

---

## PERFORMANCE EVALUATION OF SELECTED PUBLIC & PRIVATE SECTOR BANKS IN INDIA: AN APPLICATION OF CAMEL MODEL

Ch Balaji<sup>1</sup>,

Ph.D Scholar in Management,  
Rayalaseema University,  
Kurnool, Andhra Pradesh.

Dr. G. Praveen Kumar<sup>2</sup>

Research supervisor,  
Rayalaseema University,  
Kurnool, Andhra Pradesh

**Abstract:** The broad objective of the banking sector reforms in India has been to increase efficiency and profitability of the banks. For this purpose, the banking sector has been opened for new private sector banks. As a result, various new private sector banks have started their banking business in India. The major objective of the present study is to compare the performance of private sector and public sector banks on the basis of CAMEL parameters. The study examines the financial performance of Indian banks based on the CAMEL variables and compares the performance of new private sector and public sector banks for the period of study i.e. 2011-12 to 2015-16. Three leading private sector banks – HDFC Bank, ICICI Bank, Kotak Mahindra Bank and three public sector banks – State Bank of India (SBI), Bank of Baroda, and Punjab National Bank have been taken as sample. It is concluded that selected private sector banks are having more capital adequacy ratio, profit per employee, return on assets and current ratio and less of net NPA/NA and business per employee compared to the selected public sector banks.

**Key words:** Public sector banks, Private sector banks, CAMEL model.

### Introduction:

The broad objective of the banking sector reforms in India has been to increase efficiency and profitability of the banks. For this purpose, the banking sector has been opened for new private sector banks. As a result, various new private sector banks have started their banking business in India. Commercial banks, especially the dominant public sector banks, have been exposed to competition from the new banks set up in the private sector with the latest technology. There are many new entrants, domestic as well as international, coming into this banking sector. These banks have differentiated their operations by focusing on advanced technology, customer service, innovative products and productivity. This has created a need for improving the business efficiency and increasing the business volume of the public sector banks. The entry of new private players has induced stiff competition in the banking sector and raised some issues relating to the functioning of the domestic banks. The comparison between the private and public enterprises has also been the area of great interest for the researchers. Specifically it becomes more pertinent when we talk about the banking sector, which is the most dominant sector of the financial system in India. The performance analysis of banking sector is also very important to meet the global benchmarks and useful to investors, customers, bankers, policy makers and economy in general.

The current study analyzes and compares the financial performance of new private sector and public sector banks for the period of study.

The Indian banking sector consists of the Reserve Bank of India (RBI), commercial banks, and cooperative banks. At the end of March 2007, there are 179 Scheduled Commercial Banks in India and only four non-scheduled commercial banks. Public sector banks comprise SBI and its seven associates, 19 nationalized banks, IDBI Bank Ltd. and 96 Regional rural banks. IDBI and IDBI Bank Ltd. have been merged to form Industrial Development Bank of India (IDBI) Ltd. IDBI is notified as a scheduled bank by the Reserve Bank of India (RBI) under the Reserve Bank of India Act, 1934. RBI has categorized IDBI under a new sub group "other public sector bank" on October 1, 2004. Currently there are 23 private sector banks out of which 15 are old and 8 are new private sector banks. During the last five years, some changes have been occurred in the structure of new private sector banks. Bank of Punjab Ltd. amalgamated with Centurian Bank Ltd. on 24th September 2005 and named as Centurian Bank of Punjab Ltd. A new bank YES bank has been entered into the private sector in 2005. UTI Bank has rechristened itself as Axis Bank on July 30, 2007. In India, RBI allowed new private sector banks to enter into Indian Economy a decade back. As a result very few studies are found in this regard after the arrival of new private sector banks.

