A Camel Model Analysis of Public, Private and Foreign Sector Banks in India

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Abstract

Camel approach is significant tool to assess the relative financial strength of a bank and to suggest necessary measures to improve weaknesses of a bank. In India, RBI adopted this approach in 1996 followed on the recommendations of Padmanabham Working Group (1995) committee. In the present study, an attempt has been made to rank the various commercial banks operating in India. The banks in India have been categorized into Public sector, Private sector, and Foreign banks. The sample of selected banks consists of 25 Public Sector, 18 Private Sector, and 8 Foreign banks. For the purpose of ranking, CAMEL MODEL approach has been applied, incorporating important parameters like Capital Adequacy, Assets Quality, Management Efficiency, Earnings Quality and Liquidity. The finding of the study shows that public sector banks, viz. Andhra Bank, Bank of Baroda, Allahabad Bank, Punjab National Bank IDBI Bank, State Bank of Bikaner and Jaipur and UCO Bank has been ranked at the top five positions in their financial performance during the study period. The private sector banks, namely, Tamilnad Merchantile Bank, Kotak Mahindra Bank, HDFC Bank, Axis Bank, Karur Vysya Bank, ICICI Bank, Citi Union Bank and IndusInd Bank shared the top five positions. The foreign banks such as Bank of Bahrain & Kuwait, HSBC Bank, The Royal Bank of Scotland, Deutsche Bank, CTBS Bank, Citi Bank, DBS Bank and Royal Bank of Scotland secured the top five positions during the study period.

Keywords: CAMEL, Financial Soundness, Indian Commercial Banks

Introduction

Banking sector plays an important role in the economic development of a country. The banking sector reforms in India were started as a follow up measure of economic liberalization and financial sector reforms in the country. The banking sector being the life line of the economy was treated with utmost importance in the financial sector reforms. The reforms were aimed at to make the Indian banking industry more competitive, productive and efficient and to follow international accounting standards. The reforms in the banking industry started in the early 1990s have been continued till now and the Indian banking industry registered tremendous growth in the post-liberalization era. Since the beginning of 1991, there have been

considerable changes in the rules and regulation, organization, scope and activity level of Indian Banking sector.

Recent Economic Survey (2014-15) states that there are many reform initiatives undertaken in the banking sector during 2014- 2015. These include (i) Banks being allowed to raise capital from the market to meet capital adequacy norms by diluting the government's stake up to 52 per cent. (ii) Pradhan Mantri Jan Dhan Yojana launched to provide universal access to banking facilities with at least one basic banking account for every household. (iii) In April 2014, two applicants have been granted 'in principle' approval to set-up new banks in the private sector within 18 months and (iv) RBI released guidelines and invited applications for setting up payments banks and local area banks.

According to the Economic Survey (2014-15), the FY 2014-2015 faced some stress on the asset quality of the Scheduled Commercial Banks as there was an increase in gross NPA (Non Performing Advances) to the total gross advances. NPA increased from 4.1 percent (March 2014) to 4.5 percent (September 2014). As on June 2014 , five subsectors, viz. Infrastructure, Textiles, Iron & Steel, Mining and aviation hold 54 percent of total stressed advances of Public Sector Banks

Recently, the actions taken by RBI to deal with NPAs are includes (i) Issued guidelines, prompting banks to act as soon as a sign of stress is noticed in borrower's actions and not to wait for it to become a NPA. (ii) Tightened norms to Asset Reconstruction Companies, increasing the minimum investment in security receipts to 15 percent from five percent. (iii) Issued guidelines to bring flexibility in project loans to infrastructure and core industry projects.

Moreover, the FY 2014- 2015 also saw a decline in the growth of bank credit due to high accretion of NRI deposits and also due to low deposit mobilization. With increase in competition from private sector and foreign sector banks, the public sector banks were forced to restructure their activities and were obliged to improve professionalism in the banking activities. Besides, the banking business is diversified from traditional approaches to individual approach. With the shift in customer preference from deposits in banks to investments, number of banking facilities to customers at their doorstep, providing retail banking products and value added services along with their traditional banking products, it has become imperative for all the nationalized banks to retain the old customers and attract the new customers by providing more value added services and banking incentives under single window system as well as to find alternative ways to generate more income. In order to sustain their present competitiveness, banks must focus on their performance.

Against this backdrop, the present study attempts to investigate the financial soundness of the selected commercial banks in India. The remainder of our article is organised as follows: Section II provides the review of related literature. Section III describes the methodology and data used for empirical analysis. Section IV offers empirical results and discussion of the study. Concluding remarks are presented in section V.

