International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

PRODUCTIVITY ANALYSIS OF SELECTED BANKS IN INDIA

Dr. D.Mahila Vasanthi Thangam-Asst Professor of Commerce, Sree Narayana Guru College

Ms.Thoushifa.T, M.Phil. Scholar, Department of commerce, Sree Narayana Guru College

Abstract

Since the process of liberalization and reform in the financial sector in 1991, banking sector has undergone major transformation. The underlying objectives of the reform were to make the banking system more competitive, productive and profitable. As per the IBA report "Banking Industry Vision 2010" there would be greater presence of international players in the Indian Financial system and some of the Indian banks would become international players in the coming years. The key to success in the competitive environment is increased productivity.

This study has analysed the productivity of nine banks, three banks each from PSB group, PVTB group and FB group in India during 2009-10 to 2013-15.The biggest three banks of all bank groups in terms of deposits and advances have been taken up for the study. It takes into account net profits, deposits, advances, total interest income, total expenditure and total business of the selected banks as the measure of productivity.

Considering the differences in individual performances and the environmental differences, the study proposed to base its conclusion on employee and branch based averages. The methodology involves calculation of per employee and per branch ratios so as to reflect the inherent operational differences of the selected banks.

This Study has found that BOA (FB) shows higher branch productivity as well as labour productivity among all nine banks under study and PNB (PSB) and HDFC (PVTB) and SMAU (FB) show lower productivity.

In any economy, the financial sector is the engine that drives economic growth through efficient allocation of resources to productive units[1]. Banking is considered as one of the main components of the financial system. It has a broad impact on the entire financial market stability and the real strength of the economy. Banking system connects the fundamental economic units and plays the role of financial intermediation. It helps in the creation of wealth through the establishment of a series of interconnected economic relations[2] and occupies a distinctive position in the Indian economy. Its largest presence is evident in terms of its significant contribution towards the primary, secondary and tertiary sectors along with employment generation and foreign exchange services.[3] It shares about 13.2 per cent of growth of India's services sector at factor cost[4].Among the financial sector, Commercial banks are the backbone of the Indian economy which serve as a bridge between savings and investments and is the dominant financial sector, accounting for a major portion of fund flow.

Banks in India can be categorized into non-scheduled banks and scheduled banks. Scheduled banks consist of commercial banks and co-operative banks and there are 89 banks in India falling under this category. It includes 20 nationalized banks, State Bank of India, 5 SBI subsidiaries, 13 old private sector banks, 7 new private sector banks (started after Banking sector reforms 1991) and 43 foreign banks. They manage over Rs.7089.3 billions of capital and reserves with more than 1151199 employees, 116450 branches and more than 162500 Automated Teller Machines (ATMs) and manage an aggregate deposit of Rs. 85331 billions and advances of Rs. 67352 billions. The net profit of the banks operating in India was Rs.809 billion against a turnover of Rs.9148.59 billions for the year 2013-14.[5]

"Financial soundness has a close relationship with the productivity of financial institutions. The overall growth of an economy depends to a great extent on the efficiency, productivity and soundness of its banking system. A sound banking system serves as an important medium for pushing economic growth by mobilization of small savings of unproductive domestic sector and putting them to the productive use. They are not only essential for the security and strength of the financial system, but also make significant contributions to the economy across the country. They

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

continue to pursue all the opportunities available to enhance their productivity and competitiveness. Top bank management wants to identify and eliminate the underlying causes of inefficiencies, thus helping their firms to gain competitive advantage, or, at least, meet the challenges from others. Therefore to survive in the competitive era banks have to monitor their performance by means of productivity analysis.

This study intends to answer the following questions

1. Whether the banking sector in India comprising of public sector, private sector and foreign banks is productive or not?
2. Whether there is any relationship among the profitability and productivity or not?

