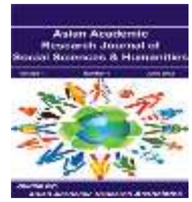
AARJSH VOLUME 1 ISSUE 17 (NOV 2013) ISSN : 2278 – 859X

A Peer Reviewed International Journal of Asian Academic Research Associates

AARJSH

ASIAN ACADEMIC RESEARCH JOURNAL OF SOCIAL SCIENCE & HUMANITIES



# PRODUCTIVE EFFICIENCY OF INDIAN COMMERCIAL BANKS A TREND ANALYSIS

**T. A. JAYACHITRA*; DR. K.T. GEETHA****

*Research Scholar
Avinashilingam Institute for Home Science
and Higher Education for Women, Coimbatore-641043

**Professor of Economics
Avinashilingam Institute for Home Science
and Higher Education for Women, Coimbatore-641043

**Abstract**

This paper investigates whether there has been an improvement in and convergence of productive efficiency across Indian banking industry since economic reforms. The tests of efficiency was made more meaningful by including comparison of efficiency in both pre and post liberalization period. These productivity trends partly reflect the success of the efforts to strengthen the banking sector after the fallout of the Asian financial crisis in 1997/98. The efficiency for three groups of banks, that is, publicly owned, privately owned and foreign owned are measured. The analysis revealed that the trend of productive efficiency has increased significantly during the post-reform period. The study recommends that the existing policy of rationalization of staff and branches may be continued to obtain efficiency gains and make the Indian banks internationally competitive which is a declared objective of the Government of India.

**Keywords:** Bank Efficiency, Financial Sector Reforms, Indian Banks, Productivity.

## INTRODUCTION

Strengthening financial systems has been one of the central issues facing emerging markets and developing economies. This is because sound financial systems serve as an important channel for achieving economic growth through the mobilization of financial savings, putting them to productive use and transforming various risks.

Modern banking developed around 500 years ago in other countries and 200 years ago in India. The Indian financial system comprises a vast network of different banks. The banking sector is the core segment of the Indian financial system which decides the progress of the country. Banks play an important role in the mobilization and allocation of resources in an economy. The sound financial position of a bank is the guarantee not only to its depositors but equally important for the whole economy of the nation. Several committees have emphasized the need to improve the performance of the commercial banks. In India, the priorities in banking operations underwent far reaching changes with the onset of banking sector reforms.

In 1991, Indian economy faced a major balance of payment crisis. The foreign exchange resources had almost disappeared. The fiscal deficit was high and the inflation rate reached double digits. To overcome this crisis, Indian Government introduced many economic reforms, which included amongst others financial sector reforms. As with general reform private sector grew considerably and growth of the private sector made demands on financial resources, there was a need to overhaul the financial system. Financial sector reforms were introduced in 1992. Almost all of the recommendations of the Committee on Financial System (CFS) (Narasimham, 1991) have been implemented in a phased manner. In 1998 another committee, the committee on Banking Sector Reforms (BSR) (Narasimham, 1998) was constituted. The recommendations of the BSR committee have also been implemented in a phased manner.

With the changing time, various policy measures were introduced to improve the performance of the banks but these measures were not successful to the desired level and same proved to be the case with the second banking sector reforms as they are not proving their efficiency in the totally transformed banking environment. Hence, there is a need to evaluate the performance of various measures of productive efficiency so as to give necessary impetus to improve the overall performance of the banking system.

**REVIEW OF LITERATURE**

The estimation of the average productivity was the major area of early banking research. The efficiency estimation in banking gained importance especially in the transitional economies. Several studies have tried to estimate the banking sector efficiency in the light of the financial liberalization and banking sector reforms. Athma and Srinivas (1997) analyzing the productivity in commercial banks in India group wise, concluded that productivity has shown increasing trend after deregulation. In general, experience from other countries show that deregulating and restructuring the banking sector leads to efficiency gain, however, the gain was different depending on bank type. Swamy (2001), Wahab (2001) and D'souza (2002) analyzing the performance of the commercial banks under reforms revealed that the productivity of the public sector banks in late nineties improved relatively to that of private and foreign banks. Fries et al, (2002) examined the performance of banks in 16 transition countries over 1994–1999. The findings indicated that banks' performance depend significantly on the reform environment together with the competitive conditions that they experience.

Studies done by Janki (2002) Ram Mohan (2003) shown that public sector banks performed significantly better than private sector banks but not differently from foreign banks. The conclusion points to a convergence in performance between public and private sector banks in the post-reform era, using financial measures of performance. According to Vashisht (2004) Globalization has expanded economic interdependence and interaction of countries greatly. Under the regime of globalized environment, the financial performance of the commercial banks has changed and the commercial banks will face new challenge and also new opportunities in the coming years. Rajan et al., (2011) provided robust inferences of the productivity and efficiency gains due to economic reforms. The study observes that significant changes in the policy environment have clearly enabled banks to expand their operations efficiently under the new liberalized atmosphere. Purohit (2012), Datta (2012) Ram (2012) proved that the Indian banks have positively responded to the reform policies and procedure of government and they have shown significant progress after the financial reforms.

Das (2011), Uppal (2011), Prabhakar et al(2012) reported that the relative importance of the public sector banks has been declining which results in the emergence of the domestic private sector banks and more foreign banks. In a comparative parlance with public sector banks and private sector banks, the efficiency of foreign banks has shown a substantial improvement during the post-reform era. The study done by Rajput et al (2010), Rezvanian et al (2008) and Gunjan, (2006), Rajput et al (2011), exhibited that in case of foreign banks the efficiency has been excellent and consistent throughout the period of study and the foreign banks have dominated the list of the highly efficient banks as compared to all scheduled commercial banks. From the above reviews it can be inferred that the challenges like competition especially from the new private sector banks and foreign banks, low staff productivity, changing life styles of the customers; technological progress, non-performing assets, etc. definitely put the PSBs in a very tight position.

**RESEARCH GAP**

The objective of this study is to measure and to explain the measured variation in the performance and therefore the productive efficiency of Indian commercial banks. While many similar studies have evaluated the performance of banking sector in the US and other developed countries, very few studies have evaluated the performance of banking sectors in developing economies. The earlier studies differed from one another in the selection of period, selection of banks, selection of indicators and selection of statistical tools and techniques. The results of these studies also display inconclusive results as some of these studies reveal deregulation has positive effect on efficiency of banks and some other studies show negative effects and others demonstrate mixed and neutral effects. Besides, none of the studies are available for longer period and for recent years and have shown ownership and performance relationship in banking industry of India. In contrast, the present study focuses its attention on the impact of reforms on Indian banking system in pre- and post-liberalization era. Further, we compare the performance of Indian banks among different ownership groups to evaluate the effects of ownership on the efficiency of Indian commercial banking industry.