Review of Literature

Bankers play very important role in the economic life of the nation. The health of the economy is closely related to the soundness of its banking system. Various scholars have made several studies on the performance of banking sector in the emerging economies using CAMEL model. Kwan and Eisenbeis (1997) observed that Asset Quality is commonly used as a risk indicator for financial institutions, which also determines the reliability of capital ratios. Their study indicated that capitalization affects the operation of financial capitalization affects the operation of financial institution. More the capital, higher is the efficiency. Prasuna (2003) examined the performance of 65 Indian banks according to the CAMEL Model and concluded that better service quality, innovative products and better bargains were beneficial because of the prevailing tough competition. Baral (2005) studied the performance of joint ventures banks and commercial banks in Nepal by applying the CAMEL Model. The study revealed that the financial health of joint ventures is more effective than that of commercial banks. Bodla and Verma (2006) investigated the performance of SBI and ICICI through CAMEL model for the period of 2000-01 to 2004-05. With the reference to the Capital Adequacy, it concluded that SBI has an advantage over ICICI. Regarding to assets quality, earning quality and management quality, they inferred that ICICI has an edge upon SBI.

Gupta and Kaur (2008) examined the performance of Indian private Sector banks by using CAMEL model and by assigning rating to the top five and bottom five banks. The CAMEL model revealed that HDFC was at its higher position of all private sectors banks in India succeeded by the Karur Vysya and the Tamilnad Mercantile Bank. Dash and Das (2009) have analyzed the performance of public sector banks with that of private/ foreign banks under CAMELS framework. The findings concluded that private/foreign banks have an edge over the public sector banks. The two factors of the CAMEL parameters that contribute to the best performance of the private banking/foreign were the Management Soundness and Earnings and Profitability. Kaur (2010) have made an analysis of commercial banks operating in India with reference to CAMEL approach. He has categorized the banks into Public sector Bank, Private sector Banks and

Foreign Banks. His analysis revealed that the best bank from the public sector has been awarded to Andhra Bank and State Bank of Patiala. In the category of private sector banks, Jammu and Kashmir Bank has been assigned the first rank succeeded by HDFC Bank. Among the foreign sector banks, Antwerp has bagged the first rank followed by JP Morgan Chase Bank.

Sangmi and Nazir (2010) evaluated the financial performance of two major banks in the northern India, i.e. Punjab national Bank and Jammu and Kashmir Bank. The results highlighted that the position of the banks under study is sound and satisfactory as far as their capital adequacy, asset quality management capability and liquidity is concerned. Prasad and Chari (2011) conducted a study to evaluate financial performance of public and private sector banks in India. They compared financial performance of top four banks in India viz., SBI, PNB, ICICI and HDFC and concluded that on overall basis HDFC rated top most position. Moreover, Siva and Natarajan (2011) empirically tested the applicability of CAMEL norms and its consequential impact on the performance of SBI Groups. The study concluded that annual CAMEL scanning helps the commercial bank to diagnose its financial health and alert the bank to take preventive steps for its sustainability.

Recently, Srinivas and Saroja (2013) conducted a study to compare the financial performance of HDFC Bank and ICICI Bank using CAMEL framework and found no significance difference between the ICICI and HDFC bank's financial performance but they concluded that the ICICI bank performance is slightly less compared with HDFC. Similarly, Tripathi and Meghani (2014) conducted a study to compare the financial performance of Axis and Kotak Mahindra bank (Private Sector banks). The CAMELS analysis and t-test concluded that there is no significance difference between the Axis and Kotak Mahindra bank's financial performance but the Kotak Mahindra bank performance is slightly less compared with Axis Bank.

The literature reviewed above pertaining to the examination of overall performances and soundness of nationalized banks and foreign banks with the help of CAMEL Model approach in emerging economies is well established. However, the results appear to be ambiguous. The present study throw a light on CAMEL Model analysis of Public, Private and Foreign Sector Banks in India which will be immense useful to vast spectrum of nationalized banks operating in India to draw a bird's eye-view on their performances based on CAMEL rating and the recommendations proposed in this study can be used for the strengthening nationalized banks performances in India.

