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Productivity Performance of Banking Industry in India: An Inter-sectoral Analysis

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ABSTRACT

Productivity-based analysis for the Indian Banking Sector is in itself an area of enormous significance in this globally viable environment. If banks wish to become superior and competitive entities, they require connecting themselves with efficiency. It is also essential for the sake of a safe and sound financial system in a meticulous economic system. This paper analyses the cross relationship among various components of productivity like earning per employee, business per employee and profit per employee for public, private and foreign sector banks within the Indian Banking Industry using data for five years i.e. the period starting from 2001-02 to 2005-06. A range of statistical tools like averages, ACGR, correlation, regression, and parametric tests have been used to establish, evaluate and quantify the cross-sectional relationship among the variables. Ownership characteristics of banks are also incorporated into the analysis to examine productivity across ownership groups. Results show that foreign sector banks are outshining with their performance in all the selected parameters during the period of this study. In terms of ACGR and absolute numbers too, these banks have been on top in all the categories. However, the average ACGR, taking all the banks of one sector together, is highest for public sector banks in case of business per employee. It shows that public sector banks are growing with consistent pace and intra group variations are also less than other sectors. Results also show that private and foreign sector banks are showing significant relation between parameters, earnings and profit per employee. Public Sector has shown significant relation between earning and business per employee. Whereas, Foreign banks are giving positive and strong impact of earning per employee on profit per

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employee only. This paper may attest useful to policy makers as it shows that the relation between earning per employee and their productivity is not very significant. Therefore, they may have to search out supplementary factors that put in to higher productivity.

INTRODUCTION

Commercial Banks in India continue to remain in the forefront of the national financial system. The Indian Banking System has many outstanding achievements to its credit the most striking being its reach. By transforming class banking to mass banking, from wholesale banking to retail banking and from micro banking to macro banking, the Indian banking system has become a potent tool of the social economic development of the country over the years. Consolidation of institutions globalization of operations and development of new technologies and universalization of banking are taking place at a rapid pace. This leads to a remarkable increase in resource productivity by transferring funds throughout the nation and even internationally.

With the institution of financial sector reforms, competition among the banks has increased. Barriers to entry have been sharply reduced. Economies of scale and scope have to be exploited for facing competition. Improved productivity has, as a result, become a critical objective to be aimed at.

Productivity-the goods and services produced from each hour of work- is the magic elixir of economic progress, according to Federal Reserve Chairman Alan Greenspan. It is why we, without working longer hours, live better than our grandparents did. Productivity improvement is ultimately about relative progress. Creating more goods with fewer resources, superior quality goods of equal or superior with fewer resources should ultimately result in productivity improvement. Simply stated, "productivity" is the relationship between the products or services procuced and the resources used in their production. Expressed in technical terms, productivity is output per input. Productivity is an evaluation of the entire production and distribution process, as well as of the quality of the products and services produced, per person or other resources used. It does not mean that everyone involved in the process works "harder" but rather that they must work "smarter" so as to achieve a better utilization of all other resources.

Keeping in view the importance of the productivity of the banking sector, we have selected the earnings of bank employees and productivity as the issue to be researched. Earnings in the banking sector are increasing at a high rate. Analysis shows that per capita annual emoluments of SBI are Rs 0.31 million and that of ICICI bank are 0.36 million but ACGR for these banks for the period 2001-06 are 11.06 and 22.92 percent. There are so many other differences between earning per employee, business per employee and profit per employee of banks. Therefore, the earnings of bank employees is surely a topic to be researched. Is there any relation between productivity and the earnings of bank employees? We have tried to find out their relationship

The present paper on ***Productivity Performance of the Banking Industry in India: An Inter-sectoral Analysis*** is an attempt to bring out the relationship between the earnings of Indian bank employees and their productivity in competitive global economy. Such analysis is of great relevance from the policy standpoint, because as the finance-growth literature suggests, if banks

become better functioning entities, this is expected to be reflected in safety and soundness of the financial system and ultimately, lead to increases in the rate of economic growth. More importantly, such analysis is useful in enabling policymakers to identify the success or failure of policy initiatives or, alternatively, highlight different strategies undertaken by banking firms, which contribute to their successes. For the present paper, we have taken productivity as the issue. A close examination of different groups of banks is very important for policy and research concerns. To detect the extents and sources of inefficiency (wastage of resources) in each organizational form is the first step for policy makers towards writing right prescriptive measures to tackle the current and future problems of institutions. The paper consists of four sections. Section I is of Review of Literature. Section II presents Research Methodology. Section III offers results and discussions. Section IV includes Findings, Conclusion and Workable Suggestions.

REVIEW OF LITERATURE

Some studies have been reviewed here in this section that basically enlighten the scholar about the productivity's aspects of the banking sector. These studies are essentially micro-economic in nature and seek to analyse the efficiency and productivity of banking system.

('Rezitis 2006)' investigated productivity growth and technical efficiency in the Greek banking industry for the period 1982-1997. The study also compares the 1982-92 and 1993-97 sub-periods, since after 1992 the Greek banking sector experienced substantial changes. The Malmquist productivity index and the DEA method are used to measure and decompose productivity growth and technical efficiency, respectively. Productivity growth is higher after 1992. Recent growth is mainly attributed to technical progress, while until 1992 the growth is mainly attributed to improvements in efficiency. Tobit results show that size and specialization have positive effects on both pure and scale efficiency.

