CHAPTER V
SUMMARY AND CONCLUSIONS

Introduction

The importance of financial systems for economic development is well recognized worldwide [King and Levine, 1993; Levine, 1997; Levine and Zervos, 1998; Rajan and Zingales, 1998] as well as in India [RBI, 2000; Bhattacharya and Sivasubramanian, 2003]. Banks are considered to be the mart of the world, the nerve centre of economies and finance of a nation and the barometer of its economic perspective (Sharma, 1974). Indian banking sector is one of the largest sector in Southern Asian continent which is the mixture of public, private and foreign groups. The public sector banks continue to dominate the banking industry, in terms of lending and borrowing, and it has widely spread out branches which help greatly in pooling up of resources as well as in revenue generation for credit creation. The role of banks in accelerating economic development of the country has been increasingly recognized since the nationalization of fourteen major commercial banks in 1969 and six more in 1980. 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. Eventually, however, the government used banking sector to finance its own deficit by frequently increasing cash reserve ratios (CRR) and statutory liquidity ratio (SLR). This, in turn, affected the resource position of commercial banks adversely, restricting their lending and thereby the ability to generate profits. Besides, inefficiency and lack of competition caused the non-performing assets in the public sector banks to rise from 14 percent in 1969 to 35 percent in 1990. This problem had to be tackled during the nineties by undertaking an array of financial reforms.

The invisible handcuff unleashed in the Indian Economy by deregulation of the Indian financial system in 1991 followed by various financial sector reforms during the period 1990 through 1998 led to a major restructuring of the Indian banking industry. Reforms have altered the organizational structure, ownership pattern and domain of operations of institutions and infused competition in the financial sector. The competition has forced the institutions to reposition themselves in order to survive and grow. These reforms are expected to have an impact on the operations of commercial banks. Also, one of the important objectives of financial sector reforms was to improve the efficiency of banking system (RBI, 2002). Thus it is essential to study the efficiency levels of Indian commercial banks to understand the impact of financial sector reforms on its performance. The study dealt with the efficiency and performance of Indian
commercial banks according to its ownership structure and further evaluated banking sector reforms since globalization.

**Research gap**

A number of attempts have been made to study the efficiency and productivity of banking sector in developed countries (Berger and Humphrey, 1997; Berger *et al*., 1999; Isik and Hassan, 2002; Yildirim and Philippatos, 2007). However, studies analyzing the efficiency of banks in developing countries, including India, are relatively modest. Most of the literature in Indian banking sector focused on measurement of efficiency (e.g., Das, 1997; Saha and Ravishankar, 2000; Sathye, 2003; Ram Mohan and Ray, 2003; Sahoo *et al*., 2007) and a few studies on benchmarking (e.g., Gupta *et al*., 2008; Kumar and Charles, 2011). While some studies attribute the growth of productivity to technological progress (Avkiran, 2000; Alam, 2001; Mukherjee *et al*., 2001; Canhoto and Dermine, 2003; Khumbhakar, Lozano-Vivas, Lovell, and Hasan, 2001; Sturm and Williams, 2004), others are in favour of efficiency improvement (Berg *et al*., 1992; Gilbert and Wilson, 1998; Isik and Hassan, 2003). Compared to efficiency analysis, the literature on the issue of TFP growth in Indian banking sector is very limited. Galagedera and Edirisuriya (2005) investigated the efficiency and productivity for a sample of Indian commercial banks over the period 1995-2002 by using the technique of DEA. The results reveal that there has been no significant growth in productivity during the study period.

The current study contributes to the literature significantly in many ways. A detailed systematic study on the measurement of productivity change in Indian banking sector was comparatively limited. Secondly, in comparison to previous studies (e.g., Galagedera and Edirisuriya, 2005; Sinha, 2008; Zhao *et al*., 2008), this study considers more recent data for a relatively longer period of latest 15 years of post-liberalization which includes 3 years of global financial crisis period. Further, all above discussed studies looked only on single aspect of performance but not on the combination of all aspects viz., productivity, profitability, operational, financial management and asset quality, which were focused by the post-liberalization committee’s recommendations.