Methodology

To look at the financial soundness of the selected commercial banks in India, we use a very simplified approach using internationally accepted CAMEL rating parameters. CAMEL is an acronym for five parameters (capital adequacy, assets quality, management soundness, earnings and liquidity). CAMEL rating is a subjective model which indicates financial strength of a bank, whereas CAMEL ranking indicates the banks relative position with reference to other banks. The brief explanation of major and its sub-parameters of the CAMEL model are depicted in Table 1

Table I. Description of Components of CAMEL Model

Category	Ratios	Formula	Significance	Evaluation Criteria
Capital Adequacy	CRAR	Tier-I and Tier-II Capital/aggregate of risk weighted assets (RWA).	It measures the ability of a bank in absorbing losses arising from risk assets. The higher the value of this ratio, the better the financial health of a bank	Higher the Better
	Debt/Equity Ratio	(Capital + Reserves)/ (Deposits + Borrowings + Other Liabilities).	This ratio thus indicates the bank's financial leverage. In the case of manufacturing sector the ideal ratio is 2:1. However, in the case of commercial banks, there is no standard norm for debt — equity ratio	Lower the Better
	Coverage Ratio	(Net worth-net NPAs)/total assets	This ratio indicates availability of capital to meet any incidence of lo ss assets in NPAs	Higher the Better

Asset Quality	Net NPA/Net Advances Ratio	Non Performing Assets / Net advances	This indicates the level of nonperforming assets in net advances	Lower the Better
	Gov Sec/Investment Ratio	Government Securities/Total Investments	This ratio indicates a bank's strategy as being high -profits high risk or low profits -low risk	Higher the Safer
	Standard advances/total advances Ratio	Std advances (net of total advances and gross NPAs) / total advances	This ratio means that if the bank has high performing assets it may result in higher earnings	Higher the Better
Management Quality	Total advances/total deposit Ratio	Total advances/total deposit	This ratio indicates the ability of a bank to convert its deposits into higher ea rning advances	Higher the Better
	Business per Employee	Total advances and Total Deposits /No of Employees	This ratio is used to find out whether a bank is relatively over or under staffed	Higher the Better
	Profit per Employee	Profit / No of employees	This is also a ratio to check efficiency of bank in maximizing profits per employee	Higher the Better
Earning Ability	Return on Asset	Net profit after tax / Total assets	This ratio indicates the returns earned on assets deployed by the bank	Higher the Better
	Income Spread/Total Assets Ratio	(Interest Income earned - Interest Expended) / Total Assets	This ratio portrays how much a bank can earn for every rupee of investments made in assets	Higher the Better
	Operating Profit/Total Assets Ratio	Operating Profit/Total Assets	This ratio indicates how much a bank can earn from its operations after meeting operating expenses for every rupee of investments made in assets	Higher the Better
	Cost/Income Ratio	Operating expenses / Net Income	It indicate s the ability of the bank to meet the operating expenses from the revenue generated	Lower the Better
Liquidity	Cash Asset/Total Asset Ratio	Cash Asset/Total Asset	This ratio measures cash (which has the highest liquidity and safety among all assets) as a proportion of total assets	Higher the Better
	Gov Sec/Total Asset Ratio	Gov Sec/Total Asset	This ratio measures Government securities (most liquid and safe investments) as a proportion of total asset	Higher the Better
	Liquid Asset/Total deposit Ratio	Liquid Asset/Total deposit	This ratio indicates ability of the bank to meet its deposit obligations with available liquid funds	Higher the Better

CAMEL ranking technique is employed based on CAMEL ratios to estimate the relative positions of various banks. All the banks in the list may be ranked on each of the sub parameter of major parameter (for example Capital Adequacy). These sub parameter ranks are combined by weighted average. After obtaining the ranks for each major parameter, these are aggregated using the same weighted average method as mentioned. Based on the CAMEL study of Reddy (2012), we assigned the appropriate weights for different sub-parameter and major parameters of CAMEL model in the present study (Table 2).

Table 2: Weights of Variables considered in Camel Ranking

Category	Ratios	Weights	Reason	Composite Weights	Reason
Capital Adequacy	CRAR	0.70	CRAR indicates availability of capital for a given level of risk weighted assets and considered as more important variable indicating capital adequacy of a bank	0.20	In CAMEL parameters Asset quality and Earnings quality are considered very important because assets size indicates growth of the bank and earnings efficiency ensures survival of the bank. Next important categories are Capital adequacy which ensures safety of depositors and Management quality which indicates productivity of the banks. Though liquidity is essential, it is given least weight as high liquidity deteriorates profitability of the banks and affects the overall performance of the banks
	Debt/Equity Ratio	0.15			
	Coverage Ratio	0.15			
Asset Quality	Net NPA/Net Advances Ratio	0.10	Standard advances in total advances contribute to higher earnings to banks where as NPAs results in decreasing profit levels. Therefore Standard advances/total advances Ratio parameter is given higher weight	0.25	
	Gov Sec/Investment Ratio	0.30			
	Standard advances/total advances Ratio	0.60			
Management Quality	Total advances/total deposit Ratio	0.25	Total advances/total deposit ratio indicates top-line of banks income statements and should be given higher weight.	0.20	
	Business per Employee	0.25			
	Profit per Employee	0.50			
Earning Ability	Return on Asset	0.25	All the four variables explain the earnings quality from various viewpoints such as earnings from interest and non interest activities and ability to meet costs from income generated by the banks. All the variables are given equal weights because of their equal importance	0.25	
	Income Spread/Total Assets Ratio	0.25			
	Operating Profit/Total Assets Ratio	0.25			
	Cost/Income Ratio	0.25			
Liquidity	Cash Asset/Total Asset Ratio	0.25	Liquid assets to total deposits ratio is considered more important as it ensures higher credibility in the minds of depositors	0.10	
	Gov Sec/Total Asset Ratio	0.25			
	Liquid Asset/Total deposit Ratio	0.50			