### **Review of Literature:**

Most of the studies ( Ganesan P, 2001; Rayapati Vijaya Sree, 2002; Das M R, 2002-03 and Gupta V & Jain P K, 2003) compared the performance of public, private and foreign banks by using profitability, productivity, and financial management. They found that public sector banks fared poorly on all measures when compared with the private and foreign banks. Studies by Kantawala Amita S (2004), Ketkar W Kusum et al. (2004) and Reddy A Amarender (2004) analyze the performance of banks using various parameters. These studies mainly reveal the declining trends of public sector banks and increasing prominence of new private sector banks and foreign banks. Sinha, Ram Pratap (2006) makes a comparative assessment of public and private sector bank intermediation cost efficiency during the reform period, taking spread or net interest margin as the output indicator. The study observes that private sector commercial banks have higher mean cost and higher technical and cost efficiencies than the observed public sector commercial banks. Pal Ved and Malik N.S. (2007) investigates the differences in the financial characteristics of public sector banks, private sector banks and foreign banks in India based on factors, such as profitability, liquidity, risk, and efficiency. The findings suggest that foreign banks and private sector banks were better performers, as compared to the public sector banks, in general and in terms of utilization of resources in particular during the period chosen for the study.

### **Objectives of Study:**

The major objective of the present study is to compare the performance of private sector and public sector banks on the basis of CAMEL parameters. However, to be precise the main objectives of the study are:

- To analyze the financial performance of Indian commercial banks by using CAMEL Model.
- To compare the performance of new private sector and public sector banks

### **Hypotheses:**

In order to compare the performance of the new private sector and public sector banks based on the variables under consideration following hypotheses are tested:

1. Public sector banks have higher Capital Adequacy Ratio.
2. Public sector banks have higher Net NPA/ Net Advances.
3. Private sector banks have higher Profit per Employee.
4. Private sector banks have higher Business per Employee.
5. Private sector banks have higher return on assets.

6. Public sector banks have higher current ratio.

### **Methodology:**

The study examines the financial performance of Indian banks based on the CAMEL variables and compares the performance of new private sector and public sector banks for the period of study i.e. 2011-12 to 2015-16. Three leading private sector banks – HDFC Bank, ICICI Bank, Kotak Mahindra Bank and three public sector banks – State Bank of India (SBI), Bank of Baroda, Punjab National Bank have been taken as sample. The samples are selected on the basis of judgment and based on market capitalization of banks.

### **Tools:**

For evaluating the performance of Indian commercial banks, the world renowned CAMEL Model is adopted. CAMEL Stands for Capital Adequacy, Asset Quality, Management Quality, Earnings Quality and Liquidity. It is considered as the best method for evaluating performance and health of a bank since it considers all areas of banking operations.

Capital Adequacy reflects the overall financial condition of the banks and also the ability of the management to meet the need for additional capital. For evaluating Capital Adequacy of banks, CAR ratio (Capital Adequacy Ratio) is used. Banks having higher CAR are considered to be stronger as they have adequate capital to absorb losses. Second Component, Asset Quality is assessed by Net NPA to Net Advances (NNPA/NA). Asset quality determines the existing and potential credit risk associated with loan and investment portfolios and other off balance sheet transactions. Higher the ratio, lower is the asset quality of the bank. Third component, Management Quality is evaluated by two variables, Profit per Employee (PPE) and Business Per Employee (BPE). These variables measure the efficiency of all employees of a bank in generating profit and business for the banks. The higher the ratio, the higher the efficiency of employees. Next component, Earning Quality is examined by the Return on Assets (ROA). Earning reflects the growth capacity and the financial health of the bank. High earnings signify high growth prospects, low risk exposure and smooth operations. Last component Liquidity implies the cash position of the bank and the ability of the bank to meet its customers day to day cash needs and to respond to sudden cash withdrawals. Current ratio is used to assess the liquidity position of the banks. Current ratio is the ratio of current assets to the current liabilities of the bank.

Performance of new private sector and public sector banks in various CAMEL parameters are analyzed and compared by calculating the averages of all key variables per bank for the period covered in the study from 2011-12 to 2015-16. The statistical significance of the differences in the performance of the new private sector and public sector banks has also been tested by using t test.

Data are collected from secondary sources like RBI bulletin, The Indian Banker and website of Indian bank's association. Data base of CMIE- prowess has also been used. The data analysis has been done through SPSS software.