**Rationale for the study**

Reforms have altered the organizational structure, ownership pattern and domain of operations of institutions and infused competition in the financial sector. The competition has forced the institutions to reposition themselves in order to survive and grow. The extensive progress in technology has enabled markets to graduate from outdated systems to modern market design, thus, bringing about a significant reduction in the speed of execution, trades and
transaction costs. With increased competition, declining margins on current business operations, higher costs and greater risks, banking industry in general, had to face a two pronged challenge. They had, on the one hand, to enhance their productivity and on the other, increase their ability to serve the nation in new ways with greater efficiency and effectiveness. In the nurture of globalization the banking sector had moved gradually towards a market driven protocol of efficiency, profitability and productivity.

In light of these changes in banking policies and practices during the last 22 years of reform period, it would be appropriate to evaluate the impact of reform measures on the efficiency, profitability and overall performance of banks vis-a-vis bank groups since 1981 and also analyse the impact of reform on commercial banks. One of the major objectives of Indian banking sector reforms was to encourage operational self-sufficiency, flexibility and competition in the system and to increase the banking standards in India to the international best practices (Reddy, 2002). With this in view it becomes necessary to ask whether the performance has improved; in what way; and how much? There is a need to examine the performance of banking sector and know the efficiency level of banking operations in determining how the banking industry has responded to these challenges and which banking sector are likely to prevail during the ongoing development and integration phase.

**Scope of the study**

Since the economic growth directly or indirectly depends on the financial intermediates, even the growth and performance of private and foreign players assumes significance. The banking sector is now nourished with new entries of private and foreign banks in the post reform era. Presently, there are 32 private banks and 42 foreign banks operating in the country besides public sector banks which mop up the bulk of the banking business, accounting for 76 per cent of the total deposits and 72 per cent of the total advances. Presently, this sector contributes about 8 per cent to the GDP of the economy. The winds of liberalization have opened up new vistas in the banking industry resulting in the generation of intensely competitive environment. They have transformed the entire spectrum of businesses with the rapid development in technology and innovation to improve overall efficiency, and the challenges of keeping pace with change and gaining the first mover advantage. Since the growth of economy is largely dependent on the performance of these banks, a comparative analysis of public sector, private sector and foreign banks will facilitate in judging the performance of banking sector in India. Also, one of the important objectives of financial sector reforms was to improve the efficiency of banking system (RBI, 2002). Thus it is essential to study the efficiency levels of Indian commercial banks to understand the impact of financial sector reforms on its performance.
Objectives

- To study the financial performance and examine the growth of Indian commercial banks in India in the pre- and post-reform period.
- To analyze the efficiency gains across different groups of banks and evaluate the cost, allocative, technical, pure technical and scale efficiencies.
- To analyze differences in productivity across bank types in the pre- and post-reform periods.
- To examine the major indicators that affect the efficiency.
- To identify the factors which influence banking profitability and study the changes in banking sector during post-financial reform period across the bank groups.
- To determine the impact of various market and regulatory initiatives on efficiency improvements of commercial banks since the implementation of financial sector reforms.
- To put forward suggestions to improve the performance of banking system in India.

Hypothesis:

- There are no significant differences in the efficiency of privately owned, state owned and foreign banks.
- There are no differences in average technical, pure technical and scale efficiency levels across different bank groups.
- There are no differences in average cost and allocative efficiency levels across different bank groups in the post reform period.
- There are no differences in the productivity levels among the bank groups.
- There is no association between the indicators that affect the efficiency across different bank groups.
- Net profit of the bank depends upon cost efficiency, credit allocation, asset size and deposit.
- The reform measures have not caused an improvement in the efficiency level across different bank groups.

Methodology

The Indian banking sector provides a particularly interesting setting to examine the impact of liberalisation on the banking firms. The banking sector in India comprises of domestic banks, which includes public sector banks and privatively owned banks as well as foreign banks. Presently, there are 43 Foreign Banks, 26 Public Sector Banks and 20 Private Sector Banks.
To make a comparative analysis of various indicators the banks were divided into four groups, i.e., All Scheduled Commercial Banks, Public Sector Banks, Private Sector Banks, and Foreign Banks.

The study was carried out during the period from 1980-81 to 2012-13. 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 (1981-1992) and post-period (1993-2013). 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 reforms.