OBJECTIVES

1. To analyze the productivity and its components of selected commercial banks.
2. To examine the compounded annual growth rate of productivity of selected commercial banks.
3. To ascertain the reasons for productivity loss of selected commercial banks.
4. To give appropriate suggestions and recommendations for increasing the productivity of the banking sectors

RESEARCH METHODOLOGY

       This study is based on secondary data which have been collected from various sources like Statistical Tables Relating to Banks in India for six years from 2009-2010 to 2013 -2015, Reports on Currency and finance (annual reports), Report on Trends and progress of Banking in India and also from Annual reports of various banks, IBA bulletin and web sites relating to banking. The top three banks from each sector in terms of deposits been purposefully selected for analyzing the productivity. The selected banks are State Bank of India, Bank of Baroda and Punjab National Bank from PSBs, Axis Bank, ICICI and HDFC from PVTBs and Citi Bank, Bank of America and State Bank of Mauritius from FBs.

      The present study is analytical in nature. The core of the study has been to analyse the productivity of banks in India. The data collected for the study have been analysed by using appropriate statistical tools, accounting ratios with reference to specific objectives. Summary statistics, Compound Annual Growth Rate, Ratio Analysis and correlation, have been used to analyse the data.

PRODUCTIVITY ANALYSIS OF BANKS

Table No.1

Descriptive statistics and CAGR of selected variables

      The average Net profit, total income, total expenditure, deposits, advances and total business is found to be the highest in SBI in PSB group, ICICI in PVTB group and Citibank in FB group. These variables are found to be the lowest in PNB in PSB, Axis Bank in PVTB and SMAU in FB.

     SMAU is highly fluctuating and PNB is consistent in net profit, SMAU is highly fluctuating and Citi bank is consistent in total income and BOA is fluctuating and Citi Bank is consistent in total expenditure since these variables CV is high and low respectively. BOB is highly fluctuating in deposits and total business where HDFC is highly fluctuating in advances. Citi bank is highly consistent in terms of deposits, advances and total business. The CAGR of net profit, total income and total expenditure of SMAU is the highest and the CAGR net profit is the least and negative in PNB, total income is least in Citi Bank and the total expenditure is the least and negative in BOA. The CAGR of deposits and advances are the highest in HDFC and total business is the highest in BOB, and the CAGR of deposits and advance are found to be the least in Citi bank and total business is least in SMAU

Table No.2

Descriptive statistics and CAGR of Number of employees and number of branches

Sector	Variables Name	Number of employees			Number of Branches		
	Bank Name	AVG	C V (%)	CAGR	AVG	C V	CAGR (%)

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

					(%)		(%)	
PSB	SBI	217808	4.96	2.08	13572.4	5.08	2.53
	BOB	41618.6	7.45	3.81	3622.6	10.47	4.73
	PNB	60081.6	4.84	1.3	5153.4	5.41	2.53
PVTB	ICICI	56958.4	23.75	15.42	2492.8	18.23	10.1
	HDFC	62256.4	12.71	5.61	2254.4	17.21	8.16
	Axis Bank	100327	155.69	14.41	1436.2	19.61	10.83
FB	Citibank	5234.2	7.41	4.15	43	0	0
	BOA	357.4	14.45	7.25	5	0	0
	SMAU	44	25	15.28	3	0	0

From table no. 2 it is seen that the average number of employees and the average number of branches are found to be the highest in SBI (PSB) and it is the least in SMAU (FB). Citibank in FB group have the highest average number of employees and Axis bank in PVTB group has highest number of employees as against the number of branches in ICICI. The very lowest Number of employees is found to be in SMAU (FB).Axis bank is highly fluctuating in Number of employees as well as the number of branches. There are least variations found in these variables in SBI and BOB. The CAGR of these variables is also least in these banks as against Axis bank in PVTB.

EMPLOYEE PRODUCTIVITY

To find out the employee level productivity, the following formulae have been applied

1) Net Profit per employee = Net Profit after interest and tax / No of Bank employees
2) Income per employee =Total income per branch / No of Bank employees
3) Expenditure per employee =Total expenditure / No of Bank employees
4) Deposit per employee = Total deposits / No of Bank employees
5) Advances per employee =Total Advances / No of Bank employees
6) Business per employee =Total business / No of Bank employees

