable. This study reveals that according to the overall CAMEL Model HDFC Bank is leading by securing the first rank. Second position was secured by Bank of Baroda. Third and fourth position was secured by ICICI Bank and Punjab National Bank respectively. Among the four leading commercial banks taken for the study HDFC Bank is leading. Bank which got the last ranking that is Punjab National Bank should try to improve its asset quality and management efficiency, as it is lagging behind mainly in these two areas. Among all the four banks under the study that are BOB, HDFC Bank, PNB, ICICI Bank and HDFC Bank scored the top rank mainly because of its tremendous sound performance in the following parameters of CAMEL Model: capital adequacy, quality of assets and quality of earnings.

Abbreviations

BOB: Bank of Baroda

BOI: Bank of India

IBA: India Banks Association

NIM: Net interest margin

NPA: Non performing Assets

PNB Punjab National Bank

PSBs : Public sector banks

PVTBs: Private sector banks

ROE: Return on equity

SBI: State Bank of India

SBP: State Bank of Patiala

SBT: State Bank of Travancore

UBI: United Bank of India

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