The research was based on the secondary data and the main stream of data was collected from the “Statistical Tables Relating to Commercial Banks in India”, ‘Annual Accounts of Scheduled Commercial Banks’, Annual Reports, authentic records and publications of RBI and website of individual banks and RBI website. Data on GDP was collected from ‘Handbook of Statistics on the Indian Economy’ published by the RBI. All the variables have been adjusted to the Indian GDP deflator and converted to constant prices (2004-05 prices). Since the research was based on the time series cross section secondary data and quantitative in nature, the analysis of the data was undertaken by applying the analytical tools like trend analysis, Ratio analysis, DEA analysis, productivity indices and regression and correlation analysis. Before doing the computations, the stationarity of each series was tested using the Augmented Dickey–Fuller test.

Empirical Findings

Indicators of Bank’s Performance

- Productive efficiency evaluated on the basis of various indicators (business per employee, business per branch, deposits per employee, deposit per branch, advances per employee and advances per branch) revealed that private sector banks outperformed the public and foreign banks on all indicators excepting in advances per branch where foreign banks registered a maximum growth of 32 percent per annum. Similarly, public sector banks showed better performance than foreign banks on all indicators excepting deposits per employees, advances per branch and business per branch. Thus private sector banks showed more productive efficiency than public sector and foreign banks.
Public sector banks had registered a significant positive growth on all indicators of profitability efficiency excepting credit to deposit ratio. Similarly, private banks too had shown a significant positive growth in all indicators excepting in operating profit to working fund ratio. In contrast foreign banks had shown an insignificant growth in all indicators other than net profit margin registering growth of nearly 4 percent. Thus public and private banks seem to have done better than foreign banks in terms of profitability efficiency. The above findings are contrary to the findings of Sensarma (2005) who pointed out that profit efficiency of Indian banks has shown a declining trend during the period of deregulation.

Operational efficiency of commercial banking system in India revealed a mixed picture. While the private banks outperformed public sector banks in certain indicators like non-interest income to average working funds, cost of deposits and capital adequacy ratio, public sector banks excelled only in one ratio namely spread to average working funds. Likewise, foreign banks excelled both public sector and private banks only on two indicators namely capital adequacy ratio and operating expenses to operating income. Overall, the private banks had a slight edge over public sector and foreign banks in terms of operational efficiency.

The ratios necessary to assess assets quality are gross NPAs to gross advances, gross NPAs to total assets, net NPAs to net advances, net NPAs to total assets and provisions for loan losses to gross advances. The asset quality ratio showed a declining trend across all banks. The prudential and provisioning norms and other initiatives taken by the regulatory bodies has pressurized banks to improve their performance and consequently resulted in trimming down of NPA as well as improvement in the financial health of the Indian banking system.

The maintaining of liquid asset to that of total asset showed a negative growth rate across all banks and it was more in the post-reform period and the overall reduction was predominant for public sector followed by private sector and foreign banks. The growth rate in CRR and SLR ratios was found to be the least for public sector banks and maximum for private sector banks. Thus, private sector banks had slight edge over public and foreign banks in meeting its demand obligations with the available liquid funds.

**DEA Estimation**

In the pre-reform period the mean technical efficiency score of Indian commercial banks was 98 percent which was attributed to public sector banks (98 percent) which had a
major share in the industry in the post-nationalization era. The inefficiency or underutilisation of inputs was lower in public sector (2 percent) compared to private (5 percent) and foreign banks (10 percent). The post-reform period showed that there was deterioration in the mean technical efficiency of all banks with public sector banks showing a higher score (95 percent) followed by scheduled commercial (93 percent), private sector (91 percent) and foreign banks (84 percent). The inefficiency was found to be more for foreign banks (20 percent) compared to private sector (10 percent), scheduled commercial (7 percent) and least for public sector banks (5 percent).

Kruskal-Wallis test applied to test whether there were differences in average technical efficiency between the sub-periods showed no differences in technological change between the sub-periods. This suggests that technical efficiency in Indian commercial banking industry as a whole needs improvement in the utilization of their inputs of labour, capital and funds in a better way, which will enable them to gain more returns.

De (2004) made an attempt to estimate the technical efficiency of public, private and foreign banks in both pre-reform as well as post-reform period from 1985-86 to 1995-96. The results revealed that the liberalisation has no effect on the efficiency of Indian banking industry.

