

MEASURING FINANCIAL PERFORMANCE OF SELECTED BANKS USING CAMEL MODEL

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Abstract

The performance of banking sector is considered to be an effective measure to examine the financial health of the country. The growth and stability of a country are based on the soundness of its banking sector. Against this background banking sector is considered to be the lifeline of an economy as it facilitates in developing the crucial sectors and helps the country to grow considerably. The role and importance of banking and the monetary mechanism cannot be under-estimated in the economic development of a nation. This paper analyzes the various aspects of performance and soundness of the banks operating in various sectors by using CAMEL model, its supervisory system in banking sector is a substantial improvement over the earlier systems in terms of frequency, coverage and focus. The present study is an attempt to evaluate relative performance across banks in three sectors i.e. public, private and multi-state cooperative banks. From the secondary data analysed it is observed that based on 17 factors of camel model, only five factors shows significant difference among the three categories of banks, further the financial performance of the selected public private and cooperative sector banks, it is observed that four factors profit per employee, debt-equity ratio, total assets-to-total deposits ratio, Net NPA's-to-total advances ratio are the major dependent factors impacting the financial performance of the banks taking return on assets as an dependent variable. Further it is observed that there is a considerable difference on certain parameters of the camel model across the banks under study.

Keywords: Public sector banks, private sector banks, multi-state coop banks, CAMEL model

Introduction

The Banking sector today is one of the most promising and fast growing sectors in India contributing to the Indian economy. This sector is the backbone of industrial development and is one of the healthiest performers seeing tremendous competitiveness, growth, efficiency, profitability and soundness. Initially the public sector banks dominated the banking sector, since liberalization of Indian economy in 1990 paved way to new private sector banks and allowed the entry of foreign banks to increase their branches in the banking sector, this lead to stiff competition in the sector and resulted in complex and uncertainty in the banking sector. With the increased competition and the emphatic on profitability, the public sector banks are now moving towards on economic-oriented model departing from the social approach followed for decades. Today restructuring of public sector banks and the emergence of new banks in the private sector and cooperative sector as well as the increased competition from foreign banks have improved professionalism in the banking sector. The increased presence of the private and foreign banks during the past decade has made the market structure of the banking sector in terms of competitive pricing of services, narrow spreads, and improving the quality of the services. The public sector banks, which once upon a time had dominated are now facing competition from private and foreign sector banks.

Against this background considering the level of competition in the banking sector it is necessary to study and analyse the financial position of banks in different sectors. For evaluating banks there are so many factors which need to be taken care while differentiating good banks from bad ones. To evaluate the performance of banks the CAMEL model has been chosen. In the present study an attempt is made to evaluate relative performance of different categories of banks using CAMEL model approach.

Review of literature

The studies in the past have explored the performance of various financial institutions in India as well as abroad and analyze the efficiency and productivity of banking systems which has been the body of literature.

Subrahmani & Raghav (2001) in their paper revealed that among PSBs BOB registered high efficiency and operating profit per employee. Among the private sector banks Indus Bank followed by Citi Bank registered highest and second highest operating profit per employee respectively. However, among the Nationalised Banks there existed wide variations in efficiency.

Satish et.al (2004) adopted CAMEL model to assess the performance of Indian banks, the study concluded that the Indian banking system looks sound and IT will help the banking system grow in strength in future. Banks' Initial Public Offer will be hitting the market to increase their capital and gearing up for the Basel II norms.

Gupta and Verma (2008) in their study among various banks study found that in terms of the overall performance, Karur Vysya Bank was in the top position, followed by City Union Bank and Kotak Mahindra Bank. The study also revealed that the weakest area of Kotak Mahindra Bank was management of NPAs. The performance of Yes Bank was found to be impressive and the performance of Bank of Rajasthan was far from satisfactory with the lowest composite rank among the other sample banks.

Kumar et al. (2012) analyzed the soundness of the Indian banking sector using CAMEL approach. It was found that because of the best performances in terms of soundness, private sector banks topped the list and public sector banks such as Union Bank and State Bank of India showed low soundness in comparison to private banks.

Nilesh (2013) analyzed the performance of selected public sector banks in India, ranks were given to the banks on the basis of their performance on the various ratios used under CAMEL approach. Based on the overall grand ranking of all CAMEL parameters, it was found that Bank of Baroda ranked first, followed by PNB and State bank of India.

Ruchi Gupta(2014) in her paper revealed that there is a statistically significant difference between the CAMEL ratios of all the Public Sector Banks in India, thus, signifying that the overall performance of Public Sector Banks is different. Also, it can be concluded that the banks with least ranking need to improve their performance to come up to the desired standards. A total of 26 Public Sector Banks in India have been analysed for the purpose of the study.

