MEASURING THE PROFITABILITY AND PRODUCTIVITY OF BANKING INDUSTRY: A CASE STUDY OF SELECTED COMMERCIAL BANKS IN INDIA

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ABSTRACT

Banks are considered as the backbone of any economy. Productivity and Profitability of banks enhances the economic health of the country. After Liberalization, Privatization and Globalization of Indian economy, there is paradigm shift in entire country. The waves has also affected banking sector in positive way. The present study is an attempt to evaluate the productivity and profitability of four major banks in India majorly, SBI, PNB, ICICI and HDFC. SBI and PNB are the giant in public sector banks and similarly, ICICI and HDFC, are holding top positions in private sector banks in India. To calculate productivity and profitability, ratio analysis technique is used. The study tries to find out whether there is a significant difference of productivity and profitability of public and private sector. The result of the study shows that there is significant difference in profitability of the public and private sector banks, but no significant difference in productivity of public and private sector banks. Earlier studies conducted on comparison between public and private sector banks conclude that public sector banks are lagging far behind private sector banks in the terms of both productivity and profitability (Makkar & Singh, 2012)., but this study concludes that public sector banks are coming up with high productivity and low profitability when compared with private sector banks. To increase profitability banks should embrace to adopt new technology to compete with private sector banks and also to successful survive in the market.

Keywords: Productivity, Profitability, Commercial Banks

INTRODUCTION

Indian banking industry is the backbone of country's economy that plays a very important role to strengthen the financial system of the country. The banking systems of the developing nations are suffering from the poor performance in the terms of profitability and productivity because of less investment in technology and excessive government regulations (Makkar and Singh, 2012). To solve this problem various reforms has been taken up and implemented to foster the growth of banking sector in India. India is one of the fastest and developing and growing economies in the world. This sector is tremendously competitive and recorded a growth in right trend (Ram Mohan 2008). Indian Banking has increased its total assets five times within the period from March 2000 to March 2010, i.e. US$ 250 million to US$ 1.30 trillion and CAGR of 18% as compared to the country's GDP of 7.5% during the same period. The commercial banking assets to GDP ratio has increased to nearly 100 percent while the ratio of bank's business to GDP has recorded nearly twofold, from 68 percent to 135 percent. The overall development has been lucrative with enhancement in banking industry efficiency and productivity, (Dwivedi & Charyulu 2011). The study tries to evaluate the productivity and profitability of selected commercial banks in India though the techniques of ratio analysis. High productivity and profitability leads to soundness of the industry, but the basic reason behind low productivity may be mismanagement, liquidity, credit policy, rise in operational costs and lack of human resource management. The present study attempts to evaluate the productivity and profitability of the selected public and private sector banks in India. The study has been divided into six sections. Section 1 is the introduction , Section 2 defines the terms profitability and productivity. Section 3 is related to review of literature. Section 4 related to objective, hypothesis and methodology, section 5 is related to result analysis and the last section discuss the conclusion and recommendations if any.

Profitability

The term profitability is related measure where profit is expressed as a percentage of total business. There are several measures to calculate profitability ratios. Some researchers take ROA, ROE and Cost to Income to evaluate the profitability of the banks and some take spread and burden as profitability measure. In this study profitability is taken as the difference of spread ratio and burden ratio i.e difference of income and expenditure. No doubt profitability is the most important and reliable indicator as it gives a broad indication of a bank to raise its income level. The improved profitability is the good indicator of performance of the bank. Higher the profitability leads to higher satisfaction to shareholders, managers, customers as well in the terms of better services and high technology. Now these days' banks spending are more as compared to previous era. To come up with high tech, banks are spending heavily on upcoming new technologies to make Indian banking world class. And this is the reason of high operating expenditure in banks. This expense may costs in short run but definitely it proves fruitful and indispensible in long run.

Productivity

Investopedia defines productivity as an economic measure of output per unit of input. The concept of productivity is more easily applied to industrial settings while it is more difficult to define and measure in the context of services sector, including the banking industry. In the present study deposits per employee and total expense are taken as input, advances per employee and total income, are taken as output for measuring productivity of banks.

