International Journal on Emerging Technologies **10**(3): 45-50(2019)

ISSN No. (Print) : 0975-8364
ISSN No. (Online) : 2249-3255

Operational Efficiency of Indian Banking Sector- A Comparative Analysis

Meraj Banu
UGC- Post Doctoral Fellow, Department of Business Management,
Osmania University, Telangana, India.

(Corresponding author: Meraj Banu)
(Received 01 June 2019, Revised 19 August 2019 Accepted 29 August 2019)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: Banks occupied a place of pride because of its structure of undivided attention and contemporary functions. They have come a long way from merely performing the services of lending, recovery and accepting deposits to supporting maturity transformations and unified payment systems. In the recent past, the recurring banking failure and its effect across the nation and outside has been handled with resolute measures by the Reserve Bank of India. Deposit insurance and liquidity support are the two most popular measures adopted by the Central Bank of India. The solvency and sustenance of banks not only concern the depositors but also equally to other participants viz., the employees, the customers, the shareholders and the country as a whole. Since, its presence assists in smooth functioning of trade and commerce across the globe, there is an imperative need for its timely and regular monitoring. The present study is an attempt to analyse the operational performance namely short term liquidity, solvency and profitability of the Indian Banking Sector by comparing private sector banks, public sector banks and foreign banks. The various ratios used as a proxy for liquidity are cash –deposit ratio and credit-deposit ratio. To measure the solvency position of banks, net interest margin and investment – deposit ratios are used. In order to determine profitability return on assets, equity, advances and investments ratios are used. There are various dimensions of operational efficiency. Namely, growth, productivity and profitability. This paper seeks to make an attempt to understand the profitability aspect of banks.

Keywords: Banking, Efficiency, Liquidity, Profitability, Solvency.

I. INTRODUCTION

The operational efficiency of the banks determines the success or failure of the banking sector. Operational efficiency is defined as the skill or technique of making the most out of the available resources. The combination of men, material, machine and capital employed to yield the highest output is often referred to as Operational Efficiency. It is widely accepted that the efficiency of banks plays a pivotal role in the productivity of the economy. The opulent and easy- going features of banks have made it all the more important for it to be sound and smooth, vigilant and alert, responsible and duty-bound, bold and honest, fair and fearless and law abiding unmindful of any form of pressure.

The relative efficiency of banks is a matter of concern to all the participants, be it regulators, customers, managers and stakeholders. From the regulator's, perspective inefficient banks are quite a failure. The potency of banks is related to the productivity of the economy. If the banking system fails, the entire payment system lands up in jeopardy. The customers feel comfortable with their deposits only when the banks are channelizing their deposits efficiently to their stated advantage.

II. REVIEW OF LITERATURE

Zilrharias (1997), examined the growth and development of banking sectors and brought out a comparison with Syndicate Bank [1]. The various aspects of capital adequacy, quality of assets, profitability, and productivity have been examined. The findings of the study were that five nationalised banks showed low level of performance, seven low priority performance and eleven banks showed low efficiency performance when compared with syndicate bank.

Singla (2008), emphasised the role of financial management in achieving growth in banking sector [2]. Sixteen banks were chosen from bankex and their profitability position was compared. The study was conducted for a period of six years from 2001 to 2006.The results showed profitable position of the banks during the study period. It was reasonably good in comparison to the preceding year.

Athma (2000), investigated the performance of public sector with special emphasis on State Bank of India, Hyderabad [3]. The data collected was from 1980 – 1994. It was found that the three types of deposit schemes have continuously grown and the rate of growth on fixed deposits reached the highest during the study period. It indicated a remarkable progress of Indian banking sector.

Bhayani, (2006), examined four popular banks of private sector- ICICI, HDFC, UTI and IDBI using CAMEL parameters [4]. The study concluded that the IDBI and UTI had increased in profitability and efficiency. The performance of the IDBI was the best followed by UTI.

Singh (2003), examined profitability of the public sector, old private sector and foreign banks under deregulated environment [8]. The study found that the financial parameters used as proxies to measure profitability declined in the deregulated environment. Emphasis was laid on alternative source of income, especially non – interest based income for sustenance and growth of banking sectors. The study concluded that there was a tangible improvement in competitiveness in deregulated environment.