**Data Analysis & Interpretation:****Capital Adequacy Ratio of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
State Bank of India	13	13	12	12	13	12.6	4
Bank of Baroda	12	12	13	13	13	12.6	4
Punjab National Bank	13	13	12	13	11	12.4	6
Public Sector Banks	12.66667	12.66667	12.33333	12.66667	12.33333	12.53333	
HDFC Bank	16.52	16.8	16.07	16.79	15.53	16.342	3
ICICI Bank	19	19	18	17	17	18	1
Karur Vysya Bank	17.52	16.05	18.83	17.17	16.34	17.182	2
Private Sector Banks	17.68	17.28333	17.63333	16.98667	16.29	17.17467	

Source: Banks annual reports

From the above table it is observed that private sector banks are having higher capital adequacy ratio of 17.17 than that of public sector banks with 12.53. It is also observed that in private sector banks, ICICI bank is having highest CAR with 18% followed by Karur Vysya bank with 17.18% and HDFC bank with 16.34%.

Public sector banks are having less CAR in state bank of India and Bank of Baroda with 12.6% of CAR. Punjab National Bank is having 12.4% of CAR.

**Net NPA to Net advances of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
State Bank of India	2	3	2	2	4	2.6	4
Bank of Baroda	2	2	2	2	5	2.6	4
Punjab National Bank	2	2	3	4	9	4	6
Public Sector Banks	2	2.3333	2.333333	2.666667	6	3.066667	
HDFC Bank	0.195624	0.270637	0.245224	0.245224	0.284199	0.248181	1
ICICI Bank	1	1	1	2	3	1.6	3
Karur Vysya Bank	1	1	1	1	1	1	2
Private Sector Banks	0.731875	0.756879	0.748408	1.081741	1.428066	0.949394	

Source: Banks annual reports

From the above table it is observed that private sector banks are having less Net NPA/NA of 0.94 than that of public sector banks with 3.06. It is also observed that in private sector banks, HDFC bank is having less Net NPA/NA with 0.24% followed by Karur Vysya bank with 1% and ICICI bank with 1.6%.

Public sector banks are having higher Net NPA/NA in state bank of India and Bank of Baroda with 2.6% of Net NPA/NA. Punjab National Bank is having 4% of Net NPA/NA.

**Profit per employee of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
State Bank of India	543309.55	617837.58	490520.3	614410.7	478997.9	549015.20	5
Bank of Baroda	1187185.82	1039417.28	987170.5	688248.9	0	780404.50	4
Punjab National Bank	786164.53	750121.9	509998.3	448320.4	-561347	386651.54	6
Public Sector Banks	838886.6333	802458.92	662563.1	583660	-27449.9	572023.7	
HDFC Bank	781992.05	973906.44	1243802	1339160	1404399	1148651.91	2
ICICI Bank	1109420.21	1341411.86	1358303	1684888	1347598	1368324.06	1
Karur Vysya Bank	904210.83	1007938.67	939074.4	1036655	665322.8	910640.30	3
Private Sector Banks	931874.3633	1107752.323	1180393	1353568	1139106	1142538.76	

Source: Banks annual reports

From the above table it is observed that private sector banks are having higher profit per employee of Rs.1142538 than that of public sector banks with Rs.572023. It is also observed that in private sector banks like ICICI bank is having highest profit per employee with Rs.1368324 followed by HDFC bank with Rs. 1148651 and Karur Vysya bank with Rs.910640.

Public sector banks are having less profit per employee in state bank of India with Rs. 549015 and Bank of Baroda with Rs.780404 of Profit per employee. Punjab National Bank is having Rs.386651 of profit per employee.

