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Liquidity and Profitability Analysis of Commercial Banks in India – A Comparative Study

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Abstract

Indian economic environment is witnessing path breaking reform measures. The financial sector, of which the banking industry is the largest player, has also been undergoing a metamorphic change. This reform has not only influenced the productivity and efficiency of many of the Indian Banks, but has left everlasting footprints on the working of the banking sector in India. Certain trends like growing competition, product innovation and branding, focus on strengthening risk management systems, emphasis on technology have emerged in the recent past. Today the banking industry is stronger and capable of withstanding the pressures of competition. While internationally accepted prudential norms have been adopted, with higher disclosures and transparency, Indian banking industry is gradually moving towards adopting the best practices in accounting, corporate governance and risk management. The major role of banks is to collect money from the public in the form of deposits and then along with its own funds to serve the demands of the customers quickly, paying interest for the deposits and to meet out the expenses to carry out its activities. For this purpose, banks maintain adequate liquidity and earn profits from its activities. Profit is the main reason for the continued existence of every commercial organization and profitability depicts the relationship of the absolute amount of profit with various other factors. In any case, compared to other business concerns, banks in general have to pay much more attention for balancing profitability and liquidity. Liquidity is required to meet out the prompt demands of customers and profitability is required to meet out the expenses of banks. But both the terms are contradictory in nature. If banks maintain more liquidity, their profitability decrease and if they increase their profitability they will have to reduce their liquidity. In this way, banks act as an engine for a business organization. So in the present study an attempt has been made to evaluate the performance of different categories of banks viz. public, private and foreign bank groups in India. For evaluating the performance, eleven financial ratios have been used. These ratios further have been categorized into two categories viz. liquidity and profitability. The period of study cover the years 2005-06 to 2011-12. From the results, it has been found that during the study period the liquidity and profitability position of public sector bank group declined while it has improved in other two groups.

Keywords: ANOVA, Coefficient of Variation, Liquidity, Profitability, Tukey's Multiple Comparison Test

1. Introduction

The financial sector in India as well as the world over continues to be one of the primary engines of economic growth. One of the key constituents of the financial sector in India is the banking system. The important role played by the banks in the provision of intermediation services and the capital formation process in an emerging economy such as India hardly needs to be emphasized. Since the early 1990s, the structure of banking sector has significantly changed due to deregulation and liberalization, accompanied by divestments of public banks. The developments are expected to have important implications for operating performance and profitability in the banking system. Therefore, from the point of view of both managerial and policy interest, it is extremely important to know the efficiency levels of banking firms and their temporal behavior and which bank group has performed better than others in this period of transition. The present study is an attempt to examine the performance level of different banking groups' viz. public, private and foreign on the basis of various financial indicators which have been divided into four categories namely liquidity, expense, profitability and productivity ratios. 'The period of the study is 2005-06 to 2011-12.

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2. An Overview of Indian Banking

The history of formal commercial banking in India can be traced back to the 18^{th} century (Gupta[1]; Roy 2000). Till nationalization all banks continued to be privately owned except. SBI, its associates and RBI. After independence, it was felt that commercial banks credit was flowing mainly to the large and well established business houses, and not so much to sectors such as agriculture and small scale industries. As a result, in 1967, the policy of social control over banks led to the first phase of nationalization in 1969 and second phase in 1980. With the nationalization of banks, a large number of regulatory measures were adopted by RBI to achieve a desired sector allocation of credit. E.g. subsidized lending rates to priority sectors, provision of refinance facilities, rural and semi-urban branching, ceiling on deposit rites and differential lending rates. These measures led to a phenomenal growth of the banking system, especially of PSBs. In fact, during the early 1990s; PSBs owned nearly 90 percent of total business in the banking industry.

However, this rapid growth, owing to excessive focus on quantitative achievements, made many banks inefficient, unprofitable and undercapitalized. Recognizing these problems, the RBI launched the banking sector reforms in 1992. The areas of reform namely deregulation, branch de-licensing, deregulation of interest rates, gradual decrease of the Cash Reserve Ratio and the Statutory Reserve Ratio, setting capital adequacy norms of a minimum 8 percent capital to risk-weighted Asset Ratio (CRAR) and imposition of stringent income recognition and provisioning norms. While these reforms were underway, there were some important developments taking place in the world economy, especially a movement towards global integration of financial services.

The banking sector reforms in India, initiated since 1992 was intended to impart enhanced efficiency, productivity and profitability into the system. Hence, it is important, to weigh the gains against losses incurred by the banking industry over a sufficiently long time horizon. As highlighted in the introduction, this paper intends to study the performance of different bank groups in terms of various financial indicators during 2006 to 2012.