'(Daniels, Tirtiroglu and Tirtiroglu 2005)' studied the influence of the evolution in intrastate and interstate deregulations on the total factor productivity growth of the US commercial banking sector for the period during 1971-1995. Results indicate that long-standing banking restrictions affected negatively the banks' productivity growth and that relaxing restrictions on intrastate branching expansion has a positive long-run influence upon banks' productivity growth. The effect of interstate MBHC deregulations on banks' productivity growth is largely short-run and arises from regional reciprocity agreements. Interstate MBHC de novo branching deregulations have a negative long-run effect on banks' productivity growth.

'(Guarda and Rouabah 2005)' implemented the user cost approach to classify banks' balance sheet items as financial inputs or outputs in the intermediation process. This classification was then used to construct Tornqvist indices of output, inputs and TFP for the Luxembourg banking sector. Results suggest that strong growth in this sector over the last nine years reflects substantial TFP gains. TFP growth slowed at the peak of the business cycle in 2000 and recovered in 2002 as banks adjusted to the new environment.

'(Nakane and Weintraub 2005)' stated that over the last decade, the Brazilian banking industry has undergone major and deep transformations with several privatizations of state-owned banks, mergers and acquisitions, closing down of troubled banks, entry by foreign banks,

etc. The study evaluated the impact of these changes in banking on total factor productivity. Major results indicate that state-owned banks are less productive than their private peers, and that privatization has increased productivity.

'(Ataullah and Howcroft 2004)' applied a DEA-type Malmquist total factor productivity change index to examine productivity growth, efficiency change, and technical progress in the commercial banking industries of India and Pakistan during 1992-1998. Following Leightner and Lovell's (1998), a Malmquist index has been constructed for two different bank service specifications. The first is derived from the corporate objectives of the commercial banks, and the second from the policy objectives of the Indian and Pakistani governments. The analysis revealed that in both countries, the improvement in total factor productivity was highest when the government's policy objective was used. In addition, the public sector banks showed very little improvement in total factor productivity due to their inability to adopt new technology and because of the presence of high non-performing loans. In contrast, foreign banks witnessed the highest improvement in total factor productivity due to an improvement in their efficiency and technological innovation.

'(Gjirja 2004)' investigated the efficiency and productivity of Swedish banks during a five-year period from 1998-2002. Furthermore, these measures of a bank's performance are decomposed into their respective components and their development over time is analyzed. The results indicated that the overall cost efficiency in the Swedish banking sector averages at 79 percent. The major source of inefficiency appears to be technical in nature rather than allocative while the scale inefficiency is estimated to be relatively small. Swedish banks have on average experienced a productivity progress of 6.5 percent attributed largely to industry productivity gains. Furthermore, larger and more profitable banks display higher levels of efficiency whereas the number of branches has a negative effect.

'(Huang and Fu 2004)' in his research showed that over the last twenty years, the banking industry in Taiwan has experienced two major deregulation reforms aimed at increasing competition in the financial industry and improving productivity and efficiency. Empirical evidence from panel data of forty-eight banks from 1981 to 2000 shows that Taiwan's banking industry is characterized as risk-averse. Private banks are less cost-efficient in operations. The reforms did promote competition and increase productivity for the existing banks but not for the newly established private banks.

'(Casolaro and Gobbi 2003)' analyzed the effects of investment in information technologies (IT) in the financial sector using micro-data from a panel of 600 Italian banks over the period 1989-2000. Stochastic cost and profit functions are estimated, allowing for individual banks' displacements from the best practice frontier and for non-neutral technological change. The results show that both cost and profit frontier shifts are strongly correlated with IT capital accumulation. Banks adopting IT capital-intensive techniques are also more efficient. On the whole, over the past decade IT capital deepening contribution to total factor productivity growth of the Italian banking industry can be estimated in a range between 1.3% and 1.8% per year.

'(Mörttinen 2002)' computed banking sector labor productivity Tornqvist indices for six countries (Finland, Sweden, United Kingdom, Germany, France and Italy) over a period varying

from 11 to 20 years. According to the results, Finnish banking sector productivity has improved via a substantial reduction size of labor force, whereas output growth has been rather modest. Although in most of the other countries, the restructuring process has been less intense, most of the sectors studied have improved in terms of overall output and labor productivity, especially since the mid-1990s.

'(Ghani and Suri 1999)' examined East Asian financial crisis taking Malaysia as a case study. According to them, many discussions of the East Asian crisis address proximate and short-run causes of the crisis such as the current account deficit, exchange rate misalignment, and large short-run external debt relative to foreign exchange reserves. They argue that high output growth was driven by a rapid growth in capital stock. The banking sector played a critical role in transforming and accelerating large savings into capital accumulation. But the banking sector was perhaps not allocating capital efficiently. They found that the rapid growth in bank lending in Malaysia is negatively associated with the total factor productivity growth.

'(Rimmer 1998)' for example, has argued that as far as productivity is concerned, "the choice of an appropriate institutional wage fixing systems can be seen as a secondary problem, of less importance than internal managerial and human resource variables".

'(Oster and Antioch 1995)' examined a range of productivity indicators for the banking sector, with specific reference to the National Australia Bank (NAB). Almost all parameters of the series point in the same direction and support the hypothesis that productivity in the banking sector has been rising during the 1990s. But banks continually look to re-organize their processes and exploit new technology in an attempt to compete with other providers of financial services. Consequently, measurement of productivity in banking begs further research.

