Performance Evaluation Of Large-Size Commercial Banks In India

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ABSTRACT

Financial soundness of the banking sector is the backbone of a country's economy. This paper studies the performance of 14 public sector and 3 private sector banks under the CAMELS model for the period from April 1, 2000 to March 31, 2011. In the liberalized environment, the private sector banks give a very tough competition to the public sector banks in terms of Earning Capacity, Management Efficiency and Asset Quality. After evaluation as per the CAMELS Model, it was found that the Andhra Bank secured the first place followed by Corporation Bank and HDFC Bank. Axis Bank and ICICI Bank were ranked 6th and 14th respectively. Central Bank of India stood last in the overall performance ; and SBI (largest public sector bank) exhibited better performance than ICICI Bank (largest private sector bank).

JEL Classification: G21, C20

Keywords: Capital Adequacy, Asset Quality, Management Efficiency, Earning Capacity, Liquidity, Sensitivity to Market Risk, Geometric Mean, Large Size, Commercial Banks, CAMELS Model

INTRODUCTION

The health of a nation's economy is largely dependent on a sound financial system. In the financial services industry, the Banking sector occupies an important position. Effective supervisory system makes the Indian banking sector more sound and efficient. The present supervisory system in the banking sector is a substantial improvement over the earlier systems. Evaluating the performance of the Indian Commercial Banks in different modes, the Padmanabhan Working Goup (1995) recommended the CAMELS supervisory model. A number of studies have been made to analyze the different aspects of performance of commercial banks in India and abroad. The present study was undertaken in the light of the methodology adopted in the earlier studies relating to performance evaluation under the CAMELS framework.

Purohit & Mazumdar (2003) ranked BASIC bank under "A-Class" by using the CAMEL Model. Kapil, Kanwal & Nagar (2003) found that public sector banks had low profitability, liquidity, capital adequacy and high non-performing assets. Prasuna (2004) found that better service quality, innovative products, and better bargains were greeting the Indian customers. Sathish, Sharath and Surenda (2005) concluded that the Indian banking system looked sound, and information technology would help the banking system grow in strength. Bodla and Verma (2006) found that ICICI Bank had performed better than SBI. Goyal & Kaur (2008) reported that liquidity and NPAs of new private sector banks were insignificant. Wirnkar and Tanko (2008) concluded that the CAMEL Model did not measure the overall performance of a bank. Fred, Stephen and Arthur (2009) reported that necessary attention must be paid towards increasing the efficiency of the banks. Bharathi (2010) studied the performance of profitability in the new private sector banks. Sangmi and Nazir (2010) revealed that the Punjab National Bank and the Jammu & Kashmir Bank were financially viable. Uvaneswaran (2011) evaluated the public sector banks on five parameters - namely Net Profit, Total Income, Total Expenditure, Spread and Burden. Shar, Shah and Jamali (2011) found that Andhra Bank was at the top position among the public sector banks. Prasad and Chari (2011) analysed the profitability performance of public sector banks and categorized them under four levels, i.e. excellent, good, fair and poor. The above-mentioned studies had focused on the CAMEL Model for evaluating the performance of the banks. Hence, the current study attempts to shed light on the performance evaluation of banks by using the CAMELS Model. The component "S" (Sensitivity to Market Risk) was included as a parameter for evaluating the performance of the banks.

DATA & METHODOLOGY

DATA

This study mainly focuses on evaluating the performance of large-size commercial banks by applying the CAMELS

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model. The banks were chosen on the criteria that total assets of the banks should have crossed ₹ 1,00,000 crore in the year 2010-2011. Purposive sampling technique was followed in the selection of 14 public sector and 3 private sector banks for the period from April 1, 2000 to March 31, 2011. The study was mainly conducted by using secondary data collected from the Centre for Monitoring Indian Economy (CMIE) Prowess and Database of the Indian Economy from RBI's website (www.rbi.org.in).

METHODOLOGY

CAMELS framework is basically a ratio based model for evaluating the performance of banks. CAMELS evaluates banks on the following six parameters :

1) CAPITAL ADEQUACY : It indicates the soundness of the individual bank and the stability of the banking system. The following four ratios evaluate the capital adequacy of banks.

❖ **Capital Adequacy Ratio (CAR) :** As per RBI norms, the minimum CAR for the existing banks is 9%, for new private sector banks, it is 10%, and for banks undertaking insurance business, it is 10%. CAR ensures high safety and absorbs the unexpected losses. It is arrived by dividing capital fund (Tier I+ Tier II) by risk weighted assets.

❖ **Debt-Equity Ratio :** It is calculated as the outside liabilities divided by net worth. Total borrowings and deposits are included in the outside liabilities. Net worth consists of equity capital and reserve & surplus. The higher the ratio, the higher is the leverage, and the lesser is the protection for the depositor and the creditor.

❖ **Advances To Total Assets Ratio :** Advances mean total advances including receivables. This ratio indicates the lending behaviour of the bank. Higher the ratio, the greater is the aggressiveness of the banks in lending.

❖ **Government Securities To Total Investment Ratio :** This ratio indicates the risk taking ability with regards to investment opportunities taken up by the bank. Government securities carry low returns and are risk-free. The higher the ratio, the lower is the risk involved in an investment.

2) ASSET QUALITY : Assets are the important components which generate regular income for the banks. It deals with debtors' behaviour in repayment of advances. The following four ratios judge the asset quality of banks.

❖ **Gross NPAs To Net Advances Ratio :** Gross Non-Performing Assets are measured as a percentage of net advances, which denotes asset quality of the bank's loan book. A lower ratio indicates better asset quality.

❖ **Net NPAs To Net Advances Ratio :** Net Non- Performing Assets (NPAs) denote the performance of the banks in recovering the advances. A lower ratio indicates better recovery activities of advances.

❖ **Total Investment To Total Asset Ratio :** This ratio shows the percentage of assets locked up in the form of investment. A higher ratio points out the conservative approach of the banks.

❖ **Net NPAs To Total Assets Ratio :** It indicates the efficiency of the banks in assessing credit risk. A lower ratio shows better efficiency of the banks.