3. Objective of this Paper

The objective of this paper is to measure and compare performance of public, private and foreign banks by using Tukey's Multiple Comparison Test. It is a single multiple comparison procedure and statistical test, generally used in conjunction with ANOVA to find which means are significantly different from one another. The test compares the means of every group with the means of every other group; that is, it applies simultaneously to the set of all pairwise comparisons.

4. A Brief Review of Literature

In recent years a number of studies have been conducted to know the liquidity, profitability and performance of players in financial system. There exists rich literature pertaining to developed countries, on assessing bank performance using various methodologies arriving at different conclusions. There also exist many good surveys of the efficiency and productivity literature related to banking. In India, various research studies on performance and efficiency of Indian banking industry were conducted by applying different techniques like taxonomic method, multi comparison test, DEA analysis, zero sum method etc. Notable among these were Koeva[2], Bhaumik and Dimova[3], Kumbhakar and Sarkar[4], Sensarma[5], Rizvi[6], Singla[7] and Ahmed[8].

Koeva[2] examined a variety of financial indicators of banks and concluded that ownership has a significant effect on some of the performance indicators and deregulation has led to lower intermediation cost and profitability.

Bhaumik and Dimova[3] studied performance in terms of return on assets of all banks and concluded that by 2000, competition had helped public banks to reduce the gap in performance that existed between them and private banks.

Kumbhakar and Sarkar[4] estimated efficiency of public and private sector banks using a stochastic cost frontier with data from 1986 to 2000. They found that cost efficiency has declined over time but the rate of decline slowed down after the reforms. They also found that private sector banks are more efficient than PSBs but there is no significant difference in the impact of deregulation on the two bank groups.

Sensarma[5] uses the stochastic frontier analysis to estimate bank-specific cost and profit efficiency during 1986 to 2003. He found that while cost efficiency of the banking industry increased during the period, profit efficiency underwent a decline as the economy is undergoing a process of deregulation. In terms of bank groups, domestic banks appear to be more efficient than foreign banks.

Rizvi[6] in his paper briefly discuss the reforms, liberalization and future trend of banking sector. They concluded that financial system is no longer viewed as a passive mobilize of funds. Reforms led to increase in terms and sustainable growth.

Singla[7] examined the profitability of sixteen banks for the period 2001 to 2007. The study reveals that overall profitability and the position of selected banks in terms of return on investment is moderate.

Ahmed[8] studied the causes and consequences of NPA's on the banking sector. They concluded that NPAs have negative impact on the productivity and credibility of the banking system. The study further concluded that the fresh incidence of NPAs should be avoided but not at the cost of fresh deployment of credit.

Goel[9] studied the performance of 62 Scheduled Commercial Banks in India, comprising of 26 Public Sector Banks (PSBs), 17 Private Banks (PBs), and 19 Foreign Banks (FBs) for period (1999-00 to 2008-09). The study reveals that profitability, capital adequacy, and assets quality of commercial banks in India improved while their liquidity and off-balance sheet strength declined. Although financial performance of commercial banks in India has improved as a result of various reforms introduced by RBI, yet the FBs are at the top on various aspects of financial performance such as profitability, liquidity, capital adequacy, assets quality, and overall financial performance.

Gupta and Sikarwar[10] studied the profitability management of Punjab National Bank and HDFC Bank. A comparative study is made by taking the data of eleven years i.e. from 2000 to 2011. On the basis of study of profitability management, based on the parameters like Total Income, Total Expenditure, Net Profits and Operating Expenses, the study concluded very safely that for the last eleven years i.e. from 2000 to 2011 HDFC Bank has performed much better than Punjab National Bank and all the banks must refer the suggestions provided in the study in order to improve their efficiency.

Alrabei[11] examined the profitability of the State Bank of India (SBI) and Cairo Amman Bank (CAB), Jordan for the period 2006-07 to 2010-11. The study reveals that the State Bank of India should try to control the cost of services rendered to increase the gross profit, and the Cairo Amman Bank should try to increase the number of branches at global level also.

5. Methodology

As mentioned earlier that main objective of this paper is to evaluate the performance of different banking groups on the basis of various financial ratios. To evaluate the performance of these groups, following statistical tools have been applied.

5.1 Mean

A tool which show a common characteristic to concentrate at certain values usually somewhere in the centre of distribution.

5.2 Analysis of Variance

A method of splitting the total variation of data into meaningful components that measures different sources of variation.

5.3 Tukey's Multi-Comparison Test

Also known as Tukey's honestly significant difference (HSD). It is a single multiple comparison procedure and statistical test, generally used in conjunction with ANOVA to find which means are significantly different from one another. The test compares the means of every group with the means of every other group; that is, it applies simultaneously to the set of all pairwise comparisons.