In the pre-reform period both the public sector banks and foreign banks had a mean pure technical efficiency of 98 percent and had the least inefficiency of 2 percent. In the post-reform period the mean pure efficiency score declined for all commercial banks (95 percent) and the decline was more for foreign banks (92 percent) followed by public sector banks (97 percent) and private sector banks (95 percent). The inefficiency was higher for foreign banks (9 percent). The pure efficiency score was higher for public sector (97 percent) for overall period compared to private sector (95 percent) and foreign banks (94 percent). The results depicts the benefits from being guaranteed and supported by the government, and having nationwide branch networks as well as a huge customer base for state owned banks. However, the potential reduction in inputs from adopting best practices varied from bank to bank. Alternatively, commercial banks have the scope of producing 1.04 times (i.e., 1/0.97) as much outputs from the same level of inputs. Comparatively foreign banks (1.05 times) have higher potential than private sector (1.06 times) and public sector banks (1.03 times).

The observed values of $H$-statistics for public sector, private sector and foreign banks groups have been noted to be 0.67, 0.27 and 10.2 respectively. The result of rejecting null hypothesis was observed for foreign banks indicating that there had been difference
in pure technical efficiency levels between the sub-periods. This indicates that pure technical efficiency of foreign banks has declined significantly during the second phase relative to the first phase due to the managerial inability of optimally allocating resources for maximizing the outputs. Kumbhakar and Wang (2007), Galagedera and Edirisuriya (2005) and Das and Ghosh (2006) found that the period after liberalization did not witness any significant increase in number of efficient banks and some banks have high degree of inefficiency during the period of liberalization.

- In the pre-reform period the mean scale efficiency was higher for public sector and scheduled commercial banks (99 percent), followed by private sector (96 percent) and foreign banks (90 percent). This reflects that the utilization of inputs was better for public sector and scheduled commercial banks with least inefficiency of one percent. The post-reform period showed a reduced mean scale ratio for all banks excepting foreign banks which had the constant efficiency scale of 90 percent. The inefficiency level was 3 percent each for public sector and scheduled commercial banks and 6 percent for private sector and 11 percent for foreign banks. Taking the overall study period, higher cost scale efficiency was achieved by public sector (98 percent) followed by private sector (95 percent) and foreign banks (90 percent). This result coincides with the findings of Ram Mohan and Ray (2004) and Sathye (2001) who observed that public sector performed significantly better than private sector banks.

- The H-statistics for comparison of sub-period stated that there was no significant difference between the reform period for all banks confirming no statistical gain in the post-reform period except for scheduled commercial banks where the study reject the null hypothesis of no difference between the two periods, implying that there was a reduction in the optimizing of scale production of minimizing the inputs. Ram Mohan (2002) found a trend towards convergence in performance among the three categories of banks- public, private and foreign- using financial measures of performance.

- To sum up, technical, pure technical and scale efficiency showed the reduction in their growth rate in the post-reform period compared to that of pre-reform period. The overall trend in the efficiency was led by public sector followed by scheduled commercial, private sector and foreign banks while for optimisation of scale the foreign banks showed constant scale efficiency score over the study period. Mukherjee et al. (2002), Sathye (2003), Ram Mohan and Ray (2004), Das and Ghosh (2006), Das (2010) and Mahesh and Rajeev (2009) found that public sector banks as a group ranks first in all the three
efficiency measures showing that, as opposed to the general perception, these banks are doing better than their private counterparts.

Cost Efficiency

- The public sector banks have performed better than private sector banks which in turn have performed better than foreign banks in cost savings given state the of technology which can probably be largely attributed to government guarantees that give them access to cheaper funds.

- The decomposition of CE into its two components clearly indicates that in each year allocative inefficiency was always higher than technical inefficiency. It implies that the dominant source of cost inefficiency among Indian commercial banks was allocative inefficiency rather than technical inefficiency. It suggests that managers of Indian banks are relatively good in using the minimum level of inputs at a given level of outputs but they were not good in selecting the optimal mix of inputs at given prices. Such allocative inefficiencies are costly in the sense that they reduce the profitability of the firms beneath their potential (Lovell and Sickles, 1983).