3) MANAGEMENT EFFICIENCY : Management efficiency is an important element of the banking sector, which makes a bank take important decisions depending upon the risk perception of individual banks. A higher ratio is an indicator of the better efficiency of the banks.

❖ **Total Advances To Total Deposits :** This ratio measures the ability of converting the deposits into high yielding advances.

❖ **Business Per Employee :** This ratio measures the productivity of the human workforce in the banks. Business means sum of total deposits and advances.

❖ **Profit Per Employee :** The ratio is arrived at by dividing profit after tax by number of employees.

4) EARNING QUALITY : Earning capacity is an important parameter of the banks. Consistent earning ability determines the future earning capacity of the banks.

❖ **Operating Profit To Working Funds :** This ratio indicates the efficiency of a bank in utilization of funds to generate maximum returns. The better utilization of funds will result in consistent and higher returns.

❖ **Spread To Total Assets :** This ratio shows the ability of covering low cost deposits into high return advances. Spread

means difference between the interest income and interest expenses. A higher spread indicates better earning capacity of the banks. A higher ratio points towards better earnings quality to the given total asset.

❖ **Net Profit To Average Assets :** This ratio indicates the ability of the banks to utilize their assets in generating profits. A higher ratio shows the earning capacity of the assets.

❖ **Interest Income To Total Income :** This ratio shows the bank's ability in generating income from its lending activities.

5) LIQUIDITY : Apart from generating the maximum return, maintaining liquidity of the depositors is an essential role played by the banks. Cash is the most liquid asset of the banks. Proper care should be taken in handling of cash to hedge against the liquidity risk of the banks. A higher ratio indicates better liquidity of the banks.

❖ **Liquid Assets To Total Assets :** This ratio indicates the overall liquidity status of the bank. Liquid assets include cash in hand, balance with RBI, balance with other banks, and money at call and short notices.

❖ **G-Secs To Total Assets :** As per section 24 (2A) of the Banking Regulation Act, 1949, every banking company in India has to maintain equivalent to an amount which shall not be less than 24% of the total of its net demand and time liabilities. The components of SLR are cash in hand, gold owned by the bank, and investment in Government securities. SLR has to be maintained at the close of business every day. This ratio indicates safety along with the SLR requirements of the bank. The ratio measures the proportion of G-Secs in total assets.

❖ **Liquid Assets To Demand Deposits :** This ratio measures the liquidity position of the banks to meet the demand deposits. High liquidity is required to meet the demand deposits of the bank. So, banks have to invest in liquid forms of assets.

❖ **Liquid Assets To Total Deposits :** This ratio indicates the liquidity position of the banks to meet the total deposits. Total deposits include demand deposits, term deposits and deposits of other financial institutions.

6) SENSITIVITY TO MARKET RISKS : Market risks are associated with changes in interest rates, exchange rates, commodity prices, and equity prices. Interest rate risk is one of the most important market risks faced by banks. Diversified operations of the banks are subject to market risks, particularly in fixing of interest rates and foreign exchange transactions. The sensitivity to market risk indicates the degree of changes in interest rates, exchange rates, commodity prices and equity prices adversely affecting a bank's earnings and capital. It is measured by Beta (β). When $\beta<1$, the bank is said to be less sensitive with respect to the market (S&P CNX Nifty) i.e., changes taking place in the bank are less than the changes taking place in the markets (S&P CNX Nifty). When $\beta=1$, the bank is equally sensitive i.e., changes taking place in the bank and changes taking place in the market are equivalent. When $\beta>1$, the bank is highly sensitive, i.e., changes taking place in the bank are more than the changes taking place in the market (S&P CNX Nifty).

❖ **Geometric Mean[1] :** The mean of the ratios of two variables is *not* equal to the ratio of their means. That is,

$$\frac{1}{n}\sum_{n}^{1}\frac{Xi}{Yi} \neq \frac{\frac{1}{n}\sum_{n}^{1} Xi}{\frac{1}{n}\sum_{n}^{1} Yi} \quad i = 1,2, \ldots\ldots n$$

The ratio of the means (or sums) of both the variables (the right hand side in the equation above) is not equal to the mean of their ratios (its left hand side). Geometric mean (Mukherjee, White and Wuyts, 1998) of a ratio of two variables equals the ratio of their *geometric* means. Instead of simple average, geometric means *are* employed in this study.

$$\left(\prod_{n}^{1}\frac{Xi}{Yi}\right)^{1/n} = \frac{\left(\prod_{n}^{1} Xi\right)^{1/n}}{\left(\prod_{n}^{1} Yi\right)^{1/n}}$$

❖ **Compounded Annual Growth Rate :** Log-Lin model (Gujarati, 2006) is applied to compute the compounded

[1]C. Mukherjee, H. White, & M. Wuyts (1998). *"Econometrics and Data Analysis for Developing Countries."* London: Routledge.

annual growth rate. The Log-Lin regression model is as follows :

$$ln\ (Y_t) = \alpha + \beta t + \varepsilon_t$$

Where $ln\ (Y_t)$ denotes the natural logarithm of ratio and t denotes times i.e., t = 1,2,...,11. The slope (β) coefficient of the time variable provides the annual growth rate and not the compounded growth rate. Compounded annual growth rate (CAGR) is obtained by subtracting 1 from the antilog of the estimated β and multiplying the difference by 100 i.e. [antilog (β)-1] x 100.

RESULTS AND DISCUSSION

❖ **Capital Adequacy :** The Table 1 exhibits the four ratios under capital adequacy. Capital adequacy ratio is well above the prescribed norm by RBI. Corporation Bank and Indian Bank occupied the 1st and 17th rank respectively. CAGR of SBI (-2.81%) and Corporation Bank (-1.31%) were significantly negative, and their standard deviation depicts that the Capital Adequacy Ratio of Corporation Bank (2.66) was less than that of SBI (0.89). Six public and three private sector banks had positive and significant CAGR. Private sector banks mainly focus on high safety against bankruptcy than is done by the public sector banks, which is confirmed by their positive CAGR (more than 3 per cent).

