Comparison of Public and Private Sector Banking Performance Using CAMELS Ranking

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Abstract

This study presents a comparison between the public sector and private sector banks in India using the CAMELS framework. The CAMELS methodology provides a broader view of bank performance than unidimensional ratios such as return on equity, particularly as it takes account of both profitability and risk factors in representing bank performance.

The study uses CAMELS rankings as the basis for the comparison. Correspondingly, non-parametric statistical techniques are applied for the analysis, viz. the Friedman test and the Mann-Whitney test. The results of the study suggest that the private sector banks perform better than their public sector counterparts. These results are statistically significant and consistent over the research period.

Keywords: *CAMELS Framework, Bank Performance, Rankings, Non-Parametric Tests.*

Introduction

The CAMELS model is a widely-used framework for bank performance evaluation. The CAMEL framework was originally intended to determine when to schedule on-site examination of a bank. The five CAMEL factors, viz. capital adequacy, asset quality, management soundness, earnings and profitability, and liquidity, indicate the increased likelihood of bank failure when any of these five factors prove inadequate. The sixth factor, sensitivity to market risk, was included in 1996 so as to make the rating system more risk-focused.

Many studies have studied different aspects of banking performance measurement in commercial banks. The following is a partial review of the pertinent literature.

Swamy (2001) studied the factors affecting the position of banks in the overall banking industry. He analyzed the share of rural branches, average branch size, trends in bank's profitability, share of public sector assets, share of wages in expenditure, provision and contingencies, net non-performing assets in net advances, and spread, and found that in many respects public sectors banks fared much better than private sector banks and foreign banks.

Shirai (2002) suggested that the entry of new private and foreign banks, which are better capitalized and more technologically advanced, has put competitive pressure on the whole banking sector. He found that, even though private sector banks and foreign banks initially

performed better than public sector banks in term of profitability, earning efficiency and cost efficiency, such differences have diminished as public sector banks have improved profitability and cost efficiency.

Sathye (2005) examined the effect of privatization of banks on performance and efficiency. He found that partially privatized banks performed better than fully public sector banks in terms of financial performance and efficiency, and have continued to show improved performance and efficiency in the years after privatization.

Pal and Malik (2007) examined the difference in financial characteristics of public, private and foreign sector banks based on profitability, liquidity, risk and efficiency. They found that foreign banks were the best performers in generating business with a given level of resources, and are better equipped with managerial practices and in terms of skills and technology. They found that public sector banks were the next best performers, with a higher return on equity in comparison to foreign and private banks, and economizing their expenses. However, they found that private sector banks were better utilizers of resources as compared to public sector banks.

Prasad et al (2012) studied the financial soundness of Indian banking using the CAMEL model. They suggested that Indian banking is sound overall. Mishra et al (2012) found that private sector banks were highly ranked in terms of economic soundness, while public sector banks such as SBI show relatively lower economic soundness. They suggested that public sector banks must increase the net profit to average assets ratio, profit per employee, and other parameters in order to achieve economic soundness. In terms of convergence, using parameters of the CAMEL model, they found that private sector banks are heading towards convergence in the long run, at a faster pace than public sector banks.

Dash and Das (2013) compared the performance of public sector banks with private/foreign banks under the CAMELS framework. They found that private/foreign banks fared better than public sector banks on most of the CAMELS factors in the study period 2002-03 to 2007-08. They found that the two contributing factors for the better performance of private/foreign banks were Management Soundness and Earnings and Profitability.

The CAMEL model is a widely-used framework for banking performance measurement. This study presents a comparison between the public sector and private sector banks in India using the CAMELS framework.

Methodology

The objective of the study is to analyse the consistency of ranking under the different CAMELS parameters, and to compare the relative performance of public sector and private sector banks in India using the CAMELS rankings. The data for the study was taken for a sample of thirty-five Indian banks, including nineteen public sector banks, and sixteen private sector banks, as in Table 1 below. The study period was 2007-2011. The data for the study were the financial ratios corresponding to the different factors in the CAMELS framework explained below (also refer Dash and Das, 2013), obtained from the Capitaline database[1].