Objectives

The basic objective of the study is to make a comparative analysis of the financial performance of selected banks and highlight the overall financial performance Specific objectives are as follows:

- To evaluate the financial performance of the selected public, private and multi state coop banks by using CAMEL model.
- To investigate the factors that predominantly affects the financial performance of the selected public, private & cooperative sector banks.

Methodology

For the said paper secondary data is used where in data is extracted from financial statements of banks under study. Further research instrument used is the CAMEL Model which is the recent innovation in determining the financial performance of banks.

Period of Study:

The study is mainly based on secondary data drawn from the annual reports of the five banks selected in each of the Public sector, Private sector and Multistate cooperative scheduled banks. The data is collected for a period of five (2012-13 to 2016-17).

Analysis and discussion

H1-There is no significant difference in the performance of public, private and multi-state cooperative banks in terms of various parameters

(a) Test of H1 for Capital Adequacy

Under capital adequacy, four different ratios have been considered, namely, (i) capital adequacy ratio (CAR), (ii) total debt (borrowing)/total equity (TD_TE), (iii) Total advance/ total asset (TA_TA), and (iv) Government securities / total investment (GS_TI).

Table 1.1- Test statistics of Capital Adequacy for H1

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
CAR	Between Groups	26.486	2	13.243	.672	.529
	Within Groups	236.634	12	19.720		
	Total	263.120	14			
TD_TE	Between Groups	199.707	2	99.854	1.924	.188
	Within Groups	622.731	12	51.894		
	Total	822.439	14			
TA_TA	Between Groups	.408	2	.204	.002	.998
	Within Groups	1375.751	12	114.646		
	Total	1376.159	14			
GS_TI	Between Groups	1070.991	2	535.495	6.497	.012
	Within Groups	989.001	12	82.417		
	Total	2059.992	14			

(Source: Secondary data)

On scrutinizing the results mentioned in Table 1.1 inferences are as follows-

In case of variable 'Government Securities to Total Investment (GS_TI)', significance value observed is less than 0.05, lead to reject null hypothesis concluding that there is a significant variation in case of this ratio between select bank groups. For remaining ratios significance values are greater than 0.05, lead to conclude that there is no significant variation between selected bank groups.

(b) Test of H1 for Asset Quality

Under Asset Quality, three different ratios have been considered, namely, (i) Gross NPA / Gross Advance (GN_GA), (ii) Net NPA / NET NPA (NNP_NPA), and (iii) Total investment/ total asset (TI_TA).

Table 1.2- Test statistics of Asset Quality for H1

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
GN_GA	Between Groups	20.017	2	10.009	10.31	.002
	Within Groups	11.648	12	.971		
	Total	31.665	14			
NNP_NPA	Between Groups	106.509	2	53.254	.916	.426
	Within Groups	697.323	12	58.110		
	Total	803.832	14			
TI_TA	Between Groups	51.283	2	25.641	1.475	.267
	Within Groups	208.639	12	17.387		
	Total	259.922	14			

(Source: Secondary data)

The results as per table 1.2 infer that in case of variable 'Gross NPA / Gross Advance (GN_GA)', significance value observed is less than 0.05, lead to reject null hypothesis concluding that there is a significant variation in case of this ratio between select bank groups. For remaining ratios significance values are greater than 0.05, lead to conclude that there is no significant variation between selected bank groups.

(C) Test of H1 for Management Efficiency

Under Management Efficiency, three different ratios have been considered, namely, (i) Total Advance / Total Deposit (TA_TD), (ii) Business per Employee (BPE), and (iii) Profit per Employee (PPE).

Table 1.3- Test statistics of Management Efficiency for H1

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
TA_TD	Between Groups	443.633	2	221.817	3.118	.081
	Within Groups	853.623	12	71.135		
	Total	1297.256	14			
BPE	Between Groups	141.534	2	70.767	10.397	.002
	Within Groups	81.677	12	6.806		
	Total	223.211	14			
PPE	Between Groups	92.418	2	46.209	9.226	.004
	Within Groups	60.101	12	5.008		
	Total	152.520	14			

(Source: Secondary data)

From table 1.3 it can be inferred that in case of variables 'Business per Employee (BPE)' and 'Profit per Employee (PPE)', significance value observed is less than 0.05, thus we reject null hypothesis concluding that there is a significant variation in case of this ratio between select bank groups. For variable 'Total Advance / Total Deposit (TA_TD)', the significance value is greater than 0.05, thus we conclude that there is no significant variation between selected bank groups.

(D) Test of H1 for Earning Quality

Under Earning Quality, three different ratios have been considered, namely, (i) Net Interest Margin / Total Assets (NIM_TA), (ii) Net Profit / Total Assets (NP_TA), and (iii) Interest / Total Income (INT_TI).

