Analysis of the Financial Performance of Indian Commercial Banks: A Comparative Study

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Abstract

Financial performance of a bank indicates the strength and weakness of that particular bank by properly establishing the association between the items of the balance sheet and profit & loss account. The present study is a comparative analysis of the financial performance of Indian commercial banks. The study considered a sample of 37 banks (22 public sector banks and 15 private sector banks) for the period from 2006-07 to 2010-11. CAMELS rating methodology was used in the study to measure the performance of the considered banks. The study found that the IDBI Bank was the best performing bank followed by Kotak Mahindra Bank and ICICI Bank. Dhanalaxmi Bank had the worst performance followed by J & K Bank and Karnataka Bank Ltd. The results of the 't' - test disclosed that there is a significant difference in the Capital Adequacy, Asset Quality and Earning Capacity of public and private sector banks in India, while there is no significant difference in the Management, Liquidity Position and Sensitivity to market risk of the two different banks groups. The study concluded that on an average, there is no statistically significant difference in the financial performance of the public and private sector banks in India, but still, there is a need for overall improvement in the public sector banks to make their position strong in the competitive market.

Keywords : financial performance, Indian commercial banks, capital adequacy, asset quality , liquidity, CAMELS methodology

JEL Code : G21, P17

A sound banking system serves as an important channel for achieving economic growth through the mobilization of financial savings and putting them to productive use. Banks are the most vital and functional vehicle for economic transformation. Banks have been acting as key players in the financial system of a developing country like India. Indian banks have performed well during the recent global financial crisis, as is evident from the annual credit growth, profitability, and trends in NPAs of banks (RBI, 2010). This consistent performance of banks has been achieved through several efforts of the Reserve Bank of India. The Indian banking sector has a long success history. In India, during the twentieth century, banking was generally subject to heavy regulation and financial repression. During the 1990s, India underwent sufficient deregulation with the objective to enhance efficiency, productivity, and profitability of banks. This process of globalization and liberalization exerted a huge influence on the banking sector. The ongoing banking sector reforms with their thrust on transparency, efficiency, and sustainability have forced the Indian banking sector to adopt suitable strategies in order to compete in the market. So, in the banking sector also, a competitive environment has become the main force behind efficiency and innovation.

Earlier, the Indian banking sector was dominated by public sector banks, however, this has changed now. New generation banks, with the use of technology and professional management, have gained a reasonable position in the banking industry. In this competitive environment, it becomes essential to measure the performance of the banks ; especially, the performance of the public sector banks - whether they have been playing well in comparison to the private and foreign sector banks? Hence, the present study is an attempt to measure the financial performance of the Indian Commercial Banks.

Financial performance of a bank indicates the strength and weakness of the bank by adequately establishing a relationship between the items of a balance sheet, and profit and loss account. Analysis of the financial performance is a function of multiple factors such as Capital Adequacy, Assets Quality, Management Efficiency, Profitability, and Liquidity position. In the present study, the financial performance of the public and private sector banks is measured and compared to ascertain which banks (and from which sectors) were working efficiently.

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Review of Literature

The Banking sector has played a crucial role in the development of the economy. It has attracted the attention of a number of scholars and administrators. A lot of literature is available on the performance of the banking sector in India. Some of the important studies that were reviewed for the present paper are as under : -

Wirnker and Tanko (2006) evaluated the adequacy of the CAMEL approach in capturing the overall performance of a bank. The study concluded that no one factor in CAMEL suffices to depict the overall performance of a bank. The best ratio for capital adequacy was found to be the ratio of total shareholder's fund to total risk weighted assets. Atokogullari (2007) analyzed the top five banks with assets size using CAMELS approach after the banking crisis of 2000-2001 in North Cyprus. The study concluded that the components of profitability and management quality of the banks had improved in the TRNC banking sector since the crisis, whereas capital adequacy, asset quality, and liquidity level had deteriorated during the crisis. Kosmidou (2008) assessed the asset quality and profitability of 23 Greek commercial banks for the period from 1990-1992 and concluded that exposure to high credit risk decreases the profitability of the banks. Sangmi and Nazir (2010) analyzed the performance of the biggest nationalized bank (PNB) and biggest privatized bank (J&K Bank) using the CAMEL model for the period from 2001-2005. The study exhibited that the position of both the banks under study was sound and satisfactory in case of capital adequacy, asset quality, management capability and liquidity.