Table 4 shows the employee level productivity of banks

Table 3

Employee level productivity of banks

Sector	Variables Name	Net profit per employee	Rank	Total Income per employee	Rank	Total Expenditure per employee	Rank	Deposits per employee	Rank	Advance per employee	Rank	Total Business per employee	Rank
PSB	SBI	0.49	8	5.39	7	4.9	3	49.19	7	40.91	7	89.76	7
	BOB	1.02	5	7.69	5	6.65	6	93.44	4	68.3	4	163.41	4
	PNB	0.7	7	6.22	6	5.52	4	59.13	6	45.28	6	103.86	6
PVTB	ICICI	1.17	3	7.75	4	6.54	5	71.63	5	46.84	5	119.99	5
	HDFC	0.85	6	5.28	8	3.78	1	44.19	9	32.14	9	76.14	9
	Axis Bank	1.07	4	5.04	9	4.22	2	65.17	8	33.36	8	86.78	8
FB	Citibank	3.68	2	18.5	3	14.77	7	122.23	3	89.52	3	213.04	3
	BOA	13.7	1	45.19	1	72.99	9	184.51	1	168.42	1	353.76	1

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

SMAU	0.3	9	25.79	2	25.77	8	133.12	2	140.26	2	277.56	2

The Net profit per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Net profit per Employee is found to be in SMAU among all banks and bank group .The Income per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Income per Employee is found to be in Axis bank (PVTB) among all banks and bank group. The Expenditure per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Expenditure per Employee is found to be in HDFC (PVTB) among all banks and bank group.

The Deposit per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Deposit per Employee is found to be in HDFC (PVTB) among all banks and bank group. The Advances per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Advances per Employee are found to be in HDFC (PVTB) among all banks and bank group. The Business per Employee is the highest in BOB in PSB group, ICICI in PVTB group and BOA in FB group. The very lowest Business per Employee is found to be in HDFC (PVTB) among all banks and bank group.

From this it is inferred that BOA (FB) is found to be the best bank in terms of employee productivity followed by SMAU (FB) and Citi bank (FB). Though SMAU is to be the least in all the selected variables, it is found to be the second best bank in terms of total income per employee, deposits per employee, advances per employee and total business per employee. This shows that the employee productivity is found to be good in SMAU. At the same time, the total net profit as well as the net profit per employee in this bank is found to be very low and expenditure per employee is high which shows that this has failed to control its cost.

Though the volume of deposits, advances and business is found to second among PVTB, HDFC is found to be the least bank in terms of deposits per employee, advances per employee and total business per employee. At the same time it has effectively manage its cost. This shows that this bank should improve its employee productivity by increasing its volume of deposits, advances and business.

Among all group, PVTB group has effectively controlled its cost which may be one of the reasons where these banks can compete with banking magnet like SBI, other big PSBs and FBs with ever new technology.

BRANCH PRODUCTIVITY

To find out the branch level productivity, the following formulae have been applied

1) Net Profit per Branch = Net Profit after interest and tax / No of Bank Branches
2) Income per branch =Total income per branch / No of Bank Branches
3) Expenditure per branch =Total expenditure / No of Bank Branches
4) Deposit per branch = Total deposits / No of Bank Branches
5) Advances per branch =Total Advances / No of Bank Branches
6) Business per branch =Total business / No of Bank Branches

Table 3 shows the branch level productivity of Banks

Table No.4

Branch level productivity of Banks

Sector	Bank Name	Net profit per Branch	Rank	Total Income per Branch	Rank	Total Expenditure per Branch	Rank	Deposits per Branch	Rank	Advance per Branch	Rank	Total Business per Branch	Rank
PSB	SBI	7.94	8	86.91	7	79.1	3	788.11	8	660.04	8	1448.2	8
	BOB	11.72	7	86.64	8	74.92	2	1072.3	7	770.27	7	1842.6	7
	PNB	8.28	6	73.18	9	64.91	1	688.01	9	531.85	9	1219.9	9
P	ICIC	26.73	4	169.82	5	143.08	5	1618.2	5	1027.5	5	2645.7	5

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

V T B	I											
	HDFC	23.52	5	146.63	6	104.5	4	1224.9	6	892.5	6	2117.4	6
	Axis Bank	29.51	3	183.99	4	154.47	6	1681.2	4	1162.8	4	2844	4
F B	Citibank	456.65	2	2239.61	2	1782.96	8	14916	1	10833	2	25749	1
	BOA	988.56	1	3265.96	1	4628.76	9	13167	2	12131	1	25299	2
	SMAU	0.87	9	382.6	3	381.8	7	1961.5	3	1960.9	3	3922.3	3