Finally, the One-way ANOVA has been used to determine whether there is any significant difference between the means of CAMEL ratios of public sector, private sector and foreign banks. It is based on following hypothesis:

$H0_1$: There is no significant difference between public, private sector, & foreign bank's Capital Adequacy.

$H0_2$: There is no significant difference between public, private sector, & foreign bank's Asset quality.

$H0_3$: There is no significant difference between public, private sector, & foreign bank's Management quality.

$H0_4$: There is no significant difference between public, private sector, & foreign bank's Earnings ability.

$H0_5$: There is no significant difference between public, private sector, & foreign bank's Liquidity.

Fifty one Indian commercial banks were selected for the study that is provided in Table 3. Out of 51 commercial banks, 25, 18 and 8 banks are belongs to public sector, private sector and foreign sector, respectively. Most of these commercial banks are traded in National Stock Exchange (NSE) and are part of CNX Bank Index. CNX Bank Index is an index comprised of the most liquid and large capitalized Indian Banking stocks. It provides investors and market intermediaries with a benchmark that captures the capital market performance of the Indian banks. The study covers the annual data for the period 2012 to 2014. All the necessary information is collected from the various issues of annual report published by the Reserve bank of India, Mumbai.

Table 3: List of Commercial Banks selected for the study

S. No	Public Sector Banks	Private Sector Banks	Foreign Banks
1	State Bank Of Bikaner & Jaipur	Axis Bank	Bank Of Bahrain & Kuwait
2	State Bank Of India	Catholic Syrian Bank Ltd	Barclays Bank
3	State Bank Of Mysore	City Union Bank Limited	Citibank
4	State Bank Of Patiala	DCB Bank Limited	CTBC Bank
5	State Bank Of Travancore	Dhanlaxmi Bank	DBS Bank Ltd.
6	Allahabad Bank	Federal Bank	Deutsche Bank
7	Andhra Bank	HDFC Bank	Hong Kong And Shanghai Banking Corporation Ltd.
8	Bank Of Baroda	ICICI Bank	Royal Bank Of Scotland
9	Bank Of India	Indusind Bank	
10	Bank Of Maharashtra	ING Vysya Bank	
11	Canara Bank	Jammu & Kashmir Bank Ltd	
12	Central Bank Of India	Karnataka Bank Ltd	
13	Corporation Bank	Karur Vysya Bank	
14	Dena Bank	Kotak Mahindra Bank Ltd	
15	IDBI Bank Limited	Lakshmi Vilas Bank	
16	Indian Bank	South Indian Bank	
17	Indian Overseas Bank	Tamilnad Mercantile Bank Ltd	
18	Oriental Bank Of Commerce	Yes Bank Ltd.	
19	Punjab And Sind Bank		
20	Punjab National Bank		
21	Syndicate Bank		
22	UCO Bank		
23	Union Bank Of India		
24	United Bank Of India		
25	Vijaya Bank		

IV. Empirical Results and Discussion

Performance of Public Sector Banks in India

Table 4 shows the composite ranking of CAMEL parameters for the public sector banks in India. During the year 2012, it is clear that the Andhra Bank holds first position in the CAMEL ranking method due to their best financial performance, especially in the context of Asset Quality and Earning Ability. This is followed by Bank of Baroda which managed to seize the second position in their performance, particularly in Capital Adequacy and Management Quality whereas Allahabad Bank is at third position with better Asset Quality and Earning Ability and Liquidity. The Punjab National Bank is in fourth position with its performance attributable to better Earning Ability, Management Quality and Asset Quality and the fifth position is occupied by IDBI Bank as a result of its good performance in Management Quality, Capital Adequacy and Liquidity. The Bank of India is at the last position as a consequence of its poor functioning in Management Quality and Earning Ability in the year 2012.