Debt-equity ratio indicates the financial leverage position of the banks. Out of 17 banks, 6 banks had more than 1 time debt-equity ratio. Nine banks had positive and significant CAGR. Among these 9 banks, SBI (1.24) and Indian Overseas Bank (1.14) had more than 1 time debt-equity ratio. It indicates that both the banks were harvesting the benefit of leverage, which offers less protection to their creditors and depositors. HDFC (8.53%) and Indian Bank (20.81%) had negative and significant CAGR. The Indian Bank concentrated more on reducing its financial leverage than HDFC, which is confirmed by its negative CAGR and standard deviation. ICICI Bank and the Oriental Bank of Commerce had the highest and the lowest debt-equity ratio respectively.

Advances to total assets suggest that all banks had more than 50% of their total assets as advances except Axis Bank (49.42%) and HDFC Bank (47.65%). Bank of India (60.05%) had the highest advances to total assets. The positive and significant CAGR of the banks reveals an increase in their lending activities, which makes them progress in an efficient manner. HDFC Bank and SBI concentrated upon rapid increase in advances, which was confirmed by their high CAGR and standard deviation.

G-Secs to Investment ratio shows that public sector banks had more than 70% of their investments as Government Securities, which is a high risk-free portfolio of investment. Andhra Bank had the highest G-secs to investment ratio. Out of 17 banks, 10 were found to have positive and significant CAGR, which denotes a conservative approach in investments made by the banks. HDFC Bank had the highest CAGR and standard deviation, which implies that a major part of its funds were diverted to risk-free securities.

Andhra Bank and Axis Bank occupied the 1st and 17th rank respectively in terms of capital adequacy.

❖ **Asset Quality :** The Table 2 presents the four ratios under Asset Quality. Gross NPAs to net advances ratio, and Net NPAs to net advances ratio point out towards the quality of the bank's loan assets and recovery of advances. HDFC Bank Ltd. had the lowest Gross NPAs (1.72%) and Net NPAs (0.35%) ratio. Most of the bank's loan assets and recovering activities were found to be better, which is confirmed by negatively significant CAGR and its standard deviation. Total investment to total asset ratio indicates the asset pattern of the banks. Bank of India (27.48%) had the lowest ratio, which shows its aggressive approach in lending loans. HDFC Bank, Axis Bank and ICICI Bank stood in 16th, 15th and 7th position respectively, which indicates their conservative approach in lending loans among private sector banks. CAGR of all the banks was found to be negatively significant; it implies the increasing trend in their lending activities. Net NPAs to total asset ratio indicates the credit risk of the banks. HDFC Bank Ltd. had the lowest ratio, and SBI had the highest ratio. Bank of India (1.10%), Central Bank of India (1.17%) and State Bank of India (1.24%) had more than one per cent Net NPAs to total investment ratio. Out of 17 banks, 15 were found to have negatively significant CAGR. It shows that the banks were efficient in maintaining credit risk. In terms of asset quality, Andhra Bank and SBI secured the 1st and 17th position respectively.

❖ **Management Efficiency :** The Table 3 reveals the management efficiency of the banks. The advances to deposits ratio of all the banks was more than 57 per cent. ICICI Bank had the highest ratio, which shows its better efficiency among its peers. The standard deviation was high and CAGR was positively insignificant. It implies that too much of

Table 1: Statistics of Capital Adequacy (C)

Banks	Capital Adequacy Ratio (%)			Debt-Equity Ratio (Times)			Advances to Total Assets (%)			G-Secs to Investment (%)			Mean Rank	Rank
	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank		
Allahabad Bank	12.22 (1.08)	2.25[a]	10	0.61 (0.19)	6.41[a]	3	53.99 (7.82)	4.02[a]	12	77.21 (3.23)	0.36	11	9	9
Andhra Bank	12.84 (0.91)	-0.40	4	0.77 (0.34)	2.66	8	55.86 (8.55)	4.66[a]	4	86.64 (4.56)	0.97[a]	1	4.25	1
Axis Bank Ltd.	12.17 (2.57)	4.67[a]	11	1.52 (0.89)	-5.69	15	49.42 (7.72)	4.30[a]	16	59.49 (4.21)	0.21	17	14.75	17
Bank of Baroda	12.74 (0.73)	0.39	5	0.69 (0.23)	6.21[a]	5	55.14 (8.06)	4.09[a]	7	74.45 (7.04)	2.68[a]	14	7.75	5
Bank of India	11.97 (0.89)	0.55	12	1.68 (0.27)	-2.07	16	60.05 (3.37)	1.52[a]	1	74.80 (7.39)	2.52[a]	13	10.5	12
Canara Bank	12.57 (1.25)	2.46[a]	7	0.68 (0.30)	6.87[a]	4	57.07 (6.88)	3.62[a]	3	80.11 (7.08)	2.55[a]	6	5	2
Central Bank of India	10.86 (0.88)	0.60	15	0.90 (0.31)	3.81	11	51.00 (9.49)	5.05[a]	15	79.42 (6.80)	2.50[a]	7	12	16
Corporation Bank	14.95 (2.66)	-2.81[a]	1	0.70 (0.59)	16.37[a]	6	55.27 (5.69)	2.73[a]	6	75.43 (6.53)	-0.51	12	6.25	3
HDFC Bank Ltd.	13.06 (1.86)	3.31[a]	3	0.88 (0.29)	-8.35[a]	10	47.65 (10.17)	6.56[a]	17	63.70 (16.06)	6.99[a]	15	11.25	13
ICICI Bank Ltd.	13.27 (2.94)	5.58[a]	2	2.73 (2.39)	-7.06	17	53.99 (7.27)	2.99[a]	11	63.24 (8.90)	-0.91	16	11.5	14
Indian Bank	10.51 (3.67)	12.15	17	0.46 (0.57)	-20.81[a]	2	51.00 (8.63)	4.75[a]	14	81.94 (3.20)	0.23	4	9.25	10
Indian Overseas Bank	12.44 (1.31)	2.39[a]	8	1.14 (0.49)	8.96[a]	12	54.19 (8.15)	4.34[a]	10	84.50 (3.44)	0.54	3	8.25	7
Oriental Bank of Commerce	11.85 (1.47)	-0.34	13	0.43 (0.43)	7.30[a]	1	54.31 (7.40)	4.00[a]	9	77.54 (10.61)	4.14[a]	10	8.25	7
Punjab National Bank	12.25 (1.23)	1.28	9	0.85 (0.31)	7.12[a]	9	55.61 (7.33)	3.77[a]	5	79.37 (5.37)	1.85[a]	8	7.75	5
State Bank of India	12.61 (0.89)	-1.31[a]	6	1.24 (0.38)	6.97[a]	13	51.62 (11.00)	6.27[a]	13	80.89 (3.73)	-0.51	5	9.25	10
Syndicate Bank	11.40 (0.40)	-0.37	14	0.75 (0.61)	20.36[a]	7	57.32 (7.49)	3.66[a]	2	86.63 (4.38)	0.84[a]	2	6.25	3
UCO Bank	10.65 (1.00)	1.48	16	1.47 (0.90)	-4.92	14	55.07 (8.24)	4.26[a]	8	77.85 (7.16)	1.87[a]	9	11.75	15