Singla (2008), found that the role of management is crucial to the growth of banking [9]. The sample selected for investigation was of sixteen banks. The sample size is chosen from bankex index and the period of study was for six years (2001-06). The findings of the

study revealed that the profitability of the banks was reasonable in comparison to previous years. The data was collected mainly from published and secondary sources. Annual reports of the banks were used to analyse profitability.

Jagdish (2011), conducted a study on 49 major Indian banks [7]. The data collected was further analysed through data envelopment analysis (DEA) model. The various input variables used were borrowings, deposits, fixed assets, net-worth and operating expenses. Loans and advances, investments, net interest income and non – interest income were the output variables to execute data envelopment analysis model and thereby, obtained efficiency scores.

Suresh (2008), provided an extensive analysis of the key factors viz., profitability and financial performance of nationalised banks and SBI and its associates for a 10 year period from 1998 to 2007 using CAMEL model [5]. The results of the study were further analysed using descriptive statistics and Trend Analysis for interdependence.

Kumar (2014), conducted a study on private and public sector banks [6]. All the prominent parameters of CAMELS approach were followed. The results indicated that, based on Asset Quality, the private banks are way ahead than the public sector banks. On the basis of capital adequacy ratio (CAR) private sector banks exhibited better performance than the public sector banks. Considering business per employee as a parameter, the results indicated the performance of public sector banks was better than the private sector banks. Based on liquidity parameter, most private banks were comparatively better than public sector banks. The Data Envelopment Analysis (DEA) found HDFC, ICICI, and SBI were the best decision making units (DMUs).

Role of newly emerging private banking industry is well explained by Qamar [10] and Arora *et al.,* [11], where they state that today's banks efficiency is not merely dependent on how efficiently they are able to maintain their traditional sources of income rather how competent they are to supplement their traditional sources with new avenues; keeping this in mind the present study attempts to analyse the operational performance namely short term liquidity, solvency and profitability of the Indian Banking Sector by comparing private sector banks, public sector banks and foreign banks. Data suggests that there exists a strong correlation among public, private and foreign sector banks with regard to return on equity, return on investments, return on assets and return on advances on the profitability position.

III. OBJECTIVES

The two main objective of the study are as follows:

1. To analyse operational efficiency in terms of short-term liquidity of public sector, private sector, and foreign sector banks.
2. To analyse operational efficiency of profitability and long- term solvency position of public sector, private sector and foreign sector banks.

A. Data collection and Methodology of the study

The study comprises of the ten year period (2007-08 to 2016-17) of banking systems prevailing in India. It includes public sector, private sector and foreign sector banks. The various liquidity, solvency and profitability ratios are used as representatives to analyse the operating efficiency of banks. They are stated as follows:

1. Short term liquidity refers to the ability of the bank to pay its short term obligations i.e., those arising in less than a year. The following ratios are used as representatives

(a) Cash- Deposit ratio:Cash, in cash – deposit ratio includes cash in hand and balances with RBI

This ratio shows how much a bank's funds are used for its core business activity i.e., lending

(b) Credit –Deposit ratio: It is the total amount of credit extended by a particular bank to its borrower divided by total deposits of the bank. Of the 100 percent funds, a bank is required to maintain cash reserve ratio of 4% and statutory liquidity ratio of 19.5%. More than 70% utilization creates excessive pressure on banks. A low ratio indicates bank is not making maximum use of its resources.

C-D =Total Loans and Advances/Total Deposit

1. **Solvency refers** to the ease with which bank is capable to honour its long -term obligations. The long-term period is considered as more than 1 year**.**

(a) Net Interest Margin ratio(NIM): Total Interest Earned – Total Expenses paid

(b) Investment – Deposit ratio = total loans and advances including investment in non -approved securities.

1. Profitability ratios are an indicator of how efficiently the entity utilises its resources, often scarce, to generate the revenues

(a) Return on Equity (ROE)
(b) Return on Assets (ROA)
(c) Return on Advances (ROAd)
(d) Return on Investments (ROI)
(i) ROE = net profit or capital +reserves and surplus
(ii) ROA= Net Income/Total Assets
(iii) Return on advances = interest earned on advances/advances
(iv) Return on investment = interest earned on investments (IEI)/investment.

IV. DATA ANALYSIS AND DISCUSSION

The descriptive analysis and correlation among the select banking sectors – Public. Private and foreign sector - pair wise analysis is presented through Table 1.