**Business per employee of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
<b>SBI</b>	88695813.2	98484254.1	117290548.3	134911208.6	153770974.8	118630560	3
<b>BOB</b>	159394997	186060383.8	209973739.6	211759217.1	0	153437667	1
<b>PNB</b>	108384959	110643568.2	122162597.5	129142340	136350747.6	121336842	2
<b>Public Sector Banks</b>	118825256	131729402	149808961.8	158604255.2	96707240.8	131135023.3	
<b>HDFC Bank</b>	66911809.9	77603363.18	98340460.49	107003994.7	115472348.9	93066395	5
<b>ICICI Bank</b>	87382046.5	93911715.27	92849708.72	112938140.3	118696176	101155557	4
<b>KVB</b>	64679794	73702036.37	70062476.19	78345011.89	81919235.15	73741711	6
<b>Private Sector Banks</b>	72991216.8	81739038.27	87084215.13	99429048.94	105362586.7	89321221	

Source: Banks annual reports

From the above table it is observed that public sector banks are having higher business per employee of Rs.131135023 than that of private sector banks with Rs. 89321221. It is also observed that in public sector banks like Bank of Baroda having highest business per employee with Rs.1368324 followed by Punjab National Bank with Rs. 121336842 and State Bank of India with Rs.118630560.

Private sector banks are having less business per employee in ICICI bank with Rs. 101155557 and HDFC bank with Rs.93066395 of business per employee. Karur Vysya Bank is having Rs.73741711 of business per employee.

**Return on assets of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
<b>State Bank of India</b>	0.87	0.9	0.6	0.63	0.44	0.688	4
<b>Bank of Baroda</b>	1.11	0.81	0.68	0.47	-0.8	0.454	6
<b>Punjab National Bank</b>	1.06	0.99	0.6	0.5	-0.59	0.512	5
<b>Public Sector Banks</b>	1.013333	0.9	0.626667	0.533333	-0.31667	0.551333	
<b>HDFC Bank</b>	1.52	1.68	1.72	1.73	1.73	1.676	1
<b>ICICI Bank</b>	1.36	1.55	1.64	1.72	1.34	1.522	3
<b>Karur Vysya Bank</b>	1.65	1.62	1.71	1.76	1.08	1.564	2
<b>Private Sector Banks</b>	1.51	1.616667	1.69	1.736667	1.383333	1.587333	

Source: Banks annual reports

From the above table it is observed that private sector banks are having higher Return on assets of 1.58% than that of public sector banks with 0.55. It is also observed that in private sector banks like HDFC bank is having highest ROA with 1.67% followed by Karur Vysya bank with 1.56% and ICICI bank with 1.522%. Public sector banks are having less ROA in state bank of India with 0.688% and Bank of Baroda with 0.454% of ROA. Punjab National Bank is having 0.512% of ROA.

**Current Ratio of selected public & private sector banks**

	2011-12	2012-13	2013-14	2014-15	2015-16	Average	Rank
<b>State Bank of India</b>	0.05	0.04	0.03	0.04	0.07	0.046	3
<b>Bank of Baroda</b>	0.03	0.02	0.02	0.02	0.05	0.028	5
<b>Punjab National Bank</b>	0.02	0.02	0.02	0.02	0.03	0.022	6
<b>Public Sector Banks</b>	0.033333	0.026667	0.023333	0.026667	0.05	0.032	
<b>HDFC Bank</b>	0.08	0.06	0.06	0.04	0.07	0.062	2
<b>ICICI Bank</b>	0.07	0.09	0.09	0.06	0.13	0.088	1
<b>Karur Vysya Bank</b>	0.05	0.04	0.03	0.02	0.07	0.042	4
<b>Private Sector Banks</b>	0.066667	0.063333	0.06	0.04	0.09	0.064	

Source: Banks annual reports

From the above table it is observed that private sector banks are having higher current ratio of 0.064 than that of public sector banks with 0.032. It is also observed that in private sector banks like ICICI bank is having highest Current ratio with 0.088 followed by HDFC bank with 0.062 and Karur Vysya Bank with 0.042.

Public sector banks are having less current ratio in state bank of India and Bank of Baroda with 0.046 and 0.028 of Current Ratio. Punjab National Bank is having 0.022 of Current Ratio.