Shaikh (2010) examined the impact of the recent financial crisis on the Indian banks and concluded that Indian banks were in a better position with quick recovery. RBI's decisions regarding repo rate and reverse repo rate seemed fruitful in this direction for controlling the liquidity of the banks. Shah et al. (2011) examined the performance of Pakistani banks during the pre and post nationalization period. The study revealed that the banking sector remained in turmoil during the pre-reform period and required measures to eradicate the vulnerabilities and shortcomings. Kouser and Saba (2012) evaluated the financial performance of pure Islamic banks and conventional Islamic banks by using the CAMEL model. The study concluded that Islamic banks have adequate capital and have good asset quality when compared to conventional banks. Makkar and Singh (2012) evaluated the financial soundness of 37 Indian commercial banks for the period from 2006-2011 and found that private sector banks were in a sound position as compared to the public sector banks.

In the light of the reviewed literature, it can be seen that several attempts have been made to measure the performance of the banks in developing countries. In India, performance of the banks is evaluated through different methods and techniques. But still, there is a dearth of comparative studies on Indian commercial banks during the period of recession. The present study is an attempt in this direction.

Objectives of the Study

❖ To measure and evaluate the financial performance of the Indian Commercial Banks.
❖ To compare the financial performance of Public and Private sector banks in India.

Hypotheses

❖ H_0 : There is no significant difference in the overall performance (determined on the basis of different variables of the CAMELS model) of Public and Private sector banks in India (Table 1).

❖ H_1 : There is a significant difference in the overall performance (determined on the basis of different variables of the CAMELS model) of Public and Private sector banks in India.

Research Methodology

The study is analytical in nature and is based on secondary data covering a period from 2006-07 to 2010-11. The data was collected from the annual reports of different banks and various publications issued by RBI (Statistical Tables relating to banks and trends and progress reports on banking). The sample of the study comprised of 37 banks on the basis of availability of the data, including 22 public sector banks and 15 private sector banks. The performance of the banks was measured through different ratios of the CAMELS model (Table 2). These ratios were selected on the basis of their popularity in literature. Further t-test was applied to compare the performance of the Public and Private sector banks in India.

Table 1: Research Questions and Research Hypotheses	
Research Questions	**Research Hypothesis**
Does the performance of Public Sector Banks differ on the basis of Capital Adequacy (C) from Private Sector Banks?	H01: There is no significant difference in the Capital Adequacy of the public and private sector banks.
Does the performance of Public Sector Banks differ on the basis of Asset Quality (A) from Private Sector Banks?	H02: There is no significant difference in the Asset Quality of the public and private sector banks.
Does the performance of Public Sector Banks differ on the basis of Management (M) from Private Sector Banks?	H03: There is no significant difference in the Management of the public and private sector banks.
Does the performance of Public Sector Banks differ on the basis of Earning Capacity (E) from Private Sector Banks?	H04: There is no significant difference in the Earning Capacity of the public and private sector banks.
Does the performance of Public Sector Banks differ on the basis of Liquidity (L) from Private Sector Banks?	H05: There is no significant difference in the Liquidity of the public and private sector banks.
Does the performance of Public Sector Banks differ on the basis of Sensitivity to Market Risk (S) from Private Sector Banks?	H06: There is no significant difference in the Sensitivity to Market Risk of the public and private sector banks.
Source: Authors' Research	

Table 2: CAMELS Ratios		
Sr. No.	**CAMELS Parameters**	**Ratio used in the present study**
1	C	Capital Adequacy Ratio Debt-Equity Ratio
2	A	NPA to Advances Investments to Assets
3	M	Business per Employee Profit per Employee
4	E	Interest Income to Total Funds Non-Interest Income to Total Funds
5	L	Credit-Deposit Ratio Cash-Deposit Ratio
6	S	Rate Sensitive Assets to Rate Sensitive Liabilities (RSA/RSL)
Source: Literature Review		

Results and Discussion

The performance of the Indian banks through different ratios using CAMELS rating methodology are as follows (Refer to Table 3 and Table 4): -