**SIGNIFICANCE OF THE STUDY**

An efficient banker can leverage the opportunities to meet the challenges to the best of their abilities. Hence, it is necessary to study the operational efficiency of the banks to frame strategies for their survival. The study compares the efficiency of Indian commercial banks. The performance of the banking sector has to be compared with the Benchmarking of the bankers to find the gap for taking steps to improve their efficiency. More importantly, such analysis is useful in enabling policy-makers to identify the success or failure of policy initiatives or, alternatively, highlight different strategies undertaken by banking firms which contribute to their successes.

**OBJECTIVES**

The specific objectives of the study are:

1. To examine the trends in selected indicators of productive efficiency across different bank groups in the pre- and post reform period.
2. To examine whether the relationship was stable across the sample period.
3. To suggest measures for enhancing the productive efficiency of banking sector in India.

**HYPOTHESIS**

Keeping in mind survey of literature and objectives of the study, the following hypotheses emerge:

1. The reform measures brought a paradigm shift in the banking industry and enhanced the overall productive performance of the banks.
2. The performance of public sector banks is not as good as' private sector banks and foreign banks in spite of their age, size and image.
3. The reform measures have enhanced the overall efficiency of the banking system.

**METHODOLOGY**

The present study analyses the trends and composition of productive efficiency in banking sector in an effort to understand the changes that took place in the post reform period by using the time series data from 1980-81 to 2011-12. The study period is divided into two sub-periods, namely: 1980 to 1992 (pre-reform period) and 1993 to 2012 (post-reform period). The banks were divided into four groups, i.e., All Scheduled Commercial Banks, Public Sector Banks, Private Sector Banks, and Foreign Banks. To examine whether the relationship was stable across the sample period or whether there were any significant changes in the relationship in the latter parts of 1990s the sample period was divided into pre-period (1980-1992) and post-period (1993-2012). The significance of classification of the time periods was that though the recommendations of Narasimham Committee Report were adopted by the end of 1991, its effect was more discernible only since 1993. Hence the study had taken 1993 as the beginning of the post-reform period assuming a lag of one year for the implementation of the reform.

Basic data for this study were collected from the various issues of Basic Statistical Returns of Scheduled Commercial Banks in India published by Reserve Bank of India. To find the magnitude and the direction of the variables during the study period with respect to their historical performance across different bank groups, exponential growth function was fitted to analyse the trends in the selected parameters. Five ratios are examined to analyze the efficacy of the banking sector reforms. The ratio method was used to calculate the productivity parameters. Before fitting the exponential function, the stationarity of each series was tested using the Augmented Dickey–Fuller test. The statistical results are obtained by using EViews and SPSS.

**EMPIRICAL FINDINGS**

Since the concept and definition of productivity as applied in other industries cannot be applied in banking industry, which was primarily a service industry, enabled the banking sector to avoid the question of productivity for a long time. As banks produce services the measurement of their output pose conceptual difficulty. In fact, productivity indicated by per employee, per office and some financial indicators are popular all over the world and are mostly relied upon. Productivity ratios of total deposits, total loans and total business have been calculated in relation to total manpower employed and number of business centers (branches), as detailed below:

- Business per Employee
- Business per Branch
- Deposits per Employee
- Deposit per Branch
- Advances per Employee
- Advances per Branch

The standard procedure was adopted in the literature to check for unit roots in each series before estimating a model that involves time-series data. If there was a unit root, then that series was considered to be non-stationary. The stationarity of each series was tested using the Augmented Dickey–Fuller test. Table 1 reports the results of unit root tests.

**TABLE 1**

**ADF TEST RESULTS FOR PRODUCTIVE EFFICIENCY**

| Variables | Public | Private | Foreign | SCB |
|---|---|---|---|---|
| Business per Employee | -2.96 ** | -3.78* | -4.02* | -3.30** |
| Advances per employee | -3.28 ** | -4.27* | -5.47* | -3.66** |
| Deposits per employee | -3.15** | -3.70* | -3.60** | -3.52** |
| Deposit per Branch | -4.70* | -2.91*** | -3.32** | -3.92* |
| Advances per branch | -3.69* | -3.51** | -3.36** | -3.78* |
| Business per branch | -5.24* | -2.88*** | -3.39** | -3.39** |

*- Significant at 1%(-3.67), ** - Significant at 5%(-2.96), *** - Significant at 10%(-2.62)

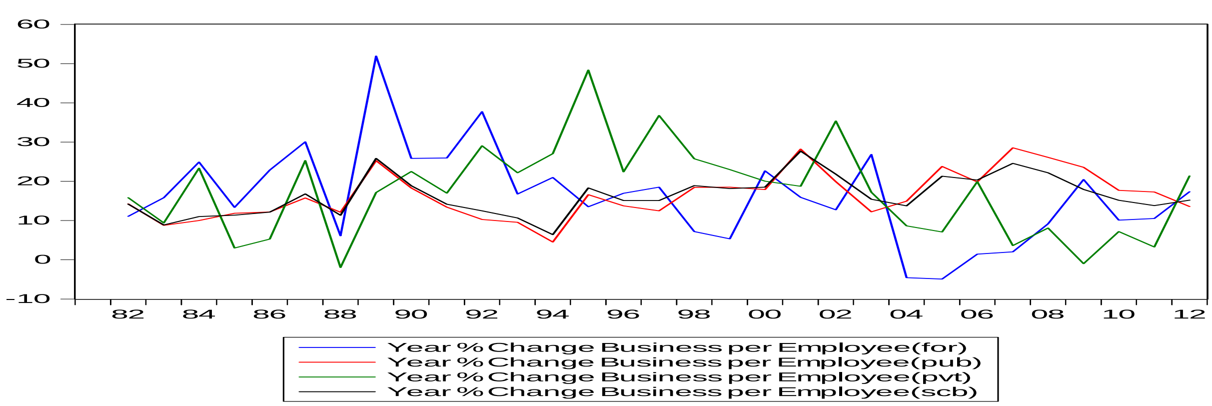
The null hypothesis of a unit root at the zero level was accepted for all the variables using Augmented Dickey-Fuller (ADF) test. It thus establishes non stationarity of the variables at the level. Hence the ADF test was again conducted for the variables to show that the series measuring productivity efficiency are integrated to the order of one or I (1). The table reveals that for the public sector, foreign sector and all scheduled banks all the variables were stationery at either one or five percent. For private sector excepting for deposit per branch and business per branch which was found to be stationary at 10 percent level, all the remaining variables was stationary at either at 1 percent or 5 percent level.