There are a small number of studies, which have looked into the efficiency and productivity of the Indian banking system. '(Bhattacharyya, Lovell, and Sahay 1996)' examined the relative performance of commercial banks under three different kinds of ownership (private, public, and foreign) during the post-deregulation period, '(Bhattacharyya, Bhattacharyya and Kumbhakar 1997)' analyzed productivity growth of and the effect of regulation on public sector banks over the period 1970-1991, while the study by '(Kumbhakar, Sarkar, Subrata, 2003)' examined Deregulation, Ownership, and Productivity Growth in the Banking Industry. '(Subramanyam 1993)' analyzed productivity growth in Indian banking.

In view of the research review made above, the authors observed that there is a scope for the present study with focused variables that may speak a little about the intra-sectoral productivity of the banking industry in India. The appraisal of available literature has provided various variables that have been studied in relation to productivity, for example, technical progress, ownership and regulation. There is one more factor that affects productivity to a high extent, i.e. the earnings of employees or compensation.

The present paper has employed three new-fangled variables for the purpose of analysis. These three parameters, which have been taken into consideration, include average earning per employee, business per employee and net profit per employee. The relationship between the earnings of employees and productivity has been analyzed by quite a few researchers like Banker, Young lee, Potter and Srinivasan (1999). The authors evaluated individual performance data for

3,776 sales employees of a retail firm to examine alternative sources of continuing performance improvement. The study concluded that an incentive plan helps the firm attract and retain more productive sales employees, and motivates these employees to further improve their productivity.

These variables may be novel from an academic point of view, but these factors enjoy an established link with productivity in corporate world. As Hewitt Associates in their annual report on Salaries in India (2006) explained this phenomenon by saying, "As homegrown organizations attempt to be more global and capture larger customer bases domestically and around the world, the need for good talent becomes critical. Locally-owned organizations are now beginning to align their compensation practices to global standards, strengthen their reward management practices and focus on pay for performance to attract and retain talent, and enhance overall productivity."

A short explanation of the selected variable is outlined below:

Average earning per employee	:	It may be defined as the Total Expenditure on Salary divided by the number of employees.
Business per employee	:	It may be defined as the Total Business during the Year divided by the number of employees.
Net profit per employee	:	It may be defined as the Total Net Profit divided by the number of employees.

RESEARCH METHODOLOGY

Good methodology follows the standards of the established conventions. For the present paper, a number of indispensable inimitabilities of the research methodology skirmishing the application magnitude and research rationalization of each one are defined here:

1. **Objectives of the Study:** Indian banks witnessed significant productivity improvements, post-reforms. It is with simple reason the present study has been undertaken. The main objective of the paper is to know the functional relationship between earnings and productivity of bank employees and to recommend some workable suggestions to boost the performance and productivity of bank employees.
2. **Hypothesis:** Hypothesis means the researcher must select from the intricacy of observed events such considerable and pertinent facts that would most effectively elucidate the problem under study. It gives you an idea about indispensable associations, which exist between the different fundamentals within the complexity. Therefore, the hypothesis of the present study are how:-
   - The average earning per employee effect business per employee and
   - The average earning per employee effect net profit per employee
3. **Nature and Sources of Data:** The present paper is of an analytical nature and makes use of secondary data. The relevant secondary data is collected from www.rbi.org.in and journals like Finance India, Indian Journal of Commerce, The Banker, Indian Journal of Commerce, Management Accountant, Chartered Accountant, Business Today, Business

India etc have also been referred to obtain the relevant information.

4. **Data Editing:** For this study, the major part of data comes from secondary sources. The data has been collected in raw form from various sources including PROWESS and it was made suitable for analysis as per the methodology defined for the purpose.

5. **Statistical Tools Applied:** To analyze the data, we have applied some statistical models like correlation model, panel data analysis, and ACGR models.

- Annual compound growth rates (ACGR) have been calculated by using the following formula:

  $Y = \alpha\beta^t$

  Where $Y = \alpha$ = constant, dependent variable, β = slope parameter/trend value, t = time

  By taking log values on both sides of the above equation, we have

  $\text{Log } Y = \log \alpha + \log \beta$

  Compound growth rate in percentage

  $(R) = [\text{antilog } (\log \beta) - 1] \times 100$

- The Fixed Effects Panel Data Model has been applied to know the impact of various variables on the capital structure. The analysis has been done by making two assumptions: the slope coefficients are constant but the intercept varies over individuals and the second is the slope coefficient but the intercept varies over individuals and time. Therefore, the model can be specified as below:

$EPE = a_1 + a_2 BPE + a_3T_1 + a_4T_2 + a_5T_3 + a_4T_4 + \mu$

$EPE = a_1 + a_2 PPE + a_3T_1 + a_4T_2 + a_5T_3 + a_4T_4 + \mu$

Where EPE = Earning per employees; BPE = Business per employee;
PPE = Profit per employee; (1= 2002-03, T2= 2003-04, T3= 2004-05, T3= 2005-06);
μ = error term.

6. **Reference Period:** The reference period to establish relation between earnings and productivity of bank employees is 2001-02 to 2005-06.

RESULTS AND DISCUSSIONS

Earning per Employee: To measure the impact of earnings on per worker business and net profit regression equations have been fitted. Various other statistical tools have been applied like correlation, R square, Regression, ACGR (Exponential methodology) etc. to have a better understanding of the relation of earnings and productivity of bank employees. Relationships have also been established among all three parameters on the basis of ownership factor.