The Net profit per branch is the highest in BOB in PSB group, Axis bank in PVTB group and BOA in FB group. The very lowest Net profit per branch is found to be in SMAU among all banks and bank groups. The Income per Branch is the highest in SBI in PSB group, Axis bank in PVTB group and BOA in FB group. The very lowest Income per Branch is found to be in PNB (PSB) among all banks and bank groups. The Expenditure per Branch is the highest in SBI in PSB group, Axis bank in PVTB group and BOA in FB group. The very lowest Expenditure per Branch is found to be in PNB (PSB) among all banks and bank groups.

The Deposit per Branch is the highest in BOB in PSB group, Axis bank in PVTB group and Citibank in FB group. The very lowest Deposit per Branch is found to be in PNB (PSB) among all banks and bank groups. The Advances per Branch is the highest in BOB in PSB group, Axis bank in PVTB group and BOA in FB group. The very lowest Advances per Branch are found to be in PNB (PSB) among all banks and bank groups. The Business per Branch is the highest in BOB in PSB group, Axis bank in PVTB group and Citibank in FB group. The very lowest Business per Branch is found to be in PNB (PSB) among all banks and bank groups.

From this it is inferred that in terms of Net profit per branch, Income per Branch, Expenditure per Branch and Advances per Branch the BOA (FB) stands first among all banks and bank groups. Citi Bank (FB) is found to be the biggest bank in terms of Deposit per Branch and total Business per Branch. PNB (PSB) is found to be the least in all the above discussed variables among all banks and bank groups.

Though the volume of net profit, deposit, advance and total business is the highest in SBI (PSB), the net profit per branch, deposit per branch, advance per branch and business per branch is found to be the highest in BOB (PSB). From this it is inferred that BOB is found to be the best in Branch Productivity.

Also, though SMAU (FB) is found to be the least in net profit, deposit, advance, and total income in terms of volume, the Per branch deposit, advance, and income is found to be low in PNB (PSB). From this it is inferred that PNB is found to be poor in Branch Productivity.

In terms of cost management, PNB (PSB) is effective followed by BOB (PSB) and SBI (PSB) since their expenditure per branch is low compared to other banks and bank groups. But FB groups have failed to do so.

The volume of expenditure as well as the number of branches is found to be the highest in SBI, at the same time the expenditure per Branch ranked as third. This shows that SBI is inefficient to control its expenditure which may be the reason for low Net profit per branch and low total income per branch.

This suggests that the SBI has to control its operating expenses. Also FB group have to also take steps to reduce their expenditure so that they may be more productive.

SUGGESTIONS

Based on the analysis and discussions made the following suggestions have been put forth

1. Net profit per branch is low in Public Sector Banks if compared with others, so that the PSBs should take step to improve it, for this banks must reduce the number of branches to improve the Productivity or take steps to improve profit.

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

2. The number of employees also high in PSBs, that's why the Productivity per employee is low in PSBs, So the PSBs must reduce the number of Employees or to increase the productivity in par with the number of employees.

3. SBI should concentrate the Productivity; it is the biggest bank in India in case of profit, deposit, advances, business, total income and expenditure but per branch Productivity is low. So SBI must concentrate in weaker branches to improve the Productivity.

4. SBI has to control its operating expenses since total income per branch good where as the net profit per branch is poor.

5. PNB have to improve its branch level productivity as well as labour level productivity

6. PVTBs group, banks should take step to improve per branch Productivity, Axis bank must concentrate and take aggregate steps to improve the Productivity.

7. HDFC bank has to improve its branch level productivity as well as labour level productivity.

8. Axis bank should either reduce the number of employees or it should increase total volume of business in par with the number of employees.

9. Foreign Banks have high productivity but there are no sufficient branches in India. So the FBs must concentrate to introduce new bank branches.

10. In Foreign Banks, numbers of employees are very low. So FBs should increase the number of employees to the effective Business.