During the year 2013, the table results show that the Punjab National Bank rose to the top due to its better recital in Earning Ability and Capital Adequacy. Andhra Bank descended to second position because of its set back in Capital Adequacy and Earning Ability and also Bank of Baroda fall down to third position as it was held up in most of the parameters mainly Capital Adequacy and Earning Ability. And IDBI Bank moved ahead to fourth position with its best performance credited towards Capital Adequacy and Management Quality. The State Bank of Bikaner and Jaipur occupies the fifth position with its better Asset Quality and Earning Ability. The Vijaya Bank is at the last position due to its poor Asset Quality and Earning Ability but its Liquidity is held high all the time.

During the year 2014, the UCO Bank grabbed the top position from far apart in the table in previous years with its soaring and outstanding performance in all parameters particularly attributed towards its best Asset Quality and Earning Ability and the IDBI Bank rose to second position with improved Asset Quality and maintained Capital Adequacy and Management Quality whereas Punjab National Bank is pushed back to the third position as it stumbled in Management Quality and Liquidity. The State Bank of Bikaner and Jaipur grew to the fourth position with improvement in Management Quality and Earning Ability and the Bank of Baroda descend to fifth position with the poor performance in its Asset Quality and Earning Ability. Once again, the Vijaya Bank resided in the last position due to its worse Asset Quality and Earning Ability performance.

Table 4: CAMEL Composite Ranking of Public Sector Banks

Public Sector Bank	C			A			M			E			L			Composite Rank		
	Rank			Rank			Rank			Rank			Rank			Rank		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
STATE BANK OF BIKANER & JAIPUR	1	14	14	3	3	10	18	17	6	7	3	1	12	16	20	6	5	4
STATE BANK OF INDIA	3	4	3	16	25	24	15	12	11	5	2	4	19	21	19	8	11	8
STATE BANK OF MYSORE	14	12	15	6	5	7	21	22	22	15	10	10	17	19	17	15	12	12
STATE BANK OF PATIALA	22	24	23	1	1	1	14	16	14	9	18	17	22	24	24	10	17	17
STATE BANK OF TRAVANCORE	11	20	24	13	8	6	20	15	21	21	19	19	15	10	8	19	16	21
ALLAHABAD BANK	12	23	25	3	13	12	12	18	16	4	15	6	4	13	9	3	22	13
ANDHRA BANK	7	16	18	2	2	2	4	2	23	3	5	15	17	8	6	1	2	10

Bank																		
BANK OF BARODA	1	3	4	8	10	13	2	3	4	5	8	9	21	16	18	2	3	5
BANK OF INDIA	20	25	22	17	14	20	5	8	2	16	14	12	22	20	22	17	20	18
BANK OF MAHARASHTRA	18	8	19	15	18	11	25	12	17	18	7	13	2	14	9	20	10	16
CANARA BANK	4	9	16	18	19	14	8	14	11	13	16	14	6	3	13	8	14	14
CENTRAL BANK OF INDIA	19	18	12	23	14	19	24	23	24	25	22	24	10	5	3	25	23	24
CORPORATION BANK	15	13	8	25	20	22	3	3	13	12	13	24	5	1	4	14	9	22
DENA BANK	25	22	10	11	17	14	9	10	15	8	11	17	10	2	5	12	13	11
IDBI BANK LIMITED	2	1	1	9	9	3	1	1	1	19	17	16	3	7	11	5	4	2
INDIAN BANK	5	2	2	18	24	23	7	6	5	1	3	5	20	22	23	7	8	7
INDIAN OVERSEAS BANK	9	15	17	5	4	17	19	21	19	22	24	21	7	12	12	13	18	23
ORIENTAL BANK OF COMMERCE	10	11	9	10	7	9	11	7	8	17	11	7	14	14	16	11	6	6
PUNJAB AND SIND BANK	8	6	7	12	11	16	13	19	18	24	23	22	9	11	7	16	15	19
PUNJAB NATIONAL BANK	16	5	5	7	6	5	6	8	10	2	1	3	12	6	13	4	1	3
SYNDICATE BANK	24	10	11	14	14	21	15	5	3	9	6	7	24	25	25	18	7	9
UCO BANK	21	7	6	20	12	4	17	24	6	19	21	2	16	18	13	24	21	1
UNION BANK OF INDIA	23	17	13	22	22	18	10	10	9	11	9	11	24	23	21	21	19	15
UNITED BANK OF INDIA	17	19	20	21	21	8	23	25	25	13	19	19	8	8	1	22	24	20
VIJAYA BANK	13	21	21	24	23	25	22	20	20	23	25	23	1	4	2	23	25	25