Productivity Index

- In the pre-reform period the productivity change (-0.8 percent) of commercial banks showed a contraction of efficiency and scale change of -0.3 percent and technical change of -0.4 percent. At the bank category level, the results indicate that foreign banks (5.8 percent) have a higher rate of productivity growth than public sector (3.5 percent) and private sector (4.3 percent) banks.

- In the post reform period there exhibited progress in productivity of all banks by 3.6 percent which were mainly due to the progress in technology of 3.4 percent annually and a moderate progress in efficiency and scale by 0.2 percent annually. Bank-wise the foreign banks experienced higher productivity growth of 4.7 percent per year, followed by private banks (3.9 percent) and public sector banks (2.3 percent). The progress of productivity growth compared to the pre-reform period by the public sector banks may be due to change in orientation from social objectives towards an accent on profitability, especially given that some of these banks have been listed on the exchanges and have private investors.

- Over the entire study period productivity growth was higher for foreign banks (4 percent) compared that of private sector and the public sector banks. The private sector which lagged in the pre-reform period showed improvement in the post-reform period and were
competing with foreign banks. Thus deregulation has been less successful in closing the efficiency gap between banks. Galagedera and Edirisuriya (2005) observed that deregulation has brought no significant growth in the productivity of Indian banks.

Factors Influencing Efficiency

- The results of correlation matrix that was obtained to find out the variation of efficiency score and efficiency parameters highlighted that for public sector banks business and advance per employee must be emphasized in order to increase the productivity and ultimately efficiency. Under the profitability factors, net profit margin, credit-deposit ratio and return on capital employed had significant influence on the efficiency. Under the operational sub-factor it was recommended to increase the interest income of the public sector banks. And if operating expenses are reduced the efficiency of public sector banks will automatically increase which in turn will increase their overall efficiency. Even though they maintain high liquidity on loans they do not use deposits productively. The asset quality was associated with the efficiency of public sector banks. Hence, it was recommended that public sector banks increase their efforts to maintain control over loans and should monitor their ratios progressively to control loan losses. Results show that the liquidity positions of public sector banks are poor. Managing liquidity was essential since client withdrawal demands may be higher than other commercial banks.

- The productivity sub-factor of private sector banks showed a significant role in increasing their efficiency. Under the profitability factors operating profit to average working funds, credit-deposit ratio and return on capital employed influence the efficiency output constructs. Under the operational sub-factor, Interest and spread had significant influence on the efficiency and hence it was recommended that better utilization of funds will result in higher operating profit. The overall liquidity factors of reserve are significantly related to the efficiency score; hence appropriate level of liquidity must be set and monitored.

- For foreign banks under profitability sub-factors operating profit negatively influences efficiency. This factor can be enhanced by controlling the operating expenses and continuing with outsource activities. These banks have highest credit to deposit ratio. But this ratio will influence the efficiency outputs positively if the aggressive lending was only through owned capital and deposits. Under operational sub-factors relating to average working funds viz; interest income, non-interest income and spread showed negative association. These banks should continue to make optimum utilization of low cost
deposits by deploying them in high yielding loans. This measure will raise the operational efficiency of foreign banks.

- The scheduled commercial banks was found to have strong positive association of credit-deposit ratio, strong negative association of cost of deposit and a moderate negative association of asset quality sub-factors with technical efficiency. The weakening of asset quality may be due to the banks’ credit composition in the recent years has changed towards long term assets such as infrastructure and housing. While improvement in macroeconomic policy environment and expected revival in economic growth would help mitigate risks to some extent, banks would have to make concerted efforts to improve asset quality.

**Profitability Efficiency Model**

- The study found that the profitability of public sector banks was influenced by assets employed and the credit-deposit ratio while for private sector banks except priority sector lending and HHI all the factors had significant impact. Size, HHI and priority sector lending influence the profitability of foreign banks while for scheduled commercial banks it was size and credit-deposit ratio.

- The size showed positive effect on the profitability for all banks indicating that there seems to be economies of scale working in Indian banking sector. Berger and Mester (1997) and Berger, Hancock and Humphrey (1993), Berger, Hunter, and Timme (1993), Abdul Majid et al. (2003) found that size had positive relationship with the efficiency of the banks.