**Mean, Variance & t stat value of selected public and private sector Banks**

	Banks	Sample	Mean	Variance	t stat
<b>CAR</b>	<b>Public Sector Banks</b>	3	12.53333333	0.013333333	9.59
	<b>Private Sector Banks</b>	3	17.17466667	0.687281333	
<b>Net NPA/NA</b>	<b>Public Sector Banks</b>	3	3.066666667	0.653333333	3.59
	<b>Private Sector Banks</b>	3	0.949393742	0.458774245	
<b>PPE</b>	<b>Public Sector Banks</b>	3	572023.7447	39157392180	24.26
	<b>Private Sector Banks</b>	3	1142538.759	52396635416	
<b>BPE</b>	<b>Public Sector Banks</b>	3	131135023.3	374886945717988	5.07
	<b>Private Sector Banks</b>	3	89321221.17	198399494452852	
<b>ROA</b>	<b>Public Sector Banks</b>	3	0.551333333	0.014849333	42.38
	<b>Private Sector Banks</b>	3	1.587333333	0.006337333	
<b>CR</b>	<b>Public Sector Banks</b>	3	0.032	0.000156	2.27
	<b>Private Sector Banks</b>	3	0.064	0.000532	

Source: Author analysis

From the above table it is observed that private sector banks are having more capital adequacy ratio of 17.17 and more variance of 0.68 compared to public sector banks with 12.5 mean and 0.013 variance. T



test tabular value 4.30 is less than the calculated value 9.59 so there is no evidence that we should accept null hypothesis. So we accept alternative hypothesis i.e there is a significant difference in capital adequacy ratio between public and private sector banks.

From the above table it is also observed that private sector banks are having less net NPA/NA of 0.94 and less variance of 0.45 compared to public sector banks with 3.06 mean and 0.653 variance. T test tabular value 4.30 is more than the calculated value 3.59 so there is no evidence that we should accept alternative hypothesis. So we accept null hypothesis i.e there is no significant difference in net NPA/NA between public and private sector banks.

From the above table it is observed that private sector banks are having more profit per employee of Rs. 1142538 and more variance of 52396635416 compared to public sector banks with Rs. 572023 mean and 39157392180 variance. T test tabular value 4.30 is less than the calculated value 24.26 so there is no evidence that we should accept null hypothesis. So we accept alternative hypothesis i.e there is significant difference in PPE between public and private sector banks.

From the above table it is observed that public sector banks are having more Business per employee Rs. 131135023.3 of and more variance of 374886945717988 compared to private sector banks with Rs. 89321221.17 mean and 198399494452852 variance. T test tabular value 4.30 is less than the calculated value 5.07 so there is no evidence that we should accept null hypothesis. So we accept alternative hypothesis i.e there is significant difference in business per employee between public and private sector banks.

From the above table it is observed that private sector banks are having more Return on assets of 1.58% and less variance of 0.0063 compared to public sector banks with 0.55% mean and 0.014 variance. T test tabular value 4.30 is less than the calculated value 42.38 so there is no evidence that we should accept null hypothesis. So we accept alternative hypothesis i.e there is significant difference in Return on assets between public and private sector banks.

From the above table it is observed that private sector banks are having more current ratio of 0.064 and more variance of 0.0005 compared to public sector banks with 0.032 mean and 0.000156 variance. T test tabular value 4.30 is more than the calculated value 2.27 so there is a evidence that we should accept null hypothesis. So we accept null hypothesis i.e there is no significant difference in capital adequacy ratio between public and private sector banks.

### **Conclusions:**

The following conclusions can be arrived on the basis of the above results:

There is a significant difference in the capital adequacy of new private sector and public sector banks. A bank has to maintain the CAR ratio at 9% according to Basel III norms. It can therefore be concluded that banks of both the sectors have maintained an adequate amount of capital to meet the financial needs. Almost all these banks have complied with capital adequacy requirement and prudential norms.

There is no significant difference in the Net NPA to Net Advances of new private sector and public sector banks. It shows that the public sector banks, which were suffering from the high NPA levels a decade back, are able to minimize their Net NPAs and improved the asset quality. The enactment of Securitization and Reconstruction of financial assets and enforcement of security interest Act, 2002 (SRFAESI Act) can be the one reason to reduce the NPA levels in public sector banks. On the other hand new private sector banks have commenced with a strong financial position, without having to pursue NPAs.