❖ **'C' - Capital Adequacy :** Capital Adequacy is measured to ensure the ability of the banks to face shocks. The higher the ratio, the more protected the investors will be. Two main ratios used in the study are the capital adequacy ratio and the debt-equity ratio. Federal Bank Ltd. (18.25) stood at the top position on the basis of the capital adequacy ratio followed by the Kotak Mahindra Bank Ltd. (18.08). Central Bank of India (11.56) stood at the bottom followed by State Bank of Travancore (11.84). The largest public sector bank, State Bank of India, stood at the 19th position in the overall ranking of the banks. The debt-equity ratio assesses the proportion of debts as compared to equity. It shows the degree of leverage in the banks. Central Bank of India (35.74) stood at the top position followed by UCO Bank (32.08). Kotak Mahindra Bank Ltd. (4.95) stood at the bottom followed ICICI Bank (5.44). SBI (12.85) stood at the 26th position in all banks.

❖ **'A' - Asset Quality :** Asset quality is measured to analyze the potency of the banks. It shows how efficiently a bank is managing its assets and is controlling its NPAs (non-performing assets). Asset quality is measured through two ratios namely, NPA to advances and investment to assets. NPA to advances ratio discloses how efficiently a bank is managing its credit risk. Yes Bank (0.12) with lowest NPA - advances ratio stood at the top position followed by Andhra Bank (0.20) and Karur Vysya Bank Ltd. Development Credit Bank Ltd. (3.13), with highest NPAs stood at the

Sr. No.	Name of Banks	C	A	M	E	L	S
	Table 3: CAMELS Ratios of Indian Commercial Banks (2006-07 to 2010-11)						
1	Allahabad Bank	14.36	15.33	6.32	4.50	37.58	69.30
2	Andhra Bank	14.09	12.46	6.97	4.57	39.82	72.12
3	Bank of Baroda	14.14	11.77	5.43	4.05	38.23	71.89
4	Bank of India	15.25	12.23	7.18	4.29	39.76	73.29
5	Bank of Maharashtra	17.85	14.71	4.55	4.26	37.12	67.43
6	Canara Bank	15.95	13.87	7.11	4.52	38.95	71.44
7	Central Bank of India	23.65	14.00	4.25	4.20	36.67	66.24
8	Corporation Bank	13.99	14.43	9.65	4.21	39.18	69.91
9	Dena Bank	16.70	13.90	5.96	4.35	38.03	67.98
10	Indian Bank	13.98	14.63	6.53	4.73	35.41	67.89
11	Indian Overseas Bank	15.44	14.73	5.20	4.62	39.67	72.65
12	Oriental Bank of Commerce	13.46	13.37	9.11	4.43	38.47	72.01
13	Punjab National Bank	14.25	13.19	6.34	4.54	40.66	73.37
14	Syndicate Bank	17.74	12.74	5.24	4.33	39.75	71.87
15	UCO Bank	22.09	15.01	5.26	4.25	37.68	69.12
16	Union Bank of India	15.78	13.99	7.01	4.46	39.52	71.83
17	Vijaya Bank	17.46	15.24	4.46	4.40	37.14	65.82
18	IDBI Bank	12.96	14.67	14.74	4.12	60.96	103.64
19	State Bank of India	12.97	14.02	4.82	4.35	42.22	77.54
20	State Bank of Bikaner and Jaipur	16.01	12.74	4.60	4.65	42.36	74.94
21	State Bank of Mysore	15.44	13.33	3.75	4.76	41.80	76.77
22	State Bank of Travancore	15.25	13.59	4.03	4.57	42.45	78.43
23	City Union Bank Ltd.	12.59	13.36	5.58	5.23	38.93	69.67
24	ING Vysya Bank Ltd.	12.95	14.89	4.52	4.60	40.54	73.23
25	Dhanalaxmi Bank Ltd.	14.44	13.62	3.19	4.67	35.45	65.00
26	Federal Bank Ltd.	13.59	15.45	6.69	4.99	39.14	72.11
27	J & K Bank Ltd.	13.30	15.20	6.18	4.26	35.74	63.56
28	Karnataka Bank Ltd.	12.32	18.42	5.36	4.81	34.60	62.83
29	Karur Vysya Bank Ltd.	12.30	13.70	6.36	5.02	39.64	72.30
30	South Indian Bank Ltd.	14.65	14.31	5.50	4.64	36.55	67.38
31	Axis Bank Ltd.	12.47	15.63	10.90	4.79	39.10	74.98
32	Development Credit Bank Ltd.	11.68	16.49	1.69	5.10	37.65	69.21
33	HDFC Bank Ltd.	12.12	16.07	5.55	5.34	39.46	70.56
34	ICICI Bank Ltd.	10.73	15.85	10.33	4.75	48.74	92.57
35	IndusInd Bank Ltd.	13.87	15.14	6.94	5.14	38.25	70.71
36	Kotak Mahindra Bank Ltd.	11.51	17.27	4.65	5.59	52.39	97.50
37	Yes Bank	13.22	14.76	12.18	5.41	41.95	76.38