**BUSINESS PER EMPLOYEE**

Since different employees in a bank contribute in different ways to the revenues and profits of a bank, it is difficult to come up with one universal metric that captures the business per employee precisely. This ratio was used to find out whether a bank is relatively over or under staffed. The higher the ratio the better will be the performance of the bank.

The yearly trends in the business per employees were estimated and presented in figure 1.

**GRAPH 1: VARIATION FOR BUSINESS PER EMPLOYEE**



From the graph 1 it's apparent that the percentages of variation are constant and secure for schedule and public sector banks compared to the foreign and private banks. In the pre- reform period (1981-92) the public sector banks showed least fluctuation due to their very low base ratio. The private sector and foreign banks initially showed greater fluctuations with foreign banks heading the private sector banks during the pre- reform period. There was a downturn in all sectors during 1988 with private sector exhibiting a negative growth (-1.97 percent) while the growth continued to be positive in foreign (6.13 percent) and public sector (12.11 percent) banks. The positive trend in public sector banks may be due to gains of bank nationalization in 80s, the monopoly granted to the public sector banks and lack of competition which led downturn in the ratio of business per employee. However in 1989 the public sector bank's ratio exhibited an upturn (25.26 percent).

In the post reform period initially the public sector showed a steep rise in the business per employee ratio till 1994 due to competition and strategic administration. It may be seen from the data that the growth of business accelerated from 1995 till 1998, collapsing by 2000. This was mainly due to the sluggishness in the Indian economy during the initial years of liberalization due to which there was a lack of demand for bank credit from the industrial sector and the ills of unbridled expansion of branches by public sector banks in the post-nationalization era. The foreign banks showed a downward shift in the ratio and was even lower than that of public sector banks from 1993 (16.77 percent) to 1997 (18.50 percent). The private sector banks still maintained a higher trend exceeding the foreign and public banks since 1993 (27.06 percent) and attained a higher peak in 1995 (48.36 percent). Even though the private sector witnessed a decreasing trend in their ratio, it still headed the remaining banks till 2002 (35.40 percent). However in 2001 and 2002, the public sector banks showed improvement. This may be due to the decline in the number of employees because of voluntary retirement scheme (VRS). From 2004 the public sector had showed greater variation compared to other banks with the private sector showing improvement in the trend reflected in the decline in the percentage of variation because of motivation provided to employees. With this strategy, the new private banks were able to achieve their business targets. Although the foreign banks had showed least variation, the oscillation was high since 2005. The table 2 highlights the growth rate of business per employee for different banks computed after adjusting for stationarity.

**TABLE 2**

**COMPOUND GROWTH RATE FOR BUSINESS PER EMPLOYEE**

| Period | Business per Employee | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| Pre phase | 0.163 (.000) | 0.188 (.058) | 0.291 (.000) | 0.174 (.000) |
| Post phase | 0.209 (.000) | 0.059 (.062) | 0.061 (.054) | 0.189 (.000) |
| Overall | 0.172 (.000) | 0.161 (.000) | 0.113 (.000) | 0.170 (.000) |

Figure within parenthesis represents the Significance level.

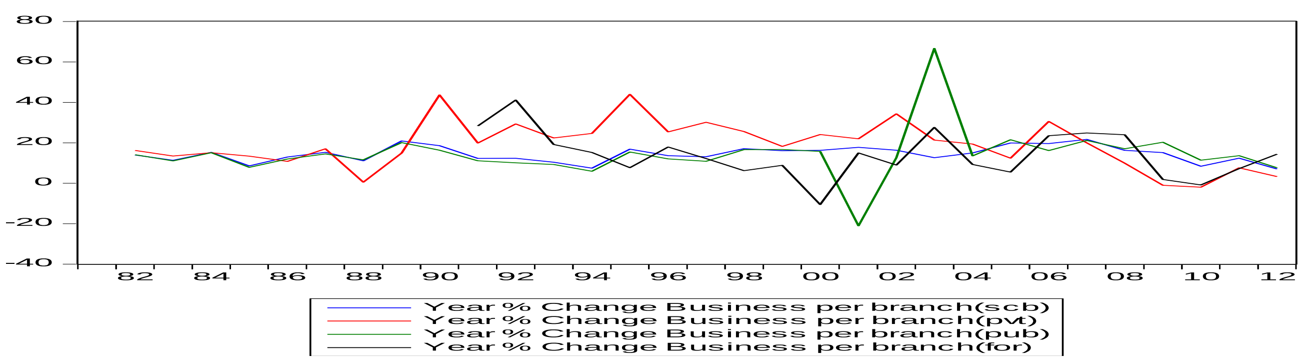
The overall growth in business per employee was dominant for public sector banks (17 percent) followed by the private (16 percent) and foreign (11 percent) bank groups. The results for public sector banks indicated that banks are now equipped to leverage technology benefit in business with existing manpower. It leads to inferences that public sector banks require to offer competitive pay with adequate provisions of variable pay for retaining deliverable staffs. In the pre- reform period the foreign banks registered a growth rate of 29 percent followed by private sector banks (19 percent) and public sector banks (16 percent). These bank groups are providing a better interest on deposits and lower interest on advances and their market policies being quite effective as compared to public sector banks which enabled them to shown better performance in terms of business per employees. Janki (2002) and Bhattacharya et al. (1997) had observed similar outcome that public sector banks exhibited a declining productivity whereas foreign banks had progressive productivity during the study periods of 1986-92 and observed it was a temporal improvement for foreign banks.

The business per employee of scheduled commercial banks increased in post- phase by nearly 19 percent with the public sector bank leading the growth (21 percent), followed by private sector (6 percent) and foreign banks (6 percent). However the growth rate values are insignificant for private and foreign banks. It appears from the data that the public banks have made remarkable progress in the area of business per employee in the post phase period. Public sector banks, unlike foreign and private bank groups, maintain rural branches where the transaction size was small (RBI, 2008). Higher economic growth rate and higher gross domestic savings coupled with inferior penetration of other saving products also resulted in rise in their deposits and credit. Public sector banks also benefited from the rationalization of workforce through VRS undertaken during the early 2000s and introduction of practices whereby some routine jobs were outsourced. Banks were cautious on generation of banking services through human capital intensive processes in line with improved technologies rather than manpower intensive banking. This finding was also consistent with the results reported by Uppal (2011). Thus in the post-liberalization period, Indian banks are putting all their efforts in the business of maximizing incomes from all feasible sources. The rise in business per employee was observed across all the bank groups. However, despite this increase, average of business per employee of these bank groups was still less than half of that enjoyed by foreign banks.