CONCLUSION

After detailed analysis it can be concluded that number of branches and number of employees of are highly influencing the Productivity of banks. The big banks with huge number of branches have the lowest Productivity and vice versa. In India the Public Sector Bank has the lowest productivity but have highest number of branches and number of Employees also high. The Banks must concentrate on per branch Productivity as well as per employee productivity. In nutshell, rightsizing of banks is the only solution to improve productivity in Indian banking industry to fulfil the goal of Indian financial sector reforms and to improve the Indian banking sector to the international standard.

BIBLIOGRAPHY

A. BOOKS

B. Drucker P. F. (1963). "Managing for business effectiveness", *Harvard Business Review* 1963; Vol. 41: 53-60.

❖ Amalesh Banerjee and Singh, S.K (1999) *Banking and Financial Sector Reforms in India* (Deep and Deep Publications, New Delhi)

❖ Kothari,C.R. (2000) *Research Methodology: Methods and Techniques*.(2nd Edition, New   Age International (P) Ltd., New Delhi)

❖ Gupta, S.P. (2001). *Statistical Methods (30th revised edition*, Sultan Chand & Sons Publications, New Delhi)

❖ Monika Aggaewal.(2007) *Productivity of Commercial Banks in India- Trend and Analysis,* (Gyan Publishing House, New Delhi)

❖ Amandeep. (1993).*Profits and profitability in commercial banks* (Deep and DEEP Publications, New Delhi)

B. JOURNALS

❖ Anne W. Kamau, (2011) "Intermediation Efficiency and Productivity of the Banking Sector in Kenya" *Interdisciplinary   Journal   of   Research   in   Business* Vol. 1, Issue. 9, (pp. 12- 26)

❖ Supran Kumar Sharma and Dalip Raina "Measurement of Productivity and Efficiency of Commercial Banks in India using Fare-Parimont Approach" at http://www.webmeets.com/files/papers/IEA/2014/435/Fare-Parimont%20Approcah%2023%20april%202014.pdf

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

❖ Ikhide, S.I (2008). "Measuring the operational efficiency of commercial banks in Nambai", *South African Journal of Economics*, Vol.76,no.4,pp586-595

❖ Anne W. Kamau, (2011) "Intermediation Efficiency and Productivity of the Banking Sector in Kenya" *Interdisciplinary Journal of Research in Business* Vol. 1, Issue. 9, (pp. 12- 26)

❖ Podder, J., and Mamum, A.A. "Loan loss provisioning system in Bangladesh Banking: A critical Analysis". *Managerial Auditing Journal* 19:6 pp 729-740

❖ Shah, S.G., "Bank Profitability: The Real Issues", *The Journal of the Indian Institute of Bankers,* (July-Sep.1079), pp.130-144.

❖ Angadi. V.V and Devraj. V.J., "Profitability and Productivity of Banks in India", *Economic and Political Weekly*, Nov.26,1983

❖ Varghese S.K. (1970); Profit and Profitability of Indian commercial Banks in 1970's November'83 *Economic and Political Weekly*.Mumbai, pp.145-157.

❖ Roy, Durgadas, "Bank profitability: Social Role is no Barrier", *Business Standard*, Nov.29, 1986.

❖ Kiran Chopra, "Managing Profitability and Productivity in Public Sector Banking". ABS Publications, Jalandhar, 1987.

❖ Jagwant Sigh, "Productivity in Indian Banking", 1990, (A Thesis submitted to UBS PU Chandigarh).

❖ Sampath, S.J. (1994), "A Study on interest Spread in Commercial Banks in India" commerce 1998.

❖ Amandeep, profit and profitability in commercial Banks, Deep and Deep publications, New Delhi, 1993.

❖ Kothari, C.R., Social Banking and Profitability, Arihant Publishers, Jaipur, 1991.

❖ Saleem, Dr. Imran, "Strategic Reforms of Banking Sector", Monthly Commentary, Feb. 1995.

❖ Kaushik, Sanjay, "Social Objectives and Profitability of Indian Banks", (1995) (A Thesis submitted to UBS, PU, Chandiagarh).

❖ Krishna, Dr. R.R., "Profitability Analysis: An Overviews", Indian Banking Today and Tomorrow, Sept.1996.