There is a significant difference in the management quality of the new private sector and public sector banks. It can be concluded that private sector banks generate more profit per employee and public sector banks generate more business per employee. The reason can be the use of advanced technology, processes, core banking and aggressive marketing strategies by these banks. In contrast to their public

sector counter parts, operational efficiency is maintained at their highest level because these banks provide a smooth working environment to their employees.

There is a significant difference in the earning quality of the new private sector and public sector banks. It can be said that private sector banks earn more return on assets as compared to the public sector banks. Efficient employees and good working conditions enable these banks to reduce the operating cost of the functions and increase return on investments.


There is no significant difference in the liquidity position of the new private sector and public sector banks. Both the sectors have maintained the proper liquidity to meet their customers day to day cash needs and to respond to sudden cash withdrawals.

**References:**

- Das M R (2003-04), "An Objective method for Ranking Nationalized Banks", *Prajnan*, Vol. XXXI (No. 2).
- Ganesan P (2001), "Determinants of Profits and Profitability of Public sector Banks in India: A Profit Function approach", *Journal of Financial Management and Analysis*, Vol. 14 (No.2), pp. 27-37
- Gupta V. and Jain P. K. (2003), "Long Range Profit Planning Practices among Commercial Banks in India", *Management & Change*, Vol. 7, pp. 227-250
- Kantawala Amita S (2004), "Banking Sector Reforms: An Impact Analysis", *The Icfai Journal of Bank Management*, Vol. III (No. 2).
- Ketkar W Kusum, Noulas G Athanasios and Agarwal Man Mohan (2004), "Liberalisation and Efficiency of the Banking Sector", *Indian Journal of Economics & Business*, Vol. 3 (No. 2), pp. 269-287
- Pal Ved and Malik N.S. (2007), "A Multivariate Analysis of the Financial Characteristics of Commercial Banks in India", *The Icfai Journal of Bank Management*, Vol. 6 (No. 3), pp. 29-42
- Rayapati Vijaya Sree (2002), "Managing Bank Profitability in Economic Downturns", *IBM Bulletin*, (September)
- Reddy A Amarender (2004), "Banking sector Liberalization and Efficiency of Indian Banks", *The Icfai Journal of Bank Management*, Vol. III (No. 2), pp. 37-49
- Sinha R.P.(2006), "Spread Efficiency of Indian Commercial Banks", *The Icfai Journal of Bank Management*, Vol.5 (No.4), pp. 39-58
- Sinha R.P. (2007), "Asset Quality Profile of Indian Commercial Banks: A Schotastic Frontier Approach", *The Icfai Journal of Financial Risk Management*, Vol. 4( No. 3), pp. 24-36
- Trends and Progress of Banking in India*, RBI annual Report, 2007-08
- [www.iba.org.in](http://www.iba.org.in)
- Mr. Roopak Kumar Gupta & Ms. Ekta Sikarwar "Financial Performance of Indian New Private and Public sector banks"



**Authors Profile:**

	<p>Ch. Balaji is a Research scholar in Rayalaseema university, Kurnool and working as Associate Professor in CMR College of Engineering and Technology (Autonomous), Medchal, Hyderabad. Having 11 years of teaching experience in India and abroad. Worked as Lecturer in Department of Accounting, Wollo University, Ethiopia for 4 and half years. Published 16 research articles in national and international journals and attended 15 symposiums at national and international level. Got an outstanding research paper award in University of Mumbai for presenting research paper. Published articles in CANADA, Singapore and Bangladesh.</p>
	<p>Dr. Praveen Kumar Gandra is a Doctorate in the area of Finance from Osmania University (2007), Postgraduate (MBA) in the area of Finance from Kakatiya University(1999), Postgraduate (PGDMM) in the area of Marketing from Pondicherry University(2000), and Graduate (Bachelor of Business Management) in the area of Finance from Kakatiya University(1997). And has 17 years of Teaching and Administrative Experience. Presently he is working as Professor in Finance and Accounting at Department of Business Studies, Ibra College of Technology, Ministry of Manpower, Sultanate of Oman.</p>