**BUSINESS PER BRANCH**

The Business per branch on which normally profitability rests is a crucial parameter to judge the efficiency of banks. As financial intermediaries banks mobilize savings in the form of various types of deposits and utilize such funds for granting loans and advances. Since it is difficult to quantify the value of various services rendered by banks, the total business was taken as an indicator. If the business per branch grows year after year at an increased rate one can assume that the standing of the bank in the market has been improving. The yearly trends in the business per branch were estimated and presented in figure 2.

**GRAPH 2: VARIATION FOR BUSINESS PER BRANCH**




The graph 2, exhibit that the schedule banks showed a stable and positive variation over the study period. Such productivity improvements in the banking sector could be driven by two factors: technological improvements, which expand the range of production possibilities and a catching up effect, as peer pressure amongst banks compels them to raise productivity levels. In the pre-reform period the public sector maintained a persistent growth, while private sector banks showed similar trend like the public sector banks for the first three years and then exhibited greater fluctuations in the subsequent periods. It experienced a downward trend in 1988 (0.51

percent) and upward variation from 1990 onwards (43.66 percent). Okyar (1965), Akguc (1992), Isik and Anandarajan, (2002) and Isik et al (2003) apparently, criticized public bank branches as being more crowded (overstaffing) on average than private bank branches. In the post reform period the public sector followed it base variation till 2000 (15.73 percent) while though the private sector banks showed higher variation in their ratio compared to other banks there was positive trend. The foreign sector initially had steep fall in their trend rate of variation and had a negative variation in 2000 (-10.59 percent). The public sector banks faced a major acceleration during 2001 (-21.11percent) and 2002 (12.61percent) and led its variation till the end of the study period. Purohit, Jeevraj (2012) reported similar result and stated that it may be the expansion of branches by public sector banks in the post nationalization era which enabled them to show better performance. The private sector, which retained its positive trend till 2002 (34.32 percent), had a downward trend which again sprung up in 2006 (30.57percent) and had a gradual decline in the trend even below the public sector banks. The foreign sector even though had a mixed variation preserved a low variation compared to other banks. This may be due to the significant increase in coverage of the number of branches providing core banking solution (CBS). The percentage of branches to total bank branches under CBS increased from 2005 to 2008 (11 percent to 67 percent Kumar & Sanjeev, (2011). The Reserve Bank of India announced a new rule for foreign banks in India in 2008-2009 by allowing them to set up their local subsidiaries. The table 3 discloses the growth rate of business per branch for different banks computed after adjusting for stationarity.

**TABLE 3**

**COMPOUND GROWTH RATE FOR BUSINESS PER BRANCH**

| Period | Business per Branch | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| Pre- phase | -.114 (.352) | .073 (.842) | -.319 (.662) | -.062 (.658) |
| Post -phase | .158 (.000) | .074 (.031) | .065 (.051) | .146 (.000) |
| Overall | .151 (.000) | .105 (.001) | .042 (.110) | .141 (.000) |

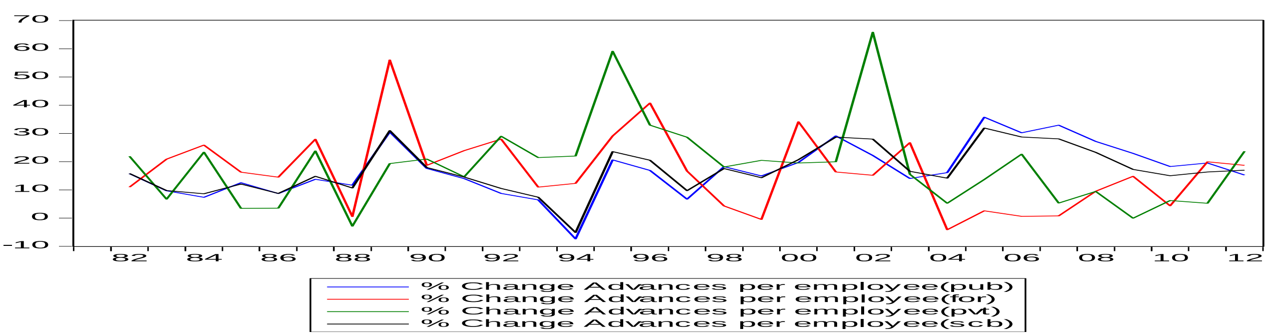
Figure within parenthesis represents the Significance level.

The overall growth rate for business per branch was 15 percent for public sector 10.5 percent for private sector and 4 percent for foreign banks. In the pre-reform period the public sector and foreign sector had showed a negative but insignificant growth rate. The percentage increase in the compound growth rate values of business per branch in post-phase (1993-12) over pre phase (1981-92) had fairly improved. In terms of total business mobilized in post phase, public bank leads by 16 percent and foreign and private it was 7 percent respectively showing hardly any disparities. Compound growth rate values of business per branch are not significant in the pre-phase among different banks. In the post-period it was not significant for foreign banks. Thus the public sector banks continue to dominate the banking industry, in terms of lending and borrowing, as it had a widely spread out branches which helped greatly in pooling up of resources as well as in revenue generation for credit creation. This facilitated the rapid expansion of banking in terms of its geographical reach covering rural India, in turn leading to significant growth in deposits and advances. Similar results were reported by Sensarma (2005), Mohan and Ray (2004), Mahesh et,al (2008) and Rajan et,al (2011). They infer that the higher efficiency was due to the preference given by government to the public sector enterprises for their business, their branch network and long established presence.

**ADVANCES PER EMPLOYEE**

Credits (loans and advances) are the largest income earning asset of the bank and the most profitable and high risk associated item on the asset side of the bank balance sheet. The yearly trends in the advances per employee were estimated and presented in figure 3.