For the parameter earnings per employee, if we take the banks of all sectors together, we can observe via Tables-1a. 1b and 1c that foreign banks are the leader followed by Indian private sector banks. Indian public sector banks are showing an average growth of 7.86 percent, which is far below the foreign and private sector banks in this industry. Abu Dhabi Comm. Bank has shown highest ACGR in this period, it is 105.36 percent, followed by Bank of Tokyo

Mitsubishi and Barclays Bank respectively with ACGR as high as 65.45 and 45.34. In Public sector banks, Punjab and Sind Bank, Andhra Bank and Punjab National Bank have scored highest ACGR; these are 18.63, 17.65, and 17.63 percent respectively. For the Private sector, ICICI bank has topped with 22.92 percent ACGR, followed by Bharat Overseas Bank and HDFC Bank. Highest average earnings per employee are also in the foreign sector, it is Rs 1.06 million, where as in public and private sectors these are only Rs 0.31 and 0.302 million.

Table 1 a:

Earning per Employee of Public Sector Banks

(Rs in Millions)

Public Sector Banks	**Mean**	**Growth %**
State Bank of India	0.31	11.06
Bank of Bika & Jai	0.29	14.69
State Bank of Hyderabad	0.27	12.81
State Bank of Indore	0.28	8.87
State Bank of Mysore	0.29	10.88
State Bank of Patiala	0.24	6.56
State Bank of Sauraashtra	0.22	4.17
State Bank of Travancore	0.26	14.28
Allahabad Bank	0.29	7.64
Andhra Bank	0.32	17.65
Bank of Baroda	0.32	10.51
Bank of India	0.28	6.15
Bank of Maharashtra	0.28	9.13
Canara Bank	0.27	8.47
Central Bank of India	0.27	-5.64
Corporation Bank	0.26	10.42
Dena Bank	0.34	3.94
IDBI	0.64	*
Indian Bank	0.31	6.47
Indian Overseas Bank	0.31	7.69
Oriental Bank of Com	0.27	10.12
Punjab and Sind Bank	0.42	18.63
Punjab National Bank	0.31	17.63
Syndicate Bank	0.35	7.96
Uco Bank	0.30	6.3
Union Bank of India	0.28	3.56
United Bank of India	0.30	-4.28
Vijaya Bank	0.30	2.06
Mean	.31	7.86

Source : www.rbi.org.in

Table 1b:

Earning per Employee of Private Sector Banks

(Rs in Millions)

Private Sector Banks	**Mean**	**Growth %**
Bank of Punjab	0.15	3.8
Bank of Rajasthan	0.27	10.18
Bharat Overseas Bank	0.27	14.11
Catholic Syrian Bank	0.27	5.68
Centurian Bank	0.32	8.94
City Union Bank	0.19	8.75
Development Credit Bank	0.34	10.54
Dhanalakshmi Bank	0.30	5.63
Federal Bank	0.26	13.13
Ganesh Bank of Kurundwad	0.12	7.76
HDFC Bank	0.36	12.84
ICICI Bank	0.36	22.92
Indusind Bank	0.30	1.18
ING Vysys Bank	0.35	11.52
Jammu & Kashmir bank	0.24	4.82
Karnataka Bank	0.24	6.73
Karur Vysys Bank	0.25	11.49
Kotak Mahindra Bank	0.40	1.27
Lakshmi Vilas Bank	0.23	5.27
Lord Krishna Bank	0.20	6.57
Nainital Bank	0.27	11.28
Ratnakatr Bank	0.24	-1.57
sangli Bank	0.20	2.63
SBI Comm & Intl Bank	0.29	2.68
South Indian Bank	0.31	11.14
Tamilnadu Mercantile Bank	0.28	9.35
United Western bank	0.24	5.81
Uti Bank	0.38	10.3
Yes Bank	1.03	*
Mean	0.302	9.5

Source : www.rbi.org.in

Table 1c:

Earning per Employee of Foreign Sector Banks

(Rs in Millions)

Foreign Sector Banks	**Mean**	**Growth %**
ABN Amro Bank	0.97	-6.83
Abu Dhabi Comm Bank	1.23	105.36
Americal Express	0.67	4.44
Antwerp Diamond Bank	1.40	-6.55
Arab Bangladesh Bank	0.24	7.87
Bank Intl Indonesia	0.38	-9.64
Bank of America	1.35	14.80
Bank of Bahrain & Kuwait	0.58	4.66
Bank of Ceylon	0.24	3.17
Bank of Nova Scotia	0.50	3.2
Bank of Tokyo Mitsubishi	1.15	65.45
Barclays Bank	4.02	45.34
BNP Paribas	1.31	8.80
Caylon Bank	1.78	18.05
Chinatrust Com Bank	0.69	3.62
Cho Hung Bank	0.78	3.70
Citi Bank	1.06	-5.93
DBS Bank	1.42	18.53
Deutsche Bank	1.72	18.02
Hongkong & Shanghai Bank	0.63	-8.21
JP Morgan Chase Bank	2.04	-6.05
Krung Thai bank	0.49	7.28
Mashreq Bank	1.02	-9.05
Mizuho Corporate Bank	0.78	-6.60
Oman International Bank	0.49	-6.46
Societe Generate	1.23	12.67
UFJ Bnk	0.56	14.61
Mean	1.06	11.23

Source : www.rbi.org.in

N.A. stands for non-availability

* Shows that growth could not be found out due to non-availability of data.