❖ Athma, Prasantha, "Performance of Public Sector Commercial Banks - A Case Study of State Bank of Hyderabad", abstract of doctoral dissertation, Finance India, March 2000.

❖ Ramamurthy, K.R., "Profitability and Productivity in Indian Banking", Chartered Financial Analyst, February, 1998, p.58.

❖ Singh, Kewaljeet, Profitability Performance of Nationalized Banks: Some Issues, 1999.

❖ Malhotra, Meenakshi, "Banking Sector Reforms- Experience of PSBs", Abhigyan, Vol. XVII, No. II.

❖ Sholvapur, M.R., Profitability Analysis of Bank Branches (Spread Burden Approach), 1999.

❖ Rao, Rohit, "Collaring the Crisis", Business India, Jan. 11-24, 1999.

❖ Shazali Abu Mansor and Alias Radam and Muzafar Shah Habibullah (2006). "An Analysis of Technical Progress and Efficiency in Malaysian Commercial Banks before Mergers," *The IUP Journal of Bank Management*, IUP Publications, vol. 0(2), pages 36-47, May.

❖ H P Mahesh and Meenakshi Rajeev, (2007). "Productivity of Indian commercial banking the pre and post liberalization periods", *The IUP Journal of Bank Management*,vol.0 (4),pp17-30

❖ Santi Gopal Maji and Soma Dey, (2006). "Productivity and Profitability of Select Public Sector and Private Sector Banks in India: an Empirical Analysis", *The IUP Journal of Bank Management,* vol. 0(4), pp 59-67.

❖ Naik Janardhan G (2007). "Operating efficiency of banks in India", *The Journal of Indian Management and Strategy*, Volume : 12, Issue : 1 pp : (36- 46)

❖ Ved Pal and N S Malik, (2007). "A Multivariate Analysis of the Financial Characteristics of Commercial Banks in India," *The IUP Journal of Bank Management*, vol. 0(3), pp 29-42

❖ Vidya Sekhri, (2011). "A DEA and Malmquist Index Approach to Measuring Productivity and Efficiency of Banks in India", *The IUP Journal of Bank Management*, vol. 0(3), pp 49-64.

❖ Verma, Richa; Bodla, B. S. (2011). "Performance of scheduled commercial banks in India: An application of DEA", *Decision* Vol. 38 Issue 1, pp 5-25

❖ Hawa Singh and Kamlesh, (2013). "Employee Productivity of Private Sector banks in India" *International Journal of Management and Social Sciences Research,* volume 2, No.10, pp 2319-4421

International Conference on "Research avenues in Social Science" Organize by SNGC, Coimbatore

❖ Vivek Singla (2013). "Analysis of productivity of Indian banks: Comparative Study of selected private banks", *International Journal of Computing and Business Research* (online) volume 4, Issue 2, pp 2229-6066

C. THESES

❖ Abu-Alkheil, Ahmad (2012) *Ethical Banking and Finance: A theoretical and empirical framework for the Cross-country and Inter-bank Analysis of Efficiency and Productivity and Financial Performance.* PhD Thesis, University of Hohenheim

❖ Vashisht, A.K., "Performance Appraisal of Commercial Banks in India", 1987 (A Thesis submitted to the Department of Commerce and Business Management, HPU, Shimla).

REPORTS

❖ Report of the committee on productivity efficiency and profitability on banking, RBI and Bombay 1978.

❖ Government of India, Report of the Banking Commission 1992 to review the operating methods and procedures in Indian Banking System: New Delhi, 1992

❖ Government of India, 2012-13, Economic Survey, Service sector, Chapter No.10, p .213

WEBSITES

❖ http://indiabudget.nin.in

❖ http://www.rbi.org.in/

❖ http://regulation.upf.edu/ecpr-05-papers/rlonborg.pdf

❖ http://economics.about.com/od/productivity/f/economic_eff.htm

❖ Chakrabarti, R and Chawla, G. (2002). Bank efficiency in India since the reforms - An Assessment <http://www.prism.gatech.edu.edu/166/bank%20efficiency.pdf>

❖ www.emeraldinsight.com

❖ www.researchworld.com

❖ www.googlescholar.com