**GRAPH 3: VARIATION FOR ADVANCES PER EMPLOYEE**




While the public sector and scheduled banks showed a higher fluctuation in their trends, private sector banks exhibited a mixed and fluctuating performance. In contrast foreign banks had shown significant fluctuations with many positive and negative trends. The overall trend of increasing employee productivity may be attributed to the reduction in the number of employees following the launch of VRS by some of the Indian banks as well as higher revenue by the banks. In pre-reform period public sector banks initially started with higher variation in trend ratio (15.76 percent), registering a maximum trend in 1989 (30.48 percent). Private sector banks revealed significant up and downs in the trends in advances per employees but overall variations did not exceed 29 percent. The foreign banks did not exhibit much fluctuation except for a low variation in 1988 (0.54 percent) and a higher variation in the very next year (56.04 percent).

In the post-reform period the public sector showed a decrease in their variation till 1994 while other banks maintained the variation level. This is particularly credible given the low inflationary situation that prevailed in this period compared to the earlier periods, most notably in the 1980s. While the share of loans and advances did decline in the 1990s, it has recovered in coming years. There was an increase in the variation rate for all sectors during 1995, where the variation was higher for private sector (59.11 percent) banks followed by foreign banks (29.09 percent) and public sector banks (20.59 percent). This may be attributed to the establishment of several new private sector banks in 1994-2005 periods, and several foreign banks established their branches or expanded existing network. The share of loans and advances declined in response to slowdown in investment demand as well as tightening of prudential norms. Over the years, there was gradual decrease in the trend ratio of business per employees in public sector banks and despite the decline the graph shows that the trend exceeds that of other banks. Private sector had shown a tremendous improvement in their variation level in the post-reform period with major variation in 2002 (65.88 percent). In contrast, the foreign banks which had a least variation, showed a greater fluctuation in post-reform period. It registered a higher variation during 2000 (34.15 percent) and 2003 (26.74 percent) and subsequently the variation was less compared to other banks. The year 2005 registered a higher percentage i.e. 36 percent for public sector. It may be due to the reduction of controls on target-oriented credit to priority sector and others. These reforms were broadly aimed to improve the performance of banks despite the unexpected global recession and internal disturbances. Since 2008 the private sector banks (0.04 percent) had the least variation followed by foreign banks (14.79 percent) and public sector banks (22.92 percent). Thus public sector banks have shown poor efficiency in terms of advance per employee as compared to private sector banks and foreign banks. Private sector banks enjoy a higher increase in their advance per employee, as compared with their counterpart public sector banks. Ram Mohan, (2008) examining the advances per employee at this juncture observes that banking sector was immensely competitive and growing in the right direction. The table 4 explains the growth rate of advances per employee for different banks computed after adjusting for stationarity.

**TABLE 4**

**COMPOUND GROWTH RATE FOR ADVANCES PER EMPLOYEE**

| Period | Advances per Employee | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| Pre phase | .158 (.002) | .180 (.062) | .221 (.095) | .165 (.001) |
| Post phase | .231 (.000) | .058 (.290) | .070 (.180) | .218 (.000) |
| Overall | .140 (.000) | .160 (.000) | .114 (.000) | .179 (.000) |

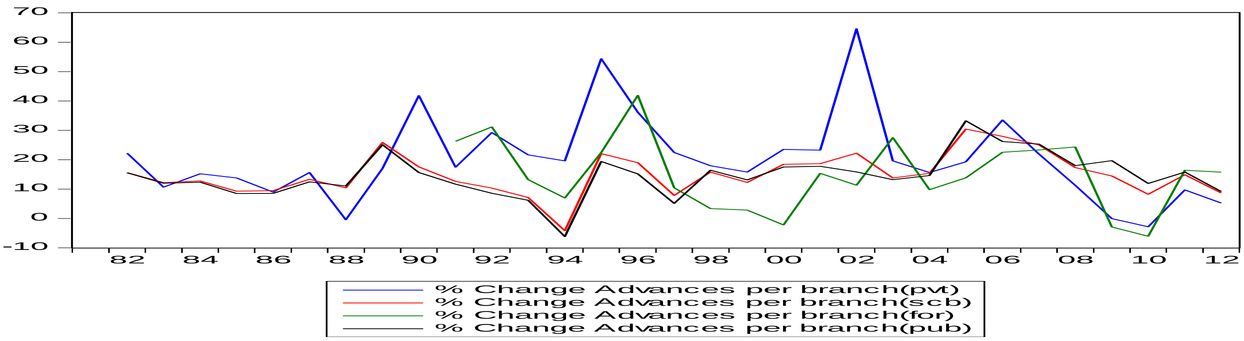
Figure within parenthesis represents the Significance level.

Comparing the overall compound growth the private sector had highest growth of 16 percent, followed by public sector banks (14 percent) and foreign banks had registered the lowest growth rate of 11 percent. Alamelu and Chidambaram (1994) provided a confirmatory statement that better customer service, technology, innovative products, good marketing strategies, proper monitoring of advances, regional orientation are some of factors responsible for the success of private sector banks in India. In the pre-reform period, the public sector banks had registered a lowest growth rate of 16 percent. Since the public sector banks are involved in mass banking, they were not able to attract high net worth individuals and big corporate accounts. It increased to 23 percent in the post-reform period. The growth of private and foreign bank was insignificant in the post phase period. But the private sector banks registered the highest and significant growth taking the entire period of study. Both the public and private sector banks are competing with each other with regard to various measures of growth like technology up gradation, manpower skill development and business strategy. Private sector banks carried on various training and development programmes to enhance the skill of their employee as well as their welfare. Ali Ataullaha and Hang Le (2006) stated the changes in the economic environment brought about by the Economic Reforms enabled private sector banks to catch-up with the dominant public sector banks to generate more loans and advances. Ramasastri and Samuel (2006) and Bansal and Disha (2010) stated better performance of private sector banks in the advance market was linked to their ability to attract some of the corporate clients of the public sector banks by providing them better service and better packages.

**ADVANCES PER BRANCH**

The growth in advances or investment is really an index of bank's growth. Higher the ratio the better will be the performance of the bank. The data for foreign banks are available from 1989-90. The yearly trends in the advances per employee were estimated and presented in figure 4.