Shows that growth could not be found out due to negative numbers.

Business per Employee: As per this parameter as well, foreign sector banks have shown highest ACGR. Tables 2a, 2b and 2c taken together arrive at the information about business per employee. If we look at the average business per employee for the period under consideration, once again we will see that foreign sector banks have given the highest average, it is Rs 91.23 million, followed by private and public sectors respectively. The Societe Generate bank has achieved 46.40 percent ACGR to reach highest rank. In public sector banks, UCO Bank, State Bank of

Indore and Syndicate Bank have scored three highest ranks with 24.83, 23.70 and 22.94 percent ACGR respectively. In private sector, ING Vsysa Bank, Karur Vsysa Bank and Karnataka Bank have got top ranks for highest ACGR. It may require the policy makers to think and decide as to how Indian public sector banks can be made quite competitive in the era of globalization where all the banks across the sector are either competing at present or likely to compete in near future. To come with a competitive loom, Indian public sector banks may need to work on the principles of economies of scale by adopting the consolidation path, which is a buzz word in the Indian banking industry today.

Table 2 a:

Business per Employee of Public Sector Banks

(Rs in Millions)

Public Sector Banks	**Mean**	**Growth%**
State Bank of India	22.33	14.28
State Bank of Bika & Jai	18.84	21.36
State Bank of Hyderabad	25.50	15.37
State Bank of Indore	26.90	23.7
State Bank of Mysore	18.56	22.3
State Bank of Patiala	32.00	25.17
State Bank of Sauraashtra	20.70	16.89
State Bank of Travancore	27.91	21.86
Allahabad Bank	23.38	22.21
Andhra Bank	29.47	21.91
Bank of Baroda	28.39	15.23
Bank of India	28.59	14.85
Bank of Maharashtra	25.65	12.99
Canara Bank	31.11	19.51
Central Bank of India	18.90	12.37
Corporation Bank	38.99	15.94
Dena Bank	27.68	11.44
IDBI	134.96	*
Indian Bank	21.20	17.6
Indian Overseas Bank	24.74	18.38
Oriental Bank of Com	43.24	17.05
Punjab and Sind Bank	20.52	5.44
Punjab National Bank	23.99	18.6
Syndicate Bank	24.09	22.94
Uco Bank	26.34	24.83
Union Bank of India	30.67	19.07
United Bank of India	18.74	14.85
Vijaya Bank	25.89	22.59
Mean	29.97	17.45

Source : www.rbi.org.in

Table 2 b:

Business per Employee of Private Sector Banks

(Rs in Millions)

Private Sector Banks	**Mean**	**Growth%**
Bank of Punjab	42.61	-10.31
Bank of Rajasthan	19.71	17.25
Bharat Overseas Bank	36.86	16.17
Catholic Syrian Bank	18.82	13.97
Centurian Bank	39.74	-6.7
City Union Bank	28.20	16.31
Development Credit Bank	43.35	-4.17
Dhanalakshmi Bank	25.89	13.86
Federal Bank	32.06	17.48
Ganesh Bank of Kurundwad	12.20	2.04
HDFC Bank	81.46	-1.22
ICICI Bank	89.53	12.3
Indusind Bank	115.59	-13.57
ING Vysys Bank	32.24	23.94
Jammu & Kashmir bank	36.34	17.77
Karnataka Bank	34.03	17.86
Karur Vysys Bank	33.56	19.17
Kotak Mahindra Bank	39.12	10.43
Lakshmi Vilas Bank	26.84	12.14
Lord Krishna Bank	29.22	8.24
Nainital Bank	13.92	16.5
Ratnakatr Bank	20.03	10.35
Sangli Bank	9.81	8.19
SBI Comm & Intl Bank	59.69	-8.11
South Indian Bank	30.82	16.16
Tamilnadu Mercantile Bank	29.29	8.36
United Western bank	27.86	13.5
Uti Bank	90.90	2.28
Yes Bank	68.79	*
Mean	40.29	8.94

Source : www.rbi.org.in

Table 2c:

Business per Employee of Foreign Sector Banks

(Rs in Millions)

Foreign Sector Banks	**Mean**	**Growth%**
ABN Amro Bank	83.59	1.28
Abu Dhabi Comm Bank	169.12	-25.01
Americal Express	24.41	2.26
Antwerp Diamond Bank	193.60	26.48
Arab Bangladesh Bank	22.11	-10.1
Bank Intl Indonesia	27.60	5.23
Bank of America	177.48	-1.47
Bank of Bahrain & Kuwait	81.02	2.94
Bank of Ceylon	67.20	-0.63
Bank of Nova Scotia	183.21	10.34
Bank of Tokyo Mitsubishi	58.18	8.19
Barclays Bank	26.20	-16.78
BNP Paribas	89.72	0.87
Caylon Bank	155.61	20.09
Chinatrust Com Bank	67.55	-2.53
Cho Hung Bank	101.50	9.91
Citi Bank	153.53	-6.44
DBS Bank	133.16	-3.82
Deutsche Bank	124.19	24.18
Hongkong & Shanghai Bank	72.62	7.72
JP Morgan Chase Bank	37.80	40.26
Krung Thai bank	31.28	23.29
Mashreq Bank	61.41	-9.86
Mizuho Corporate Bank	56.36	9.33
Oman International Bank	118.78	-3.09
Societe Generate	80.06	46.4
UFJ Bnk	65.95	-16.67
Mean	91.23	5.27

Source : www.rbi.org.in

N.A. stands for non-availability

* Shows that growth could not be found out due to non-availability of data.