Table 1: Sample Banks

	Public Sector Banks		Private Sector Banks
1	Allahabad Bank	1	Axis Bank
2	Andhra Bank	2	YES Bank
3	Bank of Baroda	3	Standard Chartered
4	Bank of India	4	South Indian Bank
5	Canara Bank	5	Kotak Mahindra
6	Corporation Bank	6	HDFC Bank
7	Central Bank of India	7	Federal Bank
8	Dena Bank	8	Dhanalaxmi Bank
9	Indian Overseas Bank	9	Development Credit Bank
10	Indian Bank	10	Karnataka Bank
11	Oriental Bank of Commerce	11	J &K Bank
12	Punjab National Bank	12	ING Vysya
13	State Bank of India	13	Bank of Rajasthan
14	IDBI	14	Citi Bank
15	Syndicate Bank	15	Tamilnad Mercantile Bank
16	UCO Bank	16	ICICI Bank
17	Union Bank of India		
18	United Bank		
19	Vijiya Bank		

The data for the study consists of financial ratios based on the CAMELS framework. The variables used in the analysis are discussed in the following.

Capital Adequacy measures the robustness of a bank in terms of sufficient capital to absorb unexpected losses. Low capital adequacy would result in reducing depositors' confidence and would increase the risk of bank insolvency. In the current study, three ratios are used to represent capital adequacy: the Debt- Equity ratio, the Coverage ratio, and the Capital Adequacy ratio.

Asset Quality reflects the nature of the loans and advances the bank has made to generate interest income. Low quality assets may yield higher interest income, but increase the credit risk exposure of the bank. Thus asset quality reflects the type of debtors of the bank. In the study, asset quality is measured through a single ratio: Net NPA to Total Advances ratio.

Management Soundness assesses the management of the bank, i.e. the efficiency of management in generating business (top-line) and in maximizing profits (bottom-line). In the current study, it is represented via four ratios: Total Investments to Total Assets ratio, Total Advances to Total Deposits ratio, Business per Employee, and Profit per Employee.

Earnings Performance focuses on how the bank generates its profits, which in turn determines the sustainability and growth of earnings in the future. In the study, it is measured via three ratios: Return on Net Worth, Interest Spread to Total Assets ratio, and Profit after Tax to Total Assets.

Liquidity Position is of critical importance in the banking business, and is the focus of bank asset-liability management. It is closely related with solvency risk. In the current study, it is measured using two ratios: Government Securities to Total Investment and Government Securities to Total Assets.

Sensitivity to Market Risk involves the bank's ability to identify, measure, monitor, and control market risk. In the study, it is measured by a single ratio: Beta, i.e. the systematic risk of the bank's stock returns.

The ratios are normalized using the formula: $z = (x-l)/(u-l)$, where u represents the upper bound, and l the lower bound, and each bank is then ranked, as per its performance in every component (or ratios), in the decreasing order except for non-performing assets and beta, which were reversed. The CAMELS rating was obtained as the total of the individual variable ratings, and the CAMELS rankings were obtained by ordering the sample banks according to the CAMELS ratings. The performance of public and private sector banks were compared using non-parametric Friedman and Mann-Whitney tests.

Analysis & Findings

The results of the non-parameteric Friedman tests for difference in rankings between banks across years and Mann-Whitney tests for difference in rankings between public sector and private sector banks are presented in Table 2 below.