- Excepting for private sector banks none of the banks had significant influence of profitability with cost efficiency scores and even for private sector banks it showed negative impact. It can be justified that the banks are efficient in maintaining their cost structure and that the gap of inefficiency was lower (which was observed from cost efficiency results) and does not affect the profitability of the firm. Berger (1995) findings suggested that there was no linear relationship between profitability (ROA) and efficiency scores. Thus, although the bank institutions’ group was most efficient in costs, it was most inefficient in profits.

- The HHI of market share showed positive significant result only for foreign banks. Demsetz (1973) stated that market share should become statistically insignificant after controlling for efficiency. If market share remains positive and statistically significant after
including efficiency, it arguably reflects market power regardless of the sign on efficiency.

Efficiency and Impact of Market Conditions

- The regression of technical efficiency scores on environmental variables and varying market period reveal that presence of foreign banks (0.18 changes), T2 (YR2002), and T3 (YR2006) were significant variables that influence the technical efficiency of commercial banks at one percent level and private investment (0.205 units) at 10 percent level. Fiscal deficits had insignificant impact on the efficiency of commercial banks.

- Regarding the impact of foreign bank participation, the coefficient represent that a unit changes in foreign share reflects a decline of 0.18 changes in the efficiency of commercial banks. Levine (1996) argues that the benefits of foreign entry, in terms of improved financial services and regulation should outweigh potential costs such as cream skimming, foreign market dominance, and destabilizing sudden capital outflows.

- Banks with extensive exposures to private investment had 0.205 units impact on the efficiency. This can be compared to the findings of Sena (2004) that technical efficiency can be affected by the financial resource availability.

- The time period T3 (YR2006) and T2 (YR2002) showed much improvement in efficiency after deregulation, while T1 (YR1997) period had insignificant influence on efficiency.

Conclusions

To sum up, there had been reduction in the average efficiency across banks in the post-liberalisation era compared to that of pre-reform periods. Indian banks are still not much differentiated in terms of input oriented or output oriented technical efficiency and cost efficiency. Perhaps deregulation had also brought significant changes in technology and practice which depicted in the shift of productivity frontier which was the major objective of globalization. Inspite of some evidence of improvement in the efficiency, there are wider gap between actual and potential performance of banks in general. This inefficiency had to be contained in order to have stabilized economic development. The result also exposed that the presence of ownership had significant differences in the efficiency due to their managerial ability. The study found that public sector banks are relatively efficient in raising their output compared to other banks since it had the advantage of strong capital base and extensive geographical coverage. Rather surprisingly, foreign banks are considerably less efficient due to relatively smaller scale. The study also provided insights into the empirical correlates of
efficiency scores of Indian banks where some of the factors were found to have significant impact on efficiency. The macroeconomic variables were also found to possess the anticipated correlation with bank performance. The market development kindled by liberalization and globalization has resulted in changes in the intermediation role of banks. While the banking system has done fairly well in adjusting to the new market dynamics, greater efficiency challenges lies ahead.

**Recommendations**

Banking sector should be on a sound footing not only to endorse public assurance but also to make banks capable of discharging their social responsibility. Banking sector being the heart line of the financial market, their upgradation and financial strength is more vital for an efficient financial system. Based on the above analysis the following recommendations are made:

- For an effective monitoring system, benchmarks for the standard financial ratios should be established and applied periodically. Such a process will increase the regulator's understanding of commercial banks profitability, productivity, operational, asset management and liquidity management processes.
- With regards to productive efficiency indicators private sector banks have shown dominating performance. Banks should evaluate their skills and provide on the job training to optimise their resources. With regard to credit and deposits, the banks must execute more aggressive market strategies.
- The evolution of profitability indicators suggest that banks should reduce the higher cost of deposits and concentrate on high yielding advances which will ultimately improve their earnings. Banks should also be cautious in expenditure by eliminating the wasteful expenses which will improve the spreads and profitability.
- With regards to operational efficiency indicators banks must focus more on customers oriented than procedure-oriented services. ATM facilities should be expanded by covering residential areas to facilitate customers in withdrawing cash at any time of the day and night as per their convenience.
- The betterment of asset indicators will result in expanding the profitability. The steps must be taken to reduce the NPAs. The banks should strengthen the loan disbursing mechanism through proper and scientific evaluation of the quality of assets being financed. Banks should increase the secured credits and advances and control and restrict those which are not satisfactory and legal measures of recovery must be effective.
Although public sector banks had improved their efficiency, still these banks need many changes in the emerging competitive environment in its vision, values, innovations, leadership and social commitment to convert the challenges into opportunities. Appropriate use of technology should be ensured for improvement in the quality of customer service and ensuring efficiency in operations. The proper and timely strategies are to be adopted to improve efficiency. The regulations must be made to match the credits and asset turnover to ensure the risk management process to increase the efficiency.