Shows that growth could not be found out due to negative numbers.

Profit per Employee: When the relative study of profit per employee is made, it becomes manifestly clear that the trend is more or less the same. Tables 3a, 3b and 3c recurrently bring out the movement in profitability across the sectors in banking industry. In totality, private and foreign sector have shown very poor ACGR for this parameter; only a few banks have given positive ACGR in these sectors out of twenty-nine and twenty-seven banks respectively. Again,

it is a foreign bank that has given the highest ACGR, it is UFJ Bank, and its ACGR is 168.08 percent. Antwerp Diamond Bank and Bank of Ceylon follow. In public sector banks, Allahabad Bank has also shown very high ACGR for the period, it is 78.51 percent. The inferences may be drawn from the detailed results available in tabulated form that invite the immediate attention of key stakeholders in the banking industry, particularly policy-makers to look into the matter and work-out an action plan wherein Indian public sector banks may be made internationally competitive in terms of profitability as well.

Table 3 a:

Profit per Employee of Public Sector Banks

(Rs in Millions)

Public Sector Banks	**Mean**	**Growth%**
State Bank of India	0.17	15.45
State Bank of Bika & Jai	0.31	7.90
State Bank of Hyderabad	0.23	10.47
State Bank of Indore	0.25	-2.95
State Bank of Mysore	0.16	32.09
State Bank of Patiala	0.28	7.62
State Bank of Sauraashtra	0.12	-16.68
State Bank of Travancore	0.18	17.95
Allahabad Bank	0.21	78.51
Andhra Bank	0.32	23.43
Bank of Baroda	0.19	6.16
Bank of India	0.17	1.90
Bank of Maharashtra	0.15	8.19
Canara Bank	0.25	13.89
Central Bank of India	0.09	22.40
Corporation Bank	0.40	5.63
Dena Bank	0.11	54.51
IDBI	0.69	*
Indian Bank	0.13	81.65
Indian Overseas Bank	0.21	32.18
Oriental Bank of Com	0.42	20.84
Punjab and Sind Bank	-.0014	#
Punjab National Bank	0.17	21.81
Syndicate Bank	0.15	19.51
Uco Bank	0.11	14.47
Union Bank of India	0.24	22.96
United Bank of India	0.19	25.6
Vijaya Bank	0.32	31.5
Mean	.217	17.42

Source : www.rbi.org.in

Table 3 b:

Profit per Employee of Private Sector Banks

(Rs in Millions)

Private Sector Banks	**Mean**	**Growth%**
Bank of Punjab	0.16	#
Bank of Rajasthan	0.13	-1.50
Bharat Overseas Bank	0.25	-3.29
Catholic Syrian Bank	0.11	-29.22
Centurian Bank	0.18	5.16
City Union Bank	0.31	14.63
Development Credit Bank	-0.11	#
Dhanalakshmi Bank	0.04	#
Federal Bank	0.16	1.55
Ganesh Bank of Kurundwad	0.11	0.98
HDFC Bank	0.94	-2.50
ICICI Bank	1.02	16.52
Indusind Bank	1.05	10.33
ING Vysys Bank	0.09	#
Jammu & Kashmir bank	0.39	2.3
Karnataka Bank	0.30	15.82
Karur Vysys Bank	0.44	0.43
Kotak Mahindra Bank	0.52	3.45
Lakshmi Vilas Bank	0.21	13.95
Lord Krishna Bank	0.21	-6.07
Nainital Bank	0.07	#
Ratnakatr Bank	0.09	#
Sangli Bank	-0.20	#
SBI Comm & Intl Bank	0.31	#
South Indian Bank	0.31	25.6
Tamilnadu Mercantile Bank	0.16	#
United Western bank	0.35	96.74
Uti Bank	0.64	#
Yes Bank	N.A.	*
Mean	.29	-3.56

Source : www.rbi.org.in

Table 3 c:

Profit per Employee of Foreign Sector Banks

(Rs in Millions)

Foreign Sector Banks	**Mean**	**Growth%**
ABN Amro Bank	1.27	-8.94
Abu Dhabi Comm Bank	-1.25	#
Americal Express	-0.01	#
Antwerp Diamond Bank	2.63	152.24
Arab Bangladesh Bank	1.12	4.5
Bank Intl Indonesia	0.19	#
Bank of America	3.01	-5.15
Bank of Bahrain & Kuwait	-0.25	#
Bank of Ceylon	0.42	110.16
Bank of Nova Scotia	0.71	#
Bank of Tokyo Mitsubishi	2.21	-36.33
Barclays Bank	13.58	36.63
BNP Paribas	-0.10	#
Caylon Bank	0.02	#
Chinatrust Com Bank	-0.65	#
Cho Hung Bank	4.88	-27.81
Citi Bank	2.44	-5.31
DBS Bank	1.37	#
Deutsche Bank	3.83	-31.52
Hongkong & Shanghai Bank	0.69	40.64
JP Morgan Chase Bank	4.99	36.82
Krung Thai bank	0.09	#
Mashreq Bank	4.39	-25.03
Mizuho Corporate Bank	0.90	#
Oman International Bank	-2.97	#
Societe Generate	0.97	#
UFJ Bnk	1.32	168.08
Mean	1.69	31.11

Source : www.rbi.org.in

N.A. stands for non-availability

* Shows that growth could not be found out due to non-availability of data.