REVIEW OF LITERATURE

Several studies conducted on profitability and productivity of the Indian banking sector. The aim of this section is get an idea of some important studies in the same field. V Brinda Devi (2013) suggest that profitability ratios are employed by the management in order to assess how efficiently they carry on their business operations and also it is suggested for the entire bank to take effective steps to improve the operating efficiency of the business. Joshi (2013) carried away the comparison of selected public sector banks on their profitability ratios which includes SBI, PNB, Canara Bank, Bank of Baroda and Bank of India. The study concluded that Net operating profit ratio and PBT to net worth ratio is not similar while, Net profit margin ratio, PAT to net income and PAT to net worth is similar for the selected banks in India. Makkar and Singh (2012), concluded after using ratio analysis, there is significant difference in productivity of the private and public sector bank and when profitability is concerned, there is no significant difference. Uppal (2011) pointed out the efficiency and productivity of Indian Banking sector in E-Age technology. The study uses ratio analysis for comparison of pre reform era and post reform era. Efficiency and Productivity has been measured to seek results and concluded that e- age has an impact on banking industry in India where private sector banks are leading and public sector banks are lagging behind in adapting technological advancements.

OBJECTIVES OF THE STUDY

The following are the objectives of the study

- To evaluate the profitability of selected public and private sector banks in India.
- To analyze the productivity of selected public and private sector banks in India.
- To give suggestions and recommendations for the improvement in the productivity and profitability of the Indian Commercial Banks.

In relation to objectives, following are the hypothesis:

Ho1- There is no significant difference between the profitability of selected public and private sector banks in India.

Ho2- There is no significant difference between the productivity of selected public and private sector banks in India.

RESEARCH METHODOLOGY

This analytical study is an attempt to fill important theoretical and methodological gaps that were found. This study is mainly based on the secondary data collected from annual reports of different public and private sector banks, statistical tables published by RBI, different websites and journals. It covers a period of five years (2008-09 to 2012-13). The sample is taken of four major banks of Indian commercial banks for analysis- two from public sector banks (SBI and PNB) and two from private sector banks (ICICI and HDFC). The ratio analysis is used to measure productivity and profitability of public and private sector banks in India then their significance is checked with the help of T-test.

Calculation of Profitability Ratios

Profitability ratio can be calculated as the difference between spread ratio and burden ratio. Spread ratio is the difference of Interest earned and Interest paid to total volume of business of the bank, whereas burden ratio is the difference of non operating expense and non operating income to total volume of business of the bank. The profitability ratios can be calculated as follows:

Profitability Ratio= Spread Ratio(S) – Burden Ratio (B)

Spread Ratio (S) = Interest Earned Ratio (E) – Interest Paid Ratio (P)

Burden Ratio (B) = Non – operating Expense Ratio (O) – Non Operating Income Ratio (N)

The above variable can be defined as follows:

Table 1: Description of Ratios used in calculating Profitability Ratio

S. No.	Ratio	Abbreviation used	Calculation
1	Interest Earned Ratio	E	Total Interest Earned/ Volume of Business
2	Interest Paid Ratio	P	Total Interest paid/Volume of Business
3	Non-Interest Income Ratio	N	Total non Interest income/ Volume of Business
4	Non –operating Expense Ratio	O	Total non Interest expense/ Volume of Business

Calculations of Productivity Ratios

Productivity is the ratio of output to input, higher the ratio, higher productive is the unit. And it can be calculated as follows:

Table 2: Description of Ratios used in calculating Productivity Ratio

S. No.	Ratio	Calculation
1	Deposit Per Employee	Total Deposits / Total Staff
2	Advances Per Employee	Total Advances / Total Staff
3	Total Business Per Employee	Total Business / Total Staff
4	Total Expenditure Per Employee	Total Expenditure / Total Staff
5	Total Income Per Employee	Total Income / Total Staff

FINDINGS

Ratio analysis has been used in this paper as it is considered as a powerful tool to analyze the productivity and profitability of the various categories of banks. The common denominator used for developing various profitability ratios is business volume (deposits + advances). Productivity is measured in terms of the output per unit of input where output is taken as volume of the business and input is taken as employee per bank during the year. Various tables show the calculation of productivity and profitability of the selected banks. With reference to the following table 3 and table 4, it can be summarized that volume of both the public as well as private sector banks is increasing. When profitability is concerned, the profitability of both the sector bank is increasing barring few years because of high expenditure on non Interest income. SBI and associates shows increasing trend till 2011-12 but there is decline in the year 2012-13, the reason may be low Interest. Income and high Interest paid. In case of PNB profitability is not much affected with the same reason but the because of high non Interest expenditure there profitability declines. Both private sector banks shows increasing trend in profitability ratio. There ratios are much higher than the ratios of public sector banks.