**GRAPH 4: VARIATION FOR ADVANCES PER BRANCH**




The advance per branch showed varying trend. The public sector banks showed consistent performance over the study period. The private sector showed greater fluctuation during 90s and had improved since 2007. The foreign sector even though started with higher variation had improved in the post- reform period. In the pre-reform period both the private sector banks and public sector banks started with minimum variation, followed by higher variation at the time of liberalization during 1990, where the variation of private sector banks (41.84 percent) was more compared that of public sector banks (15.63 percent). In the post- reform period there was a steep decline in trend for the public sector banks (-6.17 percent) and foreign banks (6.98 percent) till 1994. The private sector also showed declining trend but not as steep as other banks, probably because by that time initial trauma of reforms was almost over and income had started picking up. There was a major upward variation in the subsequent year led by private sector bank. The private sector banks in particular had spearheaded the variation in banking business as they account for an overwhelming share in 2003.There was an increase in the variation among all banks till 2005 except for foreign banks. This was mainly due to a target of 40 per cent of net bank credit has been stipulated for lending to the priority sector by domestic scheduled commercial banks both in the public and private sectors and a target of 32 percent has been stipulated for lending to the priority sector by foreign bank groups. Since then all the banks showed the minimum variation till 2006 except private sector banks which had an uphill trend in 2002 (64.57 percent). Since 2007 private sector (21.96 percent) and foreign banks (23.31percent) witnessed lower variation compared that of public sector banks (25.32percent). In 2008 the public and schedule banks had a consistent variation while that of private and foreign banks had a negative variation. It may be the effect of a single branch business and more revenue expenses of foreign banks. This was partly because the new foreign banks that entered the market are yet to get stabilized and operate in a full-fledged manner. Foreign bank's share, however, has remained more or less the favourable trend in the liberalization period. The improved atmosphere for recovery created in the recent years seems to have induced banks to put greater efforts in extending loans. These reforms improved the performance of banks despite the unexpected global recession and internal disturbances. The table 5 explains the growth rate of advances per employee for different banks computed after adjusting for stationarity.

**TABLE 5**

**COMPOUND GROWTH RATE FOR ADVANCES PER BRANCH**

| Period | Advances per Branch | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| Pre-phase | .121 (.003) | .168 (.188) | .763 (.008) | .137 (.001) |
| Post-phase | .188 (.000) | .082 (.129) | .133 (.000) | .181 (.000) |
| Overall | .147 (.000) | .177 (.000) | .300 (.000) | .150 (.000) |

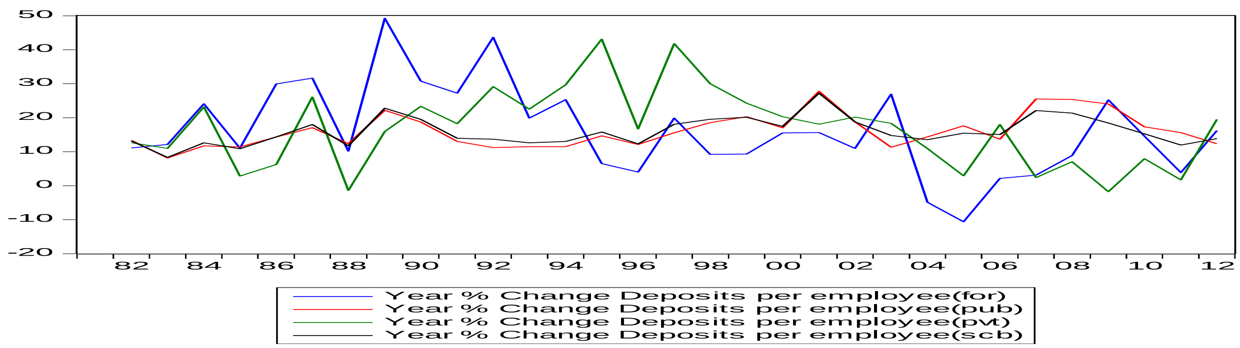
Figure within parenthesis represents the Significance level.

The analyses of the compound growth revealed that the overall growth rate was highest for foreign banks (30 percent), followed by private (18 percent) and public sector banks (15 percent). The poor performance of public sector bank may be due to their policy of providing credit to the marginal and small farmers and traders under priority sector lending policy, investments in government securities and failure to recover the advances or loan due to political interfere and social unrest. Foreign Banks became highly specialized in a few select areas, like, arranging foreign currency loans through loan syndications, investment banking, consultancy relating to investment activities, portfolio management, and in general capital market-related and derivative market-related services, all of which enabled them to show better performance in advances per branch. Moreover, the advance share of the old private banks declined in the post liberalization period. Bhattacaryae and Sivasubramainan (2003), Ali Ataullaha and Hang Le (2006) and Uppal (2009) also opines that public sector banks are facing serious challenges from new private sector banks and foreign banks. Comparing the pre-phase with post-phase performance, the public sector has increased its advance from 12 percent to 19 percent whereas foreign banks the ratio declined from 77 percent to 13 percent and for private banks it declined from 17 percent to 8 percent.

**DEPOSITS PER EMPLOYEE**

The "deposit" itself is a liability owed by the bank to the depositor (the person or entity that made the deposit), and refers to this liability rather than to the actual funds that are deposited. In service industry the products include deposits raised, advances disbursed and a host of services rendered to depositors, borrowers and others who utilize bank services. The yearly trends in the advances per employee were estimated and presented in figure 5.

**GRAPH 5: VARIATION FOR DEPOSITS PER EMPLOYEE**




From the figure 5 it was evident that public and schedule banks had registered a consistent performance over the study period. In pre-phase period the public sector banks had not shown much variation in the trend rate of growth unlike private and foreign banks and that variations were more in foreign banks when compared to that of private sector banks. The nationalization had lead to massive involvement of public sector banks for rapid expansion of banks in terms of coverage and also of deposit moblisation. The number of people served per bank reduced. However in 1989, the variations in the trend rate of growth was high in all banks, with foreign banks showing maximum variations (49.27 percent), followed by public sector banks (22.20 percent) and private sector banks (15.96 percent). Since then there had been takeoff in both private sector and foreign banks, in which the variations in foreign banks (23.88 percent) exceeded the private sector banks (14.62 percent) till 1991. The overall in the pre-reform period public sector banks registered least variation in the trend rate of growth. In the post reform period, the public sector bank maintained stability in the trend rate of growth in 90s. Beginning from 1992, exposed to the rigors of domestic and international competition there was variations in the trend rate of growth. The private sector as well as foreign banks showed a greater improvement with reduction in trend rate of growth which was even lower than that of public sector banks since 1995. But the ratio showed negative variation for private sector in 2009 (-1.75 percent) and for foreign banks during 2004 and 2005 (-4.88 and -10.62 percent) respectively. This may be due to RBI's restrictive policy the branch network should be restricted to metropolitan and urban areas only. Therefore, private sector and foreign sector banks are not able to cater to a large number of customers like that of public sector banks. The table 6 explains the growth rate of advances per employee for different banks computed after adjusting for stationarity.