Shows that growth could not be found out due to negative numbers.

To take the discussion to a rational stage, it is revealed from the results of tables 1a to 3c, that foreign banks have shown the best performance in terms of ACGR in all three parameters. In professional stipulations also the foreign sector banks have outperformed; these banks have shown the highest earning per employee, business per employee and profit per employee at entity

level. Public and private sector banks are far behind these banks in terms of overall productivity, which we have measured through the three parameters selected here. If we take all the banks of one sector together, the foreign sector banks have given highest ACGR in earning per employee and profit per employee parameters; where as public sector banks have given highest average ACGR in business per employee; it is 17.45 percent, which is much higher than private, and foreign sector banks' average ACGR. It shows that public sector banks are growing at high speed in this parameter or productivity of employees of public sector banks is improving with a good growth rate.

In continuation of the discussion made above, we wish to analyze the three parameters discussed above, taking the earning per employee as an independent variable and business per employee and profit per employee as a dependent variable separately.

PUBLIC SECTOR BANKS

Panel Data Analysis: Public Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	141.255	57.488	2.457	0.015
EPE	59.793	16.395	3.647	0.000
T1	-106.045	31.176	-3.401	0.001
T2	-89.017	30.021	-2.965	0.004
T3	-69.587	28.972	-2.402	0.018
T5	13.395	28.449	0.471	0.639
R Square	0.353			

Dependent Variable: BPE

Panel Data Analysis: Public Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	2.919	0.639	4.566	1.14E-05
EPE	-0.157	0.182	-0.863	0.389
T1	-1.382	0.346	-3.988	0.0001
T2	-0.717	0.334	-2.149	0.033
T3	0.175	0.322	0.545	0.586
T5	-0.198	0.316	-0.628	0.531
R Square	0.117			

Dependent Variable: PPE

The Panel data analysis shows that the earning per employee of public sector banks is significantly affecting the business per employee. However, its impact on profit per employee is negative, which is really an odd finding. R square are 0.353 and 0.177, which depicts that there are certain other factors that affect business and profit per employee, and not only earning per employee, which is logically true.

PRIVATE SECTOR BANKS

Panel Data Analysis: Private Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	142.916	76.804	1.861	0.065
EPE	85.744	19.469	4.404	0.000
T1	26.717	70.398	0.380	0.705
T2	35.998	69.642	0.517	0.606
T3	9.651	67.608	0.143	0.887
T5	0.730	67.463	0.011	0.991
R Square	0.136			

Dependent Variable: BPE

Panel Data Analysis: Private Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	-1.412	1.246	-1.133	0.259
EPE	0.868	0.356	2.440	0.016
T1	2.213	1.057	2.094	0.038
T2	2.218	1.046	2.121	0.036
T3	3.407	1.019	3.344	0.001
T5	2.188	1.088	2.011	0.046
R Square	0.125			

Dependent Variable: PPE

In private sector banks, the earning per employee is having positive impact on business as well as profit per employee. But the impact is stronger in case of business per employee; as it can be seen in the table that b-coefficient is 85.744. R square is again not presenting eminent relation between parameters.

FOREIGN SECTOR BANKS

Panel Data Analysis: Foreign Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	856.766	132.893	6.447	0.000
EPE	2.983	6.253	0.477	0.634
T1	-9.967	165.557	-0.060	0.952
T2	28.115	166.299	0.169	0.866
T3	-45.502	158.158	-0.288	0.774
T5	47.940	156.597	0.306	0.760
R Square	0.006			

Dependent Variable: BPE

Panel Data Analysis: Foreign Sector Banks				
	b Coefficient	Std. Error	T Test	Sig.
(Constant)	-25.723	5.701	-4.512	0.000
EPE	3.254	0.275	11.841	0.000
T1	11.599	7.030	1.650	0.102
T2	6.616	7.057	0.938	0.351
T3	13.270	6.784	1.956	0.053
T5	18.310	7.351	2.491	0.014
R Square	0.596			

Dependent Variable: PPE

Foreign sector banks are demonstrating a different picture of the parameters. Earning per employee is not significant on business per employee. But results of Panel data analysis confirm significant impact of earning per employee on profit per employee. R square is also considerably high in case of profit per employee.

Furthermore, to uphold and verify the statistical nexus among theses variables, the correlation has also been worked out. In the following tables (4a) stands for Earning per Employee, (4b) stands for Business per Employee and (4c) stands for Profit per Employee

Table 4a:

Correlation between Earning Per Employee of All Sectors Banks

Correlation B/W Earnings of All Sectors of Bank

		EARNING 1	EARNING 2	EARNING 3
Pearson Correlation	EARNING1	1.000	.293	-.006
	EARNING2	.293	1.000	.428*
	EARNING3	-.006	.428*	1.000
Sig. (2-tailed)	EARNING1	.	.131	.975
	EARNING2	.131	.	.026
	EARNING3	.975	.026	.
N	EARNING1	28	28	27
	EARNING2	28	29	27
	EARNING3	27	27	27

*. Correlation is significant at the 0.05 level (2-tailed).

1 stands for Public sector banks

2 stands for Private sector banks

3 stands for Foreign sector banks

This table shows that there is the significant relation between earnings per employee of private sector and foreign sector. Their correlation is .428 that is significant at .05 levels.