The efficiency gains from exploiting scale economies are substantially smaller and the result depicted greater distancing of the government from the ownership, management and operations of Indian banking. These results indicate the possibility of significant mergers and acquisitions activity in banking over time. Therefore, there is a need to develop a policy framework to guide government decision-making vis-à-vis competition in banking in the near future.

The dominant source of cost inefficiency among Indian commercial banks was allocative inefficiency rather than technical inefficiency. The banks should strive for better deposit mix there by reducing the cost of deposit and improve profitability. Banks should follow an effective cost control management in order to increase their profitability and efficiency.

The productivity indices depict that deregulation has been less successful in closing the efficiency gap between banks. The remedial measures are required in order to enhance the productivity in the long run through skill development training programs for the employees. Better management information system, credit monitoring and liquidity management can result in increase in productivity. Non-productive resources should be identified and reduced. Terms and conditions should be defined in a rigid manner to reduce the default of credit and must be made aware to the clients.

Bank can improve its profitability by adopting the best practices observed within the sector by selecting a proper product-mix. The size showed positive effect on the profitability for all banks; hence encouraging mergers and acquisitions would help domestic banks to become strong and efficient with extensive geographical coverage and capital base to compete with foreign banks.

Banks should use more and more benchmarks in order to have a comparison with global players. Moreover, these benchmarks motivate the bankers to compete with their peers. Private investment showed impact on efficiency; hence providing more flexibility to
banks to raise capital from capital market and other international sources to raise their capital-asset ratio would help them to improve their capability to use financial resources effectively.

- Allowing the large scale entry of private banks to provide more meaningful competition could help improve the performance of public sector banks. The increasing competition will force the banks to go for innovation and technology and necessity to stay ahead, constantly upgrade the products and create new markets.
- Banks should be in the position to deploy the credit with the changes in the structure of the economy. Banks should strictly follow Basel norms which overcome operational risks. The government needs to increasingly facilitate this process. The future reforms should be directed towards strengthening competitive and market-oriented policies.

Future Research

Though the research presented here summarizes results providing useful insights for cross-section analysis of Indian banks, it leaves scope for further refinement. Main recommendations regarding future research in the area are as under:

- Future research could be undertaken to examine the factors that influence or change the choice of performance of banks with different indicators (both financial and non financial indicators) and find out which indicators dominates majorly.
- The present study is confined to the banking sector operating in India. Hence comparative study of bank's performance in India and overseas” or “performance evaluation of banks separately in domestic and abroad branches”, can be undertaken to capture the global-advantage hypothesis.
- Researchers can be done to study the impact of recent developments (like enactment of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, creation of Credit Information Bureau of India ltd, BRICS etc.) on the performance of banking sector.
- The paper eliminated OBS due to non-availability of data. The future directions of the study could be in evaluating the performance of Indian banks under off balance-sheet (OBS)” business such as, lines of credit, loan commitments, securitization and derivatives with larger set of sample including the foreign banks.
- This paper examined the intermediation functions of banks which could be extended by considering the production function at the same time. Further, production or value-added approach could be considered side-by-side to give further insight on bank’s performance.
• This paper deals with the quantitative measurement only. Future study may take into account various qualitative measures or the combination of both to evaluate the inferences.

• The research dealt with Indian commercial banks as a whole. Hence comparative performance evaluation of each bank in sensitive sectors, or comparative performance of segment-wise rural, semi-urban and metropolitan branches of each bank can be undertaken.

• Extension of this research can be undertaken by addressing the use of panel-data on banking activity in India.