Source: Secondary data available in CMIE Prowess database and RBI Website computed through MS Excel

Note: [a] denotes significant at 1% level; G.Mean-Geometric Mean; CAGR-Compounded Annual Growth Rate; Figures in parenthesis are Standard Deviation

Table 2: Statistics of Asset Quality (A)

Banks	Gross NPAs to Net Advances (%)			Net NPAs to Net Advances (%)			Total Investment to Total Assets (%)			Net NPAs to Total Assets (%)			Mean Rank	Rank
	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank		
Allahabad Bank	4.86 (6.98)	-25.01[a]	15	1.82 (4.24)	-26.43[a]	12	35.12 (7.08)	-4.79[a]	14	0.94 (1.78)	-23.10[a]	10	12.75	14
Andhra Bank	2.22 (2.08)	-19.48[a]	4	0.47 (1.03)	-25.21[a]	2	31.38 (8.77)	-7.51[a]	6	0.25 (0.41)	-21.05[a]	2	3.5	1
Axis Bank Ltd.	1.80 (1.45)	-15.51[a]	2	0.97 (1.19)	-23.35[a]	6	35.43 (4.81)	-2.89[a]	15	0.45 (0.49)	-19.73[a]	5	7	6
Bank of Baroda	4.30 (5.46)	-25.56[a]	10	1.16 (2.23)	-12.40	7	29.29 (8.25)	-6.39[a]	2	0.63 (1.06)	-26.46[a]	8	6.75	5
Bank of India	4.22 `(3.46)	-17.70[a]	9	1.89 (2.39)	-23.17[a]	13	27.48 (3.63)	-3.46[a]	1	1.10 (1.26)	-21.86[a]	14	9.25	11
Canara Bank	2.88 (2.59)	-18.64[a]	6	1.73 (1.43)	-16.10[a]	10	29.92 (4.33)	-3.49[a]	3	0.95 (0.57)	-12.48[a]	12	7.75	7
Central Bank of India	6.44 (6.22)	-22.45[a]	17	2.57 (3.23)	-25.09[a]	15	35.04 (8.72)	-6.02[a]	13	1.17 (0.98)	-19.16[a]	15	15	16
Corporation Bank	2.52 (1.95)	-19.12[a]	5	0.77 (0.77)	-20.24[a]	4	31.16 (4.62)	-2.62[a]	5	0.41 (0.33)	-17.61[a]	4	4.5	2
HDFC Bank Ltd.	1.72 (0.66)	-8.41a	1	0.35 (0.14)	-1.70	1	36.84 (8.22)	-6.28[a]	16	0.16 (0.08)	5.35	1	4.75	3
ICICI Bank Ltd.	4.18 (2.81)	-6.51	8	1.92 (1.59)	-9.62[a]	14	31.47 (4.39)	-2.13[a]	7	0.98 (0.74)	-7.30	13	10.5	12
Indian Bank	1.90 (2.60)	-27.61[a]	3	0.54 (1.13)	-27.43[a]	3	37.48 (8.31)	-6.09[a]	17	0.27 (0.33)	-20.84[a]	3	6.5	4
Indian Overseas Bank	4.80 (4.09)	-16.36[a]	14	1.82 (2.40)	-17.08[a]	11	33.63 (7.16)	-5.42[a]	11	0.94 (0.96)	-12.95[a]	11	11.75	13
Oriental Bank of Commerce	4.00 (2.77)	-15.04[a]	7	1.21 (1.15)	-14.47[a]	8	32.32 (8.23)	-6.59[a]	9	0.62 (0.42)	-10.44[a]	7	7.75	7
Punjab National Bank	4.68 (4.55)	-21.47[a]	13	0.89 (2.33)	-22.80[a]	5	31.99 (6.91)	-5.57[a]	8	0.47 (1.02)	-19.29[a]	6	8	9
State Bank of India	5.27 (4.19)	-15.96[a]	16	2.60 (1.69)	-13.47[a]	17	33.70 (8.43)	-6.14[a]	12	1.24 (0.43)	-7.51[a]	16	15.25	17
Syndicate Bank	4.30 (2.80)	-15.60[a]	11	1.59 (1.55)	-17.27[a]	9	30.57 (7.07)	-6.22[a]	4	0.87 (0.66)	-13.52[a]	9	8.25	10
UCO Bank	4.59 (3.65)	-16.41[a]	12	2.60 (1.73)	-14.95[a]	16	32.88 (6.71)	-5.22[a]	10	1.39 (0.62)	-11.15[a]	17	13.75	15

Source: Secondary data available in CMIE Prowess database and RBI Website computed through MS Excel

Note: [a] denotes significant at 1% level; G.Mean-Geometric Mean; CAGR-Compounded Annual Growth Rate; Figures in parenthesis are Standard Deviation

variation in ratio causes CAGR to become insignificant. All other banks showed significantly positive CAGR. HDFC Bank and SBI had more than 6 per cent CAGR, which implies that their ability of converting deposits into advances is eminent.