H0: There is no significant difference of cash deposit ratio on short-term liquidity of public, private and foreign sector banks.

Table 1 presents the mean value of cash deposit ratio is 6.47, 7.16 and 7.74 for public, private and foreign sector banks respectively, whereas standard deviation was 1.45, 1, 77 and 1.7 for respective banks.

Table 1: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public sector	6.4750	10	1.45052	
	Private sector	7.1650	10	1.77046	0.966
Pair 2	Public sector	6.4750	10	1.45052	
	Foreign sector	7.7420	10	1.70024	0.76
Pair 3	Private sector	7.1650	10	1.77046	
	Foreign sector	7.7420	10	1.70024	0.759

It is observed that the private sector banks are high variance when compared to private and foreign sector banks. On the other hand, the correlation between public and private sector banks is at 0.966, public and foreign banks is at 0.76 and private and foreign banks is at 0.759. The correlation exhibits strong relationship among the three banking sectors. Table 2 presents that the test of significance of difference between cash deposit ratio of public and private sector banks and public and foreign sector banks, thus rejects null hypothesis. It means there exists significance in performance of cash-deposit ratio among public sector, private sector banks whereas in foreign and private sector banks the result says that there is no significant difference in mean performance of cash-deposits ratio.

Table 2: The result of t-test executed.

Pairs	t-values	sig.(2-tailed)
Public –Private	-4.131	0.003
Public-Foreign	-3.593	0.006
Private-Foreign	-1.512	0.165

2. H0: There is no significant difference of credit-deposit ratio on short-term liquidity of public, private and foreign sector banks.

Table 3 presents mean value of credit deposit ratio at 74.69, 82.50 and 80.17 for public sector, private sector and foreign bank sector respectively. The standard deviation is 2.8, 4.8 and 6.18 respectively. Foreign bank sector has the highest variance. The correlation between public – private and public- foreign pairs is at 0.88 and 0.759. Thus, showing greater strength with regard to credit- deposit ratio. Private and foreign sector banks have a correlation of 0 showing that there exists no relationship with regard to credit – deposit ratio.

Table 4 presents the test of significance of difference between credit deposit of public–private and public – foreign bank sectors thus, rejects the null hypothesis. Therefore, there is a significant difference of credit-deposit ratio on short- term liquidity. In case of private – foreign banks. The null hypothesis is accepted. Hence, there is no significant difference of credit-deposit between private and foreign banks.

3. H0: There is no significant difference of investment deposit ratio on solvency position of public, private and foreign sector banks.

Table 5 presents that the mean value of investment-deposit ratio is 30.95, 40.54 and 65.06 for public, private and foreign sector banks respectively, whereas standard deviation is 1.41, 3.73 and 9.17 for respective banks, it is observed that foreign sector banks are of high variance when compared to public and private sector banks. On the other hand the correlation results above show weak and negative relationship among various banking sectors. It is at 0.215, -0.358 and 0.659 respectively.

Table 6 presents that the test of significance of difference between investments deposit ratio of public and private sector banks and public and foreign sector banks and private and foreign sector pairs. Therefore, the null hypothesis is rejected. Hence, there exists a significant difference in investment deposit ratio among public, private and foreign sector banks,

4. H0: There is no significant difference of net interest margin ratio on solvency position of public, private and foreign sector banks. Table 7 analysis presents the mean value of net interest margin ratio is 2.42, 3.13 and 3.82 for public, private and foreign sector banks respectively, whereas standard deviation is 0.21, 0.25 and 0.32 for respective banks. It is observed that foreign sector banks are at high variance when compared to public and private sector banks. From the above, it is noted that there exists minimal and negative relationship among various sectors. The values are at -0.141, 0.205 and -0.947.

Table 3: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public sector	74.6960	10	2.82853	
	Private sector	82.5070	10	4.80305	0.88
Pair 2	Public sector	74.6960	10	2.82853	.
	Foreign sector	80.1700	10	6.18370	0.759
Pair 3	Private sector	82.5070	10	4.80305	
	Foreign sector	80.1700	10	6.18370	0

Table 4: T-test results.