**TABLE 6**

**COMPOUND GROWTH RATE FOR DEPOSITS PER EMPLOYEE**

| Period | Deposits per employee | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| pre phase | .167 (.000) | .194 (.066) | .329 (.000) | .180 (.000) |
| post phase | .181 (.000) | .039 (.214) | .065 (.036) | .165 (.000) |
| Overall | .165 (.000) | .151 (.000) | .113 (.000) | .163 (.000) |

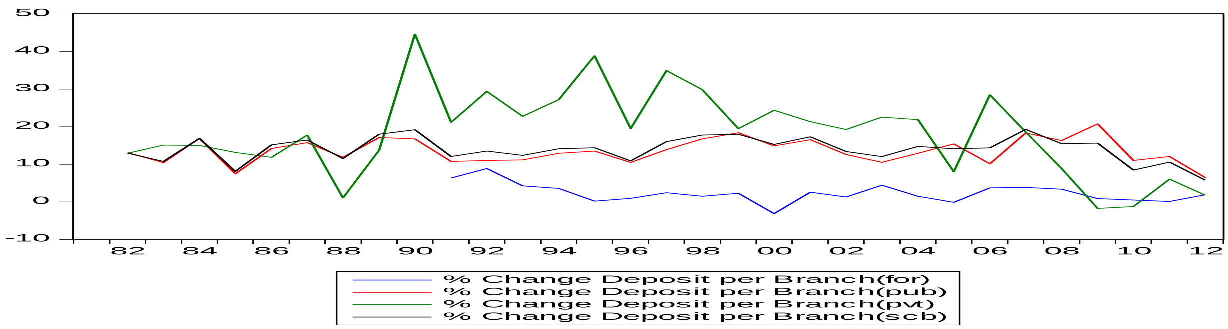
Figure within parenthesis represents the Significance level.

The compound growth rate reveals that in the pre-reform period the foreign sector had the highest growth rate of 33 percent, followed by private sector (19 percent) and public sector (17 percent). The public sector (18 percent) had improved in the post-phase and leads the other banks while the foreign had a least growth of 6 percent. The overall data reveal that public sector lead by 17 percent, followed by the private banks (15 percent) and foreign banks (11 percent). The main reason for this could be a wide network of branches, inter-connectivity of banks and social responsibility of public sector banks. Varadi et.al, (2006) observed that the private banks showed inefficiency because its transaction cost seems to be high and mobilization of deposits per employee had declined.

**DEPOSIT PER BRANCH**

Deposits play a key role in commercial banking activities because the lending power of a bank and the size of its operations are determined by the quantum of deposits. The higher the ratio the better will be the performance of the bank. The yearly trends in the advances per employee were estimated and presented in figure 6.

**GRAPH 6: VARIATIONS FOR DEPOSIT PER BRANCH**




The graph 6 is a transparent indicator of variations in the trend rate of growth. Over the study period both public and schedule commercial banks had a stable trend and the variations coincided over the entire period of study. The foreign banks showed a very low base of trend over the period of study, while the private banks showed significant variation in the trend rate of growth. In the pre-reform period the public sector showed a little variation while private sector banks (13.79 percent) was stable till 1985 and witnessed greater fluctuation till liberalization due to the expansion of banks and deposit moblisation. In the post-reform the foreign sector banks was very stable and had the least variation throughout the study period. Public sector banks maintained the trend even though it exceeded the trend growth of foreign banks. The private sector banks had major fluctuation in 90s. This show that banks in the private sector have taken a head start in the deposit mobilisation after the liberalization measures was adopted with regard to entry of new private sector banks in 1995. There was downward trend in private sector banks since 2000. However, the number of banks in the case of foreign bank group and domestic private sector bank group decreased considerably between 2000 and 2005. But there was higher fluctuation in trend rate of growth of deposits per branch in private banks in 2006 (33.52 percent). The table 7 explains the growth rate of advances per employee for different banks computed after adjusting for stationarity.

**TABLE 7**

**COMPOUND GROWTH RATE FOR DEPOSIT PER BRANCH**

| Period | Deposit per Branch | | | |
|---|---|---|---|---|
| | PUB | PVT | FOG | SCB |
| pre phase | .133 (.000) | .198 (.062) | .858 (.001) | .154 (.000) |
| post phase | .128 (.000) | .049 (.141) | .069 (.129) | .120 (.000) |
| Overall | .130 (.000) | .159 (.000) | .263 (.000) | .132 (.000) |

Figure within parenthesis represents the Significance level.

The compound growth rate exposed that schedule commercial banks which had registered a rate of 15 percent in pre-phase, declined to 12 percent growth rate in post-phase, registering a growth rate of 13 percent over the study period. There has been marginal decline in the performance of the public sector banks in the post-reform period. Bansal and Disha (2010) stated that the rate of growth of deposits for public sector banks in the reforms period has come down from those prevailing in the pre-reforms period. The deposit growth rates of foreign banks declined but of domestic private banks increased. The growth rate over the study period showed that foreign banks (26 percent) had performed better than the private sector banks (16 percent) and public sector banks (13 percent). This show the share of public sector had been declining and the share of the private banks was going up, which implies declining concentration and increasing competition. This may be an indication that the business class was attracted towards better service offered by foreign banks. But an in depth analysis reveals that every sector had a declining growth rate in general. One of the main reasons behind the overall sluggish growth rate of bank deposits in the reforms period was the growth of non-bank financial intermediaries including mutual funds, finance companies and stock market.

**CONCLUSION**

The paper attempted to explore the trends in banking productivity during a span of 32 years, covering both pre- and post- reforms period in the context of financial liberalization. The study found that there have been significant changes in the performance of the banking sector in India. The overall growth rate of public sector banks are found to be the more efficient followed by private sector and foreign banks. Rather surprisingly, foreign banks are considerably less efficient than PSBs possibly because of their relatively smaller scale. Since early 2000's, the private banks are becoming relatively more efficient. When we compare the performance of post with pre phase it's found that the Public Sector Banks were able to maximize their percentage increase in business per employee, but their performance in all the other areas was not so good. This bank group is the oldest bank group in the Indian Banking Industry and after so many years of experience and expertise, they are yet not able to make their place in the banking industry and are not successful in gaining the faith of their customers. Deposit and advance per branch showed declining growth rate for all banks.