Source: Results Computed from Annual Reports of Different Banks

Sr. No.	Name of Banks	C	A	M	E	L	S
	Table 4: Banks' Ranking based on CAMELS Ratios (2006-07 to 2010-11)						
1	Allahabad Bank	16	30	16	23	29	26
2	Andhra Bank	19	3	10	20	11	15
3	Bank of Baroda	18	1	22	37	25	18
4	Bank of India	13	2	7	30	12	11
5	Bank of Maharashtra	3	22	30	31	31	31
6	Canara Bank	8	13	8	22	21	21
7	Central Bank of India	1	16	33	35	32	33
8	Corporation Bank	20	19	5	34	18	24
9	Dena Bank	6	14	18	28	26	29
10	Indian Bank	21	20	13	13	36	30
11	Indian Overseas Bank	11	23	26	17	14	13
12	Oriental Bank of Commerce	24	9	6	25	23	17
13	Punjab National Bank	17	6	15	21	9	10
14	Syndicate Bank	4	5	25	29	13	19
15	UCO Bank	2	26	24	33	27	27
16	Union Bank of India	9	15	9	24	16	20
17	Vijaya Bank	5	29	32	26	30	34
18	IDBI Bank	28	21	1	36	1	1
19	State Bank of India	27	17	27	27	6	5
20	State Bank of Bikaner and Jaipur	7	4	29	15	5	9
21	State Bank of Mysore	11	7	35	11	8	6
22	State Bank of Travancore	13	10	34	19	4	4
23	City Union Bank Ltd.	30	8	19	4	22	25
24	ING Vysya Bank Ltd.	29	25	31	18	10	12
25	Dhanalaxmi Bank Ltd.	15	11	36	14	35	35
26	Federal Bank Ltd.	23	31	12	8	19	16
27	J & K Bank Ltd.	25	28	17	31	34	36
28	Karnataka Bank Ltd.	32	37	23	9	37	37
29	Karur Vysya Bank Ltd.	33	12	14	7	15	14
30	South Indian Bank Ltd.	14	18	21	16	33	32
31	Axis Bank Ltd.	31	32	3	10	20	8
32	Development Credit Bank Ltd.	35	35	37	6	28	27
33	HDFC Bank Ltd.	34	34	20	3	17	23
34	ICICI Bank Ltd.	37	33	4	12	3	3
35	IndusInd Bank Ltd.	22	27	11	5	24	22
36	Kotak Mahindra Bank Ltd.	36	36	28	1	2	2
37	Yes Bank	26	24	2	2	7	7
Source: Calculated by the authors							

bottom followed by the Kotak Mahindra Bank Ltd. (1.92), and SBI (1.74) stood at the 36th position. Investment-asset ratio is used to indicate the amount of assets locked up in investments. Karnataka Bank Ltd. (35.70) stood at the top position followed by Kotak Mahindra Bank Ltd. (32.62), and SBI (26.30) stood at the 28th position. Bank of Baroda (23.19) was at the bottom followed by the Bank of India (23.77).