Business per employee and profit per employee indicates the productivity of the bank. Private sector banks have an edge over the public sector banks in terms of business per employee and profit per employee. In terms of business per employee, CAGR was found to be negatively insignificant for Axis Bank and HDFC Bank. It implies that the banks found it difficult to further expand their businesses, which is confirmed by their standard deviation. Public sector banks had a positively significant CAGR; it shows that the banks were marching towards improvement in their

Table 3: Statistics of Management Efficiency (M)

Banks	Total Advances to Total Deposits (%)			Business per Employee (₹ in Lakh)			Profit per Employee (₹ in Lakh)			Mean Rank	Rank
	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank		
Allahabad Bank	60.75 (10.08)	4.66[a]	15	384.91 (303.45)	22.92[a]	11	2.87 (2.87)	33.93[a]	14	13.33	15
Andhra Bank	64.87 (10.45)	4.92[a]	9	436.51 (317.42)	19.77[a]	9	4.92 (3.23)	19.23[a]	7	8.33	8
Axis Bank Ltd.	60.24 (11.75)	5.45[a]	16	1100.61 (362.08)	-1.34	1	13.24 (5.39)	3.00	1	6.00	4
Bank of Baroda	64.37 (9.60)	4.20[a]	10	457.95 (388.75)	22.49[a]	7	4.10 (4.38)	25.86[a]	8	8.33	8
Bank of India	71.30 (4.26)	1.62[a]	2	439.78 (363.87)	21.38[a]	8	3.16 (3.25)	25.26[a]	13	7.67	7
Canara Bank	65.41 (8.41)	3.85[a]	7	424.45 (317.93)	20.64[a]	10	3.67 (3.09)	20.71[a]	10	9.00	10
Central Bank of India	57.78 (11.07)	5.22[a]	17	313.92 (253.73)	22.08[a]	17	1.39 (1.44)	32.42[a]	16	16.67	17
Corporation Bank	67.50 (7.14)	2.59[a]	3	543.72 (409.95)	20.44[a]	5	7.18 (3.41)	13.16[a]	4	4.00	2
HDFC Bank Ltd.	64.01 (13.18)	6.14[a]	11	604.15 (117.96)	-2.64	4	9.30 (2.34)	-4.89[a]	3	6.00	4
ICICI Bank Ltd.	96.33 (25.46)	1.61	1	961.06 (241.60)	1.85	2	9.81 (3.68)	9.31[a]	2	1.67	1
Indian Bank	67.13 (10.58)	5.37[a]	4	535.91 (268.93)	21.49[a]	6	6.79 (4.76)	52.24[a]	5	5.00	3
Indian Overseas Bank	63.19 (11.71)	5.45[a]	12	379.45 (270.51)	20.14[a]	12	3.19 (2.35)	24.04[a]	12	12.00	13
Oriental Bank of Commerce	62.18 (9.30)	4.38[a]	13	611.42 (417.96)	19.70[a]	3	5.89 (3.33)	11.94[a]	6	7.33	6
Punjab National Bank	65.42 (9.52)	4.35[a]	6	351.89 (269.74)	21.05[a]	15	3.75 (3.59)	26.72[a]	9	10.00	11
State Bank of India	66.91 (15.13)	6.57[a]	5	351.05 (219.97)	18.17[a]	16	3.50 (2.19)	19.52[a]	11	10.67	12
Syndicate Bank	64.93 (9.48)	4.07[a]	8	367.57 (259.96)	21.81[a]	13	2.43 (1.27)	16.82[a]	15	12.00	13
UCO Bank	62.10 (9.38)	4.16[a]	14	363.63 (311.95)	24.84[a]	14	1.31 (1.29)	28.66[a]	17	15.00	16

Source: Secondary data available in CMIE Prowess database and RBI Website computed through MS Excel

Note: [a] denotes significant at 1% level; G.Mean-Geometric Mean; CAGR-Compounded Annual Growth Rate; Figures in parenthesis are Standard Deviation

efficiency. In terms of profit per employee, CAGR was found to be negatively significant for HDFC Bank, which signals towards a diminishing trend in managerial efficiency. All other banks had positively significant CAGR, with the exception of Axis Bank. Axis Bank and ICICI Bank were more efficient in terms of business per employee and profit per employee. In terms of management efficiency, ICICI Bank led in the race of efficiency, followed by Corporation Bank and Indian Bank. Proper planning and target achievement are the achievements of management efficiency.

Table 4: Statistics of Earning Capacity (E)