Pairs	t-values	sig.(2- tailed)
Public –Private	-4.613	0.001
Public-Foreign	-3.901	0.004
Private-Foreign	0.944	0.37

Table 5: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public-sector	30.9570	10	1.41096	
	Private sector	40.5430	10	3.73940	0.215
Pair 2	Public-sector	30.9570	10	1.41096	.
	Foreign sector	65.0640	10	9.17835	-0.356
Pair 3	Private sector	40.5430	10	3.73940	
	Foreign sector	65.0640	10	9.17835	0.659

Table 6: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	-8.188	0.00
Public-Foreign	-11.039	0.00
Private-Foreign	-10.912	0.00

Table 7: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public sector	2.4240	10	.21578	.
	Private sector	3.1310	10	.25362	-0.141
Pair 2	Public sector	2.4240	10	.21578	
	Foreign sector	3.8280	10	.32034	0.205
Pair 3	Private sector	3.1310	10	.25362	
	Foreign sector	3.8280	10	.32034	-0.947

Table 8: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	-6.292	0.00
Public-Foreign	-12.769	0.00
Private-Foreign	-3.892	0.004

Table 8 presents that the test of significance of difference between net interest margin ratio of public, private sector and foreign sector banks rejects null hypothesis. It means there exists significance in performance of net interest margin ratio among public, private and foreign bank sectors.

5. There is no significant difference of return on equity on the profitability of public, private and foreign banks.

Table 9 shows that the mean values are 0.64, 1.42 and 1.72 for public, private and foreign bank sectors. The standard deviation is at 0.43, 0.20 and 0.25 respectively. Thus, indicates highest variance in public sector banks. The correlation between public – private sector banks is at -0.308 and public-foreign sector banks is at 0.408 and private – foreign sector banks pair is at -0.198.

The p-values of all the pairs are less than 0.05. Hence, the null hypothesis is rejected. Therefore, there exists a significant difference of return on equity on the profitability of all the banking sectors.

6. H0: There is no significant difference of return on investment on the profitability of public, private and foreign sector banks.

Table 11 presents the mean value of return on investment ratio is 7.30, 7.01 and 7.54 for public, private and foreign sector banks respectively, whereas, standard deviation was 0.45, 0.44 and 0.63 for respective banks. It is observed that foreign sector banks have high variance when compared to public and private sector banks. On the other hand the correlation among all the pairs are at 0.794, 0.283 and 0.087.

The p-values obtained are less than 0.05 for the pair's public – private sector banks and private – foreign sector banks. Hence, the null hypothesis is rejected. In case of public-foreign bank sector the p-value is at 0.296. Thus, the null hypothesis is accepted.

7. H0: There is no significant difference of return on assets on the profitability of public, private and foreign sector banks.

Table 13 presents the mean value of return on assets ratio is 10.87, 13.98 and 10.61 for public, private and foreign sector banks respectively, whereas, standard deviation was 8.04, 1,87 and 2.64 for respective banks. It is observed that public sector banks have high variance when compared to private and foreign sector banks. The correlation among all the pairs are at -0.048, 0.509 and -0.056 respectively.

Table 9: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public sector	.6430	10	.43202	
	Private sector	1.4260	10	.20684	-0.308
Pair 2	Public sector	.6430	10	.43202	
	Foreign sector	1.7220	10	.25681	0.408
Pair 3	Private sector	1.4260	10	.20684	
	Foreign sector	1.7220	10	.25681	-0.198

Table 10: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	-4.642	0.001
Public-Foreign	-8.474	0.00
Private-Foreign	-2.599	0.029

Table 11: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public-sector	7.3060	10	.45695	
	Private sector	7.0190	10	.44960	0.794
Pair 2	Public-sector	7.3060	10	.45695	
	Foreign sector	7.5410	10	.63619	0.283
Pair 3	Private sector	7.0190	10	.44960	
	Foreign sector	7.5410	10	.63619	0.087

Table 12: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	3.117	0.012
Public-Foreign	-1.109	0.296
Private-Foreign	-2.212	0.054

The p-values obtained are more than 0.05 for public-private and public foreign, thus, accepting the null hypothesis. The p-value for private and foreign bank sector is 0.011. Thus rejecting the null hypothesis.

8. There is no significant difference of return on advances on the profitability of public, private and foreign sector banks.

The table 15 shows the mean and standard deviation of public, private and foreign sector banks. Mean values are at 9.48, 10.71 and 9.78 respectively. The standard deviation is 0.58, 0.67 and 1.18. The foreign bank sector shows the highest variance. The public – private pair exhibits a strong correlation at 0.829 and the bottom 2 – pairs of the table have a correlation of 0.504 and 0.506.