Performance of Private Sector Banks in India

Table 5 shows the composite ranking of CAMEL parameters for the private sector banks in India. In the year 2012, Tamilnad Merchantile Bank get hold of the first position with its excellent performance in Asset Quality, Management Quality and Earning Ability and the Kotak Mahindra Bank occupies the second position with its accomplishment concentrated towards Capital Adequacy and Earning Ability whereas the HDFC Bank is at the third position with positioning its feet strong in Capital Adequacy, Earning Ability and Liquidity. The Axis Bank holds the fourth position with enduring performance in Management Quality and Earning Ability and the Karur Vysya Bank is in fifth position with its strong operations in Asset Quality and Liquidity. The last position is occupied by the Dhanlaxmi Bank as it is ineffective in Capital Adequacy, Management Quality and Earning Ability but effectively maintained the

high Liquidity.

Similarly, the Tamilnad Merchantile Bank captured the top position with its outstanding and retained Asset Quality, Management Quality and Earning Ability during the year 2013-14. The Axis Bank rose to the second position with good progress in the performance in Capital Adequacy and Management Quality whereas the Kotak Mahindra Bank is pushed to the third position as it trended back in its Liquidity and Earning Ability. The HDFC bank pushed to fourth position as it performance was set back by reduced Liquidity and Earning Ability. Though ICICI bank was the top performer in Capital Adequacy, it occupied fifth position because of its poor Asset Quality and Liquidity. Again, the Dhanlaxmi Bank took the last position with its stagnant due to poor performance in Capital Adequacy, Management Quality and Earning Ability.

As seen from the table, the Axis Bank with its continuing progress in Capital Adequacy and Management Quality climbed to the top position in the year 2014-15. The Tamilnad Merchantile Bank is pushed to the second position as it slightly trended back in its performance in Management Quality and Earning Ability. The HDFC Bank again managed to climb the ladder to occupy the lost position of third with its good Management Quality and Earning Ability. The Citi Union Bank succeeded in entering the top five occupying the fourth position with its better Asset Quality and Earning Ability and also IndusInd Bank entered in with its fifth position because of its good Management Quality and Earning Ability. Persistently, the Dhanlaxmi Bank dwelled in the last position with no improvement in its performance in Capital Adequacy and Earning Ability.

Table 5: CAMEL Composite Rank**ing of Private Sector Banks**

Private Bank	C Rank 2012	C Rank 2013	C Rank 2014	A Rank 2012	A Rank 2013	A Rank 2014	M Rank 2012	M Rank 2013	M Rank 2014	E Rank 2012	E Rank 2013	E Rank 2014	L Rank 2012	L Rank 2013	L Rank 2014	Composite Rank 2012	Composite Rank 2013	Composite Rank 2014
AXIS BANK	11	2	3	12	16	14	2	1	1	4	4	4	7	4	8	4	2	1
CATHOLIC SYRIAN BANK LTD	17	17	16	3	4	6	17	17	17	17	17	17	9	11	3	16	16	16
CITY UNION BANK LIMITED	16	9	9	2	2	3	12	10	11	6	8	7	11	18	10	8	6	4
DCB BANK LIMITED	5	11	11	11	5	4	14	13	14	14	14	11	3	7	7	11	11	10
DHANLAXMI BANK	18	18	18	6	9	7	18	18	17	18	18	18	1	1	1	18	18	18
FEDERAL BANK	3	8	6	17	14	12	5	8	10	8	9	10	16	13	6	10	11	8
HDFC BANK	4	4	5	13	13	13	11	5	4	1	2	1	2	8	13	3	4	3
ICICI BANK	1	1	1	16	15	17	4	4	3	9	6	6	13	12	16	7	5	7
INDUSIND BANK	10	5	8	7	11	11	7	7	6	7	7	2	11	17	18	6	8	5
ING VYSYA BANK	8	12	4	9	7	10	13	14	13	12	11	11	15	2	12	14	10	12
JAMMU & KASHMIR BANK LTD	13	15	13	15	17	15	9	9	5	5	4	5	14	14	15	13	14	13
KARNATAKA BANK LTD	14	14	12	8	10	8	14	14	15	16	15	16	5	9	4	15	15	15
KARUR VYSYA BANK	9	10	14	4	3	1	8	11	12	11	12	14	6	3	4	5	7	9
KOTAK MAHINDRA BANK LTD	2	3	2	14	12	16	6	6	8	2	3	3	4	6	13	2	3	6
LAKSHMI VILAS BANK	15	16	17	10	8	9	16	16	16	15	16	15	8	9	2	17	17	17
SOUTH INDIAN BANK	12	13	15	5	6	5	10	12	9	13	13	13	18	15	16	12	13	14
TAMILNAD MERCANTILE BANK LTD	7	7	7	1	1	2	3	2	6	3	1	9	16	15	10	1	1	2
YES BANK LTD.	6	6	10	18	18	18	1	3	2	10	10	8	10	4	9	9	9	11