Table 3: Variables used in calculation of Profitability and Productivity Ratios (In Millions)

Sr. no.	Variables	SBI and Associates					PNB				
		2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
1	Interest Income	637884	709939	813944	1065215	1196571	191272	214221	269865	364761	418933
2	Non Interest Income	126908	149682	158246	143514	160348	30647	36101	36126	42026	42159
3	**Total Income**	**764792**	**859621**	**972190**	**1208729**	**1356919**	**221919**	**250322**	**305991**	**406787**	**461092**
4	Interest Expended	429153	473225	488680	632304	753258	122953	129440	151791	230617	270368
5	Non Interest Expenses	156487	203187	230154	260690	292844	42062	47619	63642	70028	81651
6	**Total Expenditure**	**585640**	**676412**	**718834**	**892994**	**1046102**	**165015**	**177059**	**215434**	**300645**	**352019**
7	Advances (A)	5425032	6319142	7567194	8675789	10456166	1547030	1866012	2421067	2937748	3087252
8	Deposits (B)	7420731	8041162	9339328	10436474	12027396	2097605	2493298	3128987	3795885	3915601
9	**Volume of Business (A+B)**	**12845763**	**14360304**	**16906523**	**19112263**	**22483562**	**3644635**	**4359310**	**5550054**	**6733632**	**7002853**
10	Total Number of Employees	205896	200299	222933	215481	228296	54780	57103	53114	62127	63292

Source: Various Issues of SBI & Associates and PNB

Table 4: Calculation of Profitability Ratios

S. no.	Variables	SBI and Associates					PNB				
		2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
1	Interest Earned Ratio	4.966	4.944	4.814	5.573	5.322	5.248	4.914	4.862	5.417	5.982
2	Interest Paid Ratio	3.341	3.295	2.890	3.308	3.350	3.374	2.969	2.735	3.425	3.861
3	**Spread Ratio**	**1.625**	**1.648**	**1.924**	**2.265**	**1.972**	**1.875**	**1.945**	**2.127**	**1.992**	**2.121**
4	Non-Interest Expense Ratio	1.218	1.415	1.361	1.364	1.302	1.154	1.092	1.147	1.040	1.166
5	Non-Interest Income Ratio	0.988	1.042	0.936	0.751	0.713	0.841	0.828	0.651	0.624	0.602
6	**Burden Ratio**	**0.230**	**0.373**	**0.425**	**0.613**	**0.589**	**0.313**	**0.264**	**0.496**	**0.416**	**0.564**
7	**Profitability Ratio**	**1.395**	**1.276**	**1.499**	**1.652**	**1.382**	**1.561**	**1.681**	**1.632**	**1.576**	**1.558**

Table 5: Variables used in calculation of Profitability and Productivity Ratios (In Millions)

Sr. no.	Variables	ICICI Bank					HDFC				
		2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
1	Interest Income	310925	257069	259741	335427	400756	163323	161727	199282	278742	350649
2	Non Interest Income	76037	74777	66479	75028	83457	32906	39831	43352	57836	68526
3	**Total Income**	**386963**	**331846**	**326219**	**410454**	**484213**	**196229**	**201558**	**242634**	**336578**	**419175**

4	Interest Expended	227259	175926	169572	228085	262092	89111	77863	93851	149896	192538
5	Non Interest Expenses	70451	58598	66172	78504	90129	55328	59398	71529	92776	112361
6	**Total Expenditure**	**297710**	**234524**	**235744**	**306589**	**352221**	**144439**	**137261**	**165380**	**242672**	**304899**
7	Advances (A)	2183108	1812056	2163659	2537277	2902494	988830	1258306	1599827	1954200	2397206
8	Deposits (B)	2183478	2020166	2256021	2555000	2926136	1428116	1674044	2085864	2467064	2962470
9	**Volume of Business (A+B)**	**4366587**	**3832222**	**4419680**	**5092276**	**5828630**	**2416946**	**2932350**	**3685691**	**4421265**	**5359676**
10	Total Number of Employees	51835	41068	56969	58276	62065	52687	51888	55752	66076	69401

Source: Various Issues of ICICI & Associates and HDFC

Table 6: Calculation of Profitability Ratios

S. no.	**Variables**	**ICICI Bank**					**HDFC Bank**				
		2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**
1	Interest Earned Ratio	7.12	6.71	5.88	6.59	6.88	6.76	5.52	5.41	6.30	6.54
2	Interest Paid Ratio	5.20	4.59	3.84	4.48	4.50	3.69	2.66	2.55	3.39	3.59
3	**Spread Ratio**	**1.92**	**2.12**	**2.04**	**2.11**	**2.38**	**3.07**	**2.86**	**2.86**	**2.91**	**2.95**
4	Non-Interest Expense Ratio	1.61	1.53	1.50	1.54	1.55	2.29	2.03	1.94	2.10	2.10
5	Non-Interest Income Ratio	1.74	1.95	1.50	1.47	1.43	1.36	1.36	1.18	1.31	1.28
6	**Burden Ratio**	**-0.13**	**-0.42**	**-0.01**	**0.07**	**0.11**	**0.93**	**0.67**	**0.76**	**0.79**	**0.82**
7	**Profitability Ratio**	**2.04**	**2.54**	**2.05**	**2.04**	**2.26**	**2.14**	**2.19**	**2.10**	**2.12**	**2.13**