Table 1.4- Test statistics of Earning Quality for H1

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
NIM_TA	Between Groups	2.378	2	1.189	.968	.408
	Within Groups	14.741	12	1.228		
	Total	17.120	14			
NP_TA	Between Groups	12.785	2	6.392	1.379	.289
	Within Groups	55.635	12	4.636		
	Total	68.419	14			
INT_TI	Between Groups	20.953	2	10.477	.174	.842
	Within Groups	722.762	12	60.230		
	Total	743.715	14			

(Source: Secondary data)

From table no. 1.4 it can be inferred that in case of parameter earning quality the significance values are observed to be magnitude of greater than 0.05, lead to conclude that there is no significant variation between selected bank groups.

(E) Test of H1 for Liquidity

Under 'Liquidity', four different ratios have been considered, namely, (i) Liquid Assets / Total Asset (LA_TA), (ii) Government Security / Total Assets (GA_TA), (iii) Liquid Assets / Demand Deposit (LA_DD), and (iv) Liquid Asset / Total Deposit (LA_TD).

Table 1.5- Test statistics of Liquidity for H1

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
LA_TA	Between Groups	3.247	2	1.624	.390	.686
	Within Groups	50.013	12	4.168		
	Total	53.260	14			
GS_TA	Between Groups	11.889	2	5.944	.278	.762
	Within Groups	256.913	12	21.409		
	Total	268.802	14			
LA_DD	Between Groups	1664.781	2	832.391	7.289	.008
	Within Groups	1370.452	12	114.204		
	Total	3035.233	14			
LA_TD	Between Groups	6.734	2	3.367	1.894	.193
	Within Groups	21.328	12	1.777		
	Total	28.062	14			

(Source: Secondary data)

From table no.1.5 it can be inferred that in case of variable 'Liquid Assets / Demand Deposit (LA_DD)', significance value observed is less than 0.05, lead to reject null hypothesis concluding that there is a significant variation in case of this ratio between select bank groups. For remaining ratios significance values are greater than 0.05, implies to safely conclude that there is no significant variation between selected bank groups.

Table No. 1.6: Summary of test results for checking significance of difference in the performance of select bank groups

Performance based on	Ratios Considered (CAMEL MODEL)	Coding	Accepted/Rejected hypothesis	null
Capital adequacy	Capital Adequacy Ratio	CAR	Accepted	
	Total Debt(borrowing)/Total equity	TD_TE	Accepted	
	Total advance/total asset	TA_TA	Accepted	

Model	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.300431	0.246618	0.560366
2	0.470472	0.382217	0.507436
3	0.490475	0.351513	0.519893
4	0.525832	0.336165	0.526010
	Govt. security/ total investment	GS_TI	Rejected
Asset quality	gross NPA/Gross advance	GN_GA	Rejected
	net NPA/Net NPA	NNP_NPA	Accepted
	total investment/total asset	TI_TA	Accepted
	total advance/total deposit	TA_TD	Accepted
Management efficiency	Business per employee	BPE	Rejected
	Profit per employee	PPE	Rejected
	Net interest margin/total assets	NIM_TA	Accepted
Earnings quality	net profit/ total asset	NP_TA	Accepted
	interest/total income	INT_TI	Accepted
	liquid asset/total asset	LA_TA	Accepted
Liquidity	Govt. security/total asset	GE_TA	Accepted
	liquid asset/demand deposit	LA_DD	Rejected
	liquid asset /total deposit	LA_TD	Accepted

(Source: Secondary data)

Testing of Hypothesis-H2

H2- There is no significance impact of the parameters of CAMEL model on the performance of public, private and cooperative banks.

In this hypothesis-H2, investigation of difference regarding performance indicators of all three sectors is intended to study to determine the factors that are important from banks point of view. The common technical hypotheses H2 has as mentioned in Table No. 1.7

REGRESSION ANALYSIS

Taking return on assets as the dependent variable, stepwise regression analysis has been applied to find out the most dominant factors out of the 17 factors that the financial performance of the banks.

Model Summary

(Source: Secondary data)

Dependent variable: ROA

- Predictors: (Constant), PPE
- Predictors: (Constant), PPE, TATD
- Predictors: (Constant), PPE, TATD, TDTE
- Predictors: (Constant), PPE, TATD, TDTE, NNPA

From the above table shows that profit per employee, debt-equity ratio, total advances-to-total deposits ratio, net NPA's-to-total advances ratio are the major factors impacting the financial performance of the banks under study. Profit per employee is found to be highly correlated with the return on assets of the banks and causes a variance of 30.04% in the return on assets of the banks. Debt-equity ratio is also found to

be highly correlated with the return on assets of the banks and causes a variance of 47.04% in the return on assets along with profit per employee.