Performance of Foreign Sector Banks in India

Table 6 shows the composite ranking of CAMEL parameters for the foreign sector banks in India. It is clear from the table, the Bank of Bahrain & Kuwait grabs the top position with its superior performance in Capital Adequacy, Asset Quality and Earning Ability compared to others during the year 2012. And the HSBC Bank occupies second position which is attributable to its better performance in Capital Adequacy, Asset Quality, Earning Ability and Liquidity and the Deutsche Bank is at the third position by means of its good

Management Quality and Earning Ability. The Royal Bank of Scotland is in fourth position with better performance towards Asset Quality and Liquidity. Though, the CTBS Bank is the best in Capital Adequacy, it holds the fifth top performer due to its deprived Management Quality and Liquidity. As seen in the table, the last position was occupied by Barclays Bank as Asset Quality and Earning Ability pulled it down.

During the year 2013, the Bank of Bahrain & Kuwait maintained its top position with sustained performance in

Capital Adequacy, Asset Quality and Earning Ability and the Citi Bank grow to the second position with its best performance more leaned towards Management Quality and Liquidity whereas the HSBC Bank plunge to the third position as it trended back in its Capital Adequacy, Management Quality and Earning Ability. Though, the Deutsche Bank is the top performer in Earning Ability, it slides to the fourth position due to its stagnant performance in Capital Adequacy and Liquidity. And the fifth position is occupied by DBS Bank with its better Management Quality and Liquidity. Similar to the previous year, the Barclays Bank is at the last position which remained with no improvement in Asset Quality and Earning Ability.

During the year 2014, the Royal Bank of Scotland climb the ladder after setback in last year and got to the top position which is mainly featured towards its enhanced Capital Adequacy and Management Quality and the Citi Bank remained in its second position with its performance in Earning Ability and Liquidity. The Bank of Bahrain & Kuwait descended to third position due to its set back in Earning Ability and Liquidity. The HSBC bank is in the fourth position which falls in rank because of held up in Management Quality and Earning Ability and the Deutsche Bank gone down from fourth to fifth position whose performance growth was hindered by Capital Adequacy and Management Quality. The CTBC Bank occupied the last position in this year whose poor performance is attributed to its continuous set back in its Asset Quality, Management Quality and Earning Ability.

Table 6: CAMEL Composite Ranking of Foreign Banks

Foreign Bank	C Rank 2012	C Rank 2013	C Rank 2014	A Rank 2012	A Rank 2013	A Rank 2014	M Rank 2012	M Rank 2013	M Rank 2014	E Rank 2012	E Rank 2013	E Rank 2014	L Rank 2012	L Rank 2013	L Rank 2014	Composite Rank 2012	Composite Rank 2013	Composite Rank 2014
BANK OF BAHRAIN & KUWAIT B.S.C.	2	2	2	1	1	1	7	6	6	2	3	5	3	6	7	1	1	3
BARCLAYS BANK PLC	4	3	3	8	8	8	6	4	1	8	8	4	6	5	7	8	8	6
CITIBANK N.A.	5	5	6	6	5	5	3	2	4	5	2	1	1	1	2	6	2	2
CTBC BANK	1	1	1	4	7	7	7	8	8	4	5	8	8	8	6	5	7	8
DBS BANK LTD.	7	8	8	5	4	4	1	2	5	7	7	7	5	3	5	7	5	7
DEUTSCHE BANK AG	6	6	7	7	6	6	2	1	2	1	1	2	7	7	4	3	4	5
HONGKONG AND SHANGHAI BANKING CORPN.LTD.	3	4	4	3	2	3	4	5	6	3	4	5	3	2	1	2	3	4
ROYAL BANK OF SCOTLAND N.V.	8	7	5	1	3	2	4	7	2	6	6	3	2	4	3	4	6	1

ANOVA Results

For determining whether there is any significant difference between the means of CAMEL ratios of public sector, private sector and foreign banks, we applied one-way ANOVA test and the results are presented in Table 7-11. It is clear from the table results, that the values of F-ratio for all CAMEL ratios — Capital Adequacy, Asset Quality, Management Quality, Earning Ability and Liquidity are statistically significant at one percent level of significance. Hence we reject the null hypothesis. It implies that there is statistically significant difference between the mean values of CAMEL ratios of public sector banks, private sector banks and foreign banks during the period of study.