❖ **'M' - Management Efficiency :** The Management of a bank plays an important role in taking decisions regarding different types of risks faced by the bank. Hence, it was essential to ascertain the efficiency and effectiveness of the managements of various banks considered for the present study. The management quality of banks was judged by the following ratios : business per employee and profit per employee. Business per employee ratio was the highest in case of IDBI Bank (20.28) followed by Yes Bank (12.71) and SBI stood at the 33rd position. Kotak Mahindra Bank Ltd. (4.27) stood at the bottom followed by Development Credit Bank Ltd. (4.49). Profit per employee was the highest in case of Yes Bank (11.65) followed by ICICI Bank Ltd. Axis Bank (10.40) and SBI (4.03) attained the 24th rank in overall ranking of the banks. Development Credit Bank Ltd. (-1.12) was at the bottom position followed by State Bank of Travancore (1.34).

❖ **'E' - Earning Capacity :** The Earning Capacity of a bank determines the consistency in its earning and explains its ability to grow in the future. Income generation quality is evaluated through the ratios - interest income to total funds and non-interest income to total funds. Interest income ratio was the highest in case of Kotak Mahindra Bank Ltd. (11.10) followed by HDFC Bank (10.64). SBI (8.58) stood at the 24th position among the 37 banks. Bank of Baroda (7.76) was at the bottom followed by Corporation Bank (8.10). Non-interest income ratio was the highest in case of Dhanalaxmi Bank Ltd. (0.92) followed by City Union Bank Ltd. (0.78). SBI, with 0.13 percent non-interest income ratio, stood at the 26th position. HDFC Bank Ltd. (0.04) had the lowest non-interest income followed by State Bank of Bikaner (0.06).

❖ **'L' - Liquidity :** Banks have to maintain proper liquidity to avoid the situation of illiquidity and also to ensure that adequate amount is invested for a long time period to generate profits in the future. Liquidity is measured through the credit-deposit ratio and cash-deposit ratio. On the basis of the credit-deposit ratio, IDBI Bank Ltd. (112.34) was at the top position followed by Kotak Mahindra Bank Ltd. (96.82). SBI (76.36) was at the 6th position. Kotak Mahindra Bank Ltd. (62.34) was at the bottom followed by Indian Bank (63.11). Cash-deposit ratio was the highest in case of State Bank of Bikaner (10.10) followed by ICICI Bank Ltd. (9.86). State Bank of India stood at the 13th position. Bank of Baroda (5.53) was at the bottom followed by South Indian Bank Ltd. (5.93).

❖ **'S'- Sensitivity to Market Risk :** Banks have to face various types of risks - like Liquidity risk, Credit risk, Foreign exchange risk and Insolvency risk. When all these risks are combined, these are collectively called as Market risk. A bank has to maintain proper balance in its rate sensitive assets and liabilities to efficiently tackle these risks. Rate sensitive assets to rate sensitive liabilities ratio was used to measure the sensitivity of the banks to Market risk. Rate sensitive assets and rate sensitive liabilities are those assets and liabilities on which interest is repriced within one year. Sensitivity to market risk was highest in case of IDBI Bank (103.64) followed by Kotak Mahindra Bank (97.50) and ICICI Bank (92.57). SBI stood at the 5th position with 77.54 percent ratio. Karnataka Bank Ltd. (62.83) stood at the bottom followed by J & K Bank (63.56) and Dhanalaxmi Bank (65.00).

CAMELS: Overall Performance

The above analysis presented the separate results of the performance of banks on the basis of each variable of CAMELS. There is variance in the performance of banks on each of the CAMELS variable. The average of these variables revealed that IDBI Bank (35.18) stood at the top position by having a good performance followed by Kotak Mahindra Bank (31.49) and ICICI Bank (30.50). SBI stood at the 7th position by having 25.99 percent score. Dhanalaxmi Bank (22.73) stood at the lowest position followed by J & K Bank (23.04) and Karnataka Bank Ltd. (23.06).

❖ **Comparison of the Performance of Public and Private Sector Banks :** To know whether there is any significant difference in the performance of the public and private sector banks, the 't'- test was applied on all the variables of CAMELS separately (Table 5).