The formula for Tukey's test is qs: $\frac{Y_A - Y_B}{SE}$

Where, Y_A is the larger of the two means being compared, Y_B is the smaller of the two means being compared and SE is the standard error of the data in question.

This qs value is then compared to the q value from the studentized range distribution. If the qs value is larger than the q critical value obtained from the distribution., then two means are said to be significantly different and vice-versa.

For evaluating the performance of different banking groups twenty-four financial ratios have been used. The above mentioned statistical tools have been applied to these ratios. These ratios are further categorized into four groups viz. Liquidity, Expenditure, Profitability and Productivity. All these ratios are measured in terms of percentages and rupees in lakh. The data on these ratios is taken from RBI website www.rbi.org.in. The period of reference 2005-06 to 2011-12.

6. Empirical Results

The efficiency measures calculated in this study are relative in nature. The performance of different banking groups is measured on the basis of various liquidity and profitability measures.

Table 1 reveals the liquidity ratios of various bank groups. For evaluating the liquidity position of banks, three ratios namely, Cash-Deposit, Credit-Deposit and Investment-Deposit Ratio have been used. Cash-deposit ratio of all the bank groups declined during the period except foreign banks which show an increasing trend after 2008-09. The highest decline was observed in public sector banks from 6.33 percent (2006) to 5.91 percent (2012). The credit-deposit ratio of all the bank groups showed in increasing trend. The credit-deposit ratio was highest in case of foreign banks followed by public and private sector bank groups in 2011-12. The Investment-Deposit Ratio of all the bank groups declined except foreign banks. The highest value was observed incase of foreign banks (79.08 percent) as compared to public sector banks (30.47 percent) and private sector banks (36.49 percent) in 2011-12.

Further the table depicts that there exist minor variations in the public and private sector bank groups, but in case of foreign banks there were marked variations in all the three ratios. Similarly the mean difference was insignificant among public and private, but it was significant in case of public and foreign, private, but it was significant in case of public and foreign, private and foreign bank groups in most of the years.

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Table 1. Multiple comparison test for liquidity ratios

Ratio	Year	Mean (%)			CV			Tukey's Multiple Comparison Test			ANOVA	
		Pub. B	Pvt. B	For. B	Pub. B	Pvt. B	For. B	Pub. and Pvt.	Pub. and For.	Pvt. and For.	F-Ratio	Sig. Level
Cash Deposit Ratio	2005–06	6.330	5.819	8.741	0.309	0.388	0.490	0.511	2.410*	2.921*	4.892	0.011
	2008–09	7.411	6.986	7.648	0.243	0.158	0.356	0.425	0.237	0.662	0.471	0.627
	2011–12	5.907	5.798	9.025	0.155	0.180	0.500	0.109	3.118*	3.227*	9.253	0.000
Credit Deposit Ratio	2005–06	70.090	63.998	66.308	0.396	0.145	0.701	6.092	3.782	2.310	0.208	0.813
	2008–09	71.861	67.418	80.345	0.079	0.151	0.686	4.444	8.484	12.927	0.805	0.452
	2011–12	76.207	75.792	105.423	0.054	0.135	0.669	0.405	29.226*	29.631	3.596	0.034
Investment Deposit Ratio	2005–06	47.061	36.495	60.577	0.372	0.178	0.587	10.566	13.517	24.082*	4.679	0.013
	2008–09	31.820	34.839	58.589	0.123	0.180	0.679	3.019	26.768*	23.749*	8.567	0.001
	2011–12	30.473	36.494	79.077	0.113	0.249	0.653	6.021	48.605*	42.584*	16.730	0.000