Profit per employee, debt equity ratio and total advances to total deposits ratio are collectively causing a variance of 59.04 % in the return on assets of the banks. And Profit per employee, debt equity ratio and total advances to total deposits and net NPA's to total advances ratios are collectively causing a variance of 52.58% in the return on assets of the banks. Though the rest of the factors they are not causing much variance individually.

Coefficients

Model		Dependent variable: ROA			
		Coefficients	Std. Error	t-ratio	P-Value
(A)	Constant	0.457538	0.350867	1.304	0.2148
	PPE	0.107211	0.0453742	2.363	0.0344**
(B)	Constant	2.57379	1.12391	2.290	0.0409**
	PPE	0.161954	0.0496585	3.261	0.0068***
	TATD	-0.0334246	0.0170272	-1.963	0.0732*
(C)	Constant	3.06409	1.37209	2.233	0.0473**
	PPE	0.154330	0.0521837	2.957	0.0130**
	TATD	-0.0354450	0.0177141	-2.001	0.0707*
	TDTE	-0.0129806	0.0197531	-0.6571	0.5246
(D)	Constant	3.24248	1.40352	2.310	0.0435**
	PPE	0.153527	0.0528058	2.907	0.0156**
	TATD	-0.0346837	0.0179442	-1.933	0.0820*
	TDTE	-0.0263953	0.0253131	-1.043	0.3216
	NNPA	0.0211396	0.0244807	0.8635	0.4081

(Source: Secondary data)

a. Dependent Variable: ROA

From the table the following regression equation is made:

$$ROA = 0.153PPE - 0.034TATD - 2.026TDTE + 0.021NNPA$$

$$Y = 0.069X_1 - 0.393X_2 + 2.306X_3 - 0.172X_4$$

Where

Y= Return on assets

X1= Profit per employee

X2= Total assets to total deposits ratio

X3= Total Debt equity ratio

X4= Net Non performing assets to total advances ratio

Conclusion

The paper has attempted to study the financial performance of the selected banks in India and to determine the financial performance of the Indian banking sector. It has been found that in terms of capital adequacy that there is significant difference in government securities to total investments among three sectors of banks, in case of asset quality there is a significant difference in gross NPA to gross advance among three sectors of banks, in case of management capability there is a significant difference in business per employee and profit per employee among three sectors of banks, in case of earnings capacity none of the factors are significant among three sectors of banks, where as in case of liquidity there is a significant difference in liquid assets to demand deposits among three sectors of banks, further as regards determining significant factors among the three categories of bank it is observed that four factors profit per employee, debt-equity ratio, total assets-to-total deposits ratio, Net NPA's-to-total advances ratio are the major dependent factors impacting the financial performance of the banks taking return on assets as an dependent variable.

References

- B.S. Bodla and R. Verma, “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, 2006.
- Gupta Sumeet and Verma Renu (2008), “Comparative Analysis of Financial Performance of Private Sector Banks in India: Application of CAMEL Model”, *Journal of Global Economy*, Vol. 4, No. 2, pp. 160-184.
- Kumar M A, Harsha G S, Anand S and Dhruva N R (2012), “Analyzing Soundness in Indian Banking: A CAMEL Approach”, *Research Journal of Management Sciences*, Vol. 1, No. 3, pp. 9-14.
- Manoj P.K., Financial Soundness of Old Private Sector Banks (OPBs) in India and Benchmarking the Kerala Based OPBs: A „CAMEL“ Approach, *American Journal of Scientific Research*, 11 (2010)
- Misra S K and Aspal P K (2013), “A CAMEL Model Analysis of State Bank Group”, *World Journal of Social Sciences*, Vol. 3, No. 4, pp. 36-55.
- Nilesh Lakhtaria J (2013), “A Comparative Study of the Selected Public Sector Banks Through CAMEL Model”, *Indian Journal of Research*, Vol. 2, No. 4, pp. 32-38.
- Prasad K V N and Ravinder G (2012), “A CAMEL Model Analysis of Nationalized Banks in India”, *International Journal of Trade and Commerce*, Vol.1, No.1, pp. 23-33.
- Ruchi Gupta (2014) “An analysis of public sector banks using CAMEL approach” *IOSR Journal of Business and Management* ISSN: 2319-7668. Volume 16, Issue 1. Ver. IV Jan. 2014, PP 94-102.
- Sumeet and Verma Renu (2008), “Comparative Analysis of Financial Performance of Private Sector Banks in India: Application of CAMEL Model”, *Journal of Global Economy*, Vol. 4, No. 2, pp. 160-164