❖ **H01 :** The results of the Table 5 reveal that there is a significant difference in the Capital Adequacy of public and private sector banks in India. So, the null hypothesis (H01) - that there is no significant difference in the capital adequacy of public and private sector banks - stands rejected. The mean value of this variable reveals that the public

Table 5: Comparison of the Performance of the Public and Private Sector Banks in India Based on the CAMELS Methodology						
Variables	Groups	No.	Mean	t	df	Significance
Capital Adequacy	Public	22	15.85	4.182	35	0.000
	Private	15	12.78			
Asset Quality	Public	22	13.81	-3.911	35	0.000
	Private	15	15.34			
Management	Public	22	6.29	-0.091	35	0.928
	Private	15	6.37			
Earning Capacity	Public	22	4.41	-5.953	35	0.000
	Private	15	4.95			
Liquidity	Public	22	40.15	0.169	35	0.866
	Private	15	39.87			
Sensitivity to Market Risk	Public	22	72.97	-0.078	35	0.938
	Private	15	73.19			
Overall Performance	Public	22	25.58	0.205	35	0.839
	Private	15	25.42			
Source: Results Computed from Annual Reports Data of Different Banks						

sector banks (15.85) had well maintained their capital adequacy in comparison to the private sector banks (12.78).

❖ **H02 :** It was hypothesized that there is a significant difference in the Asset Quality of public and private sector banks. The null hypothesis is rejected, and it is concluded that there is no significant difference in the asset quality of public and private sector banks as the private sector banks (15.34) had maintained their assets well in comparison to the public sector banks (13.81).

❖ **H03 :** It was hypothesized that there is no significant difference in the Managements of public and private sector banks. The null hypothesis has been accepted. The mean values showed that there were minor differences in the Managements of public sector banks (6.29) and private sector banks (6.37).

❖ **H04 :** It was hypothesized that there is no significant difference in the Earning Capacity of the public and private sector banks. The null hypothesis is accepted, and it is concluded that there is no significant difference in the earning capacity of the public (mean value = 4.41) and private sector banks (mean value = 4.95).

❖ **H05 and H06 :** It was hypothesized that there is no significant difference in Liquidity and Sensitivity to market risk of the public and private sector banks. The null hypothesis has been accepted in both cases of liquidity and sensitivity to market risk.

❖ While comparing the overall performance of the public and private sector banks, the null hypothesis has been accepted that there is no significant difference in the overall performance of the public and private sector banks. The mean values of the public sector banks (25.58) and private sector banks (25.42) exhibit that there was not much difference in the performance of the banks from both the sectors.

Conclusion

On the basis of the results retrieved from CAMELS variables, IDBI Bank had an outstanding performance among the 37 commercial banks in India. On the basis of the overall performance of the banks, the study found that private sector banks were the better performers in comparison to the public sector banks. The top performing banks were Kotak Mahindra Bank and ICICI Bank. The worst performing banks were J & K Bank and Dhanalaxmi Bank. SBI Bank stood at 7th position in the ranking of the 37 banks. The study also found that there is no statistically significant difference in the two groups of banks on the basis of CAMELS variables. The study concluded that both the banks are

required to improve their performance in each and every sphere - whether it was Capital Adequacy, Profitability, Liquidity and Solvency - to successfully survive in this competitive environment. Public sector banks are required to make more efforts to improve their performance as they are the major players in the Indian financial system. The study suggests that apart from following the guidelines set by the Reserve Bank of India, the commercial banks should pay due attention towards their performance so as to enhance their overall position in the market. Banks should also maintain an optimum capital adequacy to absorb the unexpected losses efficiently and also to stabilize return on assets to stop the fluctuation in their earnings.

Limitations of the Study and Scope for Future Research

The main limitation of the study is that it only considered a sample of public and private sector banks; foreign banks were not considered for the present study. The study is based on secondary data; no primary data had been used for the present study. Only quantitative analysis of financial performance of Indian commercial banks was carried out in the study, and the qualitative factors (such as Manager Competency, Market Share of Banks, Exposure to International Markets) were ignored. Though care was taken in this study to present an analytical picture of the Indian banking sector, but the generalization is subject to certain limitations.

It is hoped that the findings of the study would be of interest to the future researchers. Further, the scope of the study can be widened by using the public, private, and foreign sector banks in India. Many internal and external factors affecting the financial performance of the banks can be analyzed to make the future studies more prominent and comprehensive.

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