Table 7: Results of ANOVA for Capital Adequacy

Groups	Count	Mean	Standard Deviation	Minimum	Maximum
Public Sector	25	12.9533	5.47270	2.38	21.63
Private Sector	18	9.4870	4.74820	1.10	17.85
Foreign	8	4.5000	2.21035	1.00	7.53
ANOVA					
Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-value	P-value
Between Groups	456.470	2	228.235	9.641*	0.000
Within Groups	1136.281	48	23.673		
Total	1592.751	50			

Note: * statistically significant at one percent level.

Table 8: Results of ANOVA for Asset Quality

Groups	Count	Mean	Standard Deviation	Minimum	Maximum
Public Sector	25	12.9960	4.32157	3.80	19.83
Private Sector	18	9.4963	4.09217	2.80	15.80
Foreign	8	4.5000	1.67966	2.20	7.43
ANOVA					
Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-value	P-value
Between Groups	461.620	2	230.810	14.720	.000
Within Groups	752.652	48	15.680		
Total	1214.272	50			

Note: * statistically significant at one percent level.

Table 9: Results of ANOVA for Management Quality

Groups	Count	Mean	Standard Deviation	Minimum	Maximum
Public Sector	25	12.9033	4.60718	1.67	22.75
Private Sector	18	9.4259	3.92431	3.42	16.67
Foreign	8	4.5000	1.16155	2.58	6.17
ANOVA					
Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-value	P-value
Between Groups	452.135	2	226.068	13.900	.000
Within Groups	780.675	48	16.264		
Total	1232.810	50			

Note: * statistically significant at one percent level.

Table 10: Results of ANOVA for Earning Ability

Groups	Count	Mean	Standard Deviation	Minimum	Maximum
Public Sector	25	12.9667	5.58131	3.42	21.58
Private Sector	18	9.4583	4.81930	2.08	18.00
Foreign	8	4.5000	1.80223	1.58	6.75
ANOVA					
Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-value	P-value
Between Groups	459.136	2	229.568	9.457	.000
Within Groups	1165.198	48	24.275		
Total	1624.334	50			

Note: * statistically significant at one percent level.

Table 11: Results of ANOVA for Liquidity

Groups	Count	Mean	Standard Deviation	Minimum	Maximum
Public Sector	25	13.0000	4.93652	5.58	22.17
Private Sector	18	9.5000	2.86986	2.33	13.67
Foreign	8	4.5000	1.63906	1.83	6.58
ANOVA					
Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F-value	P-value
Between Groups	462.010	2	231.005	14.910	.000
Within Groups	743.681	48	15.493		
Total	1205.690	50			

Conclusion

CAMEL approach is significant tool to assess the relative financial strength of a bank and to suggest necessary measures to improve weaknesses of a bank. In India, RBI adopted this approach in 1996 followed on the recommendations of Padmanabham Working Group (1995) committee. In the present study, an attempt has been made to rank the various commercial banks operating in India. The banks in India have been categorized into Public sector, Private sector, and Foreign banks. The sample of selected banks consists of 25 Public Sector, 18 Private Sector, and 8 Foreign banks. For the purpose of ranking, CAMEL MODEL approach has been applied, incorporating important parameters like Capital Adequacy, Assets Quality, Management Efficiency, Earnings Quality and Liquidity.

The finding of the study shows that public sector banks, viz. Andhra Bank, Bank of Baroda, Allahabad Bank, Punjab National Bank IDBI Bank, State Bank of Bikaner and Jaipur and UCO Bank has been ranked at the top five positions in their financial performance during the study period. The private sector banks, namely, Tamilnad Merchantile Bank, Kotak Mahindra Bank, HDFC Bank, Axis Bank, Karur Vysya Bank, ICICI Bank, Citi Union Bank and IndusInd Bank shared the top five positions. The foreign banks such as Bank of Bahrain & Kuwait, HSBC Bank, The Royal Bank of Scotland, Deutsche Bank, CTBS Bank, Citi Bank, DBS Bank and Royal Bank of Scotland secured the top five positions during the study period. The empirical results show that there is a statistically significant difference between the CAMEL ratios of the selected Public Sector Banks, Private Sector Banks and Foreign Banks in India,

thus, signifying that the overall performance of within and between Public, Private and foreign Banks are different. Also, it can be concluded that the banks with least ranking need to improve their performance to come up to the desired standards.

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