Table 4b:

Correlation between Business per Employee of All Sectors Banks

Correlation B/W Business of All Sectors of Bank

		BUSINESS 1	BUSINESS 2	BUSINESS 3
Pearson Correlation	BUSINESS1	1.000	-.017	.135
	BUSINESS2	-.017	1.000	-.214
	BUSINESS3	.135	-.214	1.000
Sig. (2-tailed)	BUSINESS1	.	.933	.501
	BUSINESS2	.933	.	.284
	BUSINESS3	.501	.284	.
N	BUSINESS1	28	28	27
	BUSINESS2	28	29	27
	BUSINESS3	27	27	27

1 stands for Public sector banks

2 stands for Private sector banks

3 stands for Foreign sector banks

This table shows that there is no significant relation between business per employee of the three sectors. In reality, business per employee of public and private sectors and that of private and foreign sectors are negatively correlated.

Table 4c:

Correlation between Profit per Employee of All Sectors Banks

Correlation B/W Profit of All Sectors of Bank

		PROFIT 1	PROFIT 2	PROFIT 3
Pearson Correlation	PROFIT1	1.000	.035	.069
	PROFIT2	.035	1.000	.255
	PROFIT3	.069	.255	1.000
Sig. (2-tailed)	PROFIT1		.859	.732
	PROFIT2	.859		.200
	PROFIT3	.732	.200	
N	PROFIT1	28	28	27
	PROFIT2	28	28	27
	PROFIT3	27	27	27

1 stands for Public sector banks

2 stands for Private sector banks

3 stands for Foreign sector banks

This table also shows that profit per employee of different sectors is not related to each other. Only the private and foreign sectors are showing some relation, but that too is insignificant.

FINDINGS, CONCLUSION AND SUGGESTIONS

To facilitate evaluation of the productivity of banks of all sectors, an attempt has been made in this paper to bring out the relationship between earnings per employee, business per employee and profit per employee of the banking sector only. Different econometric tools have been applied to determine this relation. Findings have been summarized hereunder:

Foreign sector banks are outshining local banks with their performance in all three parameters. In terms of ACGR and absolute numbers too, these banks have been on top in all categories. In case of earning per employee, Abu Dhabi Comm. Bank has shown highest ACGR and Barclays Bank has shown highest average earning per employee for the period under consideration. Foreign sector banks are not showing good results not only at individual level but on an average too. Average earning per employee of this sector for the period is Rs 1.06 million, which is much more than other two sectors. On the other hand, both public and private sectors have shown almost the same status. The numbers are much lower than that in the foreign sector. But one thing to be noticed is that although foreign sector banks have shown the best results at individual levels and on an average, approximately thirty five percent banks in this area are

showing negative ACGR; where as this number is negligible in public and private sectors.

One thing that should be paid attention to in case of business per employee, is that ACGR, taking all the banks of one sector together, is highest for public sector banks; it is 17.45 percent. Where as for private and foreign sectors this number is very less; these are 8.94 and 5.27 percent. Individually, foreign sector banks have performed very well. In this category, Societe Generate bank has achieved 46.40 percent ACGR to reach highest rank. If we take average business per employee for the period, even then sector banks have achieved the highest number; it is Rs 91.23 million. For public and private sectors the same numbers are 29.97 and 40.29 respectively. In case of business per employee, UCO Bank, State Bank of Indore and Syndicate Bank have scored three highest ranks with 24.83, 23.70 and 22.94 percent ACGR, in public sector banks. In private sector, ING Vsysa Bank, Karur Vsysa Bank and Karnataka Bank have got top ranks for the highest ACGR.

For profit per employee, once again the foreign sector has come out as the best performer. The Foreign bank that has set highest ACGR is UFJ Bank. In public sector banks, Indian Bank has also given very high ACGR for the period. If we take absolute numbers, the foreign sector has achieved much higher number than other two sectors; its average is Rs 1.69 million. But public and private sectors could achieve only Rs 0.217 and 0.29 million in this category. Overall ACGR for profit per employee is highest in the foreign sector; it is 31.10 percent. Private sector has shown negative ACGR but public sector has shown good ACGR for the period under study. But most of the banks of private and foreign sectors have shown negative ACGR for the period under study.

The Panel data analysis made between earnings per employee and business per employee and profit per employee has come out with remarkable results. Public sector banks are showing significant relation between earning per employee and business per employee; which depicts that if the employees are given their salary, a hike increase in business may be expected. But on the other front, it is demonstrating negative relations between earning per employee and profit per employee. Therefore, it may be concluded that though business may increase with the increase in salary but there is a need to keep a check on the quality of business, for example NPA's etc. Private sector banks are showing significant relations between all three parameters. Foreign sector banks are also showing significant relation between earnings and profit per employee but not in case of earning and business per employee.

The Correlation calculated for all parameters taking the ownership factor as the basis of relations has come out with only one significant relation, and it exists between earning per employee of private and foreign sector.

It may be concluded that if policymakers want to improve business and the profit per employee, they may extensively rely on the earning per employee. However, all other factors that contribute to these variables shall remain evenly imperative. In sum, the analysis and discussion on the issue under reference gives ample opportunity to the policymakers and other stakeholders in the banking sector in India to make the sector globally competitive. The study also offers a loaded scope of future researches at the moment, as the banking industry around the world is yet to become globally competitive.

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