Fig1. Profitability ratio on the basis of spread and burden

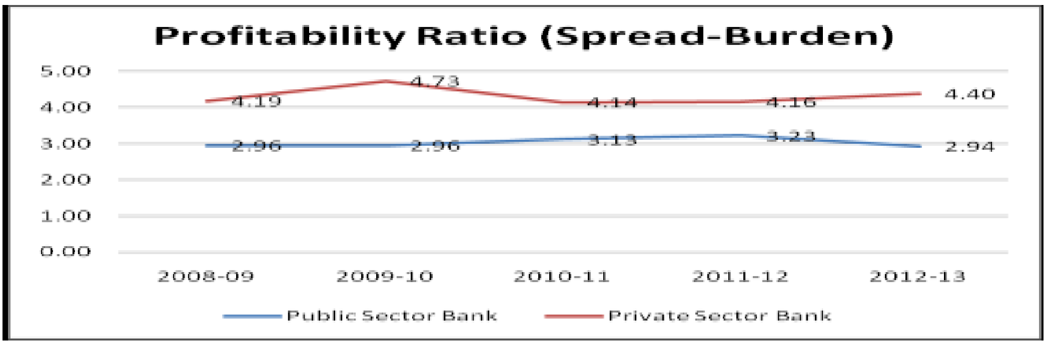

Table 7 and Table 8 show the productivity trends of selected public and private sector banks of India. Both the sector bank shows increasing trend in business per employee which is taken as a base for interpreting productivity ratio. Table 9 shows the comparison of profitability and productivity of selected banks of both the sectors. In the terms of productivity, both shows increasing trend but private sector banks are leading with high productivity as compared to public sector banks. Now the question is related to significance difference in profitability and productivity of selected banks of both the sector.

Table 7: Calculation of Productivity Ratios of Public Sector Bank

Sr. no.	**Variables**	**SBI and Associates**	**PNB**

		2008-09	2009-10	2010-11	2011-12	2012-13	2008-09	2009-10	2010-11	2011-12	2012-13
1	Deposit Per Employee	36.04	40.15	41.89	48.43	52.68	38.29	43.66	58.91	61.10	61.87
2	Advances Per Employee	26.35	31.55	33.94	40.26	45.80	28.24	32.68	45.58	47.29	48.78
3	**Total Business Per Employee**	**62.39**	**71.69**	**75.84**	**88.70**	**98.48**	**66.53**	**76.34**	**104.49**	**108.38**	**110.64**
4	Total Expenditure Per Employee	2.84	3.38	3.22	4.14	4.58	3.01	3.10	4.06	4.84	5.56
5	Total Income Per Employee	3.71	4.29	4.36	5.61	5.94	4.05	4.38	5.76	6.55	7.29

Table 8: Calculation of Productivity Ratios of Private Sector Bank

Sr. no.	Variables	ICICI					HDFC				
		2008-09	2009-10	2010-11	2011-12	2012-13	2008-09	2009-10	2010-11	2011-12	2012-13
1	Deposit Per Employee	42.12	49.19	39.60	43.84	47.15	27.11	32.26	37.41	37.34	42.69
2	Advances Per Employee	42.12	44.12	37.98	43.54	46.77	18.77	24.25	28.70	29.58	34.54
3	**Total Business Per Employee**	**84.24**	**93.31**	**77.58**	**87.38**	**93.91**	**45.87**	**56.51**	**66.11**	**66.91**	**77.23**
4	Total Expenditure Per Employee	5.74	5.71	4.14	5.26	5.68	2.74	2.65	2.97	3.67	4.39
5	Total Income Per Employee	7.47	8.08	5.73	7.04	7.80	3.72	3.88	4.35	5.09	6.04