Banks	Operating Profit to Total Investment to			Spread to Total Assets (%)			Net Profit to Average Assets (%)			Interest Income to Total Income (%)			Mean Rank	Rank
	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank		
Allahabad Bank	2.06 (0.44)	3.88[a]	12	2.70 (0.35)	-2.93[a]	7	0.85 (0.44)	13.28[a]	13	84.20 (4.60)	0.42	8	10.00	9
Andhra Bank	2.43 (0.67)	0.78	5	2.78 (0.36)	-1.01	5	1.23 (0.36)	1.23	4	84.28 (5.34)	0.65	7	5.25	3
Axis Bank Ltd.	2.61 (0.66)	3.43	4	1.98 (0.57)	9.01[a]	16	1.21 (0.20)	3.97[a]	5	78.32 (3.31)	-0.26	15	10.00	9
Bank of Baroda	2.11 (0.37)	0.71	11	2.61 (0.36)	-3.08[a]	8	0.91 (0.26)	6.21[a]	11	83.85 (3.46)	0.17	10	10.00	9
Bank of India	2.02 (0.51)	0.33	14	2.46 (0.19)	-2.19[a]	13	0.82 (0.36)	3.89	15	83.90 (3.76)	0.77[a]	9	12.75	16
Canara Bank	2.24 (0.41)	-1.93	9	2.47 (0.31)	-2.89[a]	12	1.05 (0.27)	3.86	8	83.47 (3.38)	0.22	11	10.00	9
Central Bank of India	1.58 (0.53)	-2.54	16	2.21 (0.82)	-10.60	15	0.46 (0.23)	8.82	17	68.48 (22.81)	9.53[a]	17	16.25	17
Corporation Bank	2.78 (0.55)	-4.78[a]	2	2.58 (0.55)	-5.10[a]	11	1.32 (0.23)	-3.59[a]	3	83.31 (2.57)	0.33	12	7.00	5
HDFC Bank Ltd.	2.84 (0.27)	2.21[a]	1	3.30 (0.54)	4.23[a]	1	1.45 (0.06)	-0.08	2	80.18 (2.01)	-0.34	14	4.50	2
ICICI Bank Ltd.	2.25 (0.22)	0.72	8	1.69 (0.50)	7.57[a]	17	1.05 (0.27)	3.78	7	76.84 (3.28)	-0.12	16	12.00	14
Indian Bank	2.67 (0.58)	8.72[a]	3	3.19 (0.47)	4.13[a]	2	1.49 (0.49)	20.71[a]	1	84.70 (2.76)	0.34	5	2.75	1
Indian Overseas Bank	2.11 (0.59)	2.87	10	2.85 (0.48)	-2.76[a]	4	0.95 (0.37)	2.21	10	86.50 (2.66)	0.25	4	7.00	5
Oriental Bank of Commerce	2.29 (0.83)	-5.27[a]	7	2.60 (0.61)	-4.84[a]	10	1.00 (0.39)	-3.85	9	87.48 (2.87)	0.56[a]	2	7.00	5
Punjab National Bank	2.40 (0.44)	2.39	6	3.14 (0.27)	-1.63a	3	1.11 (0.21)	4.94[a]	6	84.60 (2.95)	0.26	6	5.25	3
State Bank of India	2.02 (0.36)	1.04	13	2.60 (0.28)	-1.41	9	0.86 (0.15)	2.72	12	83.07 (2.35)	-0.32	13	11.75	13
Syndicate Bank	1.63 (0.40)	2.14	15	2.78 (0.68)	-5.84[a]	6	0.85 (0.14)	-3.05[a]	14	87.93 (3.73)	0.56	1	9.00	8
UCO Bank	1.52 (0.36)	0.51	17	2.23 (0.41)	-3.98[a]	14	0.53 (0.25)	5.61	16	87.25 (3.90)	1.02[a]	3	12.50	15

Source: Secondary data available in CMIE Prowess database and RBI Website computed through MS Excel

Note: [a] denotes significant at 1% level; G.Mean-Geometric Mean; CAGR-Compounded Annual Growth Rate; Figures in parenthesis are Standard Deviation

❖ **Earning Capacity :** The Table 4 exhibits the earning capacity of the banks. The operating profit to working funds ratio for 3 banks was below 2 per cent. Out of 13 positive CAGRs, the CAGRs of only Indian Bank and Allahabad Bank were found to be significant. CAGR was found to be negatively significant for Oriental Bank of Commerce and Corporation Bank. HDFC Bank, Corporation Bank and Indian Bank secured the 1st, 2nd and 3rd rank respectively. Hence, it can be concluded that the banks should concentrate upon the better utilization of funds for higher returns.
HDFC Bank, Indian Bank and Punjab National bank had more than 3 per cent of Spread to Total Assets ratio. ICICI Bank and Axis Bank had less than 2 per cent of mean ratio. The CAGRs of 13 banks were found to be negative, out of which, 3 alone were insignificant. Axis Bank, HDFC Bank , ICICI Bank and Indian Bank showed a positive significant CAGR. It can be concluded that the banks found it difficult to convert low cost deposits into high return advances.
Net Profit to Average Assets ratio was found to be more than 1 per cent for 9 banks. Indian Bank secured the 1st rank followed by HDFC Bank and Corporation Bank. CAGR was found to be positive, except for 4 banks. Out of those 4 banks, Corporation Bank and Syndicate Bank were found to possess negatively significant CAGR. It indicates that ability of utilization of assets needed to be improved.
Interest Income to Total Income ratio was found to be more than 80 per cent for 14 banks. Syndicate Bank secured the 1st position followed by Oriental Bank of Commerce and UCO Bank. Axis Bank, HDFC Bank , ICICI Bank and SBI had negative CAGRs, but the values were insignificant. It indicates that the banks extracted maximum returns from lending activities. Under earning capacity, Indian Bank led the race followed by HDFC Bank and Punjab National Bank. SBI and ICICI Bank stood in the 13th and 14th position respectively.

❖ **Liquidity :** The Table 5 indicates the liquidity position of the banks. Liquid Assets to Total Asset ratio was more than 9 per cent for 14 banks. CAGR was found to be negatively significant for 6 banks. Four banks had positive CAGR, but it was insignificant. Axis Bank stood in the top position, followed by Bank of Baroda and HDFC Bank. It shows that the banks maintained adequate liquidity position.
G-Secs to Total Assets ratio was more than 20 per cent. Indian Overseas bank stood in the top position followed by Central Bank of India and SBI. CAGR indicates negatively significant with the exception of Canara Bank and HDFC Bank. It implies that the banks had enough funds invested in G-Secs. Liquid assets to demand deposits ratio indicates that all banks maintained excess liquidity over demand deposit holders, with the exception of Axis Bank (80.90%), Corporation Bank (91.79%), HDFC Bank (60.73), and SBI (88.12%). Axis Bank, Corporation Bank and SBI Bank's CAGR was found to be negatively significant, which indicates that the banks had reduced their liquidity. For other banks, CAGR was found to be insignificant, which implies that banks maintained constant liquidity. Bank of Baroda was in the top position followed by Bank of India and ICICI Bank.
Liquid Assets to Total Deposits ratio was found to be above 10 per cent, with the exception of Allahabad Bank. ICICI Bank was in the top position followed by HDFC Bank and Axis Bank. CAGR was found to be negative, with the exception of 4 banks. Axis Bank, Canara Bank, Corporation Bank, and SBI Bank's CAGR was found to be negatively significant. It indicates that the banks tried to reduce their liquidity. Bank of Baroda was leading in terms of liquidity followed by State Bank of India.