**SUGGESTIONS**

On the basis of the study the following recommendations are made to enhance the productivity of the banking system, especially to the PSBs:

i. Banks should concentrate on intensive mobilization of deposits, by implementing a various attractive deposit mobilization schemes.
ii. The banks should adopt more aggressive marketing strategies in line with the new private sector banks to add to the business volumes both in terms of deposits as well as advances.
iii. Manpower is considered as the most important resource; hence the banks should provide job training to derive optimum level of efficiency and productivity.
iv. The excess manpower should be utilized for marketing bank's products thereby increasing volumes in terms of credit as well as deposits. Staffing and working patterns have to be reexamined from cost control point of view.
v. Moreover, in order to increase employee productivity, they should focus their attention on the welfare of employees to attract loyalty, commitment and satisfaction. Ultimately, employee efficiency results in generating more business for the banks.
vi. For improvement in human resources, special focus should be given on selection, training, motivate career opportunities or employees etc.
vii. The business per branch and banks can be improved by adopting assured marketing strategies.
viii. Banks should restructure their organizational functioning and give comprehensive interpretation to innovative banking.
ix. In order to compete with the global banks the Indian banks should keep watch on the emerging trends in business environment and use timely strategies and more and more benchmarks in order to motivate the bankers on how to compete with their peers.

**REFERENCES**


*Alamelu K. and Chiiambaram R.M. (1994), 'Profitability in Banks-a Matter of Survival, The Banker, May, pp. 13.*

*Ali Ataullaha and Hang Le (2006) "Economic reforms and bank efficiency in developing countries: the case of the Indian banking industry", Applied Financial Economics , vol. 16, no. 9, pp. 653-663.*

*Athma and Srinivas (1997), 'Analyzing the Productivity of Commercial Banks', http://www.newsschool.edu,*

*Bansal and Disha (2010) "impact of liberalisation on productivity and profitability of public sector banks in india", PhD thesis, Saurashtra University, http://shodhganga.inflibnet.ac.in/handle/10603/701.*

*Bhattacharya, P. C. and M. N. Sivasubramanian (2003), 'Financial Development and Economic Growth in India: 1970-71 to 1998-1999', Applied Financial economics, 13(12).*

*Bhattacharya Kaushik and Das Abhiman (2003)," Dynamics of Market Structure and Competitiveness of the Banking Sector in India and its Impact on Output and Prices of Banking Services" Reserve Bank of India Occasional Papers Vol. 24, No. 3, Winter 2003*

*Das, Banga and Kumar (2011). "Global Economic Crisis: Impact and Restructuring of the Services Sector in India" ADBI Working Paper 311. Tokyo: Asian Development Bank Institute.*

*Datta, Lakshmikanta, (2012), "Study on analysis of financial data using multivariate and time series technique", http://etheses.saurashtrauniversity.edu/id/984.*

*D'Souza, Errol (2002), "How well have Public Sector Banks Done": A note, Economic and Political Weekly, Vol. XXXVII, No.9, March, 2002, pp. 86-170.*

*Fries, S., Neven, D. and Seabright, P. (2002) Bank performance in transition economies, Working Paper No 76, European Bank for Reconstruction and Development, London.*

*Isik, I. and M. K. Hassan (2003), 'Financial Deregulation and Total Factor Productivity Change: An Empirical Study of Turkish Commercial Banks', Journal of Banking and Finance, 27.*

*Janki B 2002, 'Unleashing employ productivity; A need for a paradigm shift', Indian Banking association bulletin, vol. XXIV No.3 March, pp. 7-9.*

*Kumar and Sanjeev (2011),"Performance measurement systems in Indian banking sector", 5-Oct-2011, http://hdl.handle.net/10603/2875.*

*Mahesh H P (2006)" Liberalisation And Efficiency Of Indian Commercial Banks: A Stochastic Frontier AnalysIS", http://www.isec.ac.in/WP - 177.pdf*

*Mohan, T. R. and S. Ray (2004): Comparing Performance of Public and Private Sector Banks: A Revenue Maximisation Approach, Economic and Political Weekly, March 20, 1271-75.*

*Okyar.O (1965), "The concept of etatism". Economic Journal 75, no. 297 (March):98- 11 1.*

*Prabhakar,* et al,*(2012)," Relative Efficiency of Banks in India - Evaluation and Policies for Improvement", Ninth AIMS International Conference on Management January 1-4, 2012.*

*Purohit, Jeevraj J (2012), "A critical analysis of financial reforms in banking sector in post liberalization period: with respect to public and private sector banks", 24-Apr-2012, http://hdl.handle.net/10603/3712*

*Rajan S. S, K. L. N. Reddy And V. Pandit (2011)" Efficiency and Productivity Growth In Indian Banking", Http://Www.Cdedse.Org/Pdf/Work199.Pdf.*

*Rajput* et al *(2011),' Efficiency of public sector banks operating in India: post-reforms period analysis', Afro-Asian J. of Finance and Accounting 2011 - Vol. 2, No.4, pp. 349 – 368.*

*Ram Mohan T T (2003), 'Long run performance of public and private sector bank stocks" Vol 37, Reserve Bank Of India (Various Official Publications).*

*Ram Jass Yadav (2012 "Productivity & Efficiency of Banks – Measurement & Ways of its Enhancement : A Study of Indian Banking" paper presented in a national conference organized by National Institute of Bank Management(NIBM), Pune on 04th March 2012.*

*Ramasastri A.S. and Achamma Samuel (2006)," Banking Sector Developments in India, 1980-2005: What the Annual Accounts Speak?" Reserve Bank of India Occasional Papers Vol. 27, No. 1 and 2, Summer and Monsoon 2006.*

*Sensarma Rudra (2005) "cost and profit efficiency of Indian banks during 1986-2003: a stochactic frontier approach", Economic and political weekly, Vol-LL(12), march pp 19-25.*

*Swamy, B.N.A.(2001), New Competition, Deregulation and Emerging Changes in Indian Banking. Bank Quest The Journal of Indian Institute of Bankers, 729(3): 3-22.*

*Uppal R.K (2011),"India banking sector reforms: Rationale, efficacy and necessity of third reforms",Business Administration and Management (BAM), Prime Journals, Vol. 1(3), March 10th 2011, pp. 68-72.*

*Varadi, Vijay Kumar, Mavaluri, Pradeep Kumar and Boppana, Nagarjuna,August (2006). 'Measurement of Efficiency of Banks in India' – University of Hyderabad, India. MPRA Paper No. 17350, posted 17th September, 2009*

*Vashisht A.K. (2004). Commercial Banking in the Globalized Environment, Political Economy Journal of India, Vol. 13, Issue 1 & 2, January-June, pp. 1-11.*

*Wahab A (2001, "Commercial Banks Under Reforms: Performance and Issues Edited Book", Deep & Deep Publications, New Delhi.*