The p-values obtained at 0.00 and 0.018 for the pair public – private and private – foreign rejects the null hypothesis. Hence, there exists a significant difference of return on advances of the respective banks. Public and foreign bank sectors have a p-value at 0.382. Thus, the null hypothesis is accepted.

Table 13 : Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public-sector	10.8730	10	8.04534	
	Private sector	13.9800	10	1.87563	-0.048
Pair 2	Public-sector	10.8730	10	8.04534	
	Foreign sector	10.6130	10	2.64153	0.509.
Pair 3	Private sector	13.9800	10	1.87563	
	Foreign sector	10.6130	10	2.64153	-0.056

Table 14: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	-1.177	0.269
Public-Foreign	0.116	0.91
Private-Foreign	3.203	0.011

Table 15: Paired Samples Statistics.

		Mean	N	Std. Deviation	Correlation
Pair 1	Public sector	9.4830	10	.58163	
	Private sector	10.7130	10	.67102	0.829
Pair 2	Public sector	9.4830	10	.58163	
	Foreign sector	9.7810	10	1.18543	0.504
Pair 3	Private sector	10.7130	10	.67102	
	Foreign sector	9.7810	10	1.18543	0.506

Table 16: T-test results.

Pairs	t-values	sig.(2-tailed)
Public –Private	-10.345	0.00
Public-Foreign	-0.92	0.382
Private-Foreign	2.876	0.018

V. DISCUSSION

The cash –deposit ratios are on a rising trend with foreign bank sector leading the race. This indicates that the major part of the available funds are being utilised for lending purpose, followed by private sector banks and then the public sector banks. Although, there was an abrupt fall, in the lending activities from 2011-16, but the cash deposit ratio continues to show a positive sign from 2017 and foreign bank sector still leads the change.

Out of the available 100% deposits, banks are required to maintain the cash reserve and statutory liquidity reserve. Post reserves i.e, the remaining amount is utilised for the lending and other various banking functions. The credit extended to the borrower is determined by cash deposit ratio. A higher ratio of more than 70% indicates excessive pressure on banks to meet the borrowing demand. A lower ratio shows inefficient utilisation of funds. Public sector banks have been maintaining the desirable credit deposit ratio level. It was ranging between 72% to 74% and then there was an abrupt rise in the year 2013, to 77%. Later, in the year 2017 it was brought at 69%. Therefore, Public sector banks have been maintaining credit - deposit ratio judiciously in comparison to foreign and private Sector banks.

Net Interest Margin of foreign bank sector is the highest followed by private sector and public sector banks. The public sector banks are maintaining an average level between 2.79 to 2.12.

Return on equity and return on assets are at-0.1 and -2.05 for public sector banks. It is consistently positive for private and foreign sector banks.

Return on investment is at 7.49% for public sector and private sector banks. It is at 6.89 % for foreign sector banks. Return on advances shows more than 8.44% for the year 2017 and consistently higher since 2007 for public, private and foreign banks.

VI. CONCLUSION

Banks played an un-denying relentless role in the banking system of modern India. It is not only commendable but also adorable. The efficiency of the banks is crucial for the existence of smooth flow of trade locally and internationally. The results indicate that there exists a strong correlation among public, private and foreign sector banks with regard to return on equity, return on investments, return on assets and return on advances on the profitability position. The results suggest cash –deposit ratio and the credit –deposit ratio has a positive influence on short-term liquidity of banks. Whereas, the net interest margin and investment ratios do not suggest any effect on the solvency position of the three banking sectors.

Though, the Indian Banking Sector enamoured a place of pride globally but enforcement of law, timely monitoring and necessary measures can prevent recurring and colossal losses. Trivial issues should not be overlooked and be tipped off as a signal to curb deep trouble. Ethical counselling should be made mandatory as a part of the practice.

ACKNOWLEDGEMENT

Author Dr. Meraj Banu would like to thank University Grants Commission (UGC) for assisting her during this work with a Post-Doctoral Fellowship (PDF).

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How to cite this article: Banu, M. (2019). Operational Efficiency of Indian Banking Sector- A Comparative Analysis. *International Journal of Emerging Technologies*, **10**(3): 45–50.