Table 2: tests for difference between public sector and private sector banks for CAMELS dimensions

	Capital Adequacy	Asset Quality	Management Soundness	Earnings Potential	Liquidity	Sensitivity to Market Risk
Allahabad Bank	16.20	18.60	22.20	23.00	31.60	13.00
Andhra Bank	15.20	32.20	14.60	24.00	30.60	19.00
Bank of Baroda	17.60	26.80	11.80	18.00	21.20	26.00
Bank of India	10.00	18.80	13.20	21.20	28.40	14.00
Canara Bank	16.20	15.80	20.40	22.00	26.60	17.00
Corporation Bank	19.00	28.80	26.40	17.20	24.20	30.00
Central Bank of India	2.20	12.40	3.20	12.20	27.40	12.00
Dena Bank	5.80	9.80	9.40	19.60	26.20	4.00
Indian Overseas Bank	12.00	13.60	17.00	19.60	27.60	22.00
Indian Bank	24.60	30.40	20.00	32.00	23.60	24.00
Oriental Bank of Commerce	19.40	18.60	26.00	10.80	29.20	18.00
Punjab National Bank	16.40	23.60	15.60	26.60	28.20	25.00
State Bank of India	15.60	4.80	13.80	10.80	14.60	12.00

	Capital Adequacy	Asset Quality	Management Soundness	Earnings Potential	Liquidity	Sensitivity to Market Risk
IDBI Bank	14.20	13.00	34.20	7.80	23.80	8.00
Syndicate Bank	3.80	17.00	6.80	17.20	17.00	7.00
United Commercial Bank	1.40	6.00	9.40	12.60	27.20	1.00
Union Bank of India	11.80	21.80	16.60	23.80	19.60	21.00
United Bank	8.00	6.40	10.00	6.80	17.00	23.00
Vijiya Bank	7.60	16.00	13.00	10.80	20.00	10.00
Axis Bank	22.80	26.40	30.60	29.20	2.60	5.00
YES Bank	28.40	33.60	29.80	27.40	3.40	6.00
Standard Chartered Bank	29.20	13.60	30.80	29.80	6.80	35.00
South Indian Bank	19.20	23.00	8.80	15.00	9.20	28.00
Kotak Mahindra Bank	34.20	6.80	30.60	26.00	20.20	16.00
HDFC Bank	29.60	28.60	19.40	29.40	11.80	27.00
Federal Bank	31.20	27.80	24.60	20.00	9.80	20.00
Dhanlaxmi Bank	11.80	16.80	2.00	8.60	16.00	10.00
Development Credit Bank	25.20	8.20	7.40	1.80	15.60	2.00
Karnataka Bank	22.80	10.60	23.40	13.20	9.40	15.00
Jammu &Kashmir Bank	24.00	18.20	13.20	19.20	6.00	31.00
ING Vysya Bank	14.60	17.20	12.80	7.80	12.60	29.00
Bank of Rajasthan	6.50	22.00	8.50	16.25	6.75	35.00
Citi Bank	33.00	6.80	34.00	21.00	22.20	35.00
Tamilnad Mercantile Bank	30.60	27.20	19.80	24.60	12.20	35.00
ICICI Bank	31.00	9.20	32.20	7.80	2.60	3.00
Friedman Chi-sq Stat	*98.2400*	*101.6900*	*137.4000*	*98.7100*	*127.8300*	*136.0000*
p-value	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*
public sector banks	12.47	17.60	15.98	17.68	24.42	16.11
private sector banks	24.63	18.50	20.49	18.57	10.45	20.75
Mann-Whitney z Stat	*-3.5133*	*-0.2649*	*-1.3212*	*-0.2997*	*-4.0398*	*-1.4570*
p-value	*0.0002*	*0.3955*	*0.0932*	*0.3822*	*0.0000*	*0.0726*

The Friedman tests were found to be significant, indicating consistency in ranking for each of the dimensions across years.

In terms of Capital Adequacy, Kotak Mahindra Bank, Citi Bank, Federal Bank, ICICI Bank, and Tamil Nad Mercantile Bank had the highest rankings, while United Commercial Bank, Central Bank of India, Syndicate Bank, Dena Bank, and Bank of Rajasthan had the lowest

rankings. Further, there was found to be significant difference in Capital Adequacy rankings between public sector and private sector banks, with private sector banks having higher overall ranking than public sector banks.