❖ **Sensitivity To Market Risks :** The Table 6 exhibits the banks' sensitivity to market risks. Betas (β) of Canara Bank, ICICI Bank and Bank of India had a value of more than 1.1. It indicates that banks were exposed to high market risks, i.e. any small changes in the market will greatly impact the banks. HDFC Bank and Corporation Bank were found to be less sensitive to market changes i.e., major changes in the markets would tend to have a minor effect on these banks. However, in case of the remaining banks, the value of β was more or less equal to one.

❖ **Overall Ranking Of The Banks :** The Table 7 exhibits the ranking of the Banks under the CAMELS Model. Andhra Bank secured the first rank followed by the Corporation Bank and HDFC Bank.
Oriental Bank of Commerce and Indian Bank secured the 4th and 5th position respectively. Axis Bank Ltd., Bank of Baroda and Canara Bank shared the 6th place. Indian Overseas Bank, Punjab National Bank and Syndicate Bank were at the 9th, 10th and 11th position respectively.
SBI and ICICI Bank, the largest public and private sector bank in India respectively were placed at the 12th and 14th position respectively. Bank of India, Allahabad Bank, UCO Bank and Central Bank of India were placed at the 13th, 15th, 16th and 17th position (rank) respectively.

Table 5: Statistics of Liquidity (L)

Banks	Liquid Assets to Total Assets (%)			G-Secs to Total Assets (%)			Liquid Assets to Demand Deposits (%)			Liquid Assets to Total Deposits (%)			Mean Rank	Rank
	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank	G.Mean	CAGR	Rank		
Allahabad Bank	7.88 (1.25)	-2.47[a]	17	27.12 (5.43)	-4.44[a]	5	106.62 (14.97)	0.01	10	8.87 (1.31)	-1.88	17	12.25	17
Andhra Bank	9.57 (1.88)	1.11	9	27.19 (7.03)	-6.61[a]	4	131.55 (26.10)	0.24	6	11.11 (2.27)	1.36	10	7.25	3
Axis Bank Ltd.	11.87 (5.16)	-7.01[a]	1	21.08 (2.46)	-2.68[a]	15	80.90 (59.67)	-12.63[a]	16	14.46 (5.60)	-5.99[a]	3	8.75	7
Bank Of Baroda	11.86 (3.03)	-0.13	2	21.80 (5.75)	-3.88[a]	14	161.28 (38.05)	3.44	1	13.85 (3.57)	-0.02	5	5.5	1
Bank Of India	10.05 (1.15)	1.16	8	20.56 (1.28)	-1.02[a]	16	147.63 (39.02)	7.32[a]	2	11.93 (1.33)	1.26	7	8.25	6
Canara Bank	10.36 (4.05)	-7.09[a]	6	23.97 (2.47)	-1.03	11	126.55 (25.34)	-2.41	7	11.87 (4.49)	-6.88[a]	8	8	5
Central Bank of India	9.25 (1.79)	-2.58	12	27.83 (5.66)	-3.67[a]	2	106.31 (21.87)	0.08	11	10.48 (1.97)	-2.42	14	9.75	12
Corporation Bank	11.01 (2.52)	-3.66[a]	4	23.50 (3.84)	-3.13[a]	12	91.79 (26.68)	-5.24[a]	14	13.45 (3.00)	-3.79[a]	6	9	11
HDFC Bank Ltd.	11.30 (3.45)	-3.26	3	23.46 (2.85)	0.27	13	60.73 (21.27)	-2.66	17	15.18 (4.60)	-3.64	2	8.75	7
ICICI Bank Ltd.	9.06 (4.47)	-2.30	14	19.90 (2.46)	-3.02[a]	17	145.53 (104.65)	-5.78	3	16.16 (8.14)	-3.62	1	8.75	7
Indian Bank	8.48 (1.33)	0.71	16	25.93 (6.92)	-5.88[a]	7	134.25 (20.68)	2.52	5	9.86 (1.68)	1.31	16	11	15
Indian Overseas Bank	9.22 (2.11)	-4.18[a]	13	28.42 (5.62)	-4.91[a]	1	111.92 (24.10)	-1.86	9	10.75 (2.25)	-3.16	12	8.75	7
Oriental Bank of Commerce	10.27 (1.69)	2.16	7	25.06 (3.07)	-2.72[a]	10	134.97 (31.67)	3.48	4	11.76 (1.93)	2.54	9	7.5	4
Punjab National Bank	9.38 (2.55)	-1.21	10	25.39 (4.40)	-3.82[a]	9	100.83 (18.06)	2.10	13	11.04 (3.18)	-0.66	11	10.75	14
State Bank of India	10.94 (3.87)	-6.21[a]	5	27.26 (7.81)	-6.62[a]	3	88.12 (32.18)	-5.53[a]	15	14.18 (4.99)	-5.94[a]	4	6.75	2
Syndicate Bank	9.37 (2.21)	-0.60	11	26.48 (5.94)	-5.43[a]	6	105.06 (28.88)	2.71	12	10.61 (2.42)	-0.22	13	10.5	13
UCO Bank	8.93 (2.17)	-2.74	15	25.60 (3.48)	-3.45[a]	8	122.15 (40.51)	3.66	8	10.07 (2.52)	-2.83	15	11.5	16

Source: Secondary data available in CMIE Prowess database and RBI Website computed through MS Excel

Note: [a] denotes significant at 1% level; G.Mean-Geometric Mean; CAGR-Compounded Annual Growth Rate; Figures in parenthesis are Standard Deviation

Table 6: Statistics of Sensitivity To Market Risk (S)			
Banks	**Sensitivity to Market Risk (Beta)**		
	Mean	**Standard Deviation**	**Rank**
Allahabad Bank	1.089	0.461	14
Andhra Bank	0.985	0.308	6
Axis Bank Ltd.	0.975	0.259	5
Bank of Baroda	1.047	0.389	11
Bank of India	1.108	0.318	15
Canara Bank	1.254	0.521	17
Central Bank of India	1.018	0.229	9
Corporation Bank	0.828	0.167	2
HDFC Bank Ltd.	0.755	0.291	1
ICICI Bank Ltd.	1.127	0.284	16
Indian Bank	1.063	0.159	12
Indian Overseas Bank	0.913	0.356	3
Oriental Bank of Commerce	0.952	0.411	4
Punjab National Bank	1.078	0.233	13
State Bank of India	1.037	0.185	10
Syndicate Bank	0.992	0.44	7
UCO Bank	1.016	0.282	8
Source: Secondary data available in CMIE Prowess database computed through MS Excel			