Fig2. Productivity ratio on the basis of BPE

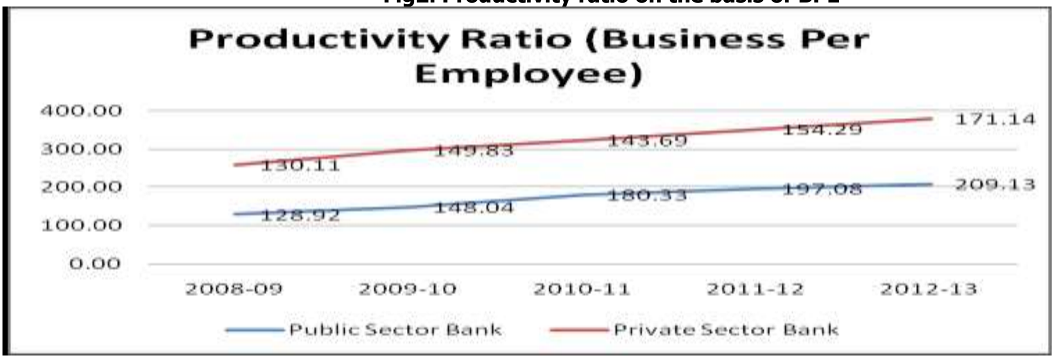

Table 9: Summarization of Profitability and Productivity Ratios of Public and Private Sector Bank

Name of Bank	**Profitability Ratio (Spread-Burden)**					**Name of Bank**	**Productivity Ratio (Business Per Employee Ratio)**				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***		***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***
SBI	1.4	1.3	1.5	1.7	1.4	SBI	62.4	71.7	75.8	88.7	98.5
PNB	1.6	1.7	1.6	1.6	1.6	PNB	66.5	76.3	104.5	108.4	110.6
Public Sector	**3.0**	**3.0**	**3.1**	**3.2**	**2.9**	**Public Sector**	**128.9**	**148.0**	**180.3**	**197.1**	**209.1**
ICICI Bank	2.0	2.5	2.0	2.0	2.3	ICICI Bank	84.2	93.3	77.6	87.4	93.9
HDFC Bank	2.1	2.2	2.1	2.1	2.1	HDFC Bank	45.9	56.5	66.1	66.9	77.2
Private Sector	**4.2**	**4.7**	**4.1**	**4.2**	**4.4**	**Private Sector**	**130.1**	**149.8**	**143.7**	**154.3**	**171.1**

T test has been applied on both the sectors and the results are as follows. The first hypothesis is related to significance difference in profitability of both the sector banks. T value is 8.837 with the significance .001, these value leads to rejection of null hypothesis and it is interpreted that there is significance difference in both the sector banks in the terms of profitability.

Table 10: Paired Samples Test on Profitability Ratios of Selected Banks

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PrivateSector - PublicSector	1.28100	.34275	.15328	.85542	1.70658	8.357	4	.001

Source: Computed results from SPSS (Ho1)

Second hypothesis is concerned with the significance difference in productivity of both the sector banks. T value is -2.288 at 4 degree of freedom with the significance of 0.084, which leads to acceptance of null hypothesis that there is no significant difference in productivity of both the sector banks.

Table 11: Paired Samples Test on Productivity of Selected Banks

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Private Sector – Public Sector	-22.89000	22.37357	10.00576	-50.67046	4.89046	-2.288	4	.084

Source: Computed results from SPSS (Ho2)

DISCUSSION OF THE RESULTS

As far as result of study is concerned related to profitability and productivity of selected public and private sector banks, profitability of private sector banks are high as compared to public sector banks. The profitability ratios of ICICI bank and HDFC bank during the study period (2008-09 to 2012-13) show an increasing trend from 4.2 to 4.4, while the public sector banks have different trend where profitability ratios moved 3.0 to 2.9. Productivity ratios of public sector banks are relatively higher than the private sector banks except in the year 2008-09 and 2009-10. Productivity ratio of public sector banks moved from 128.9 to 209.1, and private sector banks moved from 130.1 to 171.1. Paired sample test on productivity come up with insignificant difference between selected banks of public and private sector banks while on profitability is shows significant difference between the selected public and private sector banks. To increase the profitability in public sector bank, banks need to manage the deposits and expenditures effectively. And to increase the productivity in both the sector banks new techniques of doing operational work should be implemented.

LIMITATIONS

The study has the following limitations:

- In present study only 2 banks are taken into consideration from each sector.
- There are some other measures also to calculate the productivity and efficiency of banks, for the time being the tool taken for calculation of productivity is Ratio Analysis.
- The study considers only quantitative aspects of productivity not the qualitative aspects.

CONCLUSION

With reference to profitability, there is a significant difference between the selected banks of public and private sector. And when productivity is concerned, there is no significant difference between the selected banks of public and private sector. Although both sectors show increasing trend in productivity ratios but in comparison private sector banks are having high productivity and high profitability. Public sector bank shows low productivity, the reason may be high staffing. Staff needs to be managed according to the business and forecasting of human resource planning can be done accordingly.

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