In terms of Asset Quality, Yes Bank, Andhra Bank, Indian Bank, Corporation Bank, and HDFC Bank had the highest rankings, while State Bank of India, United Commercial Bank, United Bank, Kotak Mahindra Bank, and Citi Bank had the lowest rankings. There was found to be no significant difference in Asset Quality rankings between public sector banks and private sector banks.

In terms of Management Soundness, IDBI Bank, Citi Bank, ICICI Bank, Standard Chartered Bank, Axis Bank, and Kotak Mahindra Bank had the highest rankings, while Dhanalaxmi Bank, Central Bank of India, Syndicate Bank, Development Credit Bank, and Bank of Rajasthan had the lowest rankings. There was found to be no significant difference in Management Soundness rankings between public sector banks and private sector banks.

In terms of Earnings Potential, Indian Bank, Standard Chartered Bank, HDFC Bank, Axis Bank, and Yes Bank had the highest rankings, while Development Credit Bank, United Bank, ING Vysya Bank, IDBI Bank, and ICICI Bank had the lowest rankings. There was found to be no significant difference in Earnings Potential rankings between public sector banks and private sector banks.

In terms of Liquidity, Allahabad Bank, Andhra Bank, Oriental Bank of Commerce, Bank of India, and Punjab National Bank had the highest rankings, while Axis Bank, ICICI Bank, Yes Bank, Jammu & Kashmir Bank, and Bank of Rajasthan had the lowest rankings. Further, there was found to be significant difference in Liquidity rankings between public sector and private sector banks, with public sector banks having higher overall ranking than private sector banks.

In terms of Sensitivity to Market Risk, Standard Chartered Bank, Bank of Rajasthan, Citi Bank, Tamil Nad Mercantile Bank, and Jammu & Kashmir Bank had the highest rankings, while United Commercial Bank, Development Credit Bank, ICICI Bank, Dena Bank, and Axis Bank had the lowest rankings. There was found to be no significant difference in Sensitivity to Market Risk rankings between public sector banks and private sector banks.

Recommendations

The results of the study suggest that public sector banks should improve their capital adequacy, asset quality, earnings potential, and exposure to market risk. Most public sector banks have poor performance in terms of earnings and asset quality, which can be improved through better portfolio management, ensuring sufficient returns with lower risk. In addition to this, they should also recruit talented staff who can translate the banks' management policies into effective results, thereby improving earnings potential. Public sector banks are not optimally utilizing their resources. The ratio of business per employee and profit per employee are too low. Hence public sector banks should increase the productivity and efficiency of their employees either by training or through incentives, ultimately to increase their ability to generate business. They can adopt strategies such as target-setting according to salaries earned by employees, thereby pre-deciding the ratio of business per employee. Also, the capital adequacy level can be improved by implementation of strategies that would help reduce the

number of NPAs and other outside obligations. Such efforts can change things for public sector banks drastically.

The results of the study show that private sector banks fared better than public sector banks on most of the CAMELS factors in the study period. The contributing factors for the better performance of private/foreign banks are capital adequacy, management soundness and earnings potential. However, they do need to improve their liquidity position; capital adequacy ensures long-term availability of funds, but short-term fund availability is also very important.

There are several limitations inherent in the study. The study only considers a sample of thirty-five banks, over a five-year period. Thus, the results of the study may be specific to the period considered, and may not be generalisable. Also, the current approach cannot numerically capture qualitative aspects of banking performance such as management performance and staff efficiency.

There is great scope for further research in the area of banking performance. The banking environment is very dynamic, and therefore the tools to assess banking performance and risk measurement also need to keep evolving. There are many areas such as efficiency of banks, effective implementation of internal management practices, comprehensive risk measurement and many others that can be studied to contribute in better understanding of performance assessment of banks and risk management strategies, not only in India but also in other countries.

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