Table 7: Ranking of Indian Commercial Banks								
	Rank						**Mean**	**Rank**
	C	**A**	**M**	**E**	**L**	**S**	**Rank**	
Allahabad Bank	9	14	15	9	17	14	13.50	15
Andhra Bank	1	1	8	3	3	6	3.50	1
Axis Bank Ltd.	17	6	4	9	7	5	7.50	6
Bank of Baroda	5	5	8	9	1	11	7.50	6
Bank of India	12	11	7	16	6	15	10.67	13
Canara Bank	2	7	10	9	5	17	7.50	6
Central Bank of India	16	16	17	17	12	9	14.50	17
Corporation Bank	3	2	2	5	11	2	4.17	2
HDFC Bank Ltd.	13	3	4	2	7	1	5.00	3
ICICI Bank Ltd.	14	12	1	14	7	16	11.00	14
Indian Bank	10	4	3	1	15	12	7.33	5
Indian Overseas Bank	7	13	13	5	7	3	8.50	9
Oriental Bank of Commerce	7	7	6	5	4	4	6.50	4
Punjab National Bank	5	9	11	3	14	13	8.67	10
State Bank of India	10	17	12	13	2	10	10.50	12
Syndicate Bank	3	10	13	8	13	7	10.00	11
UCO Bank	15	15	16	15	16	8	14.17	16
Source: Author's Calculation								

CONCLUSION

The performance of the selected commercial banks was evaluated and compared by the CAMELS model. The data comprised of 14 public sector and 3 private sector banks for the period from April 1, 2000 to March 31, 2011. Private sector banks gave a very tough competition to the public sector bank in terms of Asset Quality, Management Efficiency and Earning Capacity.

Among the private sector banks, HDFC Bank stood in the 3th place followed by Axis Bank in the 6th place and ICICI Bank in the 14th place. With respect to public sector banks, Andhra Bank secured the 1st place, followed by Corporation Bank in the 2nd place and Oriental Bank of Commerce in the 4th place. Under the CAMELS Model, State Bank of India (SBI) exhibited a better performance than ICICI Bank.

REFERENCES

1) Bharathi, N. (2010). "Profitability Performance of New Private Sector Banks - An Empirical Study." *Indian Journal of Finance*, Volume 4, Number 3, pp.16-24.

2) Bodla, B.S., & Verma, R. (2006). "Evaluating Performance of Banks through CAMEL Model: A Case Study of SBI and ICICI." *The ICFAI Journal of Bank Management*, Volume 5, Number 3, pp.49-63.

3) Fred, H., Stephen, A., & Arthur, H. (2009). "Efficiency Ratios and Community Bank Performance." *Journal of Finance and Accountancy*, Volume 1, Number 1, pp.1-15. Available at www.aabri.com/manuscripts/09227.pdf , accessed on December 30, 2010.

4) Goyal, R., & Kaur, R. (2008). "Performance of New Private Sector Banks in India." *The Indian Journal of Commerce*, Volume 61, Number 3, pp.1-12.

5) Gujarati, N. (2006). *"Basic Econometrics."* (4th Edition), Tata McGraw-Hill, New Delhi, pp.178-180.

6) Kapil, S.K., Kanwal, N., & Nagar, K.N. (2003). "Benchmarking Performance of Indian Public Sector Commercial Banks." *Indian Journal of Accounting*, Volume 34, Number 1, pp. 24-28.

7) Mukherjee, C., White, H., & Wuyts, M. (1998). *"Econometrics and Data Analysis for Developing Countries."* Routledge, London, pp.97-105.

8) Padmanabhan Working Group. (1995). *"Report Of The Working Group To Review The Existing System Of Inspection Of Banks."* Reserve Bank of India, Mumbai.

9) Prasad, K.V.N, & Chari, A.A. (2011). "Relative Financial Performance of Public Sector Banks." *Indian Journal of Finance*, Volume 5, Number 11, pp.11-22.

10) Prasuna, D. (2004). "Performance Snapshot 2003-04." *Chartered Financial Analyst*, Volume 10, Number 11, pp.6-13.

11) Purohit, K.K., & Muzumdar, B.C. (2003). "Post-Martem of Financial Performance and Prediction of Future Earning Capability of a Bank: An Application of CAMEL Rating and Balanced Score Board." *Indian Journal of Accounting*, Volume 34, Number 1, pp.8-16.

12) Sangmi, M., & Nazir, T. (2010). "Analyzing Financial Performance of Commercial Banks in India: Application of CAMEL Model." *Pakistan Journal of Commerce and Social Sciences*, Volume 4, Number 1, pp.40-55.

13) Satish, D., Sharath, J., & Surender, V. (2005). "Indian Banking - Performance and Development 2004-05." *Chartered Financial Analyst,* Volume 11, Number 10, pp.6-15.

14) Shar, A. H., Shah, M. A., & Jamali, H. (2011). "Performance Evaluation of Pre and Post-Nationalization of the Banking Sector in Pakistan: An Application of CAMEL Model." *African Journal of Business Management,* Volume 5, Number 3, pp.747-761.

15) Uvaneswara, S.M. (2011). "Operating Efficiency of Public Sector Commercial Banks In India During the First and Second Generation Reforms." *Indian Journal of Finance*, Volume 5, Number 10, pp.28-42.

16) Wirnkar, A., & Tanko, M. (2008). "CAMELS and Banks Performance Evaluation: The Way Forword." Available at SSRN: http://ssrn.com/abstract=1150968 or http://dx.doi.org/10.2139/ssrn.1150968, accessed on January 12, 2011.