Table 2. Multiple comparison test for profitability ratios

Ratio	Year	Mean (%)			CV			Tukey's Multiple Comparison Test			ANOVA	
		Pub. B	Pvt. B	For. B	Pub. B	Pvt. B	For. B	Pub. and Pvt.	Pub. and For.	Pvt. and For.	F-Ratio	Sig. Level
Net-Interest Margin to Total Assets	2005-06	3.654	3.131	2.669	0.459	0.233	0.498	0.523	0.985	0.463	2.499	0.092
	2008-09	2.310	2.914	3.459	0.223	0.283	0.498	0.604	1.149*	0.545	5.986	0.004
	2011-12	2.652	3.642	3.563	0.173	0.520	0.411	0.990*	0.911	0.079	3.898	0.026
Return on Assets	2005-06	0.852	0.576	1.773	0.432	1.701	1.438	0.276	0.921	1.196	3.075	0.054
	2008-09	0.980	1.193	1.277	0.323	0.343	2.099	0.212	0.296	0.084	.245	0.783
	2011-12	0.852	1.196	1.961	0.301	0.565	0.796	0.344	1.108*	0.764	7.441	0.001
Return on Equity	2005-06	14.963	11.528	8.233	0.421	0.604	1.031	3.435	6.729*	3.295	4.371	0.017
	2008-09	18.108	14.820	9.895	0.294	0.297	1.125	3.278	8.202*	4.925	6.326	0.003
	2011-12	14.887	13.694	9.223	0.295	0.696	0.632	1.193	5.664*	4.472	3.655	0.032
Return on Advances	2005-06	8.217	9.235	8.443	0.056	0.082	0.445	1.018	0.227	0.792	1.348	0.268
	2008-09	10.371	11.940	11.065	0.060	0.092	0.284	1.576*	0.694	0.883	4.020	0.024
	2011-12	10.663	12.039	9.703	0.074	0.081	0.242	1.376*	0.959	2.335*	10.873	0.000
Return on Investments	2005-06	7.954	7.450	7.455	0.135	0.136	0.288	0.504	0.499	0.005	.881	0.420
	2008-09	7.072	6.907	7.739	0.075	0.104	0.164	0.165	0.667*	0.832*	4.458	0.016
	2011-12	7.422	7.417	7.709	0.052	0.091	0.111	0.005	0.287	0.292	1.187	0.313
Adjusted Return on Advances	2005-06	3.621	4.813	3.691	0.134	0.320	1.067	1.192	0.070	1.122	1.638	0.204
	2008-09	4.115	5.203	5.459	0.114	0.202	0.983	1.087	1.344	0.257	1.349	0.268
	2011-12	4.280	5.007	5.281	0.120	0.134	0.694	0.729	1.001	0.272	1.481	0.236
Adjusted Return on Investments	2005-06	3.358	3.028	2.703	0.386	0.572	0.695	0.330	0.656	0.325	0.828	0.442
	2008-09	0.816	0.165	2.133	0.599	5.746	1.938	0.651	1.317	1.968*	3.264	0.046
	2011-12	1.042	0.388	3.285	0.740	2.784	0.682	0.653	2.243*	2.897*	19.157	0.000
Operating Profit to Total Assets	2005-06	2.037	1.955	3.478	0.214	0.433	1.055	0.082	1.441	1.523	3.179	0.050
	2008-09	1.866	2.291	3.540	0.260	0.302	0.716	0.424	1.671*	1.246*	7.084	0.002
	2011-12	1.923	2.022	3.569	0.203	0.454	0.513	0.098	1.645*	1.546*	12.227	0.000

The overall analysis shows that foreign banking group was performing much better during the whole period in case of all the liquidity ratios followed by private and public bank groups.

Table 2 compares the performance of different banking groups on the basis of eight profitability ratios viz. net-interest margin to total assets, return on equity, return on assets, return on advances, return on investments, and adjusted return on advances, adjusted return on investments and operating profits to total assets. An examination of this table brings forth the fact that profitability of private sector banks and foreign banks exhibits an increasing trend in almost all the profitability ratios except in case of Return on Investment which shows a slight decrease. Where as the profitability of public sector bank group declined in most of the ratios except in Return on Advances which shows a slight increase.

Further the table exhibits that profitability position of public sector banks seems to be more stable and consistent as it is subject to least variations followed by private and foreign banks. The most unstable group was foreign bank group because largest fluctuations were recorded in it with respect to almost all the ratios except in case of Return on Investment.

Further the table extends that the mean difference was insignificant among public and private sector banks at 5 percent significance level except in case of net-interest margin to total assets (2012) and return on advances (2009, 2012). In contrast the mean difference was significant among public and foreign banks in most of the ratios (except return on advances and adjusted return on advances).

Similarly it was significant among private and foreign banks with respect to almost all the profitability ratios (except net-interest margin to total assets, return on assets, return on equity, adjusted return on advances).

The overall analyses shows that foreign banks possess highest values in most of the profitability ratios except in case of return on equity and return on advances where public sector bank group occupies a better position. Along with it the public sector banks much stable and consistent position as compared to its counterparts.

7. Conclusion

This study presents the performance evaluation of different categories of banks viz. public, private and foreign bank groups in India. For evaluating the performance, eleven financial ratios have been used. These ratios further have been categorized into two categories viz. liquidity and profitability. The period of study cover the years 2005-06 to 2011-12. From the results, it has been found that during the study period the liquidity and profitability position of public sector bank group declined while it has improved in other two groups.

Further the results indicated that in most of the financial indicators foreign banks recorded the highest mean values. But as far as stability and consistency is concerned, it was negligible in foreign banks and highest in public sector banks.

It is also found that mean difference was negligible among public and private sector banks but it is significant when compared with foreign bank group. It depicts that public sector banks need to improve their performance in order to compete